Mothers, Kids, and COVID:
Suburban geographies of the COVID-19 Pandemic

A thesis
submitted in partial fulfilment
of the requirements for the degree

of

Masters of Social Sciences in Geography
at
The University of Waikato

by

Elizabeth Arnott

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

2023

Abstract

This thesis extends pandemic, health, and maternal geographies by examining how the emotions and actions of seven mothers during the COVID-19 pandemic influence the health outcomes of their children. The research seeks to explain mothers' responses to, and lived experiences during, the COVID-19 pandemic in a coastal Bay of Plenty suburb in Aotearoa New Zealand. The research addresses three main questions: first, how have COVID-19 public health requirements altered mothers' relationship with their homes and suburban communities? Second, how have mothers understood COVID-19 scientific knowledge and mis/dis information in relation to the vaccine for 5 to 11-year-old children? Third, how do mothers with their vaccinated and unvaccinated children navigate their suburban movements during COVID-19 public health requirements? The thesis aims to promote awareness of the influence and impact mothers can have on geographies of disease management.

Discussion around COVID-19 has been wide-ranging and varied on the geographical consequences of the pandemic, however, there is little that accounts for the role of mothers, children and their disrupted everyday geographies. Current discourses marginalise mothers in their role as caregiver and this research seeks to re-image mothers and make space for their alternative ways of generating and sharing knowledge. Seven mothers, with at least one child aged 5 to 11-years-old, participated in semi-structured interviews with an emotional mapping activity. The methodology is theoretically and empirically innovative and seeks to open up creative ways of conducting pandemic and health research.

My findings are organised into three areas: the idea of home as being both 'safe' and 'unsafe' for mothers during the pandemic; the consequence of 'bubble' living on the mobility of mothers and their children; and, how mothers' behaviours changed over the course of the pandemic in relation to the rise of mis/dis information, with particular focus on information towards the vaccine for young children. I assert that the lived experiences of mothers during the pandemic have created space for increased confidence when making health-related decisions for their children. Some mothers have challenged the public health advice. The consequences of which are visible through the low uptake of the COVID-19 vaccine for children aged 5 to 11. Ultimately, this thesis shows how mothers can be at the forefront of disease management. Mothers who combine science and emotion to make decisions add to complex geographies of disease management. Understanding this may help frame effective strategies of preparedness and response to future pandemics.

Acknowledgements

These acknowledgements cannot do justice to the support, encouragement and inspiration I have received throughout this academic process. Undertaking this research has triggered feelings of both joy and anxiety.

I am eternally grateful to Lynda Johnston, my supervisor, who has guided me with such kindness and thoughtfulness. You have constantly provided me with just the right amount of guidance that has allowed me freedom to explore my ideas without letting me wander too far from the track. Your measured and consistent commentary has been an anchor through all the times I felt lost in the sea of literature. I'm truly grateful for your sense of humour that has reminded me to enjoy the process.

I would like to thank my participants. Without you and your willingness to share your experiences, this Masters would not exist. I am truly grateful for your honesty, unique perspectives and your contributions to the research cannot be measured in words. I am so grateful to you all.

I am grateful to the University of Waikato, Faculty of Arts and Social Sciences and the University of Waikato Scholarship for their financial support which has aided this research.

Finally, those who are last but in no way least, I thank my husband Paul and my children Jacob, Greyson and Casper, who have provided me with such love and support throughout this process and always encouraging me to march forwards. To Vicky, Hamish and Scott who have listened to me explain my studies in a thousand different ways and who have been the perfect audience, I am truly grateful for your constant encouragement. My deepest gratitude goes to Anna for her kindness, warmth, and unconditional support that has inspired me to go on when I've thought I was undertaking an impossible task. You have not only supported me emotionally but you've also let me camp out at your house when my own has become too distracting. Thank you for sharing your food and endless cups of coffee whilst I commandeer your office space. You have made this process joyful and reminded me constantly of all the reasons why I chose to do this research.

To my family, my mum and dad, I am so proud of what I have achieved and I would never have been able to do it without your absolute unconditional love and encouragement. To my brother and sister and both your families, although far away you have been a source of encouragement and humour. Lucie, you have listened to me vent and challenged my ideas in a way that has inspired me to approach my research from different perspectives and I couldn't have done this without you. Thank you all.

Table of Contents

List of tables

List of figures

Chapter One

Motherhood in the Time of Coronavirus

Good afternoon. The Cabinet met this morning to discuss our next actions in the fight against COVID-19.

We currently have 102 cases, but so did Italy once. Now the virus has overwhelmed their health system and hundreds of people are dying every day.

If community transmission takes off in New Zealand the number of cases will double every five days. If that happens unchecked, our health system will be inundated, and tens of thousands of New Zealanders will die.

Together, we must stop that happening, and we can.

That is why Cabinet met today and effective immediately, we will move to Alert Level 3 nationwide. After 48 hours, the time required to ensure essential services are in place, we will move to Level 4.

These decisions will place the most significant restriction on New Zealanders' movements in modern history. This is not a decision taken lightly. But this is our best chance to slow the virus and save lives.

In short: we are all now preparing to go into isolation as a nation. Staying at home is essential.

Extracts from Aotearoa New Zealand's PM Jacinda Arden's announcement of a four-week national lockdown to fight the COVID-19 outbreak March 23, 2020.[1]

The above announcement marks the monumental moment when Aotearoa New Zealand's Prime Minister put in place a nation-wide lockdown due to the presence of COVID-19. First recorded in the Wuhan Province in China in December 2019, the novel coronavirus (SARS-CoV-2) and its resulting disease (COVID-19) has infected globally – at time of writing – 651 million people and killed over 6 million people.[2] The incredibly transmissible nature of the disease led to a swift and

[1] https://www.beehive.govt.nz/speech/prime-minister-covid-19-alert-level-increased
[2] https://coronavirus.jhu.edu/map.html

dramatic response from the global community in order to contain the disease and mitigate its spread. The introduction of both non-pharmaceutical interventions, such as lockdowns / stay at home, quarantines, contact tracing, mask wearing, and international border closures alongside the development of pharmaceutical management in the form of vaccinations have left widespread and highly consequential impacts in their wake. Leaving a profound footprint on all aspects of health and wellbeing, COVID-19 has proven to be a global health crisis with impacts that extend beyond the realm of epidemiology alone. Geographical understandings of COVID-19 can help make sense of place and people specific situations plus aid in the advancement of health and wellbeing (Andrews et al, 2021; Bissell, 2021; Rose-Redwood et al, 2020).

In this thesis I argue that mothers play a key role in disease management and that understanding their everyday geographical experiences during the COVID-19 pandemic makes them a valuable source of embodied knowledge for health geographers. I explore the impacts that COVID-19 and its consequential management strategies have had on the lives of a small group of mothers with young children in a coastal Bay of Plenty suburb. In particular, I emphasise the ways in which COVID-19 and vaccination decisions altered the suburban mobilities of these mothers and their children.

The central aim of this thesis is to prioritise the embodied knowledge and experiences of mothers' mobilities in and around a suburban coastal community during COVID-19 public health restrictions. Understanding the changing meanings of place during the COVID-19 crisis – through mothers' lived experiences - can help shape the health and well-being of future generations. I examine the notions that knowledge around disease management lead by scientific methods - produced, circulated and applied by scientists, biomedical doctors, and citizens - privileges some voices over others, and that this knowledge is situated and partial (Jackson & Neely, 2014). By failing to fully embrace how mothers share knowledge and move around their suburbs leaves open a gap by which misinformation and disinformation can flourish (Baker & Walsh, 2022a). An examination of mothers' digital and material landscapes highlights communication and connectivity pathways where mothers find other like-minded mothers and share information.

This information is often embedded in 'story-telling' and links mothers' to their emotional geographies. Throughout the COVID-19 pandemic the problem of 'mis' and 'dis' information has remained a focal talking point almost as much as reporting on the disease itself (Naeem & Boulos, 2021).

My research seeks to address three questions:

1. How have COVID-19 public health requirements altered mothers' relationship with their homes and suburban communities?
2. How have mothers understood COVID-19 scientific knowledge and mis / dis information in relation to the vaccine for 5-11-year-old children?
3. How do mothers with their vaccinated and unvaccinated children navigate their suburban movements during COVID-19 public health requirements?

These research questions give rise to a contextualised example of the embodied knowledge of mothers. Disease management is a complex transdisciplinary area for health geographers. I draw upon knowledge from geography, epidemiology, sociology, and ecology in order to inform my research (Gatrell, 2005). I extend this work using feminist and emotional geography to understand mother activism, embodied ways of knowing, health and wellbeing. It is these embodied experiences of mothers during the pandemic that dictates vaccine uptake in children, where a child plays, which places a mother will go to, and establish the foundations of the future health of their children (O'Brien & Ringuet-Riot, 2014). Mothers – if taken seriously - can be at the forefront of disease management. A combination of science based and emotion led decisions is one element of understanding the complex systems that could help frame effective strategies of preparedness and response to the COVID-19 pandemic.

The thesis draws on the lived experiences of seven mothers aged between 35 and 40 years old, who all have at least one child, aged between 5 and 11 in attendance at the local primary school, and live in a coastal suburb of Bay of Plenty, Aotearoa New Zealand. Semi-structured interviews and emotional mapping methods are used to explore how they feel about their places and

movements within the local community whilst navigating COVID-19 public health requirements. The thesis highlights the (often) unwritten role that mothers are principally in control of the health of their family from a child's conception (Kaiser Family Foundation, 2018)

I examine how COVID-19 and associated management strategies have altered mothers' mobilities within their community, identifying the suburban places deemed 'safe' for both mothers and their families. I argue that how a mother 'feels' about these places dictates her movements and how the consequences of this embodied knowledge – this 'gut instinct' (Bondi, 2009) - is mappable. It is important to consider the power of 'gut instinct' in the face of scientific evidence regarding childhood vaccinations, and COVID-19 transmission through children's places and spaces. The thesis reports on three findings. The first is that the home is considered both 'safe' and 'unsafe' for mothers during the pandemic. The second is the consequence of 'bubble' living on the mobility of mothers and their children. Third, I highlight how mothers' behaviours changed over the course of the pandemic in relation to the rise of mis/dis information, with particular focus on information towards the vaccine for young children.

Making the relationship between motherhood, embodied knowledge and disease management explicit in the production of geographical knowledge offers a direct challenge to normative assumptions about who governs disease management. It provides new opportunities for re-conceptualising the role of mother as a source of knowledge and can be utilised in promoting positive relations with health and well-being. Recognising that this collective knowledge has the capacity to shape future generations' attitudes towards disease, as well as dictating current disease transmission and mitigating the emergence of potential future diseases. Such a challenge encourages a critical understanding of mothers' ways of knowing, their sense of place, and how they become a source of health knowledge.

The research location: A coastal suburb in Eastern Bay of Plenty, Aotearoa New Zealand

The Bay of Plenty is a district on the North Island of Aotearoa New Zealand that stretches along the eastern coast from the base of the Coromandel Peninsula in the west to Cape Runway in the East, including the inland areas surrounding Rotorua, see figure 1.1. With a population of 308,499, the median age is 40 and 24% of the female population have one or more children (Statistics New Zealand, 2018). This group of females with one or more children (of which I am a part) are the focus of my study. Conversations with other mums at the school gates - when doing school pick up and drop off - inspired this research. The coastal suburb - that is my focus point - comprises of at least seven pre-school daycare centres, two primary schools and one secondary school, with a local retail centre complete with supermarket, pharmacy, clothing outlets and food courts. Approximately 24% of females within my research area have at least one child, and between 40-43% of those females look after those children at home (Statistics New Zealand, 2018).

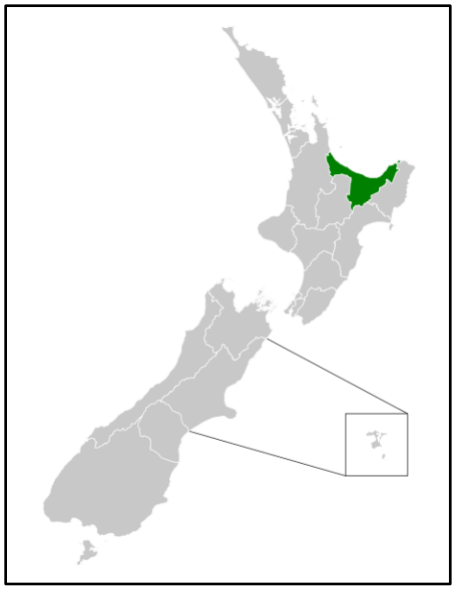


Figure 1.1. Map of New Zealand with District Health Board boundaries, with the Bay of Plenty highlighted in green

Source Wikimedia Commons (2020)[3]

[3] https://commons.wikimedia.org/wiki/File:Bay_of_Plenty_District_Health_Board_map.svg

The research area has been purposefully selected due to my connections in this community. Furthermore, the restrictions of COVID-19 and the fact that everyone living in the area has been exposed to the same events - such as the national lockdown plus a focused school centred lockdown - has created shared COVID-19 experiences between participants.

Outlining the chapters

In this introductory chapter I have established the case for a thorough examination of the links between motherhood and health geography. The pandemic has highlighted the emotional links between disease mitigation and home, turning home into a contradictory safe and unsafe space. Mothers and their children have generated new mobilities due to COVID-19 suppression strategies. These new mobilities have created appreciation for outdoor spaces whilst also forcing mothers to find new communities that mirror their beliefs and values.

Chapter two sets the scene for the thesis and describes the key events relating to COVID-19 in Aotearoa New Zealand. I provide a contextual narrative that highlights specific events unique to this research area complete with timeline. I also provide information around both the non-pharmaceutical and pharmaceutical COVID-19 suppression strategies with details regards population response and uptake. The purpose of chapter two is to embed my research within the state wide COVID-19 narrative and highlight the position in which mothers find themselves.

In chapter three I examine the literature surrounding health geography and motherhood. I approach this from three avenues: firstly, exploring where mothers currently sit within health geography, turning to emotional geography to establish the ways in which mothers can generate dominion over the cultural beliefs towards health through mother-activism. Secondly, I look at the relationship of mothers and the home during the pandemic. The material reviewed in this chapter illustrates how the pandemic disproportionately impacted on mothers, who picked up the increased mental and emotional load supporting family members. Thirdly, I critically analyse the literature surrounding vaccine hesitancy, with particular focus on the Pfizer mRNA vaccine in Aotearoa New Zealand.

Methods and methodologies are the focus of chapter four. This research is informed by qualitative feminist poststructuralist methodologies. I utilise a mixed-method data collection approach of semi-structured interviews and emotional sketch maps to access the everyday geographies of mothers in the pandemic. I reflect on the motivation for, and critiques of, using these methods and I elaborate on my position within the research by discussing my connection with the research participants and the impacts of this upon my findings.

In chapter five I delve into my findings to produce a critical analysis of the impacts of COVID-19 on mothers. I explore the relationship between mothers and home during the pandemic, looking at the emotional ramifications of the stay-at-home orders. I review how the lived experiences of my participants have invigorated a mother's role in guiding the health of the family and evaluate the ways in which mothers' source and generate knowledge. I analyse the decisions mothers make regards childhood COVID-19 vaccination uptake and discuss the spatial implications of this.

In chapter six, I use the emotional sketch maps and interviews to provide a critical review and analysis of changes to family mobilities during the pandemic. I focus on the relationship mothers have with open and green spaces before exploring the emotional geographies attached to the local primary school. The school provides a centred location that unites all participants, and is also a space that bridges the gap between dedicated child and adult spaces. I also use the emotional sketch maps to explore the narrative around the anti-vaccination movement in Aotearoa New Zealand and the rise of mother-activism.

In chapter seven I bring my thesis to my close and suggest avenues for further research. I reflect on my initial research questions and summarise my main arguments. I argue that there is value in story-telling for disease management and that mothers are a vital cog in ensuring the health and future health of generations.

Chapter Two

Contagion

The inspiration of this thesis initially stemmed from previous studies in medical geography. Twenty years ago, during my undergraduate studies, I found great value in exploring the link between childhood leukemia and proximity to nuclear power plants. I actively engaged with the differences between malaria transmission and that of chicken pox and over the years I have followed with great interest as new diseases have emerged across a range of locations all over the globe. Therefore, the emergence of the novel coronavirus SARS-CoV-2, otherwise known as COVID-19, was not a surprise. It was instead an inevitability that medical and health geographers, and health professionals all over the world have discussed, at depth, would occur. The National Academy of Medicine in 2016 commissioned research on creating a 'Global Health Risk Framework for the Future' (Gatrell, 2020). It suggested that the equivalent of $6 billion NZD a year should be invested to prepare for future pandemics, and that "'countries need to bolster their own pandemic preparedness … with a skilled, motivated and supported public health workforce, as well as robust disease surveillance and information systems and effective laboratory networks'. We cannot say we were not warned" (Gatrell, 2020, p. 1).

This chapter sets the scene for COVID-19 in Aotearoa New Zealand and describes the processes by which this research moves away from a specific disease centric focus, that is normally associated with medical geography, and instead towards a qualitative examination of the impacts the disease and relevant management strategies have had on a particular cohort of the population – mothers.

New and re-emerging infectious disease

Human history is interwoven with the emergence of infectious disease "such as influenza, cholera, plague, typhus and yellow fever which once played a major role in causing serious illness and early death in human populations" (Lupton, 2021, p. 15). Due to increased understanding of

how infectious diseases are caused and spread, the human population has managed to reduce disease impact through better sanitation, improved hygiene practices, application of scientific measures, and pharmaceutical intervention via vaccination programmes.

Since the 20th century, however, there has been a rise in deadly infectious diseases such as Severe Acute Respiratory Syndrome (SARS) in 2003 (Wenhui et al., 2006) and Middle Eastern Respiratory Syndrome (MERS) in 2009 (John, 2020). SARS-CoV-2 (COVID-19) is the latest novel coronavirus that all social groups, across all geographical regions, are at risk of contracting if they leave home and interact with potentially infected people. Comparable to some extent to the Spanish influenza pandemic from 1918 -1920, in which one-third of the world's population was infected and an estimated 50-100 million people were killed (Lupton, 2021), the COVID-19 pandemic differs due to the intensification of the processes of transportation and increased global connectivity.

Pandemic geographies offer a range of frameworks in which to best analyse and understand the complex systems involved in disease transmission and mitigation. The immense nature and constant evolution of a pandemic may make attempts to summarise it seem inadequate (Andrews et al., 2021). The geographic ability for disease to spread is determined by the combination of disease relevant human interactions and mobility across multiple spatial scales. The importance of population movement for the spread of disease is well known and well documented. The work of Melinda Meade in the 1970s - and her development of the triangle of disease ecology (1977) - argues that disease foci in certain populations can be explained by a combination of human activity and environmental characteristics (Keeler & Emch, 2018). Meade identifies environmental/habitat factors, population-level factors and behavioural factors as three vertices that are overlapping and interrelated areas that modify health outcomes (Keeler & Emch, 2018). Mobility is the underlying factor connecting each vertex.

The borderless world of global relations where international movement occurs frequently and with ease, demonstrates how a small event has the potential to trigger disruption on a global

scale. At a regional and local scale, the existence of a 'tipping point' is crucial in whether a disease becomes an epidemic (Gatrell, 2005). For Aotearoa New Zealand, despite the fact that COVID-19 has been a global pandemic, the timely and strong application of the suppression measures meant that COVID-19 never truly infiltrated the New Zealand population before the necessary safety measures were met. In the COVID-19 pandemic, humans are the disease vectors and the spatial diffusion of the virus takes place across networks structured by transportation. It is due to this quick dissemination of the disease that transforms it, from simply a virus that infects people, into a disease that makes aware the geographical inequality of the burden of COVID-19 (Gatrell, 2020) across different socio-economic backgrounds.

Humans, however, are more than just a host for disease, in other words, more than dots on a map. Bodies are emotional with connections and relationships forged not only with friends and family but also with spaces and places. It is because of this that the suppression strategies, in particular the lockdowns, transformed COVID-19 into more than a virus with a physical impact on human health but into its own health and well-being crisis (Meyerowitz et al., 2021). I refer back to the quote from the Prime Minister found on the first page of this thesis. This was a powerful moment in New Zealand history where citizens' global sense of place acquired through mobility and interconnectedness, came to a grinding halt. In this moment, people's sense of place was radically changed, as noted by David Bissell (2020, p. 152):

> These mobility restrictions brought about by COVID-19 meant that places previously within reach now seemed very far away … Migrant families are now separated over vast distances with very little chance of seeing each other in the foreseeable future … We had got used to the mobility being positive and enabling – suddenly it is predominately the mobility of others that is threatening.

The epidemiological response to COVID-19 in Aotearoa New Zealand

Aotearoa New Zealand is in a fortunate place regarding pandemics. Its geographic isolation, low population density, and later start to its exposure to COVID-19 (Wilson, 2020) meant there was time to learn from the experiences of others on a global scale. The first confirmed case of COVID-19 in Aotearoa New Zealand occurred on the 28th February 2020, by then the government had developed a COVID-19 tailored approach focusing on suppression over mitigation (Jefferies et al., 2020) with the goal of COVID-19 elimination. To achieve this the Aotearoa New Zealand government led by Prime Minister Jacinda Ardern, advised by leading medical and health care providers, implemented risk-informed border restrictions followed by graduated suppression strategies that escalated with a national lockdown within 26 days of the first recorded case (Jefferies et al., 2020). These suppression strategies were focused on non-pharmaceutical interventions against COVID-19 using "combinations of movement restrictions, physically distancing, hygiene practices, and intensive case and contact detention and management" (Jefferies et al., 2020, p. e612). The purpose of which was to disrupt the epidemiological triad of disease which governs the transmission of COVID-19 and occurs across three components: agent, environment and host (Meade & Earikson, 2000).

At its heart these strategies were a direct attack on the mobilities of the disease and consequently at its host, us. The strategy combined disrupting the mobility of individuals through their habitat (neighbourhoods and suburbs) whilst simultaneously altering the behaviours of the host through mask wearing, social distancing and increased hand sanitising. By going 'hard' and 'early' with COVID-19 suppression strategies, Aotearoa New Zealand "experienced one of the lowest cumulative case counts, incidence, and mortality among high income countries in its first wave of COVID-19" (Jefferies et al., 2020, p. e620). Integral to this success has been the combination of "decisive governmental leadership, effective communication, and high population compliance" (Jefferies et al., 2020, p. e621). Over time compliance has waned leading to challenges with vaccine uptake in particular with young children aged 5 to 11, as discussed in the following chapters.

The lockdown order in which the population of New Zealand were encouraged to behave as a united front against the disease had a divergent effect for different communities. Despite the assurance that 'we are a team of 5 million' and that 'we were to be kind' (Morton, 2020), the impact of the lockdowns on mobility was felt unequally across the population. In the following chapter, and thesis as a whole, I argue that the complexity of the pandemic (Curtis, 2021) has affected mothers disproportionately and yet their experiences and embodied knowledge makes them a valuable tool in future disease management strategies.

In the upcoming chapters I examine the literature around how the embodied knowledge of mothers acquired over their experiences can complement or supplant scientific understandings of disease management. I look at how mothers understand COVID-19 and provide an embodied account of the pandemic in relation to the personal geographies of each mother and their children. I share a snap shot into their world during this time. In this capacity, personal geographies refer to how each individual views their own space and place in response to COVID-19. I argue that the events of the pandemic highlight the gendered role of mother as primary health care provider for a family (Bowlby & Jupp, 2021). The pandemic brings to the fore the unequal burden that mothers face, in terms of being not just mothers but also educators, house keepers, financial providers, and child entertainers (Bowlby & Jupp, 2021). This, in turn, has altered how a mother views and uses the space and place she lives in. I argue that the pandemic has merged physical and digital spaces with both positive and negative consequences.

Chapter Three

COVID-19 Geographies: Where are the Mothers?

Since the start of COVID-19, academic literature has rapidly emerged on the geographical consequences of the pandemic. Despite this, geographers have been slow to account for the role of mothers, children and their COVID-19 disrupted everyday geographies. My research highlights this knowledge gap and adds to it by using mothers' geographies (their families, homes and immediate neighbourhoods) to understand further the relationship between COVID-19 and place for a small group of mothers in a Bay of Plenty coastal suburb.

Firstly, and under the heading 'Population: Motherhood Geographies', I explore the geographical literature situated within the realm of feminist and emotional geography regarding motherhood and health. Examining the work of maternal geographies (Johnson & Johnston, 2019), I explore the gendered role of mother as caregiver and how emotions create new personal geographies that challenge western led ideologies of mothering. I review literature surrounding mothers as activists within health geography and evaluate the significance of love and anger in generating social change. I include commentary on emotional geographies (Bondi, 2009) and multi-disciplinary areas on motherhood.

In the second section 'Home, Health and COVID-19', I review literature about the home, health and COVID-19 as experienced by mothers, through the lens of pandemic and emotional geographies. Firstly, I explore the emotional and feminist geographies of home (Blunt & Dowling, 2022) and the ways the pandemic has drastically altered understandings and lived experiences of home. I bring in material from outside of geography to offer a well-rounded discussion. Secondly, I bring in the concept of time-geography, referring to the work of Bissell (2021) and Liu (2020) who discuss the implications of the pandemic on the timescape of families in their homes. I argue that it was the restriction in mobilities and increased pressures applied to time and the significance of supporting the mental health and well-being of children that have created the conditions in which maternal epistemology has taken on new life. This body of work incorporates

the geographies of home and feminist geographies on the gendered use of space. Thirdly, I look to children's pandemic geographies within the home and outdoors spaces. I connect research based in Italy and Greece with that from Aotearoa New Zealand to compare and contrast how the home and parenting geographies of the 2020 lockdowns have generated united discussion at a global scale.

In the third section – called 'The Relationship between Mothers, Kids, and Disease' - I bring together the literature that examines the relationship between mothers, children and disease. I review literature within medical geography, in particular the work of Meade and Earikson (2000), Ryan (2021), and Keeler and Emch (2018) about disease mitigation that relies heavily on the use of vaccinations alongside non-pharmaceutical interventions. Vaccine acceptance, especially for children, is dependent on the beliefs of parents, in particular mothers. I use the literature to explore the link between vaccine hesitancy and the spatial distribution of disease within Aotearoa New Zealand. I look at the behaviours of mothers during the pandemic and how, through their emotional experiences, they generate knowledge that dictates the future of disease via vaccination uptake for themselves and their children. In order to do this, I take a transdisciplinary approach and also look outside of geography to make connections within maternal health and vaccinology which includes an overview of the rise of misinformation that challenges scientific perspectives. Which in turn has led to the rise of maternal activism with specific discussion about groups in New Zealand.

A focus on mothers, children and their everyday suburban geographies highlights their absence from current medical, and to some extent, health geographies' literatures. Mothers and children have been excluded from these sub-fields as they are not deemed worthy of academic attention. By putting the spotlight on a small group of mothers, I challenge the medical and scientific models that exclude lived and felt experiences of COVID-19. Attention to mothers' geographies allows for new possibilities to manage public health responses.

Population: Motherhood geographies

Research on motherhood, health and well-being is wide and varied. It encompasses a broad cross section of analysis about how motherhood and mothers themselves are produced through the spaces they occupy (Johnson & Johnston, 2019). There are multiple areas where research on motherhood and space already exist, led by feminist geographers as described by Boyer (2020). Boyer (2020) discusses Rich and her work on: how motherhood is shaped and constrained by patriarchy; the studies of unpaid motherwork; and, how pregnancy, post partum depression, breastfeeding, and gendered spaces are all examples of the political economy of mothering. Much of the literature about motherhood and health, however, focuses on the mother as a product of healthcare as defined by mobilities, gender, caring and activism (Boyer & Spinney, 2016; Campbell et al., 2020; von Benson, 2021) and there is very little explicit health geography literature directed at mothers being crucial to disease management. In order to address this gap, I include a summary of material from outside of geography, drawing on knowledge found across academic disciplines. I draw upon the extensive work that explores the impact that mothers have in dictating the health and well-being for family and how motherhood influences the success of health policy at a national level.

Mothers' positionality in health geography is predominately situated in the realm of caregiver. In *Maternal Geographies*, Johnson and Johnston (2019) describe how the role of caring for the young or elderly often falls at the hands of a female within a family, typically due to the historical association of the caring role with women. The social construction of motherhood and caregiving as directly linked, interwoven roles in which 'care' - both health and social care, domestic and childcare duties - falls within the expectations of women's everyday experiences (von Benzon, 2020). Mothers navigate neighbourhood spaces and this can be subject to scrutiny, due to acts of rebellion and/or creative and sustaining acts that draw communities together (Johnson & Johnston, 2019). Embodied and emotional experiences help form the fabric of an individual's unique personal geographies (Davidson & Milligan, 2004). When considering care work, this becomes "wrapped up in the multiple meanings of home and transgresses the normal boundaries

of daily life and the public world of service provision" (Davidson & Milligan, 2004, p. 525). Nadia von Benzon (2021) discusses how the boundaries of care between state or institution and home have become blurred. The pandemic has, not so subtly, removed the boundaries completely, opening up the home to be both the public and private space of care. The notion of a 'good' mother, typically perceived as white, cisgender, heteronormative, married, middle-class, educated and able-bodied (Fierheller, 2022; von Benzon, 2020) is one in which extensive time, money, emotional and physical energy is invested in caregiving (Fierheller, 2022). When coupled with working from home, home schooling, and completing housework this practice of 'good mothering' during a pandemic can become a deeply emotionally charged role where stress and anxiety can increase (Kubacka et al., 2021).

Fierheller (2022) discusses how mothers are constantly judged by health practitioners and experience systemic discrimination through every day practices. She explains how mothers' bodies and behaviours are positioned to be responsible for children's health and wellbeing, and are to manage the health and wellbeing of others and consequently for some, they wear the 'mask of motherhood'. Fierheller (2022) questions the individual responsibility that falls on the shoulders of mothers and considers what might happen if the mask slipped. Mothering during the pandemic has been reported on in mainstream media extensively, with emphasis on economic hardship, overwhelming caregiving responsibilities, and pressures on maternal mental health (Aridi, 2021; Casey & Hayden, 2021; Cummins & Brannon 2022; Leask, 2021; Nolle, 2020; Sadler & Woeher, 2020). This has led to the recognition of rage as being a part of human motherhood (Kahane, 2021) because mothers are sacrificing their wellbeing for that of their children and families. Rage, it could be argued, is imperative and essential to motherhood for it triggers action and has the power to change the world (Watson, 2022). The pandemic triggered its own phenomenon of "*pandemic rage"* (Kubacka et al., 2021, p. 1. Italics in original), an emotional reaction to the feelings of anger, frustration and helplessness that were amplified during the lockdowns. This identification of rage during pandemic mothering brings to the forefront the importance of emotion as a powerful source of effect (Bondi, 2009).

Mothers are health activists. Mother-activism reacts to social injustice and is felt at the level of the body. Some literature on mother-activism is situated within feminist geography (Wright, 2009). Wright (2009) explores how mother activist movements politicize motherhood in an attempt to create social change. This is taken further by Bosco (2016), who suggests that this type of activism can work as a progressive political strategy that mitigates change and that the experiences and representations of mother can appeal to those who are not mothers. Maternal activism, alongside maternalism, are forms of feminist activism where mothers use their identity to engage in social reform (Logsdon-Conradsen, 2011). Maternalism occurs at a range of scales and localities, where mothers protest on topics such as women's rights, reproductive health, access to housing, state policies and access to health care. O'Reilly (2020) argues that there is a significant difference between maternalism and maternal activism and that maternalism relies on the western ideal that mothers are kind, warm, self sacrificing, loving and peaceful. O'Reilly (2020) highlights how emotional ways of knowing "cannot be separated out from spatiality as it is relational and deeply political" (Morrison et al., 2012, p. 506).

Mother activism is at the complex intersection of rage and familial love and as such offers an opportunity to reflect on the ways in which love and anger work to shape places and people (Morrison et al., 2016). Maternal activism challenges the gender norms of women as passive and are empowered through their activism (Logsdon-Conradsen, 2011). Maternalistic mothers "believe in the essential ideas of women as the 'natural' caregivers of children to provide a basis for their justification whereas activist mothering uses their motherhood as a launch point and their activism is grounded in a much broader context of social injustices" (Logsdon-Conradsen, 2011, p. 14). Maternal activist groups seek to challenge their perceived social injustice. Activism may go against making change for the collective good.

Home, health and COVID-19

The home is often considered a woman's and/or mother's space. The home is the nucleus of family life in which humans create much of their disease environment. The home is a place, a site

in which to live, an imagined concept, as well as a location of belonging (Blunt & Dowling, 2006). These feelings can be both positive and negative and as such the home is a multi-layered geographical concept. Research about homes includes a critical analysis of gender roles and the gendered division of labour (Blunt & Dowling, 2006). In the latest edition of *Home* (2022) Blunt and Dowling build in their previous work with explicit focus on COVID-19. They discuss how the porosity of home as both public and private becomes pronounced due to the pandemic. It became a place of confinement during the lockdowns where activities usually considered public took place. They discuss how bonds between "power, identity, and home were reinforced" (Blunt & Dowling, 2022, p. 316) for mothers with the associated gendered divisions of home

The home has always been both a place / physical location and a set of feelings, "neither the dwelling nor the feeling, but the relation between the two" (Blunt & Dowling, 2006, p. 22). Consequently, emphasis is placed upon embodied experiences of home, in which the lived experiences within the home are at the forefront of analysis. Emotional geography plays a significant role in home due to the fact that emotions take place within a locality (Davidson & Milligan, 2004). Idealised views of home are important to geographical understanding, with the suburban house associated closely with the vision of home, a place of familial intimacy and domestic comfort. Because of this, the home is viewed as a place where caregiving takes place in the face of adversity to health and well-being as seen with the emergence of COVID-19 and the initial lockdown orders given.

The pandemic brought home to the forefront of geographic focus as suppression orders restricted movements. This is evidenced by the numerous publications (Blunt & Dowling, 2022; Cockayne, 2021; Lupton & Willis, 2021; Al-Mulla & Mahfoud, 2022; Walsh, 2021; Williams et al., 2020). The closure of schools and day care facilities increased childcare responsibilities, impacting on the division of labour in the home. The boundaries between work and family became increasingly blurred and the gendered distribution of responsibilities within the household became apparent (Yildirimt & Ziyat, 2020). This notion that mothers are considered the primary caregivers and therefore bear most of the responsibility for supervising children and taking care

of their safety are seemingly as prevalent today (Fierheller, 2022) as they were more than two decades ago (Domosh, 1998).

The gendered construct of home for families with children highlights the inequality produced by patriarchy. Studies have shown that women with children are taking on the household routines, childcare and housework compared to those women without children (Yildirimt & Ziyat, 2020). Blunt and Dowling (2022, p. 16) add to this argument:

> Household and domestic relations are critically gendered, whether they be relations of caring and domestic labour, affective relations of belonging, or establishing connections between the individual, household, and society. Gendered expectations and experiences flow through all these social relations and their materialities.

The lockdown may have forced women to prioritize care-taking responsibilities in keeping with cultural ideals and gendered roles of being a good mother, and despite each mother's story being unique, there is a common thread among the maternal narratives of how difficult and overwhelming the responsibility of governing the overall health and wellbeing of the family is (Fierheller, 2022). The physical and emotional labour of care work in the home for children, the elderly and those with health issues is wrapped up in the multiple meanings of home. The pandemic triggered a shared experience for many where the care-home relationship became prominent and reinforced the geographies of health and wellbeing that are at the forefront of acknowledging the spatiality of emotions in relation to the home (Davidson & Milligan, 2004). The various "stay at home" orders for those in Aotearoa New Zealand transformed a private space into one governed by public regulations dictated by national and local government policy (Durnová & Mohammadi, 2021). This explicit intrusion of the public sphere merged multiple external roles, such as working from home, becoming a school for children, taking on the medical responsibility of caring all in the home, whilst also striving to maintain the home as a sanctuary has exposed the emotional boundaries of home. Home "entails a configuration of rules that are designed through subjects and are reflective of their feelings and emotional needs but are at the

same time affected by a culture compromised of the regulatory frameworks of institutions as well as external events (i.e., the pandemic)" (Durnová & Mohammadi, 2020, p. 3).

The notion of home as a private sanctuary is criticized for romanticizing a space and undermining the inequalities that form from lived experiences (Blunt & Dowling, 2006). For mothers the experience of home as a place of self-care was challenged during the pandemic as home is a shared residence with a variety of interactions at an inter-generational scale (Bowlby & Jupp, 2021). Typically, a person's residence is the location of self-care and care exchanges between others who live or visit the home, and is vital to well-being. During the period of 'full' lockdown in 2020, home began to encompass the neighbourhood in regards to what that had to offer and relieve the burden of being confined to home. Caring for others during the pandemic, in particular small children and teenagers, depended not just on the practical and emotional tasks involved in care but the labour involved to provide reassurance and stability at a time of wide insecurity. For some mothers this triggered anxiety that made the situation difficult to handle (Bowlby & Jupp, 2021). Consequently, meanings and experiences are at the core of the socio-spatial arrangement of home, a dynamic relationship between daily activities and the restrictions of the pandemic (Dyck et al., 2005).

The pandemic, therefore, has reshaped mothers' emotional and physical relationship with home. As an emotionally loaded environment that expands and contracts in response to individual experiences of the pandemic event, home comes under scrutiny. For a mother to be self-quarantined with care responsibilities for others makes a difference in the home as a location of sanctuary (Durnová & Mohammadi, 2020; England, 2010). For as much as the physical details matter in COVID-19 disease ecology, emotions matter in the health and wellbeing response to COVID-19, altering the personal geographies for each mother affecting both time and space and centred in the home (Davidson & Milligan, 2004).

Home time?

For geographers, home is as both a site in situ and fluid in time, interwoven in everyday life (Liu, 2020). Human geographers acknowledge that "time is irrecoverably associated with the spatial constitution of society" (Liu, 2020, p. 343). The domestic space is governed by a series of unique time-spaces, each dictated by the individuals living in that space. The home is a site of the active work of doing: the lived experiences, social and power relations, and emotional geographies all interwoven across a 24-hour period with some activities routinely repeated on a daily, weekly or monthly time frame. As previously discussed, the home is a complex and multi-layered concept and it is the coexistence of residents that dictate the routine and tempo of that household. "In different households, people chose distinctive routines, schedules and long-term plans to organise their domestic practices" (Liu, 2020, p. 346), providing shared timetables and experiences of time within the domestic setting. Home therefore, has domestic practices that are associated with the everyday actions within a home and influenced by the timetables and rhythms of external factors. For parents, this ebb and flow of movement is a combination of school runs, sports activities, travelling to and from work, as well as using the shared bathroom in the morning, navigating meal times, TV time, and supervising homework. The private and public are co-constituted.

The pandemic, however, altered the timescape of people and reminded geographers of the importance of time-geography in understanding the spatial relations of individuals within a location. In everyday life, people are always following a path through space and time that can be measured across regular intervals: hourly; daily; weekly; or, even across a lifetime (Ma, 2011). The pandemic introduced space-time constraints in which the stay-at-home orders become more than just staying at home and turned one locality into a place of multiple activities. For many mothers this meant that the normal routines that dictated family everyday experiences were all now happening at the same time in the same locality. Mothers were juggling paid work from home, supervising and entertaining their children, home schooling, doing the online grocery shop all from the kitchen table and in some cases, simultaneously with little to no respite from their

24/7 schedule (O'Reilly, 2020; CARE, 2020). This then added to the emotional load of "organising, remembering, anticipating, worrying and planning that mothers take on for their family" (O'Reilly, 2020, p. 8). Dubbed "maternal thinking" by feminist philosopher Ruddick (1989), this extra responsibility was viewed as a burden by many mothers during the pandemic (O'Reilly, 2020). The use of technology and the internet has eliminated some time constraints and allows an individual to be in two places at the same time (Ma, 2011). The use of Zoom during the pandemic enabled many individuals to work from home and partake in meetings. Online shopping has meant that children can be both actively supervised and the grocery shop can still be done. It has also led, however, to the 24/7 lifestyle, where there is an expectation to be everywhere at once, an expectation felt most poignantly by mothers who are "doing the impossible and carrying an unbearable load" (O'Reilly, 2020, p. 22). Notions such as being 'time poor' can serve to problematize the inter-connectedness between mother and child as the caring role within the pandemic generates a new 'caring' time-space (von Benzon, 2020).

Home and movement: How to play in the pandemic

The home is a location of micro geographies where a duality lies between both the family and the public sphere, and between a mother and her children (Malatesta et al., 2022). The association between home and security has been challenged by the view of home as a social setting where children and parents interact. This home making is structured by the interactions of children with their care-givers within the micro-geographies of the domestic space. The lockdown altered the traditional perception of particular spaces within the home, such as balconies, patios, garden pathways and gave these micro geographies multiple purposes for children. COVID-19 has impacted child well-being in Aotearoa New Zealand in significant and long-lasting ways (Smith et al., 2022). Lockdowns limited mobility for children in numerous ways despite the fact that outdoor recreational activity was allowed during this time, the places where children would normally go to play such as playgrounds, skate park, sports clubs were forbidden to them (Smith et al., 2020). The use of the bubble metaphor to create physical restrictions on movement in order to maintain social distancing limited the spatial range in which a child could

play consequently altering children's everyday experiences. Members of the public were urged to "identify the people who were in everyday life consistently during the lock down periods and settle on their bubble" (Kearns, 2020, p. 327). The consequences of which meant parents, in particular, mothers had to use every accessible location to its full advantage. A study by Smith et al. (2022) into 'Children's perceptions of their neighbourhoods during COVID-19 lockdown in Aotearoa New Zealand' identified that the reduction of cars on the street made walking and wheeling enjoyable. This, however, was limited to close proximity to home and where this was physically possible due the infrastructure of the neighbourhood (Freeman et al., 2021), as well as partaking in the NZ Bear hunt where teddy bears would be displayed in windows for children to spot as they walked around the neighbourhood. For many children the simple act of being at home was greatly appreciated, with home-based activities such as baking, PJ days and spending time with their parents (Smith et al., 2022).

Screens became a lifeline to the outside world for both parents and children. Mothers who were feeling the burden of managing the emotional well-being of their children and structuring days that enabled the needs of the child were being met often utilised the power of the screen as a form of entertainment and a tool for connectivity with friends and family (Freeman et al., 2021). The inequities across Aotearoa New Zealand were obvious, as not everyone had the same level of access to technology nor guaranteed adequate internet connection, adding to the stress of home-schooling. Many benefited from the use of screen and social access to others, yet not everyone (Freeman et al., 2021). Consequently, for mothers carrying the unequal load of generating safe, interactive and engaging places for their children to play whilst remaining in their bubbles and maintaining social distance in government approved locations, proved to be challenging.

Literature on the importance of outdoor spaces during the pandemic in Aotearoa highlights how the closure of exercise venues enhanced the desire for access to green and open spaces (Marques et al., 2022). Foley and Cumbrera (2020) discuss the social inequalities in access to nature for health promotion, in particular for those who live in urban areas, are elderly or infirm, and that

accessibility to and utilization of green/blue spaces should inform the ongoing work on health geographers. Access to outdoor spaces is incredibly important to families with young children, as Smith et al. (2022) show that children valued the access to the outdoors during lockdowns. Even the simple act of walking, biking, or scootering through car-less streets was a source of enjoyment. It was the natural neighbourhood environments that were a particular source of "comfort, quiet, peace, time with family, physical activity and play" with "nature reserves, bushes, beaches and local parks all mentioned as places children enjoyed" (Smith et al., 2022, p. 9). Foley and Cumbrera (2020) explain how the senses of sight, sound, smell and touch were enhanced through access to quieter and open spaces. This transforms outdoor spaces from a physical locality into an emotional haven. An example of Yi Fu Tuan's (1990) conceptualisation of topophilia 'the love of place'. This is a useful concept which allows for the "exploration of emotional connections between physical environments and humans" (Morrison et al., 2016, p. 506). All of which work together to highlight the importance of outdoor spaces to be viewed as an extension of home during the pandemic.

A study of home and parenting geographies during the 2020 lockdowns in Italy and Greece puts emphasis on the exploration of each small locality within a home, and how this is shaped by the interactions that take place in the spaces between making for a "richer and more porous geographies of the domestic" (Malatesta et al., 2022, p. 3). Supporting a child's mental well-being and creating a positive environment during the uncertainty of the pandemic led to creativity replacing the temporarily lost landscape of children, such as, playgrounds, schools, libraries, sports centres and grandparent's home. Spaces within the home are therefore a key factor in shaping the range of activities that children can do. This links to time-space dimensions, as lockdowns created new routines for daily walks, a new time to play, and when to go to school. This research brings to light and reinforces the key role that care-givers, in particular mothers, have when supporting children's well being (Malatesta et al., 2022).

The relationship between mothers, kids, and disease.

Human beings have developed cultural behaviour patterns that ensure an almost symbiotic nature with disease (Arnott, 2021). Cultural behaviour interacts with disease ecology in numerous ways, Meade and Earickson (2000) explain how humans create many disease habitat conditions that expose individuals and populations to some hazards and protects from others. Behaviour and mobility work together to move people and disease from place to place, yet the consequence of this is minimised with the development of new strategies of disease mitigation and the cultural acceptance of new technologies in the form of vaccination. As discussed in the previous chapter, disease suppression strategies were introduced that encouraged individuals to social distance, wear face masks, and accept the new Pfizer mRNA vaccine. Ryan (2021) explains how humans are interacting with physical landscapes in ways that are making us vulnerable to future pathogens. Meade, Earikson, and Ryan all agree that "disease emergence and spread has shaped human history and the ecology of the planet and will continue to do so" (Ryan, 2021, p. 36). Keeler and Emch (2018) use the triangle of human ecology developed by Meade in the 1970s - which connects people, behaviour and habitat together, creating a framework that considers the effects of space and place on human disease - as a tool to study the behavioural and activity patterns of certain individuals. They connect livelihoods, environmental patterns and the built environment to emphasise the importance of geographic factors in spatial diffusion within and outside geography. I build on this literature by focusing in on the population of mothers and exploring their cultural and maternal behaviours, mobilities and habitats to show how in order to achieve a successful eradication and elimination program requires the cultural acceptance of mothers regards childhood vaccination.

I argue that mothers are in a unique position when it comes to untangling the development of disease as more often than not mothers dictate the health of a family and as such have a direct role in shaping the future of disease (Dubé et al., 2016; Tardy, 2000; Walker et al., 2020; Walker et al., 2021). If humans create many habitat conditions that allows disease to emerge then it may be the decision of mothers within these habitats that can allow a disease to flourish (Lee et al.,

2020). Disease mitigation relies heavily on the cultural acceptance of the use of vaccinations alongside non-pharmaceutical intervention such as social distancing and the wearing of face masks. Vaccinations are one of the most effective strategies to protect children against several infectious disease, and yet vaccine hesitancy has been highlighted as a major global threat to global health by the World Health Organisation in 2019 (Lee et al., 2020). As mothers typically undertake most childcare duties, they generally make all the decisions and arrangements regarding immunisation.

Recent studies in Aotearoa New Zealand have shown that high maternal vaccine confidence increased the likelihood of child full vaccination status, yet women are more likely to show decreasing vaccine confidence over time, highlighting the danger that confidence levels may continue to decrease and lead to further declines in childhood vaccination uptake (Lee et al., 2020). In terms of parents' intentions for their children, a study in England found that parents and guardians were more likely to vaccinate themselves than their children (Walker et al., 2021) and the same study supported other literature that demonstrates mothers are more sceptical of vaccines than fathers (Walker et al., 2021; Lee et al., 2020). This would indicate that those who may be hesitant towards the COVID-19 vaccine may not simply be anti-vaccine but it does urge the question about why a mother may be unwillingly to accept the COVID-19 vaccine.

Vaccine hesitancy is not a new topic and is well researched and documented (Dubé et al., 2016; Lee et al., 2020; Walker et al., 2021) in particular within the academic realm of health, vaccines and immunology, mothering and social care. Linking vaccine hesitancy and motherhood to mobility can open up another avenue in which to approach disease management. Analysis of the relationship between vaccine hesitancy and motherhood may be used to mitigate future pathways for disease. Prior to COVID-19 studies show that many mothers had a functional vision of health for their children (Dubé et al., 2016) and that an immune system was incrementally established. A commentary by Prickett et al (2021) into COVID-19 vaccine hesitancy in Aotearoa New Zealand reports that women are less likely to take the vaccine with concerns around safety and potential side effects. Their commentary also highlights how recent studies focus on the

negative aspects of why someone may choose to *not* have the vaccine, as opposed to the positive reasons *to* have the vaccine. Findings in a report on COVID-19 vaccine hesitancy amongst mothers in the US by Walker et al (2021) shows that prior vaccine attitudes and behaviours did not translate the same to the COVID-19 vaccine or perception of COVID-19 threat. Most vaccine hesitant mothers were unwilling to immediately accept the COVID-19 vaccine due to safety concerns. They go on to state that "Health professionals, therefore, should not assume that mothers will see COVID-19 as a threat that justifies vaccination" (2021, p. 3361). Overall, the decision-making process is governed by a minimum of three elements: the perceived efficacy and safety of the vaccine; perceived social pressure; and, perceived barriers and enabling conditions to get a child vaccinated (Dubé, 2015). This finding works alongside earlier study on omission bias (the tendency to judge harmful actions as worse that harmful inactions), which suggests people feel responsible for a child's death if it is the result of a vaccination than from contracting a vaccine-preventable disease (Hilton et al., 2006). Therefore, some mothers approach each vaccine individually, case by case and examine the perceived threat of the disease to that of the vaccine (Dubé et al., 2016). The vast majority of mothers and parents continue to have their children vaccinated, however there are a minority of individuals opposed to vaccination. A study in the U. S. found that parents perceived vaccines to be only partly effective (Carrion, 2018; Suran, 2022). Similarly, an Australian study found that some parents and mothers opted out of immunising their children due to perceived safety fears of the vaccine and that they believed vaccines placed too much stress on the immune system (Hilton et al., 2006) despite the fact that there is "no scientific evidence to support the fear of combined vaccines causing immune overload" (Hilton et al, 2006. p. 1). It is these fears and beliefs that influence the behaviours of mothers across time and space, beliefs that have been amplified during COVID-19 through the significant level of misinformation and conspiracy theories that have found a foothold in mainstream conversation.

It is worth noting that much scientific knowledge is formed through masculinist ways of knowing (Gaston, 2015) and has not considered maternal geographies. For mothers, making decision regards the health of their family is deeply rooted in the feelings of connectivity to the source

information which for many is through family and friends. Epistemology is a theory of knowledge and a way of knowing that is derived from various perspectives, and maternal epistemology is a form of feminist ways of knowing (Cope, 2002). Experiences of motherhood fluctuate between the individual lived experiences unique to each mother and that of the shared collective experiences of mothering (Bowlby & Jupp, 2022). This communication and interaction creates a source of knowledge from the individual that is legitimized by the shared experiences of others. It mirrors feminist epistemologies in the sense that listening to women's voices and setting this voice in context of the socially constructed gender roles, norms and relations, allows mothers to create their own unique platform of knowledge (Cope, 2002) where each mother has the potential to be both a source and recipient of knowledge. In regards to vaccine hesitancy, maternal epistemology plays a large part in why a mother may opt out of vaccinating her children. At odds with the scientific literature available and the advice of medical professionals regards the safety of the COVID-19 vaccinations, a mother's hesitation therefore hinges on the unknowns of the science (Cutter, 2003). Scientific truth is a "relative entity" (Carrion, 2015) when it comes to considering vaccines, contestable science, and maternal epistemology. My thesis highlights how mothers' experiences may be considered alongside scientific epistemology. It is vital for public health providers to understand this maternal way of knowing as vaccine hesitancy grows not just in Aotearoa New Zealand but also on a global scale (Hobbs, 2022). Exploring maternal epistemology will shed light on vaccine hesitancy.

The maternal social environment and vaccine hesitancy to COVID-19

It is through the social environment of groups, relations, and societies, that mothers create pathways that help navigate the physical built environment of the local neighbourhood. It is the interaction with others that brings individuals face to face with infectious disease and it has been observed that "all people exposed to an infection or other risk will not get sick" (Meade & Earikson, 2000, p. 29) and because of this, the perceived severity of illness dictates preference for vaccination.

New social media practices and platforms produce new public geographies, in which the relationship between reader and writer has altered to the point where the concept of 'audience' has been replaced by the emergence of a dynamic, responsive and empowered public through digital networking (Kitchen et al., 2013). Social media is now used to "inform and mobilise diverse publics, cultivate social movement, challenge political and scientific orthodoxy and set political and policy agendas" (Kitchen, 2013, p. 60). Due to the speed in which information can be disseminated on social media, it is difficult to censor and control and responds to unfolding events in real time and in some cases can precipitate such events (Kitchen et al., 2013). During the lockdown periods of the pandemic, the social environment became heavily connected with the use of social media to remain connected with family and friends, maintain relationships with work, and a source of information. Personal physical geographies of individuals were moved to the digital landscape where distance provided no barrier and connectivity was almost instantaneous. The benefits for mothers of this networking were paramount to supporting and promoting good mental health and has been reported on significantly by the media, giving rise to the mumtreprenuers, mummy bloggers and sharenting (the process by which parents shares their life and that of the children with others via social media) lifestyle services (Baker & Walsh, 2022b).

Online social networks that are products of internet-based communication have flourished as people document and maintain friendships (Lengyel, 2015) whilst also forging new pathways and connections with others. Social media allows individuals to create new localities to position themselves away from the physical reality of their neighbourhood. As discussed previously, the lockdowns of the pandemic have been particularly difficult for mothers, with many expressing their hardship once their coping mechanisms begin to fail (Lemish & Elias, 2020). Social media provides an outlet in which parents can voice their anxieties and stress through humour. Digital localities such as Facebook, Instagram and Tiktok become a source of joy, a place to release tension, strengthen friendships and bond with the collective society and culture (Lemis & Elias, 2020; Wiederhold, 2020). For new mothers, the internet provides a location in which information and support on any child-related issue can be discussed. Mummy blogs found new footing as

mothers' access to medical, health and well-being support practically vanished overnight due to lockdowns, leading to large parenting forums where mothers can chat together in real time with others from anywhere in the world. This is important due the:

> information ecosystem of social media that already form a significant part of the ways in which may people understand their social, political, economic and environment contexts. In other words, social media is deeply embedded in the production, mediation, reception and enaction of many of our lived geographies (Graham, 2013, p. 78).

Social networks are integral to providing a source of positive mental health well-being during the pandemic. Due to global connectivity, however, information is deterritorialised and this has opened the floodgates to a torrent of information, opinions and conjecture (Graham, 2013). Graham (2013) debates the spatial unevenness in technological connection, as not everyone has the same level of access to the internet and the implications of this combined with the fact that the flow of information is dictated by algorithms which 'feed' our information biases.

The amount of misinformation and conspiracy theories surrounding the COVID-19 vaccines aimed at mothers has been significant (Baker & Walsh, 2022; Waring et al., 2022). A report published by the Center for Countering Digital Hate (CCDH), a US non-profit corporation, in 2021 identified that 12 individuals, referred to as the Disinformation Dozen were responsible for 65% of anti-vaccine narrative published on social media (CCDH, 2021). With the rise of influencers, mums are engaging in sharenting as a technique to reach other mothers. For those anti-vaccine influencers, they are able to encourage vaccine refusal by tapping into three themes of motherhood, as identified by Baker and Walsh (2022a): the protective mother; the intuitive mother; and, the doting mother. The impact of this voice in Aotearoa New Zealand is demonstrated in Chapter 5 through the interviews with my participants.

When Meade first created the triangle of human ecology in the 1970s, the internet was in its infancy. Its relevance and impact on health-related issues were unknown and difficult to predict. Yet, the digital landscape - as it sits in 2022 - is a double-edged sword by which mothers can

generate their own echo chambers. Algorithm generated information confirms beliefs which can inspire a mother into activism, moving from the digital landscape into the physical world. The common assumption, perpetuated in the media, is that mothers are largely to blame for the anti-vaccine movement (Graham, 2015). Mothers have been deliberately targeted by anti-vaccine influencers. Mothers' collective power can and does shape the health geography of future infectious disease outbreaks. Influencers profit financially from sowing doubt and promoting so called 'alternatives cures' (Baker & Walsh, 2022). Instead of judging mothers for their vaccine hesitancy (Bowlby & Jupp, 2021), understanding why mothers are targeted by anti-vaccine campaigns is a fruitful place to begin investigations.

Conclusion

In this chapter I have drawn together literature to show how the relationship between mothers and their experiences within the pandemic is complex. This chapter provides the theoretical scaffolding from which to think about maternal health geography as a spatially located, embodied and emotional experience. The foundations of which are rooted in pandemic geographies that are irrevocably connected with geographies of home, feminism, and emotion. It discusses the implications of when mothers live in two realms, the digital and the physical world and how a predominance in one has deep and meaningful consequences on the other.

Geographical analysis of how mothers navigate their neighbourhoods – particularly child centred zones such as playgrounds, parks, sporting clubs, and indoor activity locations - during pandemic times illustrates potential hubs of infectious disease. The impact of the pandemic on mothers with young children is best served with a multidisciplinary approach. The geographical aspect can only be fully analysed by engaging with material from social work, maternal and children's geographies, and vaccinology and immunology.

Despite a wide-ranging array of geographic literature on the maternal relationship with health and well-being, the geographies of mothers as a source of credible knowledge that can be used

to inform the medical profession and help guide future disease mitigation is limited. The geographic narrative of motherhood and mothering allows for a move away from mothers being the **subject** of the discourse and to **being** the author.

Chapter Four Methodology

Making Space for Mums

In this chapter, I outline the methodological framework I employ in researching the impacts of the pandemic on mothers. Inspired by poststructuralist and feminist geography theories and qualitative methodologies I detail the methods chosen and discuss their value for this research.

My research was led by emotional and embodied experiences which are best suited to qualitative methodologies. I justify my use of a mixed methods approach that combines interviews with and adapts the typically quantifiable use of maps to allow an emotional overlay. Supporting and enhancing geographers use of emotional cartography within emotion led research. I explain the process by which participants were recruited before discussing the strengths and weaknesses of the data collection methods. I then discuss how I analysed each interview before ending this chapter reflecting on my own positionality and the impacts of this on the research methods.

For many geographers the decision to engage with mixed methods begins in practice with the development of research questions that require multiple forms of data for analysis (Elwood, 2010). For quantitative health geographers, the focal point of study is often disease specific research; those personally affected by disease or environmental conditions impacting on health and well-being (McLafferty et al., 2021). Researching the impact of COVID-19 pandemic however is unique in that almost everyone on the planet has been affected by the disease irrelevant of whether they have actually come into contact with the disease itself. This therefore implies that COVID-19 does not just affect the physical health of those who contract the disease but the overall health and well-being of everyone who have dealt with and continue to deal with the management strategies put in place towards the disease. There is therefore a difference between choosing to research the impacts of COVID-19 on the physical health of mothers with young families, in contrast to choosing to research how and why COVID-19 has altered the perceptions of mums with young families to their immediate surroundings, which requires a very different set of methodological choices (Rosenburg, 2016).

Davidson and Bondi (2006) describe how emotions have an important role in maintaining geography's critical edge. They explain how emotional geography attempts to understand emotion in terms of its socio-spatial application, which is the foundation of this thesis. My research does not solely focus on emotion, instead it highlights the relationality of emotions between the pandemic, people and place. Johnson and Madge (2021) discuss how there are no particular methods that are distinctly feminist. It is instead the meaning behind the research to which the methods were put to that makes the research feminist. Johnson and Madge (2021) illustrate a diverse, sometimes contradictory series of stories and information to make women's lives visible. My research sits within the field of feminist geography not simply because I, the researcher, identify as a cisgender woman, but because the role of motherhood is typically viewed as a gendered female role. Who counts as knowledgeable, "what counts as knowledge, how this knowledge is legitimized and how this knowledge is reproduced and represented" (Cope, 2002, p. 44) to others is heavily influenced by feminist epistemology. With this in mind I designed my research to enhance the feminist nature of my topic and offer a sense of empowerment to the women involved through my method.

In what follows I first outline how I recruited participants and I provide demographic information about those involved. Second, I discuss the emotional mapping method that participants completed. An emotional sketch map that represents the individual experience of each participant and captures people's perceptions of places, applying emotions and meaning to each location (Boschmann & Cubbon, 2013). Third, I discuss the semi-structured interviews explaining why I chose this particular research method, how I developed the questions, and the ways in which I chose to analyse and code the transcript.

Recruiting participants

After receiving ethical approval (see Appendix One) participants for this study were recruited purposefully and I approached seven mums who are known to me that I see daily at school pick up and drop off. I explicitly wanted to interview mums who had children aged between 5-11-years-old as I wanted to discuss responses to the COVID-19 vaccine for this age group. Those being interviewed were chosen as "an indicative rather than representative sample" (Gatrell & Elliot, 2015, p. 103). The aim being "that individuals were selected who may provide a rich body of information" (Gatrell & Elliot, 2015, p. 103) and as such, having a large sample size was not a priority. I acknowledge that having a small sample size is often a source of criticism of qualitative research alongside the nature of sample selections which, in this case, was purposeful (Gatrell & Elliot, 2015). My research, however, is not focused on extensive exploration of the impacts of COVID-19 but an intensive understanding of the consequences of COVID-19 on participants. It is also designed to fit within the requirements of a 90-point Masters thesis.

Once potential participants had expressed interest, I sent an email thanking them for contacting me and included an information sheet which outlined the details of the research and practices (see Appendix Two). Each mum has at least one child aged between five and 11 from my research area, which is a coastal Bay of Plenty suburb. I once again purposefully chose to focus on the catchment area of my own child's primary school, the school itself was not a source of interest, however, there was a COVID-19 outbreak at the school which meant all students and their families experienced a location specific lockdown. This meant that all participants had experienced exactly the same number of official lockdowns for the same duration of time across the entire of the pandemic.

All mothers approached expressed interest in participating and consequently all were involved. I was able to ask mothers of different vaccine status who each had been affected differently by the COVID-19 management strategies. This meant that I have been able to generate a rich and full-bodied account of the impacts of COVID-19. Participants were informed that they had the option to opt out up until two weeks after receiving their transcripts of the interviews. No one

chose to opt out. Table 4.1 shows participants' age, ethnicity, descriptor of occupations, interview location, vaccine status and whether they had contracted COVID-19 at the time of the interview.

Pseudonym	Age	Ethnicity	Descriptor	Interview Location	Vaccine status	Had COVID at time of interview.
Katie	40-44	NZ European	Creative Director – married mother of two.	Garden Centre Cafe	Vaccinated	Yes
Liz	35-39	European	PT teacher/ WFH – divorced mother of two.	My home and her home.	Vaccinated	Yes
Jo	35-39	Middle European	Self-employed – married mother of two.	Garden Centre Cafe	Not Vaccinated	Yes
Mary	35-39	European / NZ Citizen	Stay at home mum – married mother of four.	Garden Centre Cafe	Vaccinated	No
Gemma	35-39	NZ European	Primary school teacher – stay at home mum – married mother of two.	Her house	Vaccinated	No
Cara	30-34	NZ European	Early Childhood Education (ECE) teacher – partnered mother of two.	Garden Centre Cafe	Vaccinated	No
Flo	35-39	NZ European	Self employed Contract Administrator – partnered mother of two.	Garden Centre Cafe	Vaccinated	No

Table 4.1. Participant Information Table

Emotional mapping exercise

Alongside the semi-structured interviews, I wanted to understand deeply the impact the pandemic has had on the physical world of each mother and her family. To achieve this, I took

inspiration from narrative mapping “a type of qualitative cartography that provides a visual representation of relationships between experiences of individuals or groups and their socio-spatial environments” (Turner, 2021, p. 282). The relationship between maps and narratives by which maps aid in telling a story are becoming commonly used as an analytical tool to explore the spatial narratives of individuals (Caquard, 2011). Typically, Geographic Information Systems (GIS) exclude emotion and qualitative analysis from people-place relationships and is viewed by many to be the dominant discourse that favours scientific knowledge accumulation (Steger et al., 2021). Quantitative data collection is often understood as unbiased, rational, objective and associated with masculinist knowledge (Bondi, 2009). In comparison, qualitative mapping exercises actively put emotion at the centre of enquiry with the goal to understand lived and felt experiences. Geographers have increasingly utilised the developments of qualitative mapping in mixed methods research as it is “sensitive to, and inquire about, negotiated meanings, local contexts, situated knowledges, and individual experiences” (Steger et al., 2021, p. 3).

The pandemic forced people to redraw the lines of their personal maps and to rethink mobility, as a consequence movement became emotionally charged. In my research I wanted to see how those involved in this study felt about key locations and why. I wanted to understand how this feeling evolved, how they interpreted their relationship with space, place and disease and what the impacts of this would be. I felt it was therefore important to create a mapping exercise (see Appendix Three) that embraced emotion and steered away from the typical quantifiable mapping techniques associated with mapping disease. To do this, I printed a map of the local area and overlayed it with a piece of tracing paper. I asked participants to pinpoint on the tracing paper places that they often go with their children in their everyday life, including their own home. I then asked them to pinpoint or annotate on the map, in a different colour, any location they no longer go due to the impact of COVID-19. Once they had located themselves and these places, I then asked them to describe to me these places and how they felt about them. By using this approach, I aim to visualise the importance of different locations for mothers and understand the reasoning behind this.

This exercise turned out to be an enjoyable and fun end to the interview. Each mother laughed at picking the colours to represent the information, with one commenting on their love of stationery. The interview became relaxed and reflective as each participant examined their daily movements. The representation of emotion differed between mothers; one mother used love hearts to represent the places she felt happy at, another simply wrote the word 'love' next to the key locations. Mapping their area generated thought and deliberation about specific locations, with one mother expressing how she hadn't really thought about how her life had changed until looking at the map. The mapping exercise became a natural extension of the semi-structured interviews that enhanced some of the key talking points covered and allowed a really clear visual of the mobilities of these mothers. The maps also were incredibly useful at identifying locations where children were allowed to go throughout the pandemic. I had hoped that the maps would identify key areas where mobility and childhood vaccination status would coincide and it did. The mapping also allowed me an opportunity to examine how the infrastructure of the community supports and / or hinders family movements with virus transmission in mind. The maps helped to physically identify key areas which could become disease hot spots.

In order to create anonymity for each of my participants, I used the tracing paper to mark on the details which once complete could be separated from the map. Leaving me with a symbolic emotional map for each participants personal geographies. Annotations were completed by hand and the finished hard copy was then scanned to the computer.

Figure 4.1. Flo's emotional sketch map

The handwritten nature of the maps, I felt, allowed the mothers to feel a sense of ownership over their experiences, generating emotional responses in simply the act of drawing on the map (Caquard & Griffin, 2019). One mother, Cara, experienced a sad feeling when completing her's as she was made aware of how small she felt her everyday life is. The exercise worked in this context because it was an extension of the interview and added weight to each participants' recollections, allowing them to focus on what they perceived important for the research. On one hand, this was beneficial for participants autonomy and clarifying the research themes. On the other hand, the map raised further questions about how mothers viewed their community, which without the interview may have been challenging to include in just the map.

Semi-structured interviews in a 'safe' setting

It was important for me to conduct my research through semi-structured interviews because the method itself was integral to addressing one of my research objectives, that is, for each mother to have her voice heard and time dedicated to tell her story. The interview process is a conversation with purpose, a fluid dialogue that is not representative but a snapshot of an individual's experience (Valentine, 2013) across time and place. Health geographers researching geographical epidemiology, for example, often follow 'scientific methods'. Yet there is a growing importance in literature devoted to "lay" epidemiology that gives priority to the accounts, perceptions and fears associated with disease (Gatrell & Elliot, 2015). This type of inquiry is best addressed by asking questions directly to those whose experiences, thoughts and opinions I am seeking. This style of interview or conversation treats participants with respect and asserts that contributions are a valued and legitimate source of knowledge. Creating a rapport where the participant feels at ease with the interviewer is important. My own positionality within the research topic is one of the reasons why I have been able to build a rapport with the mothers involved and create a level of understanding that uses the interview to "explore the subjective values, beliefs and thoughts of the individual respondent" (Valentine, 2013, p. 112).

To begin with, I devised an interview schedule (see Appendix Four) which was modelled on Dunn's work on Interviewing (2021). I focused on including primary style questions which encouraged in-depth responses that allowed participants involved to tell their story. I chose to follow a semi-structured interview method by which my questions were focused but flexible and structured around my three research areas. Questions were ordered chronologically in order with key events of the pandemic. That way I could keep track of the evolution of each respondents view and mirror real time events with shifts in emotional and physical response. Initial questions confirmed wellness and ability for participants to take part in the interview. I then asked about life prior to the pandemic, before exploring the impacts of the pandemic on the home, emotional well-being, mobility, and vaccinations and mandates. I asked a series of questions about where these mothers gained their information and what sources of information

was considered trustworthy. This prompted conversations around the complex ways information is shared and the types of information mothers value above others. We ended the interviews with the emotional mapping exercise and this provided some light-hearted moments.

Due to the nature of the topic, it is vital to acknowledge the role of emotions in shaping the interview both in terms of immediate response to the questions but also the emotional attachment to space and place as a result of COVID-19. Bondi (2009, p. 447) wrote that "emotions may have a decisive and constructive part to play in the development of knowledge". Mothers, then, may rely heavily on their emotions when making decisions regards the health of their family. The role of emotions shapes and being shaped by, research encounters (Valentine, 2005). Conversations around vaccinations have the potential to become a source of conflict and therefore it was of utmost importance to create a series of questions that would not leave the respondent feeling judged in anyway. Questions based around vaccinations were worded in a way to actively encourage discussion and focused on each participant's perspective. I sought to understand how each mother came to "know, understand and making meaning" (Tuck et al., 2014, p. 82).

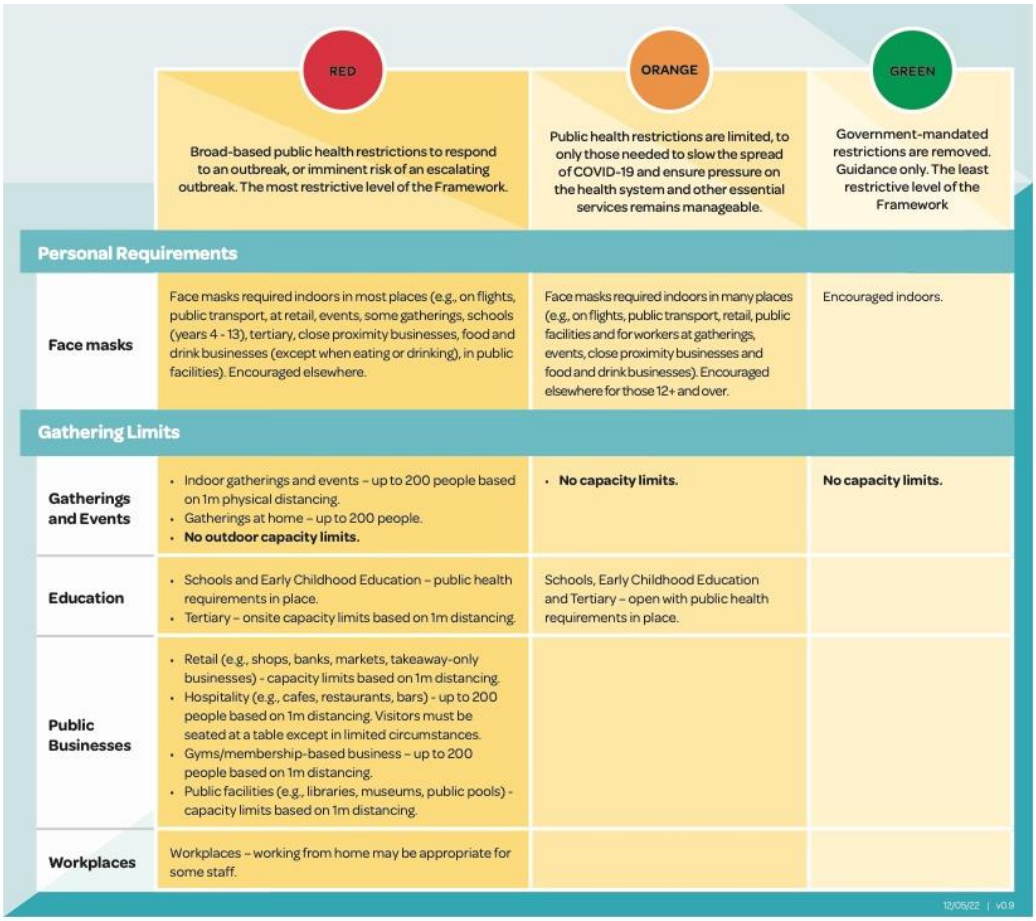
As I engaged with each interviewee, the research schedule grew as each participant brought new light to the interview questions. Due to my positionality, I was able to articulate some useful prompts and answer participants' questions with confidence. Using the pre-determined questions ensured that I stayed on task and was able to redirect the conversation back to the topic if the participant deviated too far from the research topics. There was an element of fluidity to the questioning in the sense where I allowed each participant to dictate the way the conversation went but all questions were asked by the end. The interview was devised with story-telling in mind. I wanted each participant to feel as though their experiences during the pandemic were valuable and important and it was therefore important to allow some level of digression in order for each mum to feel as though they had been fully heard.

Conducting face-to-face interviews based around pre-determined questions acted as a means for the participants to discuss their feeling around difficult topics, such a vaccine concerns, without conflict. Using my senses to examine changes in body language and facial expressions with the discussion of each topic allowed me to navigate the sensitive questions. Jo's experience of the pandemic, for example, was wholly different to everyone else, due to Jo's vaccination beliefs. Being face-to-face I witnessed her frustration at the situation and I was able to provide her with an opportunity to discuss her perspectives.

The 'safe' setting

The primary method of research was conducted via semi-structured, face-to-face interviews between myself and the research participants. Due to the presence of both the Delta and Omicron variant in the immediate community, locating the interview became an important aspect of the research process. All interviews took place between March and June 2022, during this time Aotearoa New Zealand was under Red and Orange Traffic Light settings. The traffic light settings helped people to continue to protect one another from the virus and minimise the impact of any future large outbreaks. At both the red and orange settings face masks are required at indoor public places including schools and food and drink businesses. It was important therefore to include a variety of possible locations for the interview as what was once deemed 'safe', for example going to a café, or sitting indoors at someone's home, no longer could be classified as 'safe' (in relation to potential disease risk). Participants were given a choice of where to have the interviews, and these were: a garden centre café with a large outdoor sitting are; my home; their home; or during a walk along the local reserves or beach; or over Zoom. Five of the seven interviews took place in a garden centre café and we sat and talked in a large outdoor area.

Three interviews took place during red traffic light setting (see figure 4.2) and participants chose to be interviewed in the outdoor area of the garden centre café where face masks were worn on entry and exit but were removed during the interview. These three participants were double vaccinated and had vaccine passes, although these passes were not asked for by the establishment. A safe distance was established by sitting on opposite sides of the table.



	RED	ORANGE	GREEN
	Broad-based public health restrictions to respond to an outbreak, or imminent risk of an escalating outbreak. The most restrictive level of the Framework.	Public health restrictions are limited, to only those needed to slow the spread of COVID-19 and ensure pressure on the health system and other essential services remains manageable.	Government-mandated restrictions are removed. Guidance only. The least restrictive level of the Framework
Personal Requirements			
Face masks	Face masks required indoors in most places (e.g., on flights, public transport, at retail, events, some gatherings, schools (years 4 - 13), tertiary, close proximity businesses, food and drink businesses (except when eating or drinking), in public facilities). Encouraged elsewhere.	Face masks required indoors in many places (e.g., on flights, public transport, retail, public facilities and for workers at gatherings, events, close proximity businesses and food and drink businesses). Encouraged elsewhere for those 12+ and over.	Encouraged indoors.
Gathering Limits			
Gatherings and Events	• Indoor gatherings and events – up to 200 people based on 1m physical distancing. • Gatherings at home – up to 200 people. • **No outdoor capacity limits.**	• **No capacity limits.**	**No capacity limits.**
Education	• Schools and Early Childhood Education – public health requirements in place. • Tertiary – onsite capacity limits based on 1m distancing.	Schools, Early Childhood Education and Tertiary – open with public health requirements in place.	
Public Businesses	• Retail (e.g., shops, banks, markets, takeaway-only businesses) - capacity limits based on 1m distancing. • Hospitality (e.g., cafes, restaurants, bars) - up to 200 people based on 1m distancing. Visitors must be seated at a table except in limited circumstances. • Gyms/membership-based business – up to 200 people based on 1m distancing. • Public facilities (e.g., libraries, museums, public pools) - capacity limits based on 1m distancing.		
Workplaces	Workplaces – working from home may be appropriate for some staff.		

12/05/22 | v0.9

Figure 4.2. COVID-19 Protection Framework (traffic lights), March 2022

Source: Unite against COVID-19 2022[4]

Two interviews occurred when the research area was under orange traffic light setting which meant that vaccine passes were not a requirement, but masks were worn upon entry and exit of the establishment and we sat outside maintaining a safe distance by sitting on opposite sides of the table. One participant was not vaccinated, the other was double vaccinated and had received one booster.

[4] https://covid19.govt.nz/assets/COVID-19-Protection-Framework/COVID-19-Protection-Framework-traffic-lights-table.pdf

One interview took place at a participant's home as we both had our four-year-old children with us. This location was selected by the participant as it felt it would be easier to keep the children entertained and safe whilst the interview took place. Masks were not worn as we were already in frequent daily contact and our children were close contacts to each other via school.

One interview took place at my home as the participant had both her children with her and it was thought that my home would provide a change of scenery for the children and access to toys that would keep them entertained whilst the interview took place. After 45 minutes the interview was relocated to her home at her request after one of the children began the feel unwell. I offered to stop the interview and rearranged for a better time; however, the participant chose to continue and the children were happier in their own home. Masks were not worn as we were already in frequent daily contact, but all doors and windows were open and we sat close to them.

During all interviews we abided by the COVID-19 government management advice to: wear masks when indoors; follow correct handwashing procedure; and, sit on opposite sides of the tables to maintain a safe distance (see figure 4.2). Prior to the interviews commencing three of the seven participants and their families had contracted COVID-19 and had completed the required isolation period of between 10 and a maximum of twenty days. I too had contracted COVID prior to the interviews commencing and had completed 20 days isolation with my family as required by the government guidelines. This was made clear to the participants as well as my vaccination status in order to give the participants as much information as possible so they could choose the best location for their own comfort and safety as well as my own.

The seven interviews lasted between 60 and 120 minutes and the transcription process took between three and seven hours for each interview. Every interview was audio recorded and to aid with transcription I used Otter.ai an audio transcription service. Once each interview had been fully transcribed, each participant was emailed a copy of their transcript to read through and given two weeks to make any changes or to remove themselves from the study. No changes were made to any interview, and no-one asked to be removed from the study.

Analysis

I chose to conduct critical discourse and content analysis (Waitt, 2021) in order to search for themes within the interviews, interpreting not just the 'hidden' but also the obvious. Each interview was audio-recorded and I then used an audio transcription service (Otter.ai) to help transcribe each interview. Once transcribed, I started to listen to the interviews multiple times as if they were a podcast as I went about my day. I found listening to them whilst I was cooking dinner or washing the dishes helped to relate to the information being shared. This process of going beyond the simple act of rereading the material and looking for similar words or phrases supports Baxter (2009) who discusses that geographers should draw on their interpretations and understanding of the theoretical frameworks to code inherent themes. Once I was fully immersed in the data, I sat down and began to highlight any themes by hand. I printed out each transcript and with a series of coloured highlighters began to work through each interview, allowing the material to generate the themes. I referred back to *The SAGE Handbook of Qualitative Geography* (Dittmer, 2010, Ch 15) to help assign codes to the themes.

Cope (2021) describes codes as a way to comprehend data and researchers should go beyond thinking of codes as just categories or themes. Instead, it can be used be expand and transform the data. Cope warns to remain flexible and allow the data to dictate the themes. The themes are created through the combination of both descriptive coding, which provides the categories, and analytical coding.

I created a list of descriptive codes that reflected the research context and generated themes that were inherent in the project. I was able to minimise the data and organise the texts and maps into clear categories. The mapping exercise is one with the interview and so discussions over the map were also included in the transcription and coding process. The use of the maps added an extra visual element through which I could witness the themes arising in the locality they were occurring. This task of coding occurred over multiple spaces over time, and I would take gaps between each interview in order to remain alert to the material.

One with the mums

"Feminist geographers are acutely sensitive to the intersection of power with academic knowledge" (Caretta & Riaño, 2016, p. 1). As researcher I come into this study wielding a certain amount of power. I have decided who to involve in this study, what questions to ask, how to interpret the data collected and how to represent my findings. Yet I did not want my interviews to feel one-sided. Critical feminist geographers draw on tools of reflexivity and positionality to address any inaccuracies in the power balance present in all research processes. Feminist geographers who use participatory methods on research address this imbalance by asking how participants can become engaged with the research topics (Caretta & Riaño, 2016).

Due to my positionality my semi-structured interview at times felt collaborative. As discussed in chapter one, I came into this research with personal and academic motivations in mind. I am a mother of small children aged between 5 and 11. I live in the same neighbourhoods, shop at the same shops, our children attend the same school and have shared the same official lockdowns as the participants in this study and because of this at times I found it challenging to remain completely objective and unbiased. It is also because of this connectivity that I was able to have such rich conversations, where, at times, the interview felt like a sharing of knowledge. Reflexively acknowledging how my interaction with the research participants influences the research process and outcomes meant I had to refrain myself from offering confirmation of certain beliefs but instead provide a situation where these views could be shared constructively (Caretta & Riaño, 2016). In my mind I came back again and again to my ethics proposal to ensure that I remained neutral and on focus. It was here where I found value in the structured questions that I had devised, having generated a clear focus meant that I was constantly reminded of my role as researcher. One of my aims was to discover how mothers become a source of knowledge and information for others, the interview itself became an example of this sharing of knowledge. Each participant educating me on their beliefs and view points in particular regards the vaccine for 5-to-11-year-old children.

Conclusion

In sum, this chapter has given an open and critical account of the methodological framework. Utilising feminist poststructuralist theories and qualitative methodologies to understand the impact of the pandemic on mothers' lived experiences. By discussing the benefits and limitations to my methods, I have shown how important it was to use multiple mixed methods. Each method has its strengths and weaknesses, yet I found the semi-structured interviews followed by the emotional mapping exercise to be a valuable technique in providing understanding of individual opinions and allow for critical reflection.

These methods have helped me to understand the emotional subjectivities of each mother in relation to space, place and health. Latent content analysis has provided a lens through which to view the impact of COVID-19 on mothers and I found adapting Dunn's (2021) questioning techniques and Cope's (2021) coding strategies to be very constructive. I detailed my emotional experience whilst interviewing and discussed the impact of my positionality in relation to the research.

Chapter Five

Mothering during the pandemic

This chapter maps out the discursive and lived experiences of mothers in homes and bubbles during the COVID-19 pandemic in suburban Bay of Plenty. There are three avenues of analysis. Firstly, I argue that the physical and emotional relationship with 'home' became both a 'safe' **and** 'unsafe' space for mothers during the pandemic. The initial stay at home orders identified the home as a safe space from the COVID-19 virus, a visual that was shared on a global scale.

Figure 5.1. Stay Home Save Lives Images from New Zealand, USA and Durban, Australia

Source: Sport Waikato[5] (NZ), USA Today[6] (USA), Durban University of technology[7] (Australia).

I discuss how seeking refuge from the virus also transformed home into a place of negative mental well-being and an 'unsafe' environment for mothers that does not support the narrative of home being a safe place.

[5] https://www.sportwaikato.org.nz/news/be-kind,-stay-home,-save-lives.aspx
[6] https://www.usatoday.com/story/opinion/2020/03/15/coronavirus-stay-home-hel-america-save-lives-column/5054241002/
[7] https://www.dut.ac.za/stay-home-stay-safe-save-lives/

Second, I explore the consequences of 'bubble' living on the mobility of mothers throughout the course of the pandemic. The 'bubble' metaphor has been closely linked to the household unit (Kearns, 2021) and alludes to a familiar everyday connection. Yet the implied transparency of a bubble and the ease in which a bubble can pop indicates a necessity to navigate around other bubbles with care. Take into consideration the everyday public situations through which awkward encounters can happen, passing someone on the street turns into an ark out manoeuvre to avoid close contact (Bissell, 2020). Grocery shopping requires the wearing of a face mask which changes how people relate to each other, earning a nod of thanks when wearing one or a tut of disapproval if not (Bissell, 2020). For mothers with young children, 'bubble' living can be difficult to maintain in the real world.

Thirdly, I detail how mothers' behaviour changed over the course of the pandemic. I offer discussion around how mothers make decisions regards the health of their family, challenging scientific epistemology as the primary form of knowledge. By exploring relationships between the medical profession and mothers as care providers, I offer an explanation of how discourses around mothers and vaccinations for both themselves and their children need to change in order to acknowledge the role mothers play in disease management.

"Given what we know about human history it is likely that sometime in the future, the world will be faced with other pandemics of equal or perhaps even greater magnitude" (Andrews et al., 2021, p. 5). Geographical research can contribute to global preparedness, and thus provide knowledge on spatial realities, such as the link between vaccine hesitancy and mobility (Andrews, 2021; Bissell, 2020). This chapter closes with a critical summary and I suggest ways in which future health geographies can investigate further motherhood, mobility and disease.

How does 'home' change for mothers during a pandemic?

The lockdown of March 2020, from a medical geography perspective, was a strategy that spatialised public control over welfare, health, security and private mobility in order to minimise contact between infected individuals (Malatesta et al., 2022). Whilst figured as a simple

instruction, the complicated realities of home seeped into mainstream media discussions (Aridi, 2021) with an unequal experience being lived in everyday lives (Bowlby & Jupp, 2021).

Geographic studies of 'home' highlight it as a complex and multi-layered concept (Blunt & Dowling, 2006). The thought of home for many brings up images centred around the western perspective of a nuclear family within which there are gendered roles and activities often centred around a woman's daily life where household economy plays a significant role (Dyck et al., 2005). Many geographers argue that a home is a combination of *place* – a physical location and literal building, embedded with *feeling* – and emotions created through daily interactions, routines and relationships with others both within the household and the local community (Blunt & Dowling, 2006). Emotions are fluid that change across time and move within space, "our emotional relations and interactions weave through and help form the fabric of our unique personal geographies" (Davidson & Milligan, 2004, p. 1). Families create unique and ubiquitous geographical flows centred around the home as a focal point.

Home as sanctuary

During the Level 4 lockdown in March 2020 'home' became the focal point of COVID-19 and for some, 'home' was a place of sanctuary and the lockdown was permission to enjoy the qualities that make a house a home, such as family time.

> Gemma: The very first lockdown. I think at first it felt like 'okay, we can do this okay', being at home like, actually this is quite nice to spend time together. Because it was also coming into our Easter time … it felt like a long, extended weekend and getting to hang out together. (Individual interview April 2022)

> Jo: Firstly, we enjoyed it. Couple to three weeks, probably we did, you know, clean up. I think everybody did - all the wardrobes. Yeah, we did a lot of art, so we really enjoyed time with

the kids … I remember we didn't go out for maybe four or five days. (Individual interview March 2022)

Flo: I loved it. I friggin loved it. It was like permission to relax, and we're in this beautiful goldfish bowl … we had really good family time. We had really good one on one family time. We kept it away from the kids and we said 'look, my husband's getting paid, I'm getting paid even though it's a really small amount, let's just try and enjoy it here'. (Individual interview March 2022)

These feelings of enjoyment and acceptance in a time of global fear and uncertainty highlight the complexity of the pandemic where place, time and emotion are deeply intertwined. "Although geographers have argued that time and space are interwoven in everyday life" (Liu, 2021. p. 1) the 2020 lockdown saw the domestic time-scapes of families alter dramatically producing new rhythms and cycles which were, for many, predominately centred around the 1 pm news report, where the COVID status of the country was discussed.

Figure 5.2 is a copy of two images depicting Prime Minister Jacinda Ardern and Director-General of Health, Ashley Bloomfield reinforcing the key message at the time which was to be strong and be kind and urging all New Zealanders to play their part. The Prime Minister's daily message was infused with emotion and actively reminded all New Zealanders of their role to keep the virus at bay. These briefings provided a connection between the micro-geographies of all those at home, and the 'team of 5 million' image portrayed by the government (Beattie & Priestley, 2021). Feelings of home were stretched across the country.

Cara: And then after lunch, after the one o'clock announcement that we'd all wait for, then we'd go down the beach. (Individual interview April 2022)

Gone were the multiple temporalities produced by complicated family dynamics within and beyond the space of home, such as: the after-school sports clubs; the daily commute to work;

the doctor's appointments; and, birthday parties. These were replaced by routinised daily practices reflecting a new timetable in which mothers suddenly embodied all external roles of doctor, nurse, teacher, entertainer, friend and financial earner (Liu, 2021).

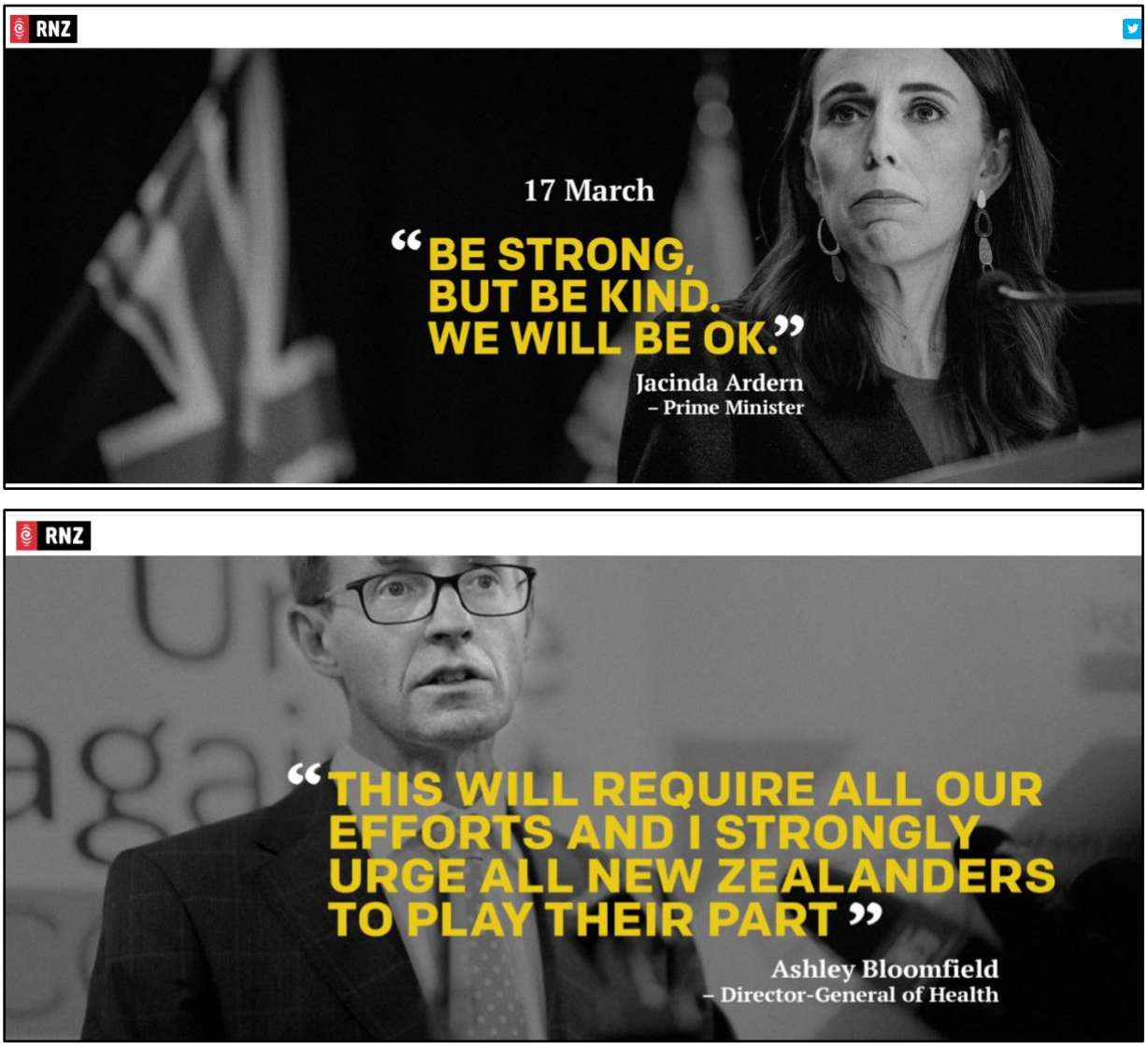


Figure 5.2. Infographic of Prime Minister Jacinda Ardern and Director-General of Health Ashley Bloomfield

Source: RNZ Covid Pandemic Time Line.

This new routine was a reflection that home, during this time, was not simply an imagined closed and private space but rather a social organisation shaped by the public sphere (Liu, 2021). After

the initial enjoyment of those first few days in lockdown, the home came under pressure becoming an intense site for everyday life (Bowlby & Jupp, 2021).

Katie: It was really hard in the respect that I was building my own business. I started my business in 2015 and I still have lots of clients I'm trying to like, you know and my husband was working at the kitchen table. As he does numbers, he needs quiet time so we had to establish those routines where I would literally, at 8 am, I'd take the kids for nearly an hour and a half to two hours walk every morning. So, we kind of had to do shift work. So, I was like, I'd do 8 until 2 or 8 until lunch time because then my daughter would go down for her lunch time sleep for two hours. Then at 2, my husband would take the kids for a bike ride or play ball outside so when I was trying to do work and establish relationships with people through Zoom, that was actually really quite full on. (Individual interview March 2022)

Cara: It was hard. Emotionally draining. Stressful. It took a toll of my relationship. Yeah, that was, that was a big test of how – gosh, I'm so emotional over it. There was a lot of arguments. There was a lot of wanting to escape … You couldn't go anywhere. You couldn't add anyone in … So, we'd go to the beach and had a little routine. I mean we'd get up; we'd get dressed, you know; shower, get dressed, have breakfast. And then after lunch, after the one o'clock announcement that we'd wait for then we'd go down to the beach and stroll. (Individual interview April 2022)

Gemma: I went into organise teacher mode I think and created this big A3 calendar … I drew up the weeks and every single day I would write a draw picture of the things, activities we're doing and I'm just going, I'm just going to do my best you know. We would go down to the beach everyday the kids and I, and just fill the days but as the weeks started to go on, because it was a total of eight weeks we were at home before we could go anywhere. I really like, it just started to get so tough. (Individual interview April 2022)

For all the mothers involved, but in particular for Katie, Cara and Gemma, home become a place of feeling overwhelmed and increased pressure. For Cara, who was working from home with her husband, and Gemma, whose husband was classified as an essential worker and was therefore not at home every day, this meant that they had to renegotiate their time-space mobilities and generate new routines to get through each day. Liu (2021) discusses how home is a site of multiple temporalities encompassing three themes: the materiality of home; the lived experiences; and, the domestic entanglements of nature and culture. Home, therefore, is a varied space where family members come together to live out their individual routines yet it is where "women often experience overlapping work time, leisure time and care time at home; this overlap is tied to their roles are mothers and wives" (Liu, 2021, p. 350). This overlap has been made very apparent by Gemma who created a large A3 calendar of activities to structure the time and meet the needs of everyone in the household (see Figure 5.3).

Liu (2021) goes on to discuss how time is thickened by emotions and explores the idea of 'emotional work' in which "the management of one's own emotions and others' emotions make individuals feel emotionally drained after the accomplishment of routine domestic practices" (p. 351). Davidson and Milligan (2004) argue that "without a doubt, emotions matter … they can clearly alter the way the world is for us" (p. 524). This is again perfectly represented by Gemma on her calendar (Figure 5.3) where she writes under Thursday 16th, "Lots of yelling and crying. Lockdown is hard today".

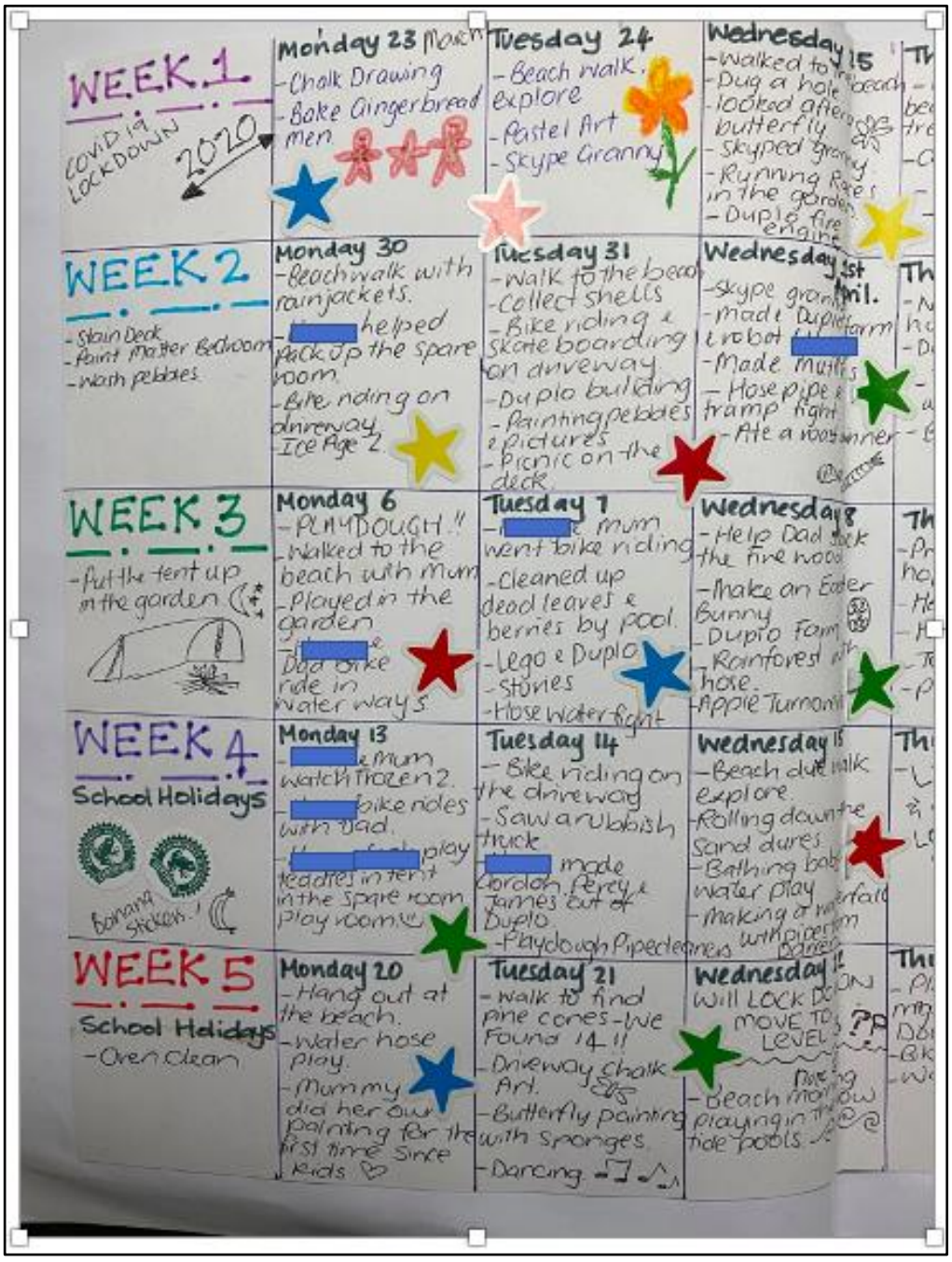


Figure 5.3. Weekly planner of activities devised by Gemma, mother of two during the 2020 Level 4 lockdown

Home as a space of care

During this 'full' lockdown (25th March to the 13th May 2020), the primary residence - which is already a significant site for self-care and care exchanges between those living in the home (Bowlby & Jupp, 2021) - became a location where, for the mothers in this study, emotional well-being was under pressure. Care for the self, such as bathing, dressing, eating and relaxing is vital to well-being (Bowling & Jupp, 2021) and often requires being alone in order to gain the mental relief required to reset and recharge. This is a task made almost impossible with the inequitable burden placed on mothers during this time (Barroso & Horowitz, 2021). For children who are too young to regulate their own self-care, the responsibility lies with the parents to ensure their well-being needs are met, with mothers shouldering this responsibility (Barroso & Horowitz, 2021). The consequence of this turned 'home' into a place that was both safe and unsafe.

> Cara: I knew my home was a safe place but I wish I could have escaped it. (Individual interview April 2022)

> Mary: My husband was working full time from home … my dad was also working full time from home … All of a sudden, I was left with four kids that I was trying to figure out what to do with.
>
> Beth: So, what did you do?
>
> Mary: Panicked [laughs] a little bit … I went online and I found colouring things and things the kids could be doing … Everyone made it work and then it was, it was still quite stressful.
>
> Beth: Who was looking after your husband and father? Were you doing all the cooking and cleaning, the whole package?
>
> Mary: yes, oh yes.
>
> Beth: And how was that?
>
> Mary: It was a lot … everything was feeling, overwhelming. (Individual interview May 2022)

Gemma: I found myself around week five, week six just yeah, just starting to break down a lot more. Yeah, crying a lot more. Ringing my husband, needing him to come home early from work some days. His boss was really good about it. And then yeah, there was just the odd day where he didn't go [to work] at all. I mean for my sanities sake there was running, so basically my husband would come home from work and I would just hit the pavement and run. (Individual interview April 2022)

Figure 5.4. A snap shot of the day for Gemma and her family during the 2020 Level 4 Lockdown

Gemma is a married mother of two children, who at time of writing are aged 6 and 4, and during the 2020 lockdown were aged four and two. Her husband is classified as an essential worker working in the medical system and worked regular job hours nine am to six pm. This meant throughout the lockdown she predominately carried the weight of looking after the children; supporting their well-being, completing the housework, whilst also worrying for family oversees (her mother lives in South Africa) and the state of COVID in New Zealand. This feeling of being overwhelmed (see Figure 5.4) is mirrored throughout each of the participants' experiences.

At the time of the level 4 lockdown, Liz was recently separated from her husband and in the process of getting a divorce. She has two children and at time of writing were aged six and four. Prior to the lockdown Liz had recently gone back to her studies at university when the pandemic hit. The challenges she faced as a single mother during this time are unique to her and throw light on the difficulties of managing the health and well-being of her children, her own studies and aligning with her partner who lived in the next district.

Liz: It was just very overwhelming … we weren't even allowed to go shopping with children, so when you are home with kids, like you can't go and get groceries if you need something so it was sometimes a bit of a predicament.

Beth: What did that feel like?

Liz: I suppose a bit helpless … so you're kind of at the mercy of other people's help and donations and that for me, I'm just a bit of a prideful person so that was a low blow for me to have to ask for help.

Beth: Because of your marital situation were the children with you half the time or solely with you?

Liz: Most of the time, we hadn't gone to 50:50 splits and their dad lived quite far away … I'm on the way to drop them [with their father] and I'm like 'Oh my goodness, I'm scared to let you take my children because maybe I won't get them back'. I think I had them for the whole, for most of the isolation because he was in a new district and you weren't allowed to cross districts [referring to the management strategies]. So, a lot of families, you might have read about it online, they were wondering 'Can their children even see their other parent because that parent has to travel to see them across the district and districts are all sealed'. There was one time where I was worried, they were at their dad's house and I didn't know, well will I get to see them again? When will I get to see them again? Are their cop cars waiting, you know? (Individual interview April 2022)

In the above quote Liz explains her fear and anxiety that circulated when travelling through public spaces. Prior to the pandemic "we had got used to mobility being positive and enabling" (Bissell,

2020, p. 152), the restrictions flipped that on its head and travel became fraught with uncertainties. Bissell (2020) talks about how lockdowns generated capsular places of living where our private spaces became public and a closed bubble, functional but devoid of meaning. For Liz her home became a private space that was no longer a haven. Home, instead was remoulded to suit the needs of her and her children. A place of entertainment, self-care, play and education for all.

Liz: We had to teach classes online and do lectures online and assignments and you can't ignore children. Everything's on Zoom, I'd be having Zoom in my ear, phone in my pocket, running after kids that were jumping off things and putting them to bed and then carry on until basically, till 2 am every day. So, I think I was not off sound mind, lack of sleep. It was extremely hard with all my studies on line.

Beth: How did that make you feel about your own home?

Liz: Oh, home was not a relaxing place.

Beth: No?

Liz: Noooooo, it was just overwhelming. (Individual interview April 2022)

This change in the dynamic of 'home' with emphasis of paid and unpaid work into the home space created heightened psychological and emotional pressures (Bowlby & Jupp, 2021). For those with small children or teenagers, caring for others involved not just "immediate practical and emotional tasks, but also the labour required to provide reassurance and stability at a time of wide spread insecurity and anxiety" (Bowlby & Jupp, 2021, p. 426).

Bubble living – Don't stand so close to me

The pandemic redefined our relationship with space (Wolman, 2020). The spatial realities of the lockdowns have altered how people live within communities and homes and brought to the forefront the debate about safety. The bubbles metaphor, first coined by Dr Tristram Ingham from the University of Otago, was widely used by the Prime Minister in New Zealand's response to the virus (Kearns, 2021). The public were encouraged to "quickly identify the people who will

be in your life consistently during the level 4 lockdown and settle on your bubble" (Kearns, 2021. P. 327). These bubbles "altered the inter-personal dynamics that have evolved between people in public spaces" (Bissell, 2021, p. 153) during the daily exercise outings the public were encouraged to take. Bubbles were not to mix for fear of 'popping' (Kearns, 2021) and allowing infection to occur. This perception of safety is unique to each individual, shaped by their "own assessment from risk or danger based on a combination of ideas, values, perceptions and experiences" (James, 2020). Safety from the virus could be obtained by staying in your bubble, a message frequently voiced by the Prime Minister and Director General of Health Ashley Bloomfield in their daily briefings.

Liz: There was the whole bubble thing, so remembering people all the time 'stick to your bubble', like the smaller the bubble the better right? (Individual interview April 2022)

Katie: I really made sure that the kids maintained their distance and I do remember one day, some old lady stopped me from two metres away and was like 'I'm so glad you are controlling' well not controlling but enforcing that distance, but I guess, because she was even wearing a mask – I don't think I wore a mask when I was out for family time - because she felt like some people were going for walks, and people weren't staying away from each other. She actually thanked me for it and was like 'oh what a good little boy you've got, he actually listens'. Yeah, that's one thing I do remember. So, I guess it was trying to help people that needed it more than we did as we were younger. (Individual interview March 2022)

Mary: I would say I got quite worried leaving the house for quite a while and doing anything. I mean, at that point masks weren't quite a thing. It wasn't like it was an issue but I mean more, just that people walking dogs and things that just wouldn't move to the side and wouldn't give people space for their bubbles. We didn't go to the beach because I didn't want to have to meet someone on the path up and down to the beach.

Beth: You mean going up and over the dunes?

Mary: Yeah, because the paths are really narrow with four of us. We taught the kids bubble formation, so we could call bubble and they would quickly like move and come back to us and then they could all run … I got very worried about it. (Individual interview May 2022)

Beth: Are there some places you didn't want to go?

Cara: Yeah, it was just the supermarket. I was like 'I don't want to go over there, I don't want to stand in the lines', I was like 'Off you go' to my husband 'because you can stand in the line, here's my shopping list'. I felt safe [at home], I didn't want to leave my bubble. (Individual interview April 2022)

The bubble metaphor offered a place of sanctuary whilst navigating an 'unsafe' public space and encompassed the physical location of 'home' and bound a family together whilst moving through public space. For Mary it was individual experiences of navigating the sand dunes during the pandemic that influenced her perception of that space in regards to safety. It was the people within the space that were 'unsafe' as opposed to the location itself, the shared space of the beach became shuttered and the connections between others using that space weakened. For those unconcerned with social distancing and later, mask wearing, perhaps they viewed the risk from COVID-19 as low, however "if an individual is engaged in perceived 'inappropriate' or 'unsafe' activity, the entire space maybe viewed as such" (James, 2020, p. 189) as it was for Mary trying to navigate the sand dunes with her family.

For Gemma, the lockdowns she and her family experienced caused her to contemplate moving away from the area as it highlighted the importance of access to family during such a stressful time period. This feeling was shared on a global scale, Bissell (2020) discusses how families were separated over great distances with little chance of being able to see each other in the near future. These movement restrictions created social and emotional consequences that influenced decisions around mobility and locality (Lawson, 2022), opening up avenues of thought around *where* is best to be during a pandemic. Is accessibility to family and loved ones, even with

restrictions in place, more important than being in a place which has fewer cases of COVID-19 and access to outdoor spaces?

Gemma: I couldn't wait to make that first trip up to Auckland to see [family] and for them to come down here. I felt a real disconnect. Yeah, it just felt like such a long time. So maybe at the time I thought I really want to make a point of seeing them, possibly not the first lockdown [2020] but this one we had when we all went to Level four with Omicron … I started having doubts about staying in the [local community]. I started thinking actually should we move back to Auckland. (Individual interview April 2022)

Gemma, however, came to realise that moving back to Auckland wouldn't solve the problems she was facing or the emotions she was feeling and that these emotions were not uniquely attached to people. Rather "particular places, spaces, landscapes and environments may act as powerful sources of effect, in the sense of affecting what is felt and what place" (Bondi, 2009, p. 446).

Gemma: Once we went through what would moving to Auckland even look like, we realised 'no, we're not going to be having dinner with [family] every weekend and we're not going to be hanging out doing all these activities. The lifestyle we have down here would be, you know, it would be different in Auckland. We'd be living in a suburb where we're not close to the beach. So, once we started to actually ask what would it practically look like? I realised 'well. No this is just a very emotional time'. Emotions are heightened. (Individual interview April 2022)

This recognition and acknowledgement of the emotional impact of the disease suppression strategies highlights how emotional responses dictate movement and attitudes to space and location. For Gemma, the emotional pull of family in Auckland versus the reality of leaving an area which offered so much in terms of access to the open spaces that Gemma valued during the 2020 national lockdown, proved to be not enough to make the move. It does, however,

demonstrate the level of internal conflict Gemma faced and goes to show how the right living environment is powerful enough to override familial emotional response. In his commentary on waiting for mobilities, Bissell (2007) debates the event of *waiting* as opposed to journeying. He suggests that waiting is a "sense of anticipatory preparedness – a lying-in-wait-for" (p. 282). The lockdowns of 2020 increased a sense of distance whilst simultaneously time felt like it was slowing down, creating periods of waiting and delay (Bissell, 2020). It was here in the period of waiting, like for Gemma that those emotions felt at their most heightened, wondering when 'normal' was going to return (Bissell, 2020; James, 2020).

Moving forward

Transitioning from lockdown to life as normal has been dependant on the combined non-pharmaceutical strategies of social distancing, the use of face masks, international, national and regional lockdowns with the pharmaceutical introduction of the vaccine. Rollout began in early to mid July 2021 (Ardern, 2021) and meant that for the majority of New Zealand, a return to normal for the majority of the population happened quite quickly in comparison to elsewhere globally (RNZ, 2021). Yet 'normal' for many in 2022 looked very different.

> Flo: We are much more insular now. We literally just go to [local centre] and that's it. We might go out for day trips etc. They're well-chosen daytrips and well planned. It's almost like our world has shrunk. We don't think about that, the wider New Zealand anymore or the wider world. So, we do a lot more online shopping. I really just got to the library at quiet times. I don't socialise with my friends indoors unless they're like close friends, you know? Some of the friends that I know are more nervous about it, will always catch up outside. And yeah, so those things, just the daily routines that I've got, that I've got control over I adjust. Apart from, obviously school. (Individual interview March 2022)

The introduction and roll out of the vaccine allowed for an increased freedom of movement with the government relaxing the national Level rules. Welcomed by many the world over, the vaccine

was seen as a way to move forward (Hu et al., 2021). The New Zealand Government chose the Pfizer/BioNTech vaccine "due to its higher rate of efficacy and fewer adverse reactions compared to other COVID-19 vaccines, although all medically-approved vaccines have been proven safe and effective" (Prickett et al., 2021, p. 2). The vaccine was accompanied by the introduction of vaccine mandates supported by the use of a vaccine pass in order to attend places, such as hospitality venues here in New Zealand. This vaccine certificate changed the narrative around the vaccine for some of the mothers involved in this study. The mandates were introduced in the latter part of 2021, as the country was battling with the Delta outbreak. The main purpose of the mandates was to reduce the risk of key workers becoming infected and transmitting the virus to vulnerable people for example, young children, the elderly, or those at increased risk of infection (Skegg et al., 2022). At the time of interview, six participants were double vaccinated, one was and remains unvaccinated. The impact of those vaccinated and using the vaccine passes to move through the community was minimal. For some the vaccine pass created a feeling a safety and security knowing they were surrounded by people who were all vaccinated and therefore shared similar viewpoints such as Mary and Flo.

> Mary: as someone who was quite happy being vaccinated, the vaccine pass was fine … It just kind of meant that people that were in the room with you had also been vaccinated. (Individual interview May 2022)

> Flo: So, when it first came out, I did my due diligence. I said 'yes, Im going to get vaccinated because that's what a good community member would do. I'm going to protect my community. (Individual interview March 2022)

> Gemma: I'm happy I've got it. I feel protected. (Individual Interview April 2022)

Whereas for Cara and Katie, choosing to get vaccinated felt forced, with both displaying hesitancy around it. Had the mandate not been in place both would not have chosen to take the vaccination. Both work in education and chose the vaccine to keep their jobs rather than for the

level of protection against the virus it would bring: “I would have been happy not having it but the importance of my job and travel to me. I felt it was more important to me that I have those two” (Liz, interviewed April 2022). Despite six participants being double vaccinated, only Mary went on to have a booster. Any previous faith and trust they felt in the government programme have dwindled due to changes in time frame, poor communication, and sense of the process feeling rushed. A recent study into COVID-19 vaccine hesitancy and acceptance in New Zealand (2021) states that for those who are vaccine hesitant it was the potential long term side effects combined with the belief that becoming seriously ill if they caught COVID-19 was low (Prickett et al., 2021). For those who were vaccine positive, it was the desire to get back to normal and protect those vulnerable from catching COVID-19 that was their motivation (Prickett et al., 2021). With a shift to the Omicron variant accounting for the vast majority of infections in 2022 - where infected individuals are less likely to need hospitalisation (Skegg et al., 2022) - the need for a vaccination booster no longer seemed important. Restrictions at the time of interviews were easing and for those vaccinated who had also contracted the Omicron variant, were frustrated at the continued use of face masks and social distancing but appreciative of the level of freedom and movement they had.

> Gemma: Now the mask just feels, I mean I don’t like it. I don’t love it because it’s hot and teaching with it is annoying but to go to the shops? I don’t want to wear the mask, I can’t be bothered. (Individual interview April 2022)

The biggest impact on mobility was for those who chose to be unvaccinated. “A small minority of people harbour strong objections to vaccination and have been prepared to accept redeployment or redundancy, rather that agree to be vaccinated” (Skegg et al., 2022, p. 12). When asked about the vaccine, Jo was adamant that it was a waste for her.

> Jo: Definitely a waste. I would say it could help all the people aged 65 and older, or people who are not in good health … Not sure if it’s a good idea to vaccinate half the population and you still get COVID even thought you’re vaccinated … At the beginning I told me husband that we only get vaccinated if we couldn’t go back home … but it was impossible

to go anywhere. So, then we decided 'No, not even then'. (Individual interview March 2022)

The consequence of this decision was that her and her family's movement within the community was severely restricted. Without the vaccine pass, access to cafes, swimming pool and library was all out of bounds. The biggest impact was seen in her work. Jo is a self-employed cleaner in the community she resides and felt nervous telling her clients that she was unvaccinated. "I lost some customers because they didn't feel safe if I am not vaccinated and I came to their house even when they are not at home" (Jo, interview March 2022). As a consequence, Jo has had to create a new normal for her and her family, in which she has found new communities where people share similar views and movements. Liz echoes this sentiment, her vaccination status as 'vaxxed' has meant that despite retaining good friendships with all her friends she has been excluded on occasions for parties and gatherings amongst unvaccinated people.

Liz: I have a friend that has had anti vaxxer social events that he has organised that I wasn't allowed to go to … he wouldn't mind me being there, but because other guests would. They're so passionate about being unvaccinated that they would have a problem with me being there at their event. (Individual interview April 2022)

The vaccine mandates had powerful impact on the mobilities of individuals, and they triggered a strong emotional response. The response was fuelled in part by mis and disinformation and poor communication with public health boards and science informed mainstream media. This has opened up a space for forms of both health and anti-health activism as evidenced by the development of the Voices for Freedom group. This mother led activist group was initially based around vaccine related concerns but have gone on to become a leading movement against the government and mainstream media which I discuss in detail in the following chapter.

Mother knows best

Through these lived experiences of the 2020 level 4 national lockdown, the participants altered their relationship with their suburban communities. Home is not just the house lived in, but also the community within which people live and moves. Health services are an integral part of community (Meade & Earikson, 2000) and for the duration of 2020 and the majority of 2021, access to health care was essentially cut-off to many, with mothers forgoing trips to the doctors and turning instead to mothers relying on instinct when it came to their kid's health.

> Flo: I stopped contacting the doctor as quickly as I would when my kids were sick.
>
> Beth: Yeah?
>
> Flo: Because I didn't want to go to the doctors. I didn't want to. I just wanted to avoid sitting there, and I know you sit in your car now which is good but the waits were a lot longer. And I just thought 'well, I'm going to battle it through'. I was less reactive; 'oh my god it's going to turn into an ear infection, I'd better get to the doctors'. I was just like 'nah, I'm going to push it to the limit now'. I guess that was a change.
>
> Beth: Do you see that as a good change?
>
> Flo: Yeah, I do actually. I never really thought about it until now.
>
> Beth: Do you feel as though you have more faith in yourself, with your children's health?
>
> Flo: Yeah, I think I do. And so, 'calmness comes through confidence' so I think I'm a little more confident in assessing where he's at, and not necessarily relying on GPs but trusting my instincts. So that's been a welcome change and has given me some control over it as well, because I feel like I can see these things if they start to arise. (Individual interview March 2022)

All mothers felt their roles as health provider and carer were incredibly important and to a certain extent defined them. This new confidence was an extension of the role of mother in shaping the health of her children. When asked, all described it as something they just did and they all shared

the same belief in the functional health of their children. All mothers said they role model good health practices, such as preparing good quality food, exercising and looking after one's health.

> Beth: How do you view your role as a mum in shaping the health of your children?
>
> Jo: I do my best, I think, I hope I do my best. … Everything comes through me. I do everything. … It's just a part of being mum (Individual interview March 2022)

> Beth: When you make a decision about the health of your kids, is it a joint decision between you and our partner?
>
> Cara: I like to say we make decisions together. There are some decisions I just make for the kids.
>
> Beth: Like which ones?
>
> Cara: All of them actually.
>
> Beth: Now you're thinking about it?
>
> Cara: Yeah, from day one I've chosen to get the kids vaxxed, so that's all immunisations up to this one. (Individual interview April 2022)

In many countries "mothers are constantly bombarded with conflicting advice about ideological caregiving practices" (Fierheller, 2022, p. 213) and mothers are urged to take control of the health of their family. The navigation of this is challenging as mothers are faced with diverse maternal narratives about how to provide "good" health and care for their children. It can be argued that mothers are "constantly judged by individual health practitioners and experience systemic discrimination through everyday practices" (Fierheller, 2022, p. 219). In her commentary Apple (2014) argues that women's experiences, originally taught by her own mother or female relatives, formed the basis of mothering practices changed as scientific and technical experience increased. Mothers are expected to utilise scientific and medical knowledge in order to raise their children healthfully. She goes on to argue that "during the twentieth century women were gradually told they were to depend on the instruction of scientific and medical authorities" (Apple, 2014, p. 2), becoming scientific mothers. During lockdown, however,

mothers were removed from this relationship due to the limited access to medical practitioners and public health care since the implementation of the COVID-19 suppression strategies has created an environment for mothers to rely heavily on their (so-called) maternal instinct (Apple, 2014; Fierheller, 2022; Longhurst, 2012). An instinct and knowledge that reaches far beyond the data collected via nasal swabs and contact tracing. This maternal instinct can be seen with the uptake of the vaccine for five to 11-year-olds.

Vaccine hesitancy among mothers

My research found that "parents' decision to use vaccination services is complex and multifactorial" (Dubé, 2016, p. 1) and "mothers' decisions about child care are highly personal, shaped by experiences, beliefs, values and situation" (Apple, 2014, p. 119). Vaccine related decisions are portrayed as a spectrum of behaviours and beliefs from the rejection of all vaccines to active support of immunization recommendations and is context-specific varying across time, place and vaccines (Dubé, 2016).

When asked about how they felt about the vaccine for five to 11-year-olds, all mothers shared some concerns and hesitancy towards them. Two mothers were vaccine favourable and had either fully or partially vaccinated their eligible children. One mother was vaccine unfavourable in regards to COVID-19 vaccination. All of the mothers considered "old vaccines" as safe but had deep concern about the speed in which the COVID-19 Pfizer vaccine had been created. Many parents across Aotearoa reflected these opinions prior to the January rollout (Neilson, 2021):

> Cara: Not too keen on getting my kids vaccinated, no, not yet. I don't think, like the same as myself getting vaccinated. I just don't think there're enough evidence out there especially for kids. I think it hasn't been trialled properly enough, there hasn't been enough information out there at all. They're like cool, here's a lower dose of what we're giving our adults, we're going to give it to our kids and hope that they'll be okay. Both my kids

are up to date with their immunizations but I'm definitely not rushing [for the COVID-19 Vaccine], no way to get him vaccinated. (Individual Interview April 2022)

Beth: How do you feel about the vaccine for five to 11-year-olds?

Jo: They don't need it. I think, I will say they don't need it. . . .I will see so many cases of people ended up in hospital or you know fainting in the streets. You know, there is like 'I don't have more choice so let's try this one as well'. If that helps, then okay you know what I mean? Only then will I start thinking about the vaccine for kids. (Individual interview March 2022)

For Katie, mother of two whose family caught the Omicron variant in February 2022, there was a sense of relief of having caught the disease and therefore removing the immediate need of the vaccine for her six-year-old. Her experience of the disease overall was positive and therefore felt the vaccine could have been an unnecessary discomfort to have put her child through.

Katie: I'm kind of glad that [my son] has had COVID now. That just takes the choice away that I have to make. To be honest we would have had it done. We were supposed to be doing it [booked in for vaccination] but we ended up getting it [catching COVID]. … I don't know if I could probably have felt differently about that choice to if it had been a really bad illness and I would have felt that I should have got it [the vaccine] earlier but at the same time, we breezed through it and I was barely even sick. So, I kind of feel like actually, I'm glad I didn't put them through that because of the side effects [ref to vaccine] and I think kids are so resilient, but you don't know how they are going to feel, you know? (Individual interview March 2022)

Hesitancy and misinformation intertwine to create a barrier to confidence in vaccination decisions (Walker et al., 2020). With the basis of hesitancy embedded in fear, most often related to the unknown possible side effects. This fear leading to a delay in mothers choosing to vaccinate

their children against COVID-19. Florence shared her conflict between logic and emotional responses to the vaccine.

> Flo: It's annoying to me that I'm buying into this emotional decision because it is difficult to verbalise it. Before you feel like it's not a good enough reason, if you can't break it or make it, to break it down into facts and figures you know? I think it's a mamma bear thing as well right. You kind of lead your children by an emotional instinct. And that's how I feel at the moment. Like if I can avoid it than I should.
>
> Beth: What is your gut response to the vaccine for kids?
>
> Flo: That I'm not going to do it.
>
> Beth: And your brain response?
>
> Flo: That you probably should do it. Because it's another level of protection. You don't know what the disease is going to do to a child's brain. You don't know how they're going to react to it, and I'm not worried about their health. That's not what I'm worried about. I'm not worried about that for myself. I have sort of, I guess it seemed like a fear, I guess of that long COVID thing we were talking about. It's the damage to the brain that I've read about in studies … So yeah, in terms of the children's one I'm so on the fence. (Individual Interview March 2022)

The basis of this hesitancy stems from misinformation and lack of trust. In 2020 at the beginning of the pandemic the participating mothers looked to physicians, the public health board, national government advice, the media and their peers for trusted information. By the time of the interviews in 2022, all participants expressed a feeling of 'fatigue' around the information put forward about COVID-19 and the vaccines. Mirroring the findings of previous studies into other childhood vaccines that there has been an overload of conflicting information about safety and efficacy of the vaccine, making it difficult for them to know what to believe (Walker et al., 2020). Instead, recommendation was important and many mothers reported that they actively searched for 'like minded' peers in terms of vaccine belief and general health beliefs (Walker et al., 2020). When asked about whether they felt informed about COVID-19 and did they trust the

information they had access to all mothers reported that they felt they needed to trust the person the information was coming from as opposed to relying on the media or Public Health Board. These trusted individuals can be both a barrier to vaccine decisions or supportive dependant of the echo chamber being created by the individual mother. The media as a source of information for mothers, is often viewed with skepticism (Walker et al., 2020) and believed to be led by the pharmaceutical industry with a focus on financial gain as opposed to the best interest of people.

Beth: How do you know it's a trusted source?

Flo: Oh, to be honest with you, it's probably down to the person then. Whether or not they've shared my point of view through this? So, if they've shared my point of view, then I'm more likely to trust them. More so and that point of view if not just about vaccines, but their approach to keep their family safe. Did they get tested when we went into isolation last year which is what I did? (Individual interview March 2022)

Beth: Are there any websites that you go to for information because you trust them? So, you don't need to do quality control because you trust that information?

Gemma: No, I literally am not someone who looks for it. I probably talk and I ask people more. I'd ask my dad, I'd ask my brother, I'd ask my friends, I ask my husband. I would probably ask people who I consider to be worldly intelligent. Probably done the reading themselves, for my information. … When I'm reading the Herald, we read the Herald everyday, I definitely respond more to people's experiences of having COVID pre-vaccine and also after. So, I found those interesting to read because that's someone who's actually experienced that. (Individual interview April 2022)

The concept of scientific motherhood that was promoted throughout the nineteenth century (Apple, 2014) changed substantially through the twentieth century. Despite the reliance on modern medicine and professional medical advice, mothers began to view the medical opinion as one of many and that lived experience outweighed advice. This can be seen in the attitudes of

the two mothers who were vaccine favourable towards the COVID-19 Pfizer vaccine had actively chosen to trust the science behind the vaccine, in particular that of Mary.

> Mary: I have made a conscious decision to trust, for most part the government, obviously realising they are humans and that humans make mistakes. … I am fairly sure that the government kind of overarching thing, has the best interests of people and that is what I stand for as well. I would rather put people over money. … People who know a lot more about stuff than I do think this is the right thing to do. People seem to be reasonably healthy and we seem to be able to be living life and I just, I don't believe there is some kind of global conspiracy. … I think it is a conscious decision that actually we will trust.
>
> Beth: So, you trust the science for the vaccine?
>
> Mary: Yes. Yes. Without understanding it at all. (Individual interview May 2022)

Despite her positive attitude to the vaccine Mary still took into consideration the health risk of the Omicron variant and as a consequence was not too worried when her older son was not double vaccinated. She respected and appreciated the help provided by her GP and children's nurses but was not blind to other factors that influenced her decision.

> Mary: I feel safer knowing [my daughter] has been vaccinated. At the same time because it's the Omicron variant, like we said earlier, it's not as deadly and I'm not as worried that [my son] isn't fully vaccinated. I will happily let it go, whereas I think earlier we probably would've done everything to get it. (Individual interview May 2022)

There are numerous pathways by which mothers might conceptualize risk. Vaccine decision making pits perceived benefits, such as the belief that COVID-19 vaccine uptake will reduce the risk of disease threat, against perceived barriers; that the vaccine is dangerous (Walker et al., 2021). All the vaccine hesitant mothers expressed worry about vaccine safety and felt rushed to make a decision. The majority of mothers wanted time to look for and weigh vaccine information carefully. Gemma hesitated making the decision to get her son vaccinated but still did so.

Beth: How do you feel about the vaccine for 5 to 11-year-olds?

Gemma: I don't know, I mean, I didn't really like the idea. Again, it just felt yeah, I didn't like it but I was like, 'is this the only way to protect?'.

Beth: So, did you?

Gemma: Yeah, [my son] got vaccinated. (Individual interview march 2022)

Beyond their uncertainties about the vaccine there was also distrust regarding the role of public health authorities. This was a perception heightened by the level of misinformation prevalent at the time (Wiggins, 2021). Diffusion of disease occur over a web of places and people that are tightly connected. However, this diffusion is not limited to disease itself but also the spread of information. Via social media networks health providers have been able to widely share information that is essential for public knowledge (Venegas-Vera et al., 2020) however, this has been challenged as social media has been employed to perpetuate conspiracy theories, potentially manipulating people and challenging governmental risk management strategies (Arnott, 2021). Accepting but hesitant parents may still be vulnerable to the tactics of anti-vaccination groups (Walker et al., 2020). This has created a frustrating environment as demonstrated by Flo who, upon reflecting back to 2020, had felt informed about COVID-19 and trusted the information available via the mainstream media, government announcements and public health boards. By 2021, however, was disheartened by the amount of anti-vax narrative that was out there.

Flo: I also felt like at one point there were more people, there was a stronger voice out there, those who were anti-vaccine. And there was a lot of it on the news, and through friendship circles as well. And I felt that at that point there needed to be more easily accessible information, easily accessed information about the good things about the vaccine whether it was through TV commercials or news ads or just more information. Easily accessed, easily digested for the busy person, right? Because that voice [refers to anti-vaxxers] was getting quite strong. I didn't seek it out though Beth, I don't know why

> I didn't look for more information about the vaccine and the good things of it … and that's why I wanted sort of these little snippets, snippets of information that just to reassure me that my choice wasn't wrong. … I felt like the government could have done a better job of fighting that fight and being transparent because they weren't. (Individual Interview March 2022)

All of the mothers involved made their decisions regards vaccinating their children in a spatially context-specific manner based around their family situation. Influenced heavily on external factors, primarily the personal experiences of others they trusted combined with the research these individuals had done. This method of sourcing information from trusted and respected friends and families became more powerful than data and information provided through public health authorities, medical providers, and the national government. I argue that this in turn made the mothers involved sources of information within their own circle of friends, family and the wider social community. They generated personal echo chambers where similar beliefs can be shared outside of the influence of both mainstream and social media platforms. "A mother's social network can have strong and positive influences on both maternal and child health" (Fierheller, 2022, p. 222) and that collective mothering challenges the normative mothering ideologies that position mothers as "solely responsible for their children's are and wellbeing" (Fierheller, 2022, p. 222). Collective mothering also connects mothers that come to challenge perceived oppressive systems, such as the vaccine mandate, by recognising shared vulnerabilities and providing collective action and support networks. Mothers also became the target of anti-vaccination movements who used the mother's primary role as caregiver as an opportunity to instigate their beliefs and attitudes. Aligning themselves with the 'intuitive mother narrative' (Baker & Walsh, 2022b). Voices for Freedom began as a group of 'other' mothers (Fierheller, 2022) – white, middle-class yoga mothers (Chapman, 2022) - who banded together as a form of activist mothers who argued for their perception of what was best for their children's health and wellbeing alongside claiming public space in which to shine light on the perceived forms of injustice against mothers and children (Boyer, 2020). The development of this group altered the personal geographies of those involved, as I highlight in the next chapter.

Conclusion

The impact of the restrictive measures to control to COVID-19 outbreak caused a profound change to people's habits and routines on a global scale. The series of non-pharmaceutical and pharmaceutical management strategies created a cascade effect moving through the physical sites and situations of each household, generating strong emotional responses which led to new embodied ways of knowing. I have shown how the concept of 'home' during the pandemic has been challenged as it explicitly transforms into a location with multiple roles and conflicted meanings. Mothers' view of home has morphed into one of both a haven **and** a site of distress. A location with a new time-scape and series of routines, set up around the micro geographies of all who live there. Areas within the home have been used in different ways as children transform corners of rooms into play areas or classrooms. Paid work from home has taken on new meaning and made the private life public.

'Bubble' living has opened up new avenues of how to navigate public spaces and offer protection from the virus to both one's self and others. Allowing engagement with the outside community that is essential for good mental well-being and offering temporary relief from the pressures put on the home (Marques et al., 2022). The periods of waiting during each lockdown cultivated these new emotional responses and opened up opportunities where mothers relied less on the medical advice of professionals and fell upon their own intuition and reasoning skills. I have also discussed how the rise of dis and misinformation correlates with mothers' decision-making process.

The relationship between motherhood, vaccine uptake and health geography are embedded within understanding the ways in which mothers source knowledge and become a source of knowledge for others. Mothers may rely on medical professionals to provide relevant advice on health-related issues but are not "merely passive recipients of medical advice" (Apple, 2014. p. 121). As I argued, mothers use a range of information from multiple sources to guide their decision-making processes. In the case of the COVID-19 vaccine for children aged five to 11-year-olds, the conflicting advice offered across the numerous avenues of (dis)information has led to

mothers feeling increased hesitancy and lacking confidence in the health benefits that are gained from vaccination.

In chapter six I discuss how this embodied way of knowing is visible in the mobilities and movement of each family within the community. The implications of vaccine hesitancy for children translates into the real world at schools, playgrounds, shopping centres and other child-focused public meeting places. I examine where the main locations of interest are for each mother in this suburb and explore how they feel about these places. I use geographies of health and mobilities to creating a new form of analysis for COVID-19, and address the ways in which a mother's duty as care-giver is performed and negotiated in and through their everyday emotional spatialities.

Chapter Six

Emotional mapping as a window into the impact of COVID-19 of mothers with young children

The global understanding of the impact of the COVID-19 pandemic has grown with the use of mapping. Visual representations of related quantitative data collection paint a 'big picture' as demonstrated via real-time dashboards, such as the John Hopkins Coronavirus Resource Centre (Rosenkrantz et al., 2021). These maps provide an important visual representation of mortality and morbidity and effectively communicate disease impact (Rosenkrantz et al., 2021), however they are unable to show the everyday geographies of how people feel about, and react to, the disease. When exploring how COVID-19 has impacted on the emotions and movements of mothers with young children it is vital to move away from the quantifiable nature of data collection of 'where' mothers go and 'where' mothers feel safe to take their children. Instead, I put emotions at the centre of the dialogue and ask 'why' do mothers feel safe and / or unsafe in certain places with their children? It is this 'why' that leads to 'where' the virus may spread and offers opportunities to help identify whom may be the most at risk. These emotional attachments to space and health are important because they create a sense of place and help us recognise how our emotional lives are inherently spatial (Steger et al., 2021).

In this chapter emotional cartography as a methodological approach is used to elevate emotions from the periphery to the centre of dialogue about disease management. I share the emotions that arose at particular locations within the research area and explain how each mother chose to navigate those spaces differently. "Emotional attachments are important because they create a sense of place; the cognitive, affective and *embodied* understandings that are cultivated through place-based experiences" (Steger et al., 2021, p. 3. italics in original). The pandemic has brought to the forefront personal geographies and altered mothers' relationships with home and communities. Underlying the surface structure of houses, roads, people are cars, are a deep web of patterns that embody the meanings and values about human society (Steger et al., 2021). Perception of disease severity plays a significant part in these mobilities as well as time from

initial pandemic outbreak. My research found that in order to navigate spaces within their suburb mothers compliantly adhered to the government sanctioned management strategies until the introduction of the vaccines. At this point I discuss the ways in which emotions dictate mobilities in the face of public health orders.

What emerged was a perception of COVID-19 that was three-fold. Firstly, there was the response to the disease itself which fluctuated between fear and acceptance. Secondly, there was a response to the management strategies of the disease following a localised primary school lockdown, that triggered a significant emotional reaction. Thirdly, there was the response to the physical environment and where participants were happy to take their children with the above two points in mind. Time frame was an important factor when undertaking this research. Interviews took place in-between March and May 2022, two years after the pandemic started. During this time the management strategies put in place on a global scale had led the mutation of COVID-19 through numerous variants. At the time of interviews Omicron was the dominant variant in the local community, vaccinations were available and had recently been approved for uptake for 5-11-year-olds and physical restrictions were easing. This meant that each participant had already adjusted their neighbourhood mobility according to where they felt safe and/or not safe with their children. Mothers' emotional geographies constantly shifted as they conformed to and resisted the changing pandemic and population health requirements.

This chapter highlights mums and children's emotional geographies in supermarkets, schools and outdoor spaces. Ministry of Health COVID regulations meant that mothers needed to comply with mask wearing in super markets and workplaces. Some workplaces had vaccination requirements. Children's experiences (as told by their mothers) were typically in areas governed by adults such as playgrounds. Here the children were subject to extra parental and government-led control. Each participant was asked to identify on the map the places that prior to the pandemic they would typically go to in their everyday life and with some regularity, such as weekly. They then were asked to annotate the map with where they would go and how they felt about taking their children there.

Safe and unsafe places

The ongoing impacts of the COVID-19 suppression strategies in Aotearoa New Zealand have been wide-ranging. In regards to well-being, the importance of access to open spaces and green areas has been enhanced through the closures of exercise venues. In a commentary by Marques et al. (2022) on the importance of outdoor space in New Zealand during COVID-19, they highlight how access to abundant green spaces improved health and well-being for individuals and provide a large open place for safe outdoor activities and social interaction. They go on to discuss how open space are a refuge and affects "physical condition, individual character and mood, people's behaviour, and actions, as well as their interactions with outdoor activities" (Marques et al., 2022, p. 13). For the mothers in my study, the relationship with the environment was indeed a haven against the challenges and pressures of home. The beach is identified as a particular safe space for all, with each mother locating the beach with a positive emotional attachment. Gemma symbolised the beach with a love heart on her map (Figure 6.1), emphasising its importance for her and her family: "The beach, they absolutely love, just outdoors they love. I feel like we all do. I'm not fearful" (Individual interview April 2022).

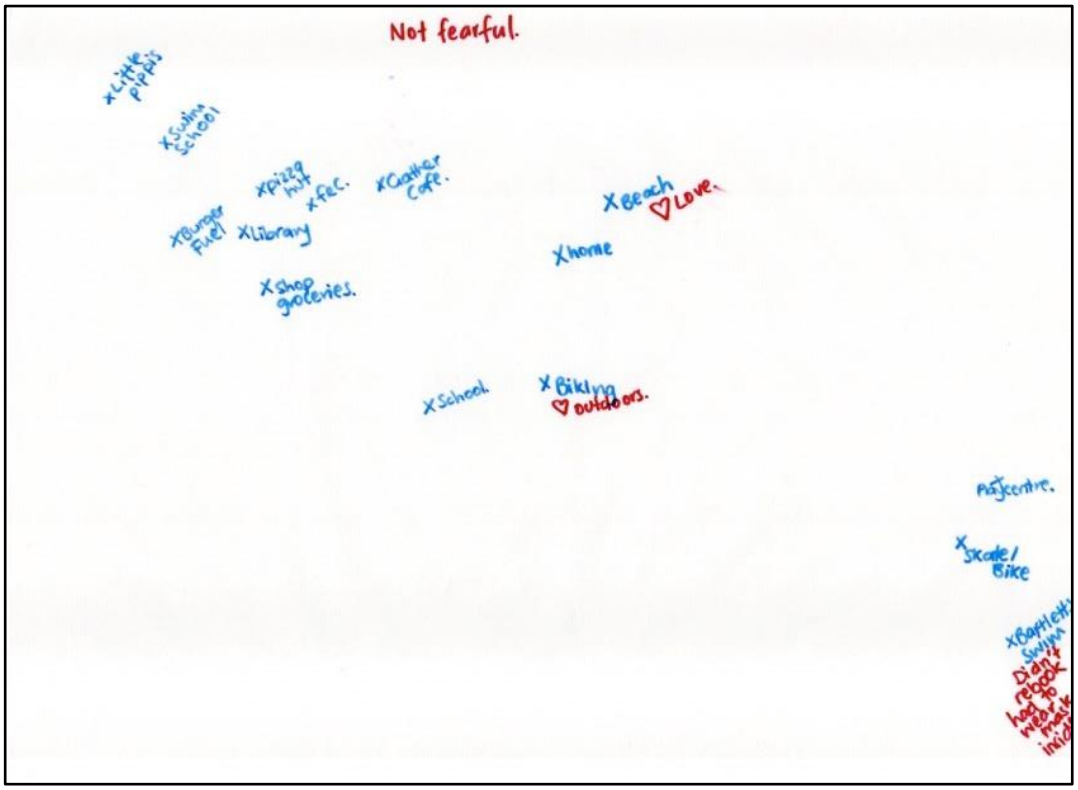


Figure 6.1. Gemma's emotional sketch map

The benefits of outdoor space are significant for all mothers' mental health and well-being. The walkways, reserves and wetland were utilised daily for all mothers and their families. Mary and her family live in a house which backs onto the reserve, water way and bike path. As a three generational household with her husband, parents and four children – some of whom are immunocompromised – being outdoors has been integral to supporting everyone's mental health. As she interacted and engaged with the map, Mary specifically located a loop from her house which included the beach, local playground, walkway and even the waterways where they would take a kayak and paddle around the pond (Figure 6.2). Mary annotated these outdoor spaces with 'love', clearly identifying the emotional connection to somewhere safe. Her only concern, as discussed in the previous chapter, was the narrow pathways either across the dunes or through the small paths where her family would pass other beach goers. In these moments, it was the families use of the bubble metaphor that enabled them to navigate those spaces with confidence.

Figure 6.2. Mary's emotional sketch map

Back to school

In Aotearoa New Zealand the lockdown restrictions and guidance were some of the most stringent in the world (Freeman et al., 2022). For children these new rules upturned established routines of play and interaction with their immediate community. Schools were closed off to them and children missed going to school and seeing their friends (Freeman et al., 2022). The local primary school is a site of particular importance as it is a location that unites all mothers involved in this study with all having at least one child in attendance. The emotional attitude towards the school fluctuated through 2021. Parents and caregivers were not allowed on the school grounds during much of 2021 due to COVID-19 restrictions and it has been the site of two individual lockdowns. The first being the National Level 4 lockdown, 17th-30th August 2021 and the second, was a school specific lockdown after a child tested positive for the Delta variant in November 2021. At this time, the vaccine for children aged five to 11 had not been verified. The November 2021 lockdown triggered a significant emotional response from all mothers, but in particular, for five of the six families who had children considered close contact of the initial infected child. The day the families were notified on infection, the principal of the school personally contacted each family who were considered close contacts. Everyone was advised to immediately get tested at the nearest testing centre which triggered a rapid movement of families to a sports and conference arena within 10 minutes drive of the school. The response across all mothers was wide ranging. Flo and Cara both expressed nervousness to the virus itself:

> Flo: It's like a trigger in your head immediately. The fear is back. (Individual interview March 2022)

> Cara: To be told he [son] was a close contact to the person with it at school, it kind of sinks in a bit. You're watching out for the signs … cold, runny nose, sore throat. (Individual interview April 2022)

Flo took this one step further and is the only participant to openly acknowledge the relationship between herself and others. Describing that connection between mobility, community and disease: "I am also very aware of the way our community lives and we are literally on top of each

other. I see one mother here today. I'll probably see her tomorrow at three other places" (Individual Interview March 2022).

Jo and Katie were less fearful of the disease yet frustrated with the school itself. For Jo, the response of the school seemingly affirmed her anti-vaccination beliefs. She felt frustrated and angry with the school and queried what the whole point of the vaccine was. If, she questioned, the community had a high rate of vaccination why everyone still had to comply with lockdown.

> Jo: Stupid … They shut the whole school so yeah, I was a bit angry. Other schools can work after they [the students] got the negative test … And at that time, we knew that COVID was not that deadly a disease as we thought a year ago, and everybody is vaccinated. So why [should] people get the vaccine if you still going to be locked at home because you are a close contact (individual interview March 2022).

Whereas Katie felt the school was simply adding to the burden of being a mum during this time. Her thoughts of the virus were one of inevitably: "I was just like, 'oh here we go again'" (Interview March 2022) as opposed to genuine concern regards the potential of sickness or death. Katie and her husband are both double vaccinated and follow all the government guidelines for COVID, and with this lockdown Katie felt like she had had enough.

> Katie: I was so mad at school because everything just landed on my shoulders … It was just 'Oh God, here we go again', and I really struggled with at home schooling because [my son] treats me differently to how he would treat his teacher. And this does come back to community. I didn't feel very supported by the school and I didn't think they really understood what we were going through. (Individual Interview March 2022)

This was a collective moment of heightened intensity that throws light onto the entanglement that occurs between mothers, their lived experiences, and their relationships with the wider school community in their neighbourhood. Gemma's experience, at this point, is unique as she

was a teacher at the school during this lockdown: “I attended the staff meeting where we were told and I, to try not to be dramatic, I felt like I’d been hit by a bus” (Interview April 2022). The full extent of her experience has highlighted her position as a go-between, occupying space between the school and the parents. And also, the pressure of juggling the outbreak with mothering as she tried to sort out care for her children.

> Gemma: The meeting was going on quite some time so I was contacting my husband to tell him, then contacting daycare that I was going to be late to pick up my daughter. I felt the adrenaline, I was high on adrenaline. … I walked out of that meeting and just burst into tears with my team leader, we both just hugged each other because we literally had to grab our laptops and walk out of the classroom. (Individual interview April 2022)

Katie’s and Gemma’s experiences and feelings exemplifies the already widely acknowledged view that the pandemic has negatively and unfairly impacted mothers (Bowlby & Jupp, 2021; Durnová, 2020; Fierheller, 2022). It was within this particular school related lockdown that there was a shift in some of the mothers in regards to willingly accepting the public health advice. During this lockdown all those children who were considered close contacts had to undergo testing. Testing for Omicron was completed with nasal swabs at a testing site and performed in the car. After the initial phone call from the school principal, four mothers and their families went immediately to the nearest testing site. This counted as Day Zero, however by Day Three more cases had been confirmed and so Day Zero was moved to the new date. For these children, they had to have five tests in total as opposed to the normal three. All mothers describe how testing was awful, causing immense stress for both the child and themselves.

> Liz: We had to have our testing and then they found out there were other cases so our testing dates changed to be longer and have more tests. So, each time, the nose test goes quite deep and scratches in and I would have to restrain them [her children]. They’d be screaming … so they both can’t stand those tests (Individual interview April 2022).

Gemma: I remember that, the going and testing part, that was quite traumatic for [my son] (Individual interview April 2022).

Cara: Taking them to the testing station, and then starting the testing again because more people tested positive at school. That broke me a little bit. That was what was upsetting. I was messaging the teacher at the time and asking how do you tell a five-year-old that he's now going to start Day Zero again and go back for more testing (Individual interview April 2022).

I argue that it was this lived experience of witnessing their children's stress and discomfort that, as discussed in chapter five, led to some mothers disengaging with government guidance and health protocols towards the health of their families. Bondi (2009) discusses how "emotions are intrinsically sensory" (p. 448) and interactions with other people and place are bound up with the body and embodiment. It is not that emotion needs to be inserted into public health planning, it is already there in many forms (Ryan, 2016). For many mothers, their emotions are entangled with those of their family and this emotion is a legitimated aspect of maternal decision making around health. Love for their children and fear for their health and safety governs the decision-making process, and to be emotional is to be "be affected, reactive and 'less able to transcend the body through thought will and judgement'" (Morrison et al., 2012, p. 507). Further attention to impulses, feelings and instinctive responses will create a nuanced account of social reality (Hanlon, 2014). Health geographers would do well to make room for these emotional considerations of the way in which "people respond to, and act in, the world around them" (Hanlon, 2014, p. 145).

Despite this negative experience with the school, all the mothers claimed the school as a safe place on their emotional sketch maps, clearly identified on Katie's, Mary's and Jo's (see figures 6.2, 6.4 and 6.5). There was a shared feeling that the benefits of the children being at school outweighed the risks of COVID-19. This was encapsulated by Flo (Figure 6.3) who said: "School is a double-edged sword. I can see the value of it. The kids need to go for socialization and

interaction and are much happier when they go. But it's a love/hate relationship in the sense that it does mean there is most likely a chance of it [COVID-19] coming into our house" (Individual interview March 2022). In term one of 2022 when the school reopened after the summer break, Omicron was prevalent and by the time the interviews started in March 2022, three out of the seven families had contracted the virus and so there was a feeling of acceptance and a sense of wanting to move forward.

Figure 6.3. Flo's emotional sketch map – colour coded green for negative feelings and pink for positive

Figure 6.4. Katie's emotional sketch map

Katie's emotional map (Figure 6.4) is a snap shot of that moment in time where she no longer had any fear from COVID-19. This personal experience removed any sense of worry as stated in our conversation whilst looking at the map.

> Beth: And the school? Is that a safe place?
>
> Katie: I didn't know that they have to wipe down their tables every day. [My son] came home and said that [others in the class] had done it and so he decided to do it too. So, I feel like they've obviously put in some measures. So, I think the school is a relatively safe place. (Individual interview March 2022)

Unsafe spaces

Almost all indoor spaces were viewed as unsafe unless they were used by people who at the time who fully vaccinated and required a vaccine pass for entry. This shows the way in which emotions

are shared (Steger et al., 2021). Each of the maps shows an attachment to places that are derived from shared belief systems. For those vaccinated and using the vaccine pass, there was a sense of safety from being in certain location and knowing you were surrounded by people who shared your approach to health and well-being. Unvaccinated people found unvaccinated communities where they felt safe from the perceived oppression caused by the mandates. Engaging socially and emotionally in these locations and environments helped cultivate bonds, develop social resilience and competence irrelevant on which side of the vaccine fence an individual stood.

With these emotion maps in mind, I return to the notion that combining emotional cartography into health geography research can generate personal engagement with mothers' knowledge and health (Ryan, 2016). Mothers are often responsible for the health and well-being of their family and make the decisions regards vaccinations, medicines, hospital and GP care (O'Brien et al., 2014). These decisions are often science based and emotion-led, where they will look at the data and the science, their own previous experiences, the severity of the issue and then combine this with the shared experiences and stories that come from friends, family and peers to make a decision that sits well with their gut (Baker & Walsh, 2022a). Consequently, does a mother who chooses not to vaccinate their child and then proceeds to take them to a 'safe place' with other children who may also not be vaccinated, transform this place into being unsafe regards possible disease transmission? "Geography clearly has a key role to play in health analysis with spatial variations and disease management and policy can benefit when geographically targeted (Beale, 2015). Effectively defining the source of hazards, whether environmental or digital as in the case of misinformation, can lead to prevention and mitigation by identifying hotspots of exposure and disease clusters (Beale, 2015).

At the time of interviews, the New Zealand Government had cleared for use the vaccine for 5-11-year-olds. Uptake at this time was slow in comparison to adult vaccination rates and currently just under 50% of eligible 5-11- year-old children are partially or fully vaccinated, of which approximately 28% are fully vaccinated (Ministry of Health, 2022). Of the participants interviewed, six of the seven mothers were minimum double vaccinated, one was completely

unvaccinated. Of their children only two of the children aged 5-11 had been partially vaccinated with one dose, and at the time of interviews those mothers had not expressed an urgent desire to get their child a second dose. The rest were unvaccinated and the mothers expressed no urgency in having them vaccinated. The reasons behind this lack of vaccine uptake stemmed from personal experiences of the Omicron variant which four of the seven families had experienced prior to the interviews. The government strategy of COVID-19 elimination had also moved forward to a 'living with COVID-19 approach', and so the perceived risk of Omicron was minimal and therefore the vaccine was not as necessary.

With vaccine uptake an integral management strategy in the fight against COVID-19 at increasing herd immunity then co-location and spatial overlap are proxies for exposure and in the simplest case distance from potential source can be used to define potential exposed and un-exposed populations (Beale, 2015). If the majority of eligible adults are vaccinated and taking the necessary precautions to minimise exposure and transmission, what happens as the disease travels through the population who remain the most vulnerable? With this in mind, when I overlay the maps of all seven mothers there is a correlation of locations where all mothers felt it was safe to take their children (see Figure 6.5). All outdoor spaces were deemed safe – the beach, the playgrounds, skate park and reserve. Indoor spaces such as the school and library were considered safe spaces despite the fact that the school was a hub by which many of the families contracted the Omicron variant. Two mothers expressed hesitancy about taking their children into indoor spaces with high public foot traffic such as the supermarket and plaza, however this hesitancy was over ruled by practicality and being unable to leave their children at home whilst doing to weekly grocery shop.

I return to the premise that 'safe' spaces are no longer safe if children are the main source of COVID-19 transmission and move freely within them. Figure 6.5 shows the spatial overlap of three participants. There is a clear correlation between the areas with the highest foot traffic in the top left of the map identified as the shops, library and food related areas.

Figure 6.5. An overlay of three emotional maps highlighting spatial convergence

Here one participant states that they have made the switch to online shopping to avoid going to supermarkets, while another points to the area and writes “hesitant about taking kids”. They all have identified the beach as a place they love to go. Love is symbolised with a love heart by one participant (Figure 6.1), written in pink to symbolise a positive experience by another (Figure 6.3), whilst another has written “love taking kids here” (Figure 6.2) and encompassing outdoor area with a blue line. Clearly, the emotion of love cannot be separated from spatiality. Love “is relational and deeply political” (Morrison et al., 2012, p. 506) and offers a glimpse of the emotional connections between the physical environment and humans, known as the concept of topophilia which literally translates to ‘the love of place’ (Tuan, 1990). There is another highly visited area to the bottom right of the map, this area houses the local skate park as well as being close to the swimming school. These areas are identified as not particular safe, with the skate park deemed too busy and despite being an outdoor space it was still ‘too crowded’ to maintain

proper social distancing. The swimming school was dismissed by one mother because of the need to wear face masks despite being vaccinated, where as another mother felt secure in the fact the vaccine pass meant everyone there could be considered safe.

For the majority of the mothers, their mobilities and interactions within the community were sanctioned by the fact they had all been vaccinated. As time passed, however, and discourses around the severity of COVID-19 decreased and personal experiences with the disease increased, frustrations arose around the continued use of social distancing, the wearing of face masks and use of vaccine pass as demonstrated by Jo's emotional maps (Figure 6.6).

Jo describes how her relationship with the local community is dictated not by a fear of COVID-19 but because she and her family are unvaccinated and not allowed in certain spaces. The vaccine pass meant that Jo had to find other localities for her and her children, further afield with like-minded unvaccinated people. This created a sense of companionship and sense of belonging during a time when she had felt ostracised.

Beth: How has COVID changed how you view and live in our area? What have you discovered in further afield communities? Has it made living here bigger in terms of having access to other places that you are now more familiar with?

Jo: Definitely, especially because we don't have a COVID pass you can't go so many places. So, I started looking for new places and same community with same decision as I had.

Beth: And you found it?

Jo: Yes, uh huh. I mean I go further to the library, different one. So, I can't go to ours but I can go to one 7 Km further, to a library which doesn't seem to mind.

Beth: So, you've been doing that?

Jo: Yeah, yeah. Same for the pools for the kids during summer. I found this sports page for kids, but I am glad they are now allowed to play in school. We did a cross-country [run] on a farm. It was very fun to meet other people with the same views.

Beth: And how big is this community? Do you find there is a lot of people?

Jo: For example, I went to the market.

Beth: Is this the one you were telling me about in [name of suburb]?

Jo: Yeah, and I was so surprised there were so many people. I'm not sure if that wasn't being vaccinated or what?

Beth: Was this organised by Voice for Freedom?

Jo: Yes, uh huh.

Beth: So, they had organised that one. Is that a regular occurrence?

Jo: Yeah, they organised a lot of stuff, not just market but also sports for kids. Some support groups for you know, mums, dads, families or whatever else. Even home-schooling … I haven't contacted them about it, but because I was thinking about it a little bit. I was scared they [government and school] were going to put some vaccine station in our school. … I knew they need my permission but somewhere in my head I was like 'oh no, they're going to vaccinate him without my permission. (Individual interview March 2022).

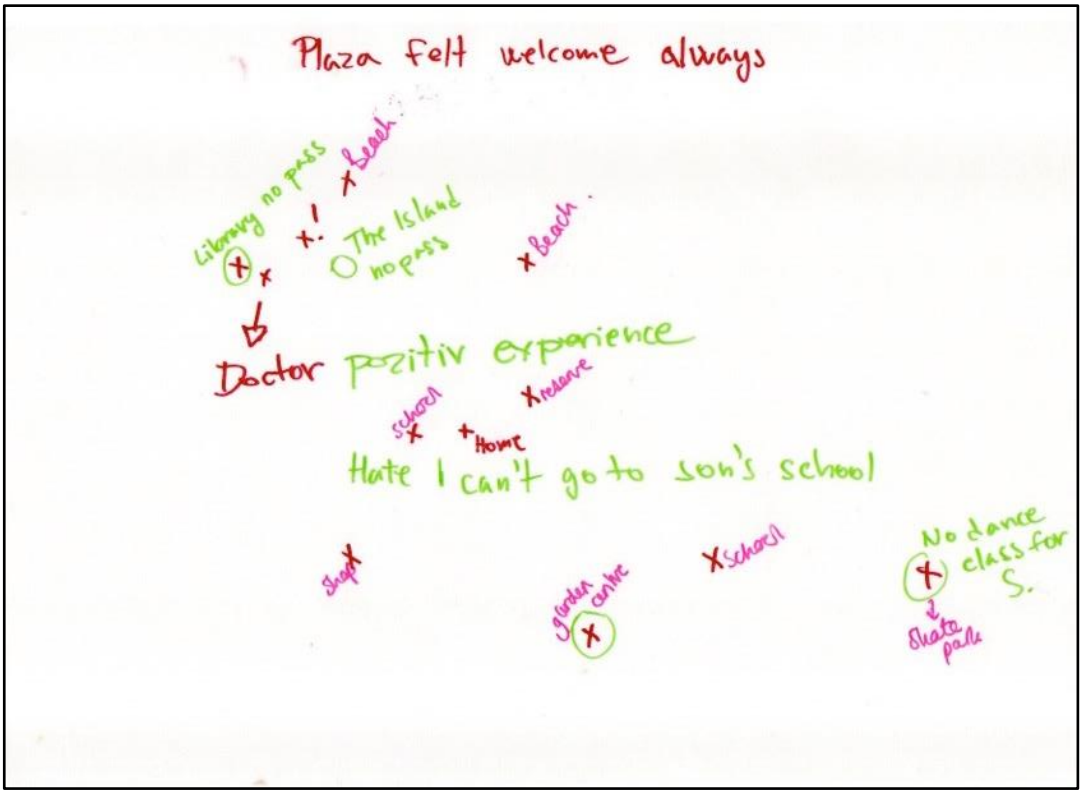


Figure 6.6. Jo's emotional sketch map

For Jo, the trust and compliance that had been prevalent in 2020 between government strategy and herself had now been replaced with fear of government and local authorities and the pharmaceutical strategies of the vaccine. As Jo began to navigate a lifestyle for her family that expanded outside her immediate community, she became involved, to some degree, with a new community formed around matching beliefs.

> Jo: I found an after- school programme and holiday programme for kids on the farm which looks cool.
>
> Beth: … Do you have an opportunity to build friendships with people within these events? Have you had that chance when you've gone to the markets and things?
>
> Jo: Yeah, you definitely do that but I didn't as I'm not that kid of person (laughing).
>
> Beth: Does it have a nice, friendly vibe?
>
> Jo: Yeah. I even go there with my daughter and she sell her stuff. The kids market. It was your decision to wear masks or not. Nobody is going to judge you for that over there. We even went to the protests here in Tauranga.
>
> Beth: And how was that?
>
> Jo: Oh amazing … It was because on that protest there was so, so, so many people. I was surprised. (Individual interview march 2022)

Jo's interaction in this new community and new neighbourhood brought her into contact with Voices for Freedom. It was at one of their organised events for children that she met others within the group. Voice for Freedom's initial rationale was focused upon the vaccine mandates and have campaigned extensively against the vaccine, with nationwide distributions of pamphlets that made specific or false claims about the development and efficacy of the vaccine (Chapman, 2022). These claims were debunked by scientists (Satherly, 2021). They made their presence known at the Wellington Protests and swiftly gathered a following using their mother status to gain trust and credibility in those who follow them. In the beginning in their numerous social media videos, they portrayed themselves as mums who just want to have a chat about vaccination concerns, however this message has now changed and the group have taken on a political outlook and threw their support behind the riots in America on the 6th July, and other extremist activism all under the guise of 'free speech'. Another attempt to wreak havoc on the

national government was by trying to make the country ungovernable, as reported in the documentary Fire and Fury published by Stuff (Longbottom, 2022). Here is an example of a group who have taken their role as mothers with an initial base in health activism and used it as a platform to engage in political activism and with conspiracy theorists (Roberts, 2022). Their actions, although rooted in motherhood, do not support the majority of mothers who think differently to them. Some of their supporters were protesting at vaccination centres across Auckland (Sadler, 2022).

Some of this activism is, ironically, an example of the politics of love, where love for their children has constructed political communities of insiders and outsiders based around the COVID-19 vaccine (Morrison et al., 2012). These "sentimental politics builds worlds, creates spaces and usurps places" (Morrison et al., 2012, p. 515) as visited by Jo. This relationship between emotion and political activism allows for the examination of the power of love and its capacity to be productive, exploitive and manipulative (Morrison et al., 2012).

Figure 6.7. Voices for Freedom Protesters at Parliament in Wellington, New Zealand, on Nov 9 2021

Source: Image taken from American NBC News Platform reporting of vaccine misinformation and extremism in New Zealand.[8]

[8] https://www.nbcnews.com/news/world/american-vaccine-disinformation-used-trojan-horse-far-right-new-zealan-rcna6423

Maternal activism, health geography and the COVID-19 pandemic are interlinked, with activist and conspiracy groups such a Voices for Freedom have created a platform for their voice to heard and their fears to be shared. Although it is difficult to say there is a direct link between the group and vaccination uptake in 5-11-year-olds, the latest Ministry of Health Statistics in New Zealand show that only 50% of the eligible population have been fully or partially vaccinated (Figure 6.8).

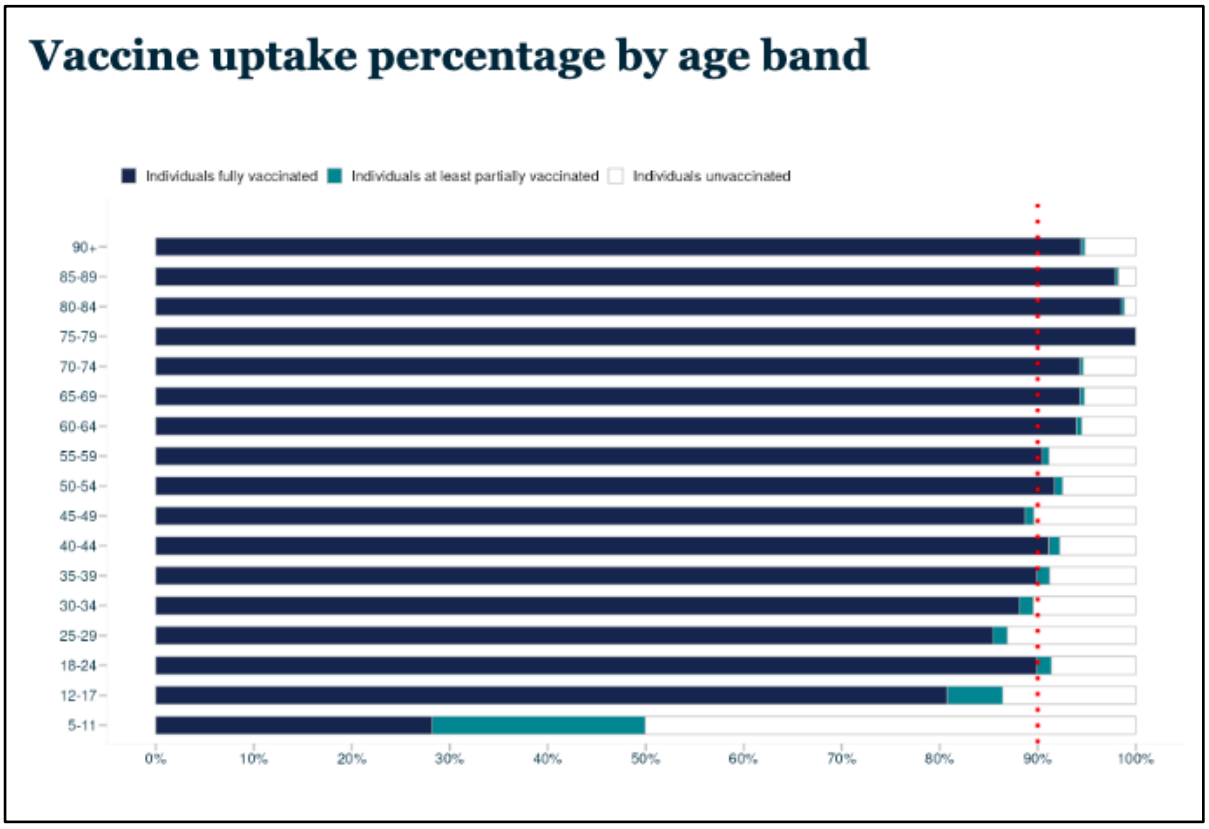


Figure 6.8. New Zealand Ministry of Health Data on vaccine uptake percentage by age band

Source: Ministry of Health 2022[9]

For Jo, her interaction with Voices for Freedom has been minimal, however the emotional response to the vaccine and the vaccine pass mirrors theirs. Her relationship with the immediate community and neighbourhood is directly linked to her health and well-being values and her

[9] https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-vaccine-data#uptake

sense of risk from COVID-19. The physical restrictions of the COVID-19 pass, the sense of being unwelcome and judged in certain places led to a position to explore places further afield in order to provide a sense of normality for her children. Jo searched for, and found, places where her children could continue to swim, visit the library, and take part in sports. This in turn led to a new found confidence in her own beliefs that was reflected in a new found community that mirrored and supported these values. Jo's participation in the national protests that occurred around the country had a direct influence on her own child's views.

Beth: So, what was the experience of the protests like?

Jo: The feeling of, that so many people think similar as you was so cool and so good. I remember my son was like 'I don't want to go, no, no, no, no', and then every day he was like 'My body, My choice! My body, My choice!' On the street you know, he was yelling and we were like 'no, no you can't say that now, only on the protest'.

Beth: What was it like once you were there?

Jo: We came to it late, so we haven't heard the people talking about what's happened stuff like that. So, we just marched through the town. The vibes were happy, everybody's smiling, the cars were tooting so I feel like 'Wow, we can do change here'.

Beth: How did that make you feel?

Jo: Validated.

Beth: And how did that make you feel in response to having a connection with this area?

Jo: First, I firstly realise because I thought that Kiwis would just love to comply with what the government said and do what they wanted and as I mentioned, I feel so odd here, an outsider. Since that it's like 'Oh okay. So, they are not sheep. They wanted to change'. Our borders were closed – they still are, I don't know now – for two years and it's not normal because the rest of the world is trying to live with COVID. I felt like I live in a golden cage. (Individual interview March 2022)

The protest therefore led to feeling of inclusion for Jo that influenced how she felt about moving through her immediate neighbourhood. Her experiences that came from discovering a wider community allowed her to feel comfortable in her local community. Her map (Figure 6.6) represents a snapshot of recalled emotions across varying temporal and spatial scales. “Emotions are critical to our ‘being’ in the world” (Steger et al., 2021, p. 8) both the positive and negative and for Jo these experiences have given her strength to follow her values. In order to tackle the rise in anti-vaccination rhetoric in Aotearoa New Zealand, I argue that deeply contested cultural, social, political and economic structural differences between individuals need to be addressed, thus “the first step towards communicating across political rifts may be facilitating interpersonal dialogue to generate personal reflexivity, responsibility, and hope” (Ryan, 2016, p. 7). Paying attention to mothers’ COVID geographies, as this chapter shows, is one way to understand how to start interpersonal dialogue.

Conclusion

Human experiences are inherently emotional and in this chapter I have focused on the emotional relationships between the physical environment and each participant during the pandemic. The emotional and spatial realities of mothers who embody love, fear, frustration and a myriad of positive and negative emotions challenge the typical ontologies when researching within health geography. Specifically, I have shown how emotion maps reveal the felt geographies of place. The maps show areas that are critical to a mother’s coping mechanism when facing the challenges of living through a pandemic. I have applied the use of emotional sketch maps to mothers’ emotional and spatial experiences to the physical environment (Boschmann & Cubbon, 2014). The complexities of exploring the lived experiences of mothers and applying it to disease transmission should entice health geographers to be “open at all times to consider fresh perspectives and approaches” (Hanlon, 2014, p. 146).

This research supports other studies that highlight the importance of the relationship between nature and emotion (Marques et al., 2022). I have demonstrated the physical, social and

emotional benefits to wellbeing from having access to open spaces for the mothers and their families. Providing a safe place for children to play, enjoy and maintain some 'normality' in a time where simultaneously people feared for their health and avoided others. Participation in outdoor activities that allowed physical activity and social distanced interaction with others promotes resilience and mental well-being, and therefore can be viewed as demonstration of both a parents love to their child, and love with the environment (Marques et al., 2022; Morrison et al., 2014). It is through the participants' feelings to the physical environment that I have made a connection between health, mobilities and love.

I have focused on the local primary school as a point in which disease management, the lived experience and unrealistic burden placed on mothers, and the love and fear of protecting their children, collide. This particular location, alongside the home, is a focal point for family life where daily routines and individual timescapes are lived. During the pandemic it was a place of both positive and negative emotional realities and demonstrates how meaning and space are mutually constructed. It is a unique location as during the pandemic it has been both removed from the mother and yet a centre of daily life. Drawing on health geography and the empirical work of emotional geographers and cartographers who endeavour to explore the gendered experience of emotional spatialities, this research has enabled mothers to think aloud and locate their emotional and mental health experiences.

Finally I have explored the consequences of thinking differently from the majority and how anti-vaccination beliefs can be interwoven with the restricted access to the community, work and local spaces. For those unvaccinated, open and green spaces provided the only truly accessible place to go to that were safe from disease. The vaccine mandates altered the personal geographies and mobilities of those unvaccinated and created a space for activism against the perceived threat to freedoms and to health.

Chapter Seven

Conclusion: Motherhood in the time of COVID-19

I embarked on this research journey with both personal and academic motivations in mind. I wanted to discover the impacts of COVID-19 management strategies on the mothers I spoke to every day at the school gates. Mainstream media had frequently published stories about the unequal load mothers were facing at home, generating an emotionally loaded relationship with space and place. The mothers I was interacting with on a daily basis were navigating this difficult time by developing new social boundaries and becoming empowered about the decisions they were making for the health of their children. I immersed myself each mother's story, listening to stories over and over and allowing myself to feel my way through the research. I am not separate from these mothers, as their geographies and mine are interwoven due to how we choose to navigate shared and familial spaces.

Drawing on the lived experiences of seven mothers during the COVID-19 pandemic, this research presents a small snapshot of the relationship between motherhood and disease management. In this chapter, I summarise the thesis by highlighting the initial research questions. First, I ask: how COVID-19 and the suppression strategies have altered a mother's relationship with the space and place of their homes and communities? Second, I ask: How have mothers understood COVID-19 with the rise of (mis)information and the construction of science in relation to the vaccine for 5-11-year-old children? Third, I ask: How have mothers navigated their movement around their community with their children with COVID-19 in mind? I recapitulate the arguments I have addressed throughout the research. I then address the concerns that this research has raised as well as the need for further questioning and academic exploration. Finally, I discuss how this research contributes to and correlates geographical understandings of maternal knowledge and health geography.

In chapter one, I introduced the research questions and discussed my positionality within the research. I outlined the aims of the study with the focus on mothers in Aotearoa New Zealand. I

begin with the moment Prime Minister Jacinda Ardern announces the full national lockdown and go on to explain how I examine the implications of COVID-19 on mothers in a Bay of Plenty coastal suburb. I make explicit that the relationship between motherhood, embodied knowing and disease management are integral in the production of geographical knowledge that offers a direct challenge to normative assumptions about who governs disease management.

Chapter Two is a contextual chapter in which I describe the key events that have taken place from beginning of the pandemic. Humans and disease are interwoven throughout history and this COVID-19 pandemic is unlikely to be the last. Through continued encroachment and exploitation of wild habitats, the exposure to new virus strains that mutate and adapt within human society can be viewed as an inevitable aspect to human development (Lupton, 2021). Aotearoa New Zealand's approach to the pandemic has been globally acclaimed as the 'gold standard' with decisive government, excellent communication and high population compliance leading the way. I describe and explain the different management strategies and when they occurred across New Zealand and how they work in providing a defence against COVID-19. I highlight key events that are unique to the mothers in my research area and discuss how the events surrounding COVID-19 created an unequal mental load for mothers.

In Chapter Three I examined health geography research, feminist perspectives on the home, emotions and place. I place particular focus on making the link between health geography, emotional geography and vaccine hesitancy. Emotions are felt during the lived experiences occurring during the pandemic. I therefore explain how the emotional connection to home and a place of security and safety was put under pressure. Falling on the work of Blunt and Dowling (2022) to theorise the embodied experience of mothers during lockdowns. I combine this with the work by David Bissell (2021) on mobilities during the pandemic to describe the how limiting mobilities to the home created new time-space pathways in a location that was portrayed as a haven from disease and yet became a source of ill-mental health for many. The 'Mother knows best' analogy is one that can be used to both undermine and / or empower a mother when making decisions regards health for the family. I draw from material outside of the field of

geography to uncover how mothers make decisions regards vaccine uptake, using the work of Fierheller (2022) and O'Reilly (2020) to argue that mothers carry huge sway in directing how and where diseases such a COVID-19 may appear. This was an important perspective to uphold as the participants in this research, have all made decisions that dictate the future spread of COVID-19 through the childhood community. This is supported by the outbreaks of other childhood diseases such as measles in America, The Pacific Islands and New Zealand as a consequence of low vaccine uptake in children.

In Chapter Four I discussed the qualitative methodology undertaken to conduct this research. A mixed methodology was required in order to analyse the complexities of space, motherhood, emotions and disease. Seven mothers took part in the research, each providing a unique perspective on their lived experiences of the pandemic. I conducted semi-structured interviews combined with an emotional mapping exercise with these mothers, who all live in the same suburban coastal town in the Bay of Plenty, Aotearoa New Zealand. The work of previous scholars has highlighted that a semi-structured interview is an appropriate method of collecting sensitive data. The mapping exercise allowed for a physical representation of their emotional experiences and movements throughout the community. This mapping exercise proved to be an innovative and creative method in which those involved in the research could truly engage with the material being discussed and have ownership over their story. This emotional mapping activity contributes to feminist poststructuralist understandings as to the ways in which emotions are an intricate and complex part of the research encounter.

In Chapter Five I analyse my findings and tell the 'home' and 'bubble' stories of the mothers in this research project. COVID-19 has created new and different ways in which mothers share and become and source of knowledge. Their lived experiences of the lockdowns, the use of face masks, social distancing, limited access to health care, and the development of the vaccines have empowered mothers to feel confident in the decisions they make for their children.

The impact of the lockdowns on the emotional relationship of home has, for all involved in this research, been tough and challenging. Balancing the mental and physical well-being of the family whilst working from home, maintaining the home, and also picking up the roles of educator, doctor, nurse, and entertainer has altered how mothers not only view the space they are in but also how they view themselves. This deeply embodied and lived experience has empowered mothers to be selective in managing the health of their children. Searching for new sources of information and questioning the traditional medical perspectives.

The way in which mothers navigate their community in the face of disease is integral to understanding new ways to fight against novel viruses. Prior to the emergence of COVID-19 childhood vaccination rates were already in a state of decline, with mothers choosing not to vaccinate. The result of this is the re-emergence of previously low levels of disease associated with childhood such as measles and chicken pox. The COVID-19 vaccine is scientifically proven to be safe for children and yet uptake is low, leaving the virus to move freely amongst this demographic. I argue that mothers may be utilised by public health providers as a source of information and should be actively encouraged to share positive health experiences in an organic, story-telling and personal way. All mothers in my study became disenchanted with mainstream medias reporting of all things COVID, and are instead latching on to the human-interest stories, the personal experiences of others to create their opinions. Those who are choosing not to vaccinate their children are then moving within the community generating new avenues of COVID-19 transmission between children and others who may be vulnerable to COVID-19.

In Chapter six, emotional sketch maps show (im)mobility within the suburb. This movement is deeply connected with they how feel about each place, whether in the schools, their homes or the shared public spaces such as the beaches and walkways. I analyse how each mother uses the neighbourhood and identify areas of overlap, where mothers' cross paths and consequently create a potential hotspot for disease transmission. With six out of the seven mothers interviewed being vaccinated, this transmission is likely to occur amongst their unvaccinated children who share this space. I share the movements of an unvaccinated mother and show how

her mobility has been shaped by her vaccination status. As she discovers new place to go with her children, she connects with others of similar beliefs and highlights how the suppression strategies have created new spaces and places that empower individuals to stand up against perceived injustices. New personal geographies empower some mothers to be activists and embrace anti-vaccination narratives. A 'safe' place is one with those of like-minded beliefs. The suppression strategies have caused some mothers to use their maternal influence to step into different social spaces, moving away from the traditional spaces occupied by mums such as play centres, parks, and schools, and into the 'masculine' spaces such as the Wellington protest on parliament grounds (which ironically ended with the burning of the children's playground). I have argued that mothers have power to control future disease transmission, and this power stems from emotional responses to the lived experiences of the COVID-19 Pandemic.

Considerations for Future Research

One objective of this research was to provide a space for mothers to talk about their experiences and decision-making. By critically analysing these stories, this thesis explores the ways in mothers' behaviour interacts with disease ecology. I have raised questions that future health geographers could address such as, how can mothers enhance the way in which knowledge about health risks is shared in a positive way that supports the public health board? Building on the work that incorporates maternal epistemology. Further research could examine how mothers should be included in the process of disease mitigation for future novel viruses. Critically engaging with participants' stories provides opportunities to prompt transformative changes to public health policy. More research on how mothers become a source of health knowledge and the impacts of this is vital. Science is vulnerable due to the conflict between scientific judgments about threats and the public perception of the threat as fostered by the media (Cutter, 2003). Vulnerability manifests itself geographically in the form of hazardous places (Cutter, 2003). For COVID-19 these places are amongst the unvaccinated and here in Aotearoa New Zealand, that is predominately within child dominated spaces. In order to combat these disease management

threats, adapting the ways in which knowledge is trusted and shared is integral to creating an effective approach to disease mitigation.

The harsh and overwhelming realities of living through a pandemic has a silver lining. For the mothers involved in this study they have been empowered through their lived experiences and are confident in their abilities to make decisions on behalf of their children. This however does reveal an area of concern for medical professionals as it opens up the scope for a range of dis and misinformation to compete with science backed advice. As such, my research left me pondering how some mothers have become so untrusting of new vaccines. My research indicates that the rise of dis and misinformation has fed into insecurities and concerns about vaccine safety. Yet perhaps too the relationship between medical professionals and mothers has deteriorated to the point where mothers no longer feel respected, are marginalised, and considered 'overly emotional'.

This research expands scholarship on health and pandemic geographies, geographies of home, emotional and feminist geographies. It provides evidence of the significant influence mothers have in shaping the health geographies of a suburb. Further investigation may expand this knowledge and understanding in order to prepare for future pandemics.

References

Andrews, G.J., Crooks, V.A., Pearce, J.R., & Messina, J.P. (2021). An Extensive Geographical Event, requiring a Substantive Geographical Response. In Andrews. G. J., Crooks, V.A., Pearce, J.R., Messina, J.P. (Eds). *COVID-19 and Similar Futures: Pandemic Geographies* (pp. 1-19). Springer, Cham. https://doi-org-ezproxy.waikato.ac.nz/10.1007/978-3-030-70179-6_1

Apple, R. D. (2014). Medicalization of Motherhood: Modernization and Resistance in an International Context. *Journal of the Motherhood Initiative for Research and Community Involvement*, *5*(1). https://jarm.journals.yorku.ca/index.php/jarm/article/view/39323

Aridi, S. (2021, March 15). How the Pandemic Has Transformed the Idea of Home. *New York Times*. https://www.nytimes.com/2021/03/13/at-home/pandemic-home.html

Ardern, J. (2021, June 17). *Plan for vaccine rollout for general population announced.* Beehive.govt.nz. https://www.beehive.govt.nz/release/plan-vaccine-rollout-general-population-announced

Arnott, E. (2021). The Geography of Human Symbiosis with Disease. Unpublished essay for GEOGY520-21B Human Dimensions of Environmental Change. University of Waikato.

Baker, S.A. & Walsh, M.J. (2022a). 'A mother's intuition: it's real and we have to believe in it': how the maternal is used to promote vaccine refusal on Instagram. *Information, Communication and Society,* (ahead-of-print), 1-18. https://doi.org/10.1080/1369118X.2021.2021269

Baker, S.A., & Walsh, M.J. (2022b, February 15). COVID: how anti-vaccine influences exploit mothers. *The Conversation*. https://theconversation.com/covid-how-anti-vaccine-influencers-exploit-mothers-175670

Barroso, A., & Horowirz, J.M. (2021, March 17). *The pandemic has highlighted many challenges for mothers, but they aren't necessarily new*. Pew Research Centre. https://www.pewresearch.org/fact-tank/2021/03/17/the-pandemic-has-highlighted-many-challenges-for-mothers-but-they-arent-necessarily-new/

Baxter, J. (2009). Content Analysis. In R. Kitchin & N. Thrift (Eds.), *International Encyclopedia of Human Geography* (pp. 275-280) Oxford, England: Elsevier.

Beale, L. (2015). Effective Use of GIS for Spatial Epidemiology. In Kanaroglou, P., & Delmelle, E. (Eds.), *Spatial Analysis in Health Geography*. (1st ed., pp. 37-52). London: Routledge.

Beattie, A., & Priestley, R. (2021). Fighting COVID-19 with the team of 5 million: Aotearoa New Zealand Government Communication during the 2020 Lockdown. *Pub Med Central. 4(1)* https://doi:10.106/j.ssaho.2021.100209

Bissell, D. (2007). Animating Suspension: Waiting for Mobilities. *Mobilities, 2*(2), 277-298. https://doi.org/10/1080/17450100701381581

Bissell, D. (2021). A Changing Sense of Place: Geography and COVID-19. *Geographical Research*, *59*(2), 150–159. https://doi.org/10.1111/1745-5871.12465

Blunt, A., & Dowling, R. (2006). *Home.* London: Routledge.

Blunt, A., & Dowling, R. (2022). *Home*. 2nd Edition. London: Routledge.

Bondi, L. (2009). Emotional Knowing. In R. Kitchin & N. Thrift (Eds.), *International Encyclopedia of Human Geography* (Vol. 3, pp. 446–452). Oxford, England: Elsevier. https://doi.org/10.1016/B978-008044910-4.00425-9

Boschmann, E. E., & Cubbon, E. (2014). Sketch Maps and Qualitative GIS: Using Cartographies of Individual Spatial Narratives in Geographic Research. *The Professional Geographer, 66*(2), 236–248. https://doi.org/10.1080/00330124.2013.781490

Bosco, F. J. (2007). Mother-Activism and the Geographic Conundrum of Social Movements. *Urban Geography, 28*(5), 426–431. https://doi.org/10.2747/0272-3638.28.5.426

Bowlby, & Jupp, E. (2021). Home, Inequalities and Care: Perspectives from within a Pandemic. *International Journal of Housing Policy*, *21*(3), 423–432. https://doi.org/10.1080/19491247.2020.1840901

Boyer, K. (2020). Motherhood in Feminist Geography: Current Trends and Themes. In Datta, A., Hopkins, P., Johnston, L., Olson, E., & Silva, .J.M (Eds.) *Routledge Handbook of Gender and Feminist Geographies* (1st ed., pp. 318-325). London: Routledge https://doi.org/10.4324/9781315164748

Boyer, K., & Spinney, J. (2016). Motherhood, Mobility and Materiality: Material Entanglements, Journey-making and the Process of "Becoming Mother". *Environment and Planning. D, Society & Space, 34*(6), 1113-1131. https://doi.org/10.1177/0263775815622209

Campbell, M., Marek, L., & Hobbs, M. (2020). Reconsidering Movement and Exposure: Towards a More Dynamic Health Geography. *Geography Compass, 15*(6). https://doi.org/10.1111/gec3.12566

Caquard, S. (2011). Cartography I: Mapping Narrative Cartography. *Progress in Human Geography*. https://doi.org/10.1177/0309132511423796

Caquard, & Griffin, A. L. (2019). Mapping Emotional Cartography. *Cartographic Perspectives*, 2018(91), 4–16. https://doi.org/10.14714/CP91.1551

CARE. (2020). *COVID-19 Could Condemn Women to Decades of Poverty: Implications of the COVID-19 Pandemic on Women's and Girls' Economic Justice and Rights*. Care International UK – www.care-international.org/files/files/CARE_Implications_of_COVID-19_on_WEE_300420.pdf

Caretta, M. A., & Riaño, Y. (2016). Feminist Participatory Methodologies in Geography: Creating Spaces of Inclusion. *Qualitative Research : QR, 16*(3), 258–266. https://doi.org/10.1177/1468794116629575

Carrion, M. L. (2018). "You Need to do your Research": Vaccines, Contestable Science, and Maternal Epistemology. *Public Understanding of Science (Bristol, England), 27*(3), 310–324. https://doi.org/10.1177/0963662517728024

Casey, A. & Hayden. L. (2021, August 25). How to deal with lockdown when you live in an apartment. *The Spinoff*. https://thespinoff.co.nz/covid-19/25-08-2021/how-to-deal-with-lockdown-when-you-live-in-an-apartment

Centre for Countering Digital Hate. (2021). *The Disinformation Dozen.* https://counterhate.com/research/the-disinformation-dozen/

Chapman, M., (2022, March 22). Giving a voice to Voices for Freedom. *The Spinoff*. https://thespinoff.co.nz/politics/02-03-2022/giving-a-voice-to-voices-for-freedom

Cockayne, D. (2021). The Feminist Economic Geographies of Working from Home and "Digital by Default" in Canada before, during, and after COVID-19. *The Canadian Geographer*, *65*(4), 499–511. https://doi.org/10.1111/cag.12681

Cope, M. (2002). Feminist Epistemology in Geography. In Moss, P. (Ed.) *Feminist Geography in Practice: Research and Methods* (pp. 43-56). Oxford: Blackwell.

Cope, M. (2021). Organising, Coding and Analyzing Qualitative Data. In Hay, I., & Cope, M., (Eds.) *Qualitative Research Methods in Human Geography* (5th Ed pp. 355-375). Oxford: Oxford University Press.

Cummins, M.W. & Brannon, G.E., (2022). Mothering in a Pandemic: Navigating Carework, Intensive Motherhood, and COVID-19. *Gender Issues* 39: 123-141. https://doi.org/10.1007/s12147-022-09295-w

Curtis, S. E. (2020). Emergent Global Pandemic Risks, Complex Systems, and Population Health. In Andrews. G. J., Crooks, V.A., Pearce, J. R., Messina, J.P. (Eds.) *COVID-19 and Similar Futures: Pandemic Geographies* (pp. 55-60). Cham.: Springer. https://doi.org/10.1007/978-3-030-70179-6_6

Cutter, S. L. (2003). The Vulnerability of Science and the Science of Vulnerability. *Annals of the Association of American Geographers, 93*(1), 1-12, https://doi.org/10.1111/1467-8306.93101

Davidson, J., & Bondi, L. (Eds.) (2006). *Emotional Geographies.* London: Routledge. https://doi.org/10.4324/9781315579245

Davidson, J., & Milligan, C. (2004). Embodying Emotion, Sensing Space: Introducing Emotional Geographies. *Social & Cultural Geography*, *5*(4), 523–532. https://doi.org/10.1080/1464936042000317677

Dittmer, J. (2010). Textual and Discourse Analysis. In DeLyser, D., Herbert., Aitken, S., Crang, M & McDowell, L (Eds.), *The SAGE Handbook of Qualitative Geography.* (1st ed., pp. 274-286). https://dx.doi.org/10.4135/9780857021090

Domosh, M. (1998). Geography and Gender: Home, Again? *Progress in Human Geography*, *22*(2), 276–282. https://doi.org/10.1191/030913298676121192

Dubé, E., Vivion, M., Sauvageau, C., Gagneur, A., Gagnon, R., & Guay, M. (2016). Nature Does Things Well, Why Should We Interfere?: Vaccine Hesitancy Among Mothers. *Qualitative Health Research, 26*(3), 411–425. https://doi.org/10.1177/1049732315573207

Dunn, K. (2021). Engaging Interviews. In Hay, I., & Cope, M (Eds.), *Qualitative Research Methods in Human Geography* (5th Eds. pp. 148-167). Oxford: Oxford University Press.

Durnová, & Mohammadi, E. (2021). Intimacy, Home, and Emotions in the Era of the Pandemic. *Sociology Compass*, *15*(4), e12852–n/a. https://doi.org/10.1111/soc4.12852

Dyck, I., Kontos, P., Angus, J., & McKeever, P. (2005). The home as a Site for Long-Term Care: Meanings and Management of Bodies and Spaces. *Health & Place*, *11*(2), 173–185. https://doi.org/10.1016/j.healthplace.2004.06.001

England, K. (2010). Home, Work and the Shifting Geographies of Care. *Ethics, Place and Environment, 13*(2), 131–150. https://doi.org/10.1080/13668791003778826

Elwood, S. (2010). Mixed Methods: Thinking, Doing and Asking in Multiple Ways. In DeLyser, D., Herbert, S., Aitken, S. C., Crang, M. A., & McDowell, L. (Eds). *The SAGE Handbook of Qualitative Geography*. (First Edition). Newbury Park, CA.: SAGE. https://doi.org/10.4135/9780857021090

Fierheller, D. (2022). "Good" Mothers, "Risky" Mothers, and Children's Health. *Journal of the Motherhood Initiative for Research and Community Involvement, 13*(1), 213-225.https://jarm.journals.yorku.ca/index.php/jarm/article/view/40652

Foley, R., & Cumbrera, M.G. (2020). Why Green and Blue Spaces Matter More Than Ever. In Andres, G.j., Crooks, V.A., Pearce, J.R., & Messina, J.P (Eds). *COVID-19 and Similar Futures: Pandemic Geographies. (*pp. 281-290). New York City: Springer International Publishing.

Foley, R., Bell, S.L., Gittens, H., Grove, H., Kaley, A., McLauchlan, A., Osborne, T., Power, A., Roberts, E., & Thomas, M. (2020). "Disciplined research in undisciplined setting": Critical explorations of in situ and mobile technologies in geographies of health and wellbeing. *Area, 52*(3), 514-522. https://doi.org/10.1111/area.12604

Freeman, C., Ergler, C., Kearns, R., & Smith, M. (2022). Covid-19 in New Zealand and the Pacific: Implications for Children and Families. *Children's Geographies, 20*(4), 459–468. https://doi.org/10.1080/14733285.2021.1907312

Gaston, N. (2015). *Why Science is Sexist.* Wellington: Bridget Williams Books Limited.

Gatrell, A. C. (2005). Complexity Theory and Geographies of Health: A Critical Assessment. *Social Science & Medicine, 60*(12), 2661-2671. https://doi.org/10.1016/j.socscimed.2004.11.002

Gatrell, A. C., & Elliott, S. J. (2015). *Geographies of Health: An Introduction* (Third edition). Oxford: Wiley Blackwell.

Gatrell, T. (2020). The COVID-19 Pandemic: Geography Matters. *Teaching Geography, 45*(3), 97-100.

Graham, M. (2013). Social Media and the Academy: New Publics or Public Geographies? *Dialogues in Human Geography, 3*(1), 77–80. https://doi.org/10.1177/2043820613486431

Graham, R. (2015, February 17). Don't Blame Parents for Vaccine Resistance: Blame mothers. *SLATE*. https://slate.com/human-interest/2015/02/women-and-vaccine-resistance-mothers-make-health-care-decisions-for-their-families-including-whether-to-vaccinate.html

Hanlon, N. (2014). Doing Health Geography with Feeling. *Social Science & Medicine*, 115, 144–146. https://doi.org/10.1016/j.socscimed.2014.05.039

Hilton, S., Petticrew, M., & Hunt, K. (2006). 'Combined vaccines are like a sudden onslaught to the body's immune system': Parental Concerns about Vaccine 'Overload' and 'Immune-vulnerability.' *Vaccine, 24*(20), 4321–4327. https://doi.org/10.1016/j.vaccine.2006.03.003

Hobbs, M. (2022, August 10). NZ children face a 'perfect storm' of dangerous disease as immunisation rates fall. *Latest UC News.* Christchurch: University of Canterbury. https://www.canterbury.ac.nz/news/2022/nz-children-face-a-perfect-storm-of-dangerous-diseases-as-immunisation-rates-fall.html

Hu, W.S., Luo, W., Zhang, M., Huang, X., Yan, Y., Liu, R., Ly, K., Kacker, V., She, B., & Li, Z. (2021). Revealing Public Opinion Towards COVID-19 Vaccines With Twitter Data in the United States: Spatiotemporal Perspective. *Journal of Medical Internet Research*, 23(9), e30854–. https://doi.org/10.2196/30854

Jackson, P., & Neely, A. H. (2014). Triangulating Health: Toward a Practice of a Political Ecology of Health. *Progress in Human Geography*, 39(1), 47–64. https://doi.org/10.1177/0309132513518832

James, A.C. (2020). Don't Stand So Close To Me: Public spaces, Behavioral Geography, and COVID-19. *Dialogues in Human Geography*, *10*(2), 187–190. https://doi.org/10.1177/2043820620935672

Jefferies, S., French., Gilkison, C., Graham, G., Hope, V., Marshall, J., McElany, C., McNeill, A., Muellner, P., Prasad, N., Scott, J., Sherwood, J., Yang, L., & Priest, P. (2020). COVID-19 in New Zealand and the Impact of the National Response: A Descriptive Epidemiological Study. *The Lancet. Public Health, 5*(11), e612-e623. https://doi.org/10.1016/S2468-2667(20)30225-5

John, S.J. (2020). Origins of MERS-CoV and Lessons for 2019-nCoV. *The Lancet Planetary Health, 4*(3), e93-e93. https://doi.org/10.1016/S2542-5196(20)30032-2

Johnson, J.L., & Johnston, K. (2019). *Maternal Geographies: Mothering In and Out of Place.* Demeter Press.

Johnson, J.T. & Madge, C. (2021). Empowering Methodologies: Feminist and Indigenous Approaches. In Hay, I., & Cope, M (Eds.), *Qualitative Research Methods in Human Geography* (5th Ed. pp. 60-78). Oxford: Oxford University Press.

Kahane, C. (2021). Maternal Rage: Double Dipping in Language and Experience. *Women's Studies, 50*(4), 337–353. https://doi.org/10.1080/00497878.2020.1862845

Kaiser Family Foundation. (2018). *Women, Work, and Family Health: Key Findings from the 2017 Kaiser Women's Health Survey. 2018*. www.kff.org/womens-health-policy/issue-brief/women-work-and-family-health-findings-from-the-2017-kaiser-womens-health-survey/

Kearns. (2021). Narrative and Metaphors in New Zealand's Efforts to Eliminate COVID-19. *Geographical Research, 59*(3), 324–330. https://doi.org/10.1111/1745-5871.12492

Keeler, C., & Emch, M. (2018). Infectious-disease geography: Disease outbreaks and outcomes through the lens of space and place. In *Routledge Handbook of Health Geography* (1st ed., pp. 45–51). London: Routledge. https://doi.org/10.4324/9781315104584-7

Kitchin, R., Linehan, D., O'Callaghan, C., & Lawton, P. (2013). Public Geographies Through Social Media. *Dialogues in Human Geography*, *3*(1), 56–72. https://doi.org/10.1177/2043820613486432

Kubacka, M., Luczys, P., Modrzyk, A., & Stamm, A. (2021). Pandemic Rage: Everyday Frustrations in Times of the COVID-19 Crisis. *Current Sociology,* 1139212110501-. https://doi.org/10.1177/00113921211050116

Lawson, R.V. (2022). *What Impacts did the First COVID-19 Lockdown have on Human Mobility Patterns in Auckland, New Zealand?* PhD thesis available online: https://researchspace.auckland.ac.nz/handle/2292/60657

Leask, A. (2021, August 19). COVID-19 Coronavirus Delta Outbreak: Lockdown the 'Perfect Storm' for Family Violence. *NZ Herald*. https://www.nzherald.co.nz/nz/covid-19-coronavirus-delta-outbreak-lockdown-the-perfect-storm-for-family-violence/HOMOKNTJIOEBJXWVCW727PWR4E/

Lee, Overall, N. C., & Sibley, C. G. (2020). Maternal and Paternal Confidence in Vaccine Safety: Whose Attitudes are Predictive of Children's Vaccination? *Vaccine, 38*(45), 7057–7062. https://doi.org/10.1016/j.vaccine.2020.09.020

Lemish, D., & Elias, N. (2020). 'We Decided We Don't Want Children. We Will Let Them Know Tonight': Parental Humor on Social Media in a Time of Coronavirus Pandemic. *International Journal of Communication (Online),* 5261–5287.

Lengyel, B., Varga, A., Ságvári, B., Jakobi, Á., & Kertész, J. (2015). Geographies of an Online Social Network. *PloS One, 10*(9), e0137248–e0137248. https://doi.org/10.1371/journal.pone.0137248

Liu, C. (2021). Rethinking the Timescape of Home: Domestic Practices in Time and Space. *Progress in Human Geography*, *45*(2), 343–361. https://doi.org/10.1177/0309132520923138

Logsdon-Conradsen, S. (2011). From Materialism to Activist Mothering: The Evolution of Mother Activism in the United States Environmental Movement. *Journal of Motherhood Initiative for Research and Community Involvement, 2*(1), 9-36https://jarm.journals.yorku.ca/index.php/jarm/article/view/32354

Longbottom, T. (Director). (2022). Fire and Fury [Documentary/Video]. *Stuff Circuit*. https://interactives.stuff.co.nz/2022/08/circuit/fire-and-fury-disinformation-in-new-zealand/

Longhurst, R. (2012). *Maternities: Gender, Bodies and Space*. London: Routledge. https://doi.org/10.4324/9780203008201

Lupton, D. (2021). Contextualising COVID-19: Sociocultural Perspectives on Contagion. In D. Lupton & K, Willis (Eds.), *The COVID-19 Crisis: Social perspectives.* (1st ed., pp. 14-24). London: Routledge.

Lupton, D., & Willis, K. (2021). *The COVID-19 Crisis: Social Perspectives*. London: Routledge.

Ma, Z. (2011). Hägerstrand Time-geography Revisited from Current Perspective. *2011 International Conference on Multimedia Technology*, 5407–5410. https://doi.org/10.1109/ICMT.2011.6002703

Malatesta, Pepe, A., Biffi, E., Kritsotakis, G., Koutra, K., & Ratsika, N. (2022). 'We discovered places we never used before': Home and Parenting Geographies During the 2020 Lockdowns in Italy and Greece. *Children's Geographies,* (ahead-of-print), 1–14. https://doi.org/10.1080/14733285.2022.2077092

Marques, B., McIntosh, J., Muthuveerappan, C., & Herman, K. (2022). The Importance of Outdoor Spaces during the COVID-19 Lockdown in Aotearoa—New Zealand. *Sustainability*, 14(12), 7308–. https://doi.org/10.3390/su14127308

McLafferty, S., Guhlincozzi, A., & Winata, F. (2021). Counting COVID: Quantitative Geographical Approaches to COVID-19. In Andrews. G. J., Crooks, V.A., Pearce, J. R., Messina, J.P. (Eds.) *COVID-19 and Similar Futures: Pandemic Geographies* (pp. 409-416). Cham.: Springer. https://doi.org/10.1007/978-3-030-70179-6_54

Meade, M.S. (1977). Medical Geography as Human Ecology: The Dimension of Population Movement. *Geographical Review, 67*(4), 379-393. https://doi.org/10.2307/213623

Meade, M. S., & Earikson, R. J. (2000). *Medical Geography.* New York City: The Guilford Press.

Meyerowitz-Katz, G., Bhatt, S., Ratmann, O., Brauner, J. M., Flaxman, S., Mishra, S., Sharma, M., Mindermann, S., Bradley, V., Vollmer, M., Merone, L., & Yamey, G. (2021). Is the Cure

Really Worse than the Disease? The Health Impacts of Lockdowns during COVID-19. *BMJ Global Health*, *6*(8), e006653–. https://doi.org/10.1136/bmjgh-2021-006653

Ministry of Health. (n.d). *COVID-19: Vaccine data.* Manatū Haurora: Ministry of Health. Retrieved December 31st 2022, from https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-vaccine-data#uptake

Morrison, C.-A., Johnston, L., & Longhurst, R. (2012). Critical Geographies of Love as Spatial, Relational and Political. *Progress in Human Geography*, 37(4), 505–521. https://doi.org/10.1177/0309132512462513

Morton, S. (2020, December 27) What Exactly United the 'Team of 5 Million' to Quash COVID-19? *NZ Herald*. https://www.nzherald.co.nz/nz/what-exactly-united-the-team-of-5-million-to-quash-covid-19/E4XA77T6NDXOJM6C3AHPC22IOE/

Al-Mulla, N. A., & Mahfoud, Z. R. (2022). The Impact of the COVID-19 Lockdown 'Home Quarantine' on the Physical Activity and Lifestyle of Children in Qatar. *Frontiers in Public Health,* 10, 877424–877424. https://doi.org/10.3389/fpubh.2022.877424

Naeem, S.B., & Boulos, M.N., (2021). COVID-19 Misinformation Online and Health Literacy: A Brief Overview. *International Journal of Environmental Research and Public Health*, 18(15), 8091. http://dx.doi.org/10.3390/ijerph18158091

Neilson, M. (2021, December 9) COVID 19 Delta Outbreak: Hesitancy Still High for Parents Over Vaccine for 5 to 11-year-olds Ahead of Planned January Rollout. *NZ Herald*. https://www.nzherald.co.nz/nz/covid-19-delta-outbreak-hesitancy-still-high-for-parents-over-vaccine-for-5-to-11-year-olds-ahead-of-planned-january-rollout/6XMBCICMYIEH6R524QMHNSH5BA/

Nolle, J.S. (2020, April 24). Why the Meaning of Home has Changed (Now That We Can't Leave the House). *The Correspondent*. https://thecorrespondent.com/427/why-the-meaning-of-home-has-changed-now-that-we-cant-leave-the-house

O'Brien, L. K., & Ringuet-Riot, C. (2014). Mothers Governing Family Health: From an 'Ethic of Care' to a 'Burden of Care.' *Women's Studies International Forum*, 47, 317–325. https://doi.org/10.1016/j.wsif.2013.11.001

O'Reilly, A. (2020). "Trying to Function in the Unfunctionable": Mothers and COVID-19. *Journal of the Motherhood Initiative for Research and Community Involvement*, *11*(1). https://jarm.journals.yorku.ca/index.php/jarm/article/view/40588

Prickett, K. C., Habibi, H., & Carr, P. A. (2021). COVID-19 Vaccine Hesitancy and Acceptance in a Cohort of Diverse New Zealanders. *The Lancet Regional Health. Western Pacific, 14,* 100241–100241. https://doi.org/10.1016/j.lanwpc.2021.100241

RNZ. (2021). COVID-19 coronavirus: New Zealand ranks second in 'return to normal' ranking. *NZ Herald*. https://www.nzherald.co.nz/nz/covid-19-coronavirus-new-zealand-ranks-second-in-return-to-normal-ranking/VEGEGKPFSXJ5NNC6I4AD3NUXGU/

Roberts, N., (2022, September 19). Voices for Freedom may look to conspiracy theories to remain relevant. *Stuff*. https://www.stuff.co.nz/national/129832555/voices-for-freedom-may-look-to-conspiracy-theories-to-remain-relevant

Rose-Redwood, R., Kitchin, R., Apostolopoulou, E., Rickards, L., Blackman, T., Crampton, J., Rossi, U., & Buckley, M. (2020). Geographies of the COVID-19 Pandemic. *Dialogues in Human Geography* 10(2), 97 – 106. https://doi.org/10.1177/2043820620936050

Rosenberg, M. (2016). Health Geography II: 'Dividing' Health Geography. *Progress in Human Geography, 40*(4), 546–554. https://doi.org/10.1177/0309132515581094

Rosenkrantz, L., Schuurman, N., Bell, N., & Amram, O. (2021). The Need for GIScience in Mapping COVID-19. *Health & Place, 67*, 102389–102389. https://doi.org/10.1016/j.healthplace.2020.102389

Ruddick, S. (1989). *Maternal Thinking: Toward a Politics of Peace*. Boston: Beacon Press.

Ryan, K. (2016). Incorporating Emotional Geography into Climate Change Research: A Case Study in Londonderry, Vermont, USA. *Emotion, Space and Society, 19*, 5–12. https://doi.org/10.1016/j.emospa.2016.02.006

Sadler, R. (2022, January 17) Coronavirus: 'Terrifying' Voices for Freedom Protesters Descend on Vaccine Centre- But Healthcare Workers Inside Ease Children's Fears. *Newshub*. https://www.newshub.co.nz/home/new-zealand/2022/01/coronavirus-terrifying-voices-for-freedom-protesters-descend-on-vaccine-centre-but-healthcare-workers-inside-ease-children-s-fears.html

Sadler, H., & Woeher, D. (2022, September 23). In a Pandemic, Home Gets a New Meaning. *The Washington Post*. https://www.washingtonpost.com/opinions/2020/09/23/pandemic-home-gets-new-meaning/

Satherly, D., (2021). Coronavirus: Every Claim about COVID-19 Made by Anti-lockdown Group Voices for Freedom Debunked by Scientists. *Newshub*. https://www.newshub.co.nz/home/new-zealand/2021/04/coronavirus-every-claim-about-covid-19-made-by-anti-lockdown-group-voices-for-freedom-debunked-by-scientists.html

Skegg, D. C. G., Brewerton, M., Hill, P. C., Losua, E., Murdoch, D. R., & Turner, N. (2022). Vaccine Mandates in the Time of Omicron. *The New Zealand Medical Journal (Online), 135*(1552), 11-15.

Smith, M., Donnellan, N., Zhao, J., Egli, V., Ma, C., & Clark, T. (2022). Children's Perceptions of their Neighbourhoods during COVID-19 Lockdown in Aotearoa New Zealand. *Children's Geographies,* ahead-of-print, 1–15. https://doi.org/10.1080/14733285.2022.2026887

Statistics New Zealand. (2018). *Bay of Plenty Region.* https://stats.govt.nz/tools/2018-census-place-summaries/bay-of-plenty-region

Steger, A., Evans, E., & Wee, B. (2021). Emotional Cartography as a Window into Children's Well-being: Visualizing the Felt Geographies of Place. *Emotion, Space and Society*, 39, 100772–. https://doi.org/10.1016/j.emospa.2021.100772

Suran M. (2022) Why Parents Still Hesitate to Vaccinate Their Children Against COVID-19. *JAMA.* 327(1):23–25. https://doi.org/10.1001/jama.2021.21625

Tardy, R., (2000). 'But I *Am* a Good Mom': The Social Construction of Motherhood through Health-Care Conversations. *Journal of Contemporary Ethnography,* 29 433-473. https://doi-org.ezproxy.waikato.ac.nz/10.1177/089124100129023963

Tuan, Y.-F. (1990). *Topophilia: A Study of Environmental Perceptions, Attitudes, and Values*. New York City: Columbia University Press.

Tuck, E., & Mckenzie, M. (2014). Methodologies of Critical Place Inquiry. In *Place in Research: Theory, Methodology and Methods* (pp. 75-96). London: Routledge.

Turner, S. (2021). 'Where I Went Today . . .': Solicited Journals and Narrative Mapping. In Hay, I., & Cope, M (Eds.), *Qualitative Research Methods in Human Geography* (5th Eds. pp. 271-290). Oxford: Oxford University Press.

Valentine, G. (2013). Tell Me About . . . : Using Interviews as a Research Methodology. In Flowerdew, R., & Martin, D.M. (Eds.), *Methods in Human Geography: A guide for Students Doing a Research Project.* (2nd eds. pp. 110–127). London: Routledge. https://doi.org/10.4324/9781315837277-18

Venegas-Vera, A.V., Colbert, G.B., & Lerma, E.V., (2020). Positive and Negative Impact of Social Media in the COVID-19 Era. *Reviews in Cardiovascular Medicine, 21(4)*, 561-564. Https://doi.org/10.31083/j.rcm.2020.04.195

von Benson, N. (2021). Unschooling Motherhood: Caring and Belonging in Mothers' Time-space. *Gender, Place and Culture: A Journal of Feminist Geography, 28*(8), 1084 – 1105. https://doi.org/10.1080/0966369X.2020.1784100

Waitt, G. (2021). Revealing the Construction of Social Realities: Foucauldian Discourse Analysis. In Hay, I., & Cope, M., (Eds.) *Qualitative Research Methods in Human Geography* (5th Ed pp. 333-354). Oxford: Oxford University Press.

Walker,K.K., Owens, H., & Zimet, G., (2020). 'We fear the unknown': Emergence, Route and Transfer of Hesitancy and Misinformation Among HPV Vaccine Accepting Mothers. *Preventative Medicine Reports 20*. https://doi.org/10.1016/j.pmedr.2020.101240

Walker, K.K., Head, K.J., Owens. H., Zimet, G.D., (2021). A qualitative study exploring the relationship between mothers' vaccine hesitancy an health beliefs with COVID-19 vaccination intention and prevention durng the early pandemic months. *Human Vaccines & Immunotherapeutics 17*(10. https://doi.org/10.1080/21645515.2021.1942713

Walsh, K. (2021). A Response from Home: Intimate Subjectivities and (Im)mobilities During Covid-19. *Dialogues in Human Geography*, *11*(1), 157–160. https://doi.org/10.1177/2043820620937607

Waring, M.E., Pagoto, S.L., Rudin, L.R., Ho, C., Horkachuck, A., Kapoor, I.A., & Foye, Q. (2022). Factors Associated with Mothers' Hesitancy to Receive a COVID-19 Vaccine. *Journal of Behavioral Medicine,* 1-6. https://doi.org/10.1007/s10865-021-00268-0

Watson, A. (2022, March 8). After Two Years in a Pandemic, Mothers Expressing Rage Are Harnessing their Power. *The Conversation*. https://theconversation.com/after-two-years-in-a-pandemic-mothers-expressing-rage-are-harnessing-their-power-175809

Wenhui, L., Wong, S-K., Li, F., Kuhn, J.H., Huang, I-Ch., Choe, H., Farzan. (2006). Animal Origins of the Severe Acute Respiratory Syndrome Coronavirus: Insight from ACE2-S Protein Interactions. *American Society for Microbiology. Journal of* Virology, 80(9), 4211-4219. https://doi.org/10.1128/JVI.80.9.4211-4219.2006

Wiggins, A. (2021, June 16). COVID 19 Coronavirus: More than 800 Reports of Misinformation, Scams. *NZ Herald* https://www.nzherald.co.nz/nz/covid-19-coronavirus-more-than-800-reports-of-misinformation-scams/ZY55VSEOIKSQAVNLYLEL6ZCXDQ/

Wiederhold, B. K. (2020). Using Social Media to Our Advantage: Alleviating Anxiety During a Pandemic. *Cyberpsychology, Behavior and Social Networking, 23*(4), 197–198. https://doi.org/10.1089/cyber.2020.29180.bkw

Williams, S. N., Armitage, C. J., Tampe, T., & Dienes, K. (2020). Public Perceptions and Experiences of Social Distancing and Social Isolation During the COVID-19 Pandemic: A UK-based Focus Group Study. *BMJ Open, 10*(7), e039334–e039334. https://doi.org/10.1136/bmjopen-2020-039334

Wilson, S. (2020). Pandemic Leadership: Lessons from New Zealand's Approach to COVID-19. *Leadership, 16*(3), 279-293. https://doi.org/10.1177/1742715020929151

Wolman, D. (2020, April 14). Amid a Pandemic, Geography Returns With a Vengeance. *Wired*. https://www.wired.com/story/amid-pandemic-geography-returns-with-a-vengeance/

Wright, M. W. (2009). Gender and Geography: Knowledge and Activism across the Intimately Global. *Progress in Human Geography, 33*(3), 379–386. https://doi.org/10.1177/0309132508090981

Yildirim, T.M., & Eslen-Ziya, H. (2021). The differential impact of COVID-19 on the work conditions of women and men academics during the lockdown. *Gender, Work, and Organization, 28*(S1), 243–249. https://doi.org/10.1111/gwao.12529

Zhimin, Ma. (2011). Hägerstrand Time-geography Revisited from Current Perspective. *2011 International Conference on Multimedia Technology*, 5407–5410. https://doi.org/10.1109/ICMT.2011.6002703

Appendices

Appendix One

Ethical Approval Letter

Te Wānanga o Ngā Kete | ***Division of Arts, Law, Psychology & Social Sciences***

The University of Waikato
Private Bag 3105
Hamilton 3240
New Zealand

Te Kura Whatu Oho Mauri
School of Psychology
Dr Oleg Medvedev
Tel: +64 7 837 9212
Email: oleg.medvedev@waikato.ac.nz
www.waikato.ac.nz

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Elizabeth Arnott

Professor Lynda Johnston

Geography Programme
School of Social Sciences

22 February 2022

Dear Elizabeth

Re: **FS2022-03: Mothers, Kids and COVID: Health geographies of Mum's and their families in Pāpāmoa**

Thank you for submitting your revised application to the ALPSS Human Research Ethics Committee. We have reviewed the final electronic version of your application and the Committee is now pleased to offer formal approval for your research activities as detailed therein.

We encourage you to contact the committee should issues arise during your data collection, or should you wish to add further research activities or make changes to your project as it unfolds. We wish you all the best with your research. Thank-you for engaging with the process of Ethical Review.

Kind regards

Dr Oleg Medvedev, Convenor
Division of Arts, Law, Psychology & Social Sciences Human Research Ethics

Appendix Two

Mothers, Kids and COVID information sheet

INFORMATION SHEET

MOTHERS, KIDS AND COVID: Exploring the health geographies of mums with young families during the COVID-19 Pandemic in Pāpāmoa, NZ.

I would like you to take part in this research.

Background

This research is being carried out by Elizabeth Arnott, Masters Student in Geography at the University of Waikato. The findings of this research will be published in a thesis, community reports, academic journals, books and TED Talk.

The research is focused on the triangle of human ecology in relation to COVID-19. This framework examines three avenues that influence the spread of disease: Population, Behaviour and Habitat. My research will focus on the experiences of mothers with young families and the changes that have occurred in their everyday lives in response to the disease and following disease management strategies. These management strategies have altered how individuals live and the relationships they have within their community. This project will combine insights from human and health geography, epidemiology and communication studies.

Aim

The aim of this research is to **understand how the everyday lives of mothers with young families has changed due to the emergence of COVID-19.** Motherhood, community and well-being is at the heart of this research, particularly with how mothers feel about, and react to the ever-changing presence of COVID-19 and the disease management strategies.

Methods

I will make use of a variety of qualitative research methods including: individual semi-structured interviews; emotional mapping of your local community; participant observations. There is the possibility of a follow up interview

Your Involvement

As this research is focused on the impact the emergence of COVID-19 has had on you and your family, I would like to discuss with you in a location of your preference about your experiences and viewpoints. It is possible that I may ask if our conversation can be audio-recorded.

Participants' rights

All participants have the tight to:

- Decline to participate;
- Decline to answer any particular question;
- Withdraw from the study up until two weeks after receiving the interview transcript;
- Decline to be audio-recorded;
- Ask for the audio-recorder to be turned off at any time;
- Ask for the erasure of any materials they do not wish to be used in any reports of this study; and
- Ask any questions about the study at any time during participation.

Confidentiality

Your answers will be treated completely confidentially. Unless your permission is obtained, your name or any other identifying characteristics will not be disclosed in any resulting publications or any other report produced in the course of this research. Data will be destroyed five years after the completion of the research.

This research project has been approved by the Human Research Ethics Committee of the Division of Arts, Law, Psychology and Social Science (ALPSS) of the University of Waikato. Any questions about the ethical conduct of this research may be sent to the Administrator of the ALPSS Committee, email alpss-ethics@waikato.ac.nz, postal address, Division of Arts. Law, Psychology and Social Sciences, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240.

The results

A report will be prepared for you and other people who might be interested. If you would like we can notify you when material is published and provide you with a summary of the main findings.

Anticipated benefits of the research

This research focuses not only on the impact the emergence of COVID-19 and resulting management strategies has had on the everyday lives of mothers but also examines how these strategies have changed the everyday life of COVID-19. The voices of mothers often goes unheard and this research aims to give those voices a platform and raise awareness of the significant impact COVID-19 has had on mothers. It is here that research is needed in an attempt to improve the recognition of ….

If you have any queries about this study, please feel free to contact Elizabeth Arnott (Principal Investigator).

Thank you for your time reading this sheet and considering this information.

CONTACT DETAILS

Appendix Three

Emotional Mapping

Mapping Exercise

When Interviewing I will ask participants to look at a map of their community and using tracing paper on top, pin point locations that they feel safe and unsafe to take their children during this time of COVID-19.

Guide

1. Using the tracing paper can you pinpoint places on the map where you often go with your children in your everyday life, including your own home?
2. Are there any locations you no longer go because of COVID-19? Can you pinpoint them in a different colour?
3. *Please describe to me the places you located? How do you feel about these places (identified on the map)?*

Based on this exercise, is there anything you would like to add to your responses? Is there anything else you would like to share or draw?

Should the interview be conducted over Zoom then this task can be done online with google maps – I can then use the information shared to create the necessary overlaying map. The purpose of the tracing paper is to remove any identifying locations which will support confidentiality and anonymity whilst leaving me with a visual representation of their relationship with space and place.

Emotional Mapping (alternate way of doing task)

When interviewing I will ask participants to draw a 'mental or emotional map' (not to scale) showing where they feel safe and / or unsafe to go in their community with COVID-19.

Guide

There are some pencils, crayons, markers, pens available. Use whatever you feel like! When you have finished drawing I will ask you to talk about your map. I will leave you alone for the exercise and you can wave me over once you feel you are finished. I would like to take a copy of the drawing and potentially use it for my research. You have full ownership of your drawing and will be returned to you should you wish.

1. Can you draw a map of your neighbourhood showing the areas you most feel comfortable to take your children with COVID-19 in mind?
2. Include any area or individual location that is of important to you?
3. Include your home in the drawing?
4. *Please describe to me what you have drawn? How do you feel about these places (in the drawing)?*

Based on this drawing exercise, is there anything you would like to add to your responses? Is there anything else you would like to share or draw?

Appendix Four

Semi-structured individual questions (guide)

The interview will cover 5 topic areas:

- Time
- Space
- Place
- Family/friend relationships
- Attitudes to science and information

1. Introduction

Introductions
Explain purpose of research
Outline general topics to be covered in the session
Explain purpose of audio-recording
Assure anonymity and confidentiality and have the participant sign the consent form

2. Getting to know you – Life prior to the first lockdown

Tell me about your family
Describe how you live in your community? E.g. do you take local bike rides, go to local parks, eat at local cafes and restaurants?
What were your initial thoughts when COVID-19 emerged?
What was it like for you and your family during the first lockdown in 2020?
Did your feeling towards the area you live in change? How so?

3. Life after 2020 lockdown to present day?

Once that first lockdown was over, how did you feel about the risk of COVID-19 for you and your family?
How did you feel about the government response to COVID-19 in 2020 in regards to how you lived?
Did your everyday lifestyle change after the lockdown for you and your family? In which way?

4. Relationships

Has the emergence of COVID-19 affected your relationships with any family or friends? In which way?
How has the management strategies of COVID-19 both non-pharmaceutical and pharmaceutical (vaccines) altered your everyday life?
Has the vaccine affected how you live and move around within your community? In which way?
How do you feel about the vaccine?

5. COVID and Kids

At the end of 2021, the school experienced its first cases of COVID-19 amongst its cohort. How did you feel during this time period?
How did your children feel about the presence of COVID-19 and going into lockdown?
How do you feel about the vaccine for 5-11-year-olds?

How important do you feel your role as mother is in shaping the health of your children? Do you feel validated in this role?

6. Behind the Science

Do you feel informed about COVID-19?
Where do you get your information from?
Are you likely to check an information source for quality control? What information provider do you trust and why?
Do you trust the science behind the vaccine? Why/why not?

7. Life with COVID-19

How do you feel about COVID-19 now compared to when it first appeared?
How would you describe the overall impact of COVID-19 on your everyday life and where you go?

8. Mapping exercise (see appendix six for details)

Would you be happy to draw a map the places where you are comfortable taking the family?
Would you be happy to draw/map your neighbourhood showing how you feel about the places where you are comfortable taking (or not taking) the children with COVID-19 in mind?