Growing Up in New Zealand

Life during Lockdown

Findings from the *Growing Up in New Zealand* COVID-19 Wellbeing Survey

PART 2: EDUCATION

MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

Growing Up in New Zealand:

Life during Lockdown: Findings from the GUiNZ COVID-19 Wellbeing Survey

Part 2: Education

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Further information on *Growing Up in New Zealand* is available at www.growingup.co.nz

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The cover image and the image on pg 2 were taken by photographer Shona Dey. They are part of her Lockdown Bubble series which documented families in their neighbourhood during the 2020 Level-4 Lockdown.

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Executive Summary

This report details findings from the online COVID-19 Wellbeing Survey delivered in May 2020, at which time, Aotearoa New Zealand was experiencing strict COVID-19 pandemic restrictions. This survey was completed by 2,421 children aged 10–11 years who are a part of the *Growing Up in New Zealand* longitudinal study. The survey provided the opportunity to: 1) understand the children's experiences during lockdown, both positive and negative, by hearing directly from the children themselves and 2) ascertain the likely level of engagement by the cohort in an online digital data collection process. This report focuses on findings related to COVID-19 'bubbles', lockdown activities, family life, school satisfaction, device use and screen time, and connectedness. Findings are compared with responses from when the children were approximately eight years of age where possible.

Context

Concerns have been raised about the potential effects of the restrictions and social distancing measures implemented as part of the Aotearoa New Zealand COVID-19 pandemic response in early-2020, particularly in relation to children and young people. These restrictions limited children's access to school, friends and family, and extra-curricular activities—all of which may have impacted on children's wellbeing. Children have been identified as a group especially vulnerable to the psychosocial impacts of the COVID-19 pandemic as they often lack properly developed coping strategies and emotional reactions which may result in them experiencing greater stress and trauma than adults. Furthermore, these effects are likely to have been unevenly experienced, with children disproportionately affected depending on their sociodemographic characteristics.

To determine the effects of COVID-19 lockdown restrictions for Aotearoa New Zealand children, longitudinal information from before the pandemic needs to be compared to during and after the pandemic. The *Growing Up in New Zealand* data used in this report provides such information through comparisons of data collected during COVID-19 restrictions and from before the pandemic, drawing on both cross-sectional and longitudinal analyses of these data. Further important insights will be enabled by future data collection waves—most crucially by determining whether impacts on aspects of the cohort's wellbeing were contextual and temporary, or more long-lasting and potentially in need of specific policy attention.

Findings

Overall, 42% (n=2421) of the 5,756 eligible children from the *Growing Up in New Zealand* study completed the COVID-19 Wellbeing Survey. Key findings are reported below.

Children were adaptable to new ways of life

Through the disruption of the COVID-19 pandemic, Aotearoa New Zealand children demonstrated an impressive ability to adjust to new circumstances. For example:

- Despite the abrupt change to school modality, many children (64%) still reported feeling connected to their school or kura often or always.
- One in four children (24%) reported an increase in school satisfaction between age eight and lockdown.
- Eleven percent of children had more than one household bubble in lockdown, with 48% of these children able to move between their bubbles at least every week.
- Responses to open-ended questions indicated some children enjoyed the flexibility to the distance learning routine, having increased independence, more free-time, and increased self-regulation in their learning during lockdown.
- Most children stayed in frequent (virtual) contact with others, with 86% categorised as 'moderately' or 'more' connected to friends and family outside of their household bubbles.
- However, differences in connection to those outside of bubbles differed by demographic characteristics. For example, children living in higher deprivation areas were less likely to have frequent connection, perhaps due to digital access inequities.

Children enjoyed their household bubbles and regularly participated in activities with others

Many families and whānau were able to foster experiences that saw the majority of children in this study reporting lockdown as a largely positive time. Despite the uncertainty of the pandemic, families and whānau continued to connect with each other in meaningful ways and participate in a variety of activities together. Furthermore:

- Four in five children (79%) agreed they had a good time with their family in lockdown.
- Eighty-eight percent of children felt supported by their family during the pandemic restrictions.
- Almost all children (96%) regularly shared a meal with their family.
- A large proportion of children (84%) had people in their bubble involved in their school work several times a week or more.
- There was a 21% increase in children doing outdoor activities with their family at least once a day during lockdown compared with age eight.
- Compared to when they were eight-years-old, children reported a 23% increase in baking or cooking with someone in their family several times a week in lockdown.

Device use and screen time was frequent

Device use in lockdown increased markedly since age eight, with the average time spent in front of screens being 4.8 hours during the weekdays and 4.0 hours on the weekend days (compared with 2.2 hours on the weekdays and 1.5 on the weekend days at age eight). Additionally:

- YouTube was the most popular app used by children in lockdown, with 76% of children using this app.
- Devices were used every day for school/homework by 67% of the children.
- There was high use of apps with restrictions of 13+ years of age.
- Children living in areas with the least socioeconomic deprivation reported the highest screen time during the weekdays (five hours per day).
- Weekend screen use saw children from higher deprivation areas reporting the highest average of 4.5 hours per day.

Key factors were identified for successful schooling

Engagement with activities, both school-related and non-academic, were key to boosting children's enjoyment in schooling during the lockdown restrictions. This suggests that supporting families to connect with each other as they did during lockdown is promising for enhancing learning moving forward. Specifically, facilitating family participation in community activities, and arts and cultural events may boost successful schooling experiences. For example:

- Engaging in activities at least once a day corresponded with higher school satisfaction scores. This observation was evident across a wide range of activities including household chores, sports, and baking or cooking.
- High involvement in reading and cooking/baking with people inside their bubble corresponded with the highest levels of school satisfaction.
- Children that never/almost never engaged in homework or housework with others in their bubble generally saw the lowest levels of school satisfaction.
- Children who reported very high engagement in community activities (online or in their bubble) during lockdown had the highest school satisfaction scores compared to others.
- High device use during the weekends in lockdown was associated with lower school satisfaction.
- School satisfaction did not differ by frequency of concern about family money situation.

Experiences of school differed across demographic groupings

Overall, the mean school satisfaction score was 9.4, reflecting scores in the mid-point between "sometimes" and "often" satisfied. This was a marked drop from school satisfaction at age eight (mean=11.7, corresponding with "often" satisfied). While it was to be expected that the circumstances and change to schooling modality would present challenges, some children reported more challenging schooling experiences than others. Furthermore:

- 76% of children experienced a decrease in school satisfaction relative to reported satisfaction at age eight.
- Children in larger bubbles of seven or more people generally saw higher levels of school satisfaction. Inversely, children in bubble sizes of two (including the cohort child) tended to have the lowest scores.
- Tamariki Māori experienced the largest decline in mean score of school satisfaction between age eight and lockdown.
- Children of Asian and Pacific ethnic groups saw the smallest relative decreases in school satisfaction, with drops in mean school satisfaction scores of 1.7 and 1.6 respectively (compared with 2.3 for the cohort overall) between age eight and lockdown.
- There were no significant differences in school satisfaction scores between children identified with a disability and those not.
- Between age eight and lockdown, school satisfaction declined similar amounts for children who reported being bullied at age eight and those who did not.
- However, when examining differences in school satisfaction at lockdown only, those who indicated they were never/hardly ever bullied had significantly higher school satisfaction at lockdown than those who were bullied.

Lockdown was socially and emotionally challenging for some children

Many children had concerning social and emotional reports during lockdown and may not have been receiving the support they required. The reduced social contact during lockdown restrictions may have had negative repercussions, with possible implications for mental and emotional wellbeing needing to be explored further. Given learnings from studies conducted about the consequences of traumatic events for children (e.g., from the Canterbury earthquakes) the social and emotional challenges children faced during lockdown is of concern. The fact that many children felt they were rarely listened to, may not have had enough opportunities to share their feelings and issues with others, and some had increased anxiety over money, are all factors that need ongoing monitoring. Specifically, this report found:

- When asked about having someone to talk to about their feelings, a large proportion (45%) did not feel they had someone they could share with very often.
- Thirteen percent of children indicated they rarely felt listened to by the people who looked after them in their bubble(s).
- Two in three children (66%) did not talk about their feelings or issues frequently with those in their bubble. This corresponded with a 26% decrease in frequency of talking about feelings and issues several times a week compared with age eight, and a 34% increase of children stating that they never or almost never talked about their feelings.
- Many children (38%) worried sometimes, often, or always about how much money their family had during lockdown.

Next steps and policy implications

Understandably, children have not been immune to the psychosocial effects of COVID-19. The positive and negative experiences of the children in this study provide policy stakeholders with information to guide strategies and supports for families and whānau.

Moving forward, policy makers may wish to think about how these findings can be taken to:

- Support families to continue to connect with each other in the ways they did during lockdown,
- Provide children with more flexibility, independence, and free-time in their learning where they require it,
- Identify the additional resources and ongoing support children may need, given many faced emotional and social challenges during lockdown restrictions,
- Investigate the specific systemic factors responsible for differing schooling experiences during lockdown and ensure COVID-19 does not deepen inequities,
- Ensure equitable access to devices in future online and distance learning,
- Tailor post-pandemic approaches given children had very different lockdown experiences.

Ongoing monitoring of children is essential to understand the true impact of the lockdown restrictions for children and their families and whānau. Continuing to hear directly from children should be prioritised as pandemic responses are designed and implemented by government and agencies. Additionally, the upcoming *Growing Up in New Zealand* 12-year DCW will be important for providing the opportunity to assess longer-term impacts of the pandemic.

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Glossary

Term	Definition or translation
COVID-19	Coronavirus disease (2019)
DCW	Data Collection Wave
GUiNZ	*Growing Up in New Zealand*
MSLSS	Multidimensional Students Life Satisfaction Scale
NZDep2013	New Zealand Area Level Socio-economic Deprivation 2013 Score
OECD	Organization for Economic Cooperation and Development
WHO	World Health Organization

1. Introduction

This report outlines the experiences of children in Aotearoa New Zealand, recruited from among the *Growing Up in New Zealand* (GUiNZ) longitudinal cohort study, during the lockdown restrictions implemented in response to the COVID-19 pandemic from March 2020. COVID-19 is the disease caused by the coronavirus SARS-CoV2, first identified in Wuhan, China in December 2019. With humans having no pre-existing immunity to this novel virus but proving susceptible to infection, the rapidly transmitting COVID-19 virus spread throughout the world in early-2020. On the 11th of March 2020, the World Health Organization (WHO) declared a worldwide state of emergency (1). Since it has been identified, COVID-19 has been ranked in the top five causes of death globally (2). Internationally, control measures were implemented in attempts to contain the virus and control transmission. These measures varied markedly between nations (3).

1.1 COVID-19 in Aotearoa New Zealand

The first case of COVID-19 in Aotearoa New Zealand was detected on the 28th of February 2020 (4). The Aotearoa New Zealand Government initially took a containment approach ("flatten the curve") to control transmission of the COVID-19 virus, before pivoting to an 'elimination' approach (5). This approach aimed to manage the existing COVID-19 cases, minimise the spread of infection, quickly stamp out the virus, and prevent onward transmission, including from cases that returned from overseas, until an effective treatment or vaccine could be found. A four-level alert system was introduced in March 2020 to manage this approach (6). Restrictions placed on the population increase throughout the levels.

At 11:59pm on the 25th of March 2020, Aotearoa New Zealand moved into Level 4 (Lockdown) which restricts all non-essential movement and advised people to stay at home in their immediate household 'bubble' (7). Essential movement was permitted, such as grocery shopping and recreational activity in the local area with physical distancing. All educational facilities, public venues, and businesses closed, except essential services. This lockdown continued until the 27th of April after which the country was moved into Alert Level 3 (Restrict). This alert level requires people to remain at home but saw the opening of some businesses provided they had no physical interaction with customers. Educational facilities opened with limited capacity for children of essential workers. On the 13th May 2020, Aotearoa New Zealand dropped back to Alert Level 2 (Reduce) which allowed educational facilities, businesses, and public venues to re-open with physical distancing.

There have been fewer than 3000 confirmed or probable cases of COVID-19 in Aotearoa New Zealand and 26 COVID-19-related deaths (as of May 2021 (4)). However, the majority of these cases contracted the virus overseas or during their return journey to Aotearoa New Zealand, rather than through community transmission. The fast scientific-based response from the Aotearoa New Zealand Government, the interventions administered (e.g., border control measures), and the high public compliance to the COVID-19 control measures, saw the lowest COVID-19-related deaths among the 37 Organization for Economic Cooperation and Development (OECD) countries (8). Although children and young people in Aotearoa New Zealand have been comparatively unaffected by COVID-19 virus transmission and are not at significant risk of infection, the lockdown restrictions are likely to have affected other aspects of their wellbeing.

1.2 Children's Experiences of COVID-19

Capturing the experiences of children during COVID-19 is essential for understanding the implications, both positive and negative, of the pandemic. International research has documented concern about the immediate and ongoing effects of COVID-19 for children given the pandemic and associated measures have limited access to friends, family, schools, and other social interaction and participation (9,10,11,12). For example, a longitudinal study of German children and young people between the ages of 7–17 found many reported feeling highly burdened by the COVID-19 pandemic—more than half found home-schooling and learning to be more difficult than before the pandemic and two in five reported their relationships with their friends had been impaired (12). However, international literature about the implications of COVID-19 for children and young people may have limited applicability to Aotearoa New Zealand due to

the differing control measures and comparatively low prevalence of the disease.

To date, few studies in Aotearoa New Zealand have been published where children and young people were asked about their experiences of COVID-19 and associated restrictions. In a notable report, the Office of the Children's Commissioner surveyed 1,402 children and young people in May 2020, finding very diverse experiences of lockdown (13). Some children (29%) indicated that life was better or much better during lockdown whereas others reported life to be worse or much worse than their life prior to lockdown (23%). With respect to education, learning remotely was reported as a positive experience for some students. However, a separate study conducted by the Educational Review Office (ERO) revealed many students in Aotearoa New Zealand struggled with learning at home during lockdown (14).

Cross-sectional studies, such as the reports detailed above, provide a useful snapshot of the experiences of children and young people during the COVID-19 pandemic. However, the design of cross-sectional studies means they are unable to establish any causal relationship between COVID-19 alert levels and health and wellbeing in the children. Such relationships are more readily answered using a longitudinal cohort study design such as the GUiNZ longitudinal cohort study, where data from before COVID-19 are able to be compared to data during the COVID-19 pandemic. The GUiNZ study also has comprehensive demographic information about the cohort, allowing for findings to be stratified by participant characteristics so experiences specific to sub-groups can be reported.

This report aims to address the knowledge gap by detailing children's experiences during COVID-19 Alert Levels 3 (Restrict) and 4 (Lockdown), as well as making comparisons with earlier time points where possible to provide patterns of experiences over time for children involved in the GUiNZ longitudinal cohort study.

1.3 Overview of *Growing Up in New Zealand*

The GUiNZ longitudinal cohort study recruited 6822 pregnant women living within the Auckland, Counties Manukau, or Waikato District Health Board regions who were due to have their babies between 25th April 2009 and 25th March 2010. The subsequent child cohort consisted of 6,853 children, whose birth parameters closely aligned to all Aotearoa New Zealand births in 2007–2010 (15). Since its inception, five major data collection waves (DCW) have been completed face-to-face in homes with the GUiNZ cohort (antenatal, and when the children were approximately 9 months, 24 months, 54 months, and eight years of age). Between the main face-to-face DCWs, age specific data have been collected using online electronic questionnaires and telephone interviews.

A sixth in-home DCW was planned for 2020, when the children were approximately 11 years of age, but data collection was delayed to June 2021, when the children were approximately 12 years of age. A brief online survey, the COVID-19 Wellbeing Survey, was designed to hear directly from the children in the GUiNZ cohort about their experiences of COVID-19 lockdown and to understand how aspects of their wellbeing may have changed since the last DCW which ended in early-2019. Additionally, this survey tested the application of a digital questionnaire between routine face-to-face DCWs to provide valuable information about the utility and acceptability of this digital mode of engagement with an existing cohort, particularly given the uncertainty associated with the feasibility of face-to-face data collection during the ongoing COVID-19 pandemic.

1.4 Aims of the COVID-19 Wellbeing Survey

The overarching aims of the COVID-19 Wellbeing Survey were to understand these children's experiences of lockdown and, at the same time, explore the ability to connect electronically with the GUiNZ cohort. The specific aims of the questionnaire related to understanding the experiences of COVID-19 restrictions included:

1. Understand the attitude and feelings of children about schoolwork during lockdown, and their thoughts about returning to school.
2. Understand whether children had access to, and use of, electronic devices during lockdown, and the amount of time they spent on these devices.
3. Determine how engaged children were with activities involving family and friends during lockdown.
4. Determine whether children had any changes in eating behaviours and attitudes toward food during lockdown.
5. Understand what the children liked, or did not like, about lockdown.
6. Understand what the children worried about and were most excited about during lockdown.
7. Understand how lockdown impacted children's general health, and mental and physical wellbeing, particularly:
    - Whether this impact differed according to key socio-demographic variables.
    - Whether their mental and physical wellbeing had changed from when they were eight years of age.

The objectives of this report are to present the findings from the COVID-19 Wellbeing Survey relevant to household bubbles, school, family, connectedness, activities and experiences, and media and screen time (Aims 1-3). Separate publications focus on health, and mental and physical wellbeing (Aim 7), eating behaviours and attitudes toward food (Aim 4), as well as qualitative analysis of free text fields (Aims 5 and 6).

2. Methods

This section provides a brief overview of the methods and data analysis plan used in this study. A full methods section can be found in Appendix A, detailing the study design, ethics approval, data collection process, and survey measures.

2.1 Study Design

A cross-sectional survey design was utilised. Children were eligible if: the person who had completed the "Mother Questionnaire" at the most recent data collection wave (DCW) the child had taken part in had not withdrawn from the GUiNZ study prior to May 2020; this person had a contact email address; and the child was living in Aotearoa New Zealand at the time of survey distribution. Children whose caregivers had requested that all communications be in Te Reo Māori were ineligible for the survey (n=11), as translation of the survey was unfortunately not possible given time constraints.

2.2 Data Collection

Email invitations to participate in the survey were generated from the Qualtrics® digital platform and sent to the person who had completed the "Mother Questionnaire" at the most recent DCW the child had taken part in (and had not withdrawn prior to May 2020 and had a contact email address). The invitation included an individualised link to the survey, which directed them to a web-based online survey accessible on all devices (computer, tablet, phone). The front page of the survey described the purpose of the questionnaire and gave children the opportunity to accept or decline to participate. Children could complete the survey independently or receive help from a family member if required. To increase compliance with survey completion a media release was issued, as well as a more targeted campaign promoting the survey to GUiNZ participants via Facebook, Instagram and Twitter, the *Growing Up* website and participant e-newsletter. While koha are typically offered to participants as part of main data collection waves, this was not possible for the COVID-19 Wellbeing Survey.

2.3 Survey Questions

The COVID-19 Wellbeing Survey consisted of 46 questions in total (see Appendix B). Questions were not compulsory, and children could progress to the next section of the questionnaire if they wished to skip any section. The questionnaire asked children about their household 'bubbles', feelings, experiences, activities, home and family life, school, current health, media and screen time, connectedness, depressive and anxiety symptoms, and food and drink.

This report focuses on data related to questions about: COVID-19 "bubbles", experiences, activities, family life, school, media use and screen time, and connectedness.

2.4 Data Analyses

Analyses were undertaken using R (version 4.0.5), RStudio, and RMarkdown. All statistical analyses and resulting code for this report have been peer reviewed by an independent member of the GUiNZ Biostatistics team (not involved in the study).

Standard summary statistics are used to report survey responses across questions pertaining to COVID-19 'bubbles', experiences and activities, family life, school satisfaction, current health, media use and screen time, and connectedness. Many of the summary statistics are also stratified by ethnic and sociodemographic subgroups.

A strength of having a longitudinal dataset is the ability to undertake analyses that consider the contribution of early-life experiences for life during COVID-19. Where possible we have approached the longitudinal analyses with the aim of comparing similar measures across time and identifying earlier experiences that are predictive of wellbeing during COVID-19.

3. Cross-sectional Findings

This section explores the findings from the cross-sectional analysis of the COVID-19 Wellbeing Survey. Findings related to questions about household bubbles, school, connectedness, household dynamics, experiences, activities, and media and screen use are explored according to various demographic and other variables of interest. Analyses in this section describe the lived experiences of Aotearoa New Zealand children during the COVID-19 lockdown restrictions. Longitudinal analyses linking the findings from this section to past GUiNZ DCWs are presented in the following section, section four.

3.1 Survey Respondents

In total, 5,756 GUiNZ children in the main cohort were eligible to participate in the COVID-19 Wellbeing Survey (as per the eligibility criteria in section 2.1). The survey went live on the 8th of May 2020. At that time Aotearoa New Zealand was in Alert Level 3 (Restrict), 12 days after stepping down from Alert Level 4 (Lockdown). The live link was originally open for seven days. A small number of children declined to participate when they had not meant to do so. Their parents contacted the study team and asked for the children to be re-issued a survey link, which extended the period of data collection. The survey was closed on the 24th of May 2020, by which time the country had moved to Alert Level 2 where people could go back to work and school with physical distancing.

Overall, 2,421 children completed the COVID-19 Wellbeing Survey. This response rate applies to the 5,756 children who were able to engage in the survey because their parent had provided consent, they had a current contact email, and the children had access to a device with internet connection. This survey was the first time an online DCW had been utilised with the GUiNZ children themselves and had a response rate of 42%, which is considered high for a digital survey of this nature (16). Figure 1 indicates that 70% of the children completed the survey during Alert Level 3 (Restrict) and 30% during Alert Level 2 (Reduce). Furthermore, the majority of children (69%, n=1669) who participated completed all questions in the survey.

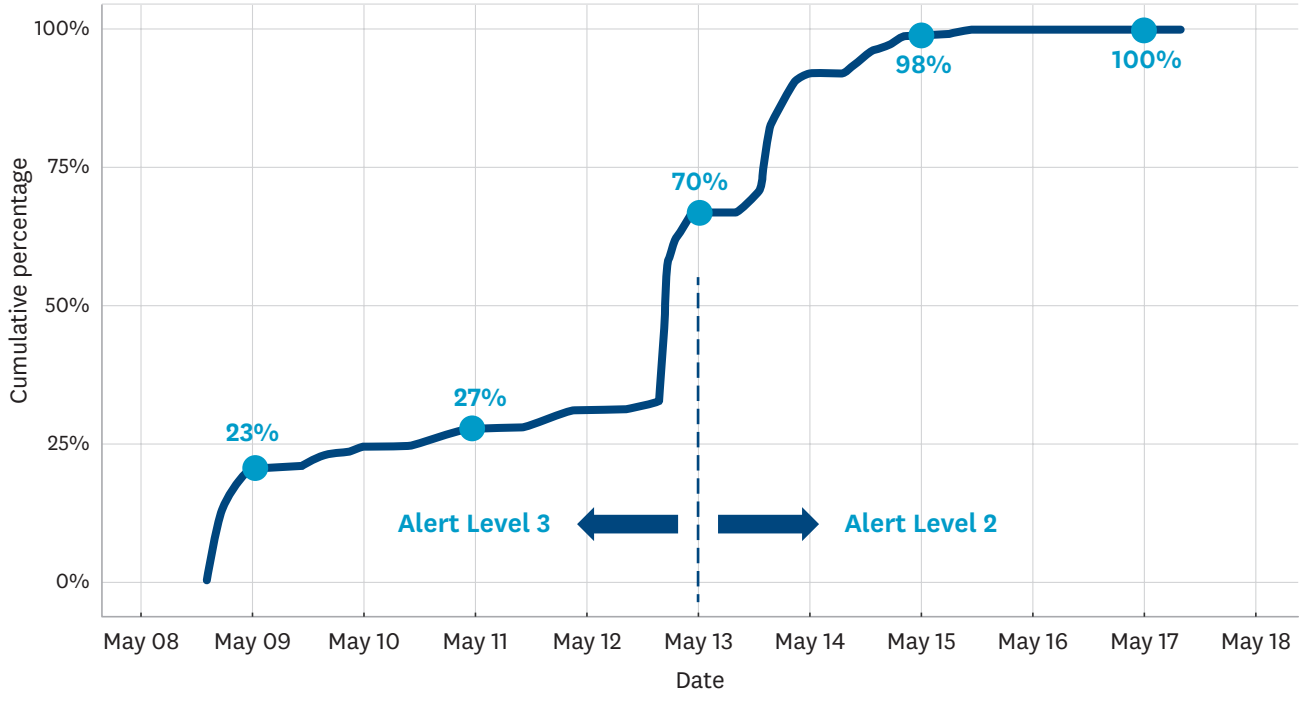


Figure 1: Recruitment summary

3.2 Participant Characteristics

Demographic characteristics of the COVID-19 Wellbeing Survey population are shown in Figures 2, 3, and Appendix C. Almost all participating children (99%) were aged 10-11 years, with a similar proportion of boys and girls. A high proportion of children were from low deprivation areas (38%, n=919, NZDep2013 group 1–3) and medium deprivation areas (37%, n=890, NZDep2013 scores 4–7), compared to 21% (n=517) from high deprivation areas (NZDep2013 groups 8–10). Ethnicity data in Appendix C are presented using both prioritised ethnicity and total response ethnicity. Of the Pacific group (total response), the following nationalities were represented:

- Samoan: 53% (n=169)
- Tongan: 26% (n=83)
- Cook Island Māori: 22% (n=71)
- Niuean: 12% (n=38)
- Fijian: 6% (n=18)
- Other: <1% (n=<10)

Of the Asian group (total response), the following nationalities were represented:

- Chinese: 30% (n=102)
- Indian: 29% (n=99)
- Filipino: 10% (n=33)
- Other: 34% (n=116)

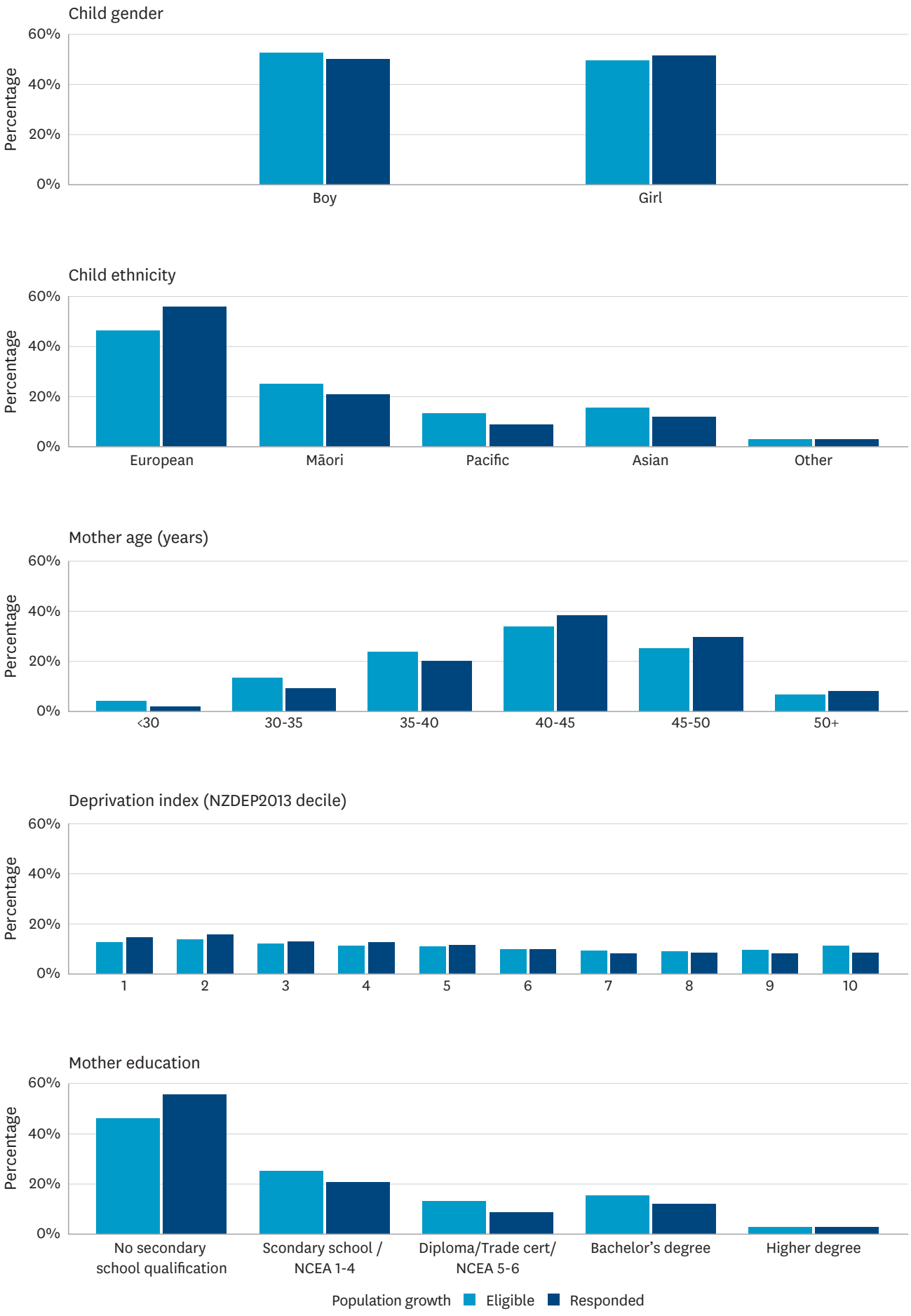
The 'Other' category represents nationalities with less than 10% of the cohort children (e.g., Sri Lankan, Korean, Japanese, Cambodian, Vietnamese, etc).

A NOTE ON ETHNICITY:

Throughout this report child ethnicity is predominantly externally prioritised based on Stats NZ Level 1 ethnicity groupings in the following order of priority: Māori, Pacific, Asia, Middle Eastern/ Latin American/African, Other, or European if used as an independent variable (17). The strengths of this method include prioritisation of the Māori ethnic group, befitting for targeted resourcing and policy development included in Te Tiriti o Waitangi responsibilities (18). Additionally, ethnic groupings are mutually exclusive which is a requirement for many statistical tests.

For analyses conducted on separate ethnic groups, ethnicity is coded across multiple variables (using total response coding) based on Stats NZ Level 1 ethnicity groupings (dummy variables indicating if the participant belongs to a specific ethnicity or not). In other words, multi-ethnic participants were included in each relevant ethnic group. The strength of this method is the inclusion of all ethnic groups with which each individual identifies.

Figures 2 and 3 compare the characteristics of children and families in the GUiNZ study who participated with those who did not participate. A lower response rate to the survey was observed for boys, Māori, Pacific, and Asian children, and children who had mothers with fewer educational qualifications (i.e., no secondary school qualification, secondary school/NCEA 1–4, and diploma/ trade certificate/NCEA 5–6), though in some cases these differences were modest (e.g., by gender). Response rates did not differ significantly between children living in rural and urban areas. See Appendix D for further technical detail regarding response bias.



Note: Child ethnicity reported as externally prioritised according to Stats NZ Level 1 ethnicity groupings.

Figure 2: Sociodemographic characteristics of participants and non-participants in the COVID-19 Wellbeing Survey

Note: Child ethnicity reported as externally prioritised according to Stats NZ Level 1 ethnicity groupings.

Figure 3: Difference in sociodemographic characteristics of participants and non-participants in the COVID-19 Wellbeing Survey

3.3 Māori Participant Response Rates

Response bias based on sociodemographic characteristics was also explored for all participants who identified as Māori from the main cohort (n=1390). In total 498 tamariki Māori responded to the COVID-19 Wellbeing Survey—a response rate of 36% (compared with 42% overall). Compared with Figure 3, the response bias pattern for tamariki Māori is similar to the pattern for the full cohort.

Figure 4 provides a closer examination of the over- and under-representation for tamariki Māori by sociodemographic groupings in the COVID-19 Wellbeing Survey. There was small to moderate over-representation of girls, tamariki Māori living in lower deprivation areas, those with older mothers, and those whose mothers have a higher educational qualification. There was a correspondingly small to moderate under- representation of boys, those with younger mothers, those living in the most deprived areas, and tamariki Māori whose mothers have lower educational qualifications.

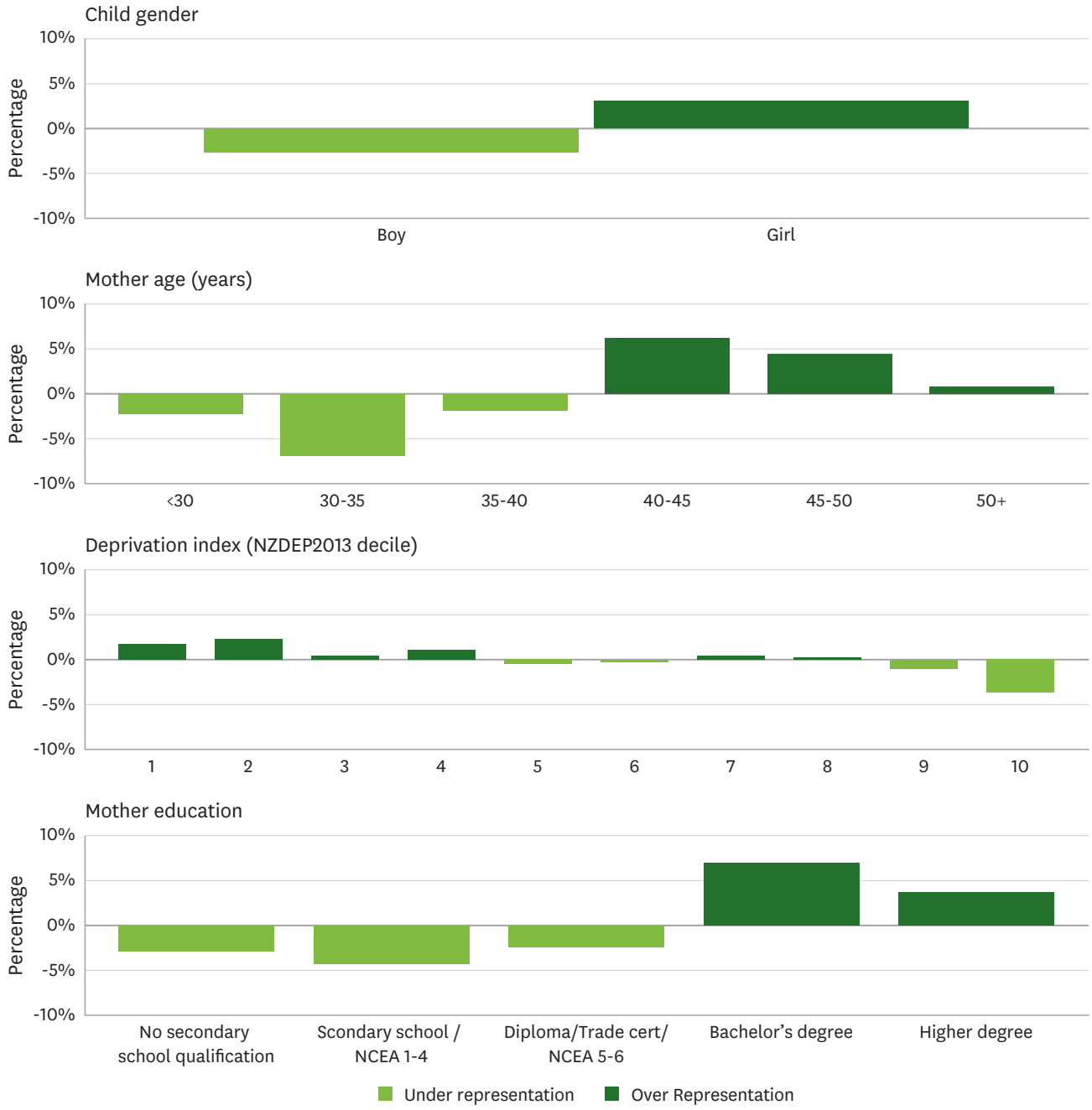


Figure 4: Difference in sociodemographic characteristics of Māori participants and non-participants in the COVID-19 Wellbeing Survey

3.4 Household Bubbles

Under Alert Level 4 (Lockdown) and Alert Level 3 (Restrict), members of the public not working for essential services are legally required to stay home in their 'bubble' unless following guidelines about permitted activities (e.g., grocery shopping, exercise, etc (19)). The term 'bubble' has been used to describe a household unit (or units for blended families and those sharing custody of children). Describing the characteristics of these bubbles is of interest given the novelty of the 'bubble' concept, and to understand the social environments the children in this study were exposed to during lockdown in 2020.

KEY FINDINGS:

- Eleven percent of children had more than one household bubble in lockdown. Movement between these bubbles was frequent with 48% of children moving at least every week.
- Two in five children (41%) had one or more essential workers in their bubble(s). A higher proportion of Pacific children reported having at least one essential worker in their household bubbles.

3.4.1 Bubble information

Children participating in the COVID-19 Wellbeing Survey were asked to provide information about their bubbles during COVID-19 restrictions. The vast majority of children (90%, n=2065) reported having between three and six people in their bubble, including themselves (Figure 5). Pacific and Māori children, on average, were more likely to have a higher number of people in their bubble (ethnicity reported as total response).

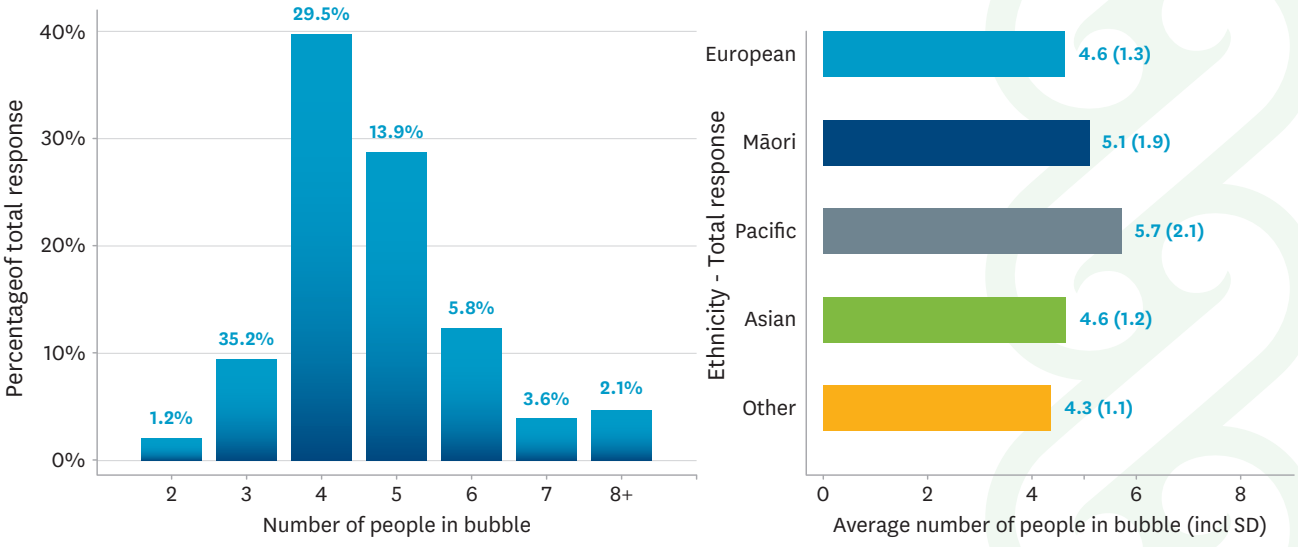
Eleven percent (n=249) of children reported having more than one bubble at the beginning of Alert Level 4 (Lockdown). The majority of these participants had two bubbles (60%, n=148). Movement between bubbles was frequent with 15% (n=38) of children reporting daily movement, 33% (n=81) moving every week, and 52% (n=129) moving less often.

Participants were asked about the people who they shared their bubble(s) with. Most of the GUiNZ children lived with their mother (97%, n=2215), father (87%, n=1997), and sibling/s (89%, n=2034) during COVID-19 restrictions. Fifteen percent (n=373) of children had at least one new person join their bubble who did not live with them before Alert Level 4 (Lockdown). Of these children, 32% (n=120) had a close family member (such as a sibling) join, 34% (n=127) had a grandparent join, and 34% (n=130) had another family member or friend join their bubble.

Despite the novelty of the 'bubble' concept and the associated restrictions involved in keeping to one's bubble, many children were positive about spending time with those in their bubble, as indicated in the quote below.

WHAT ARE THE BEST THINGS ABOUT LOCKDOWN?

"Being with my whānau. I love my bubble!"



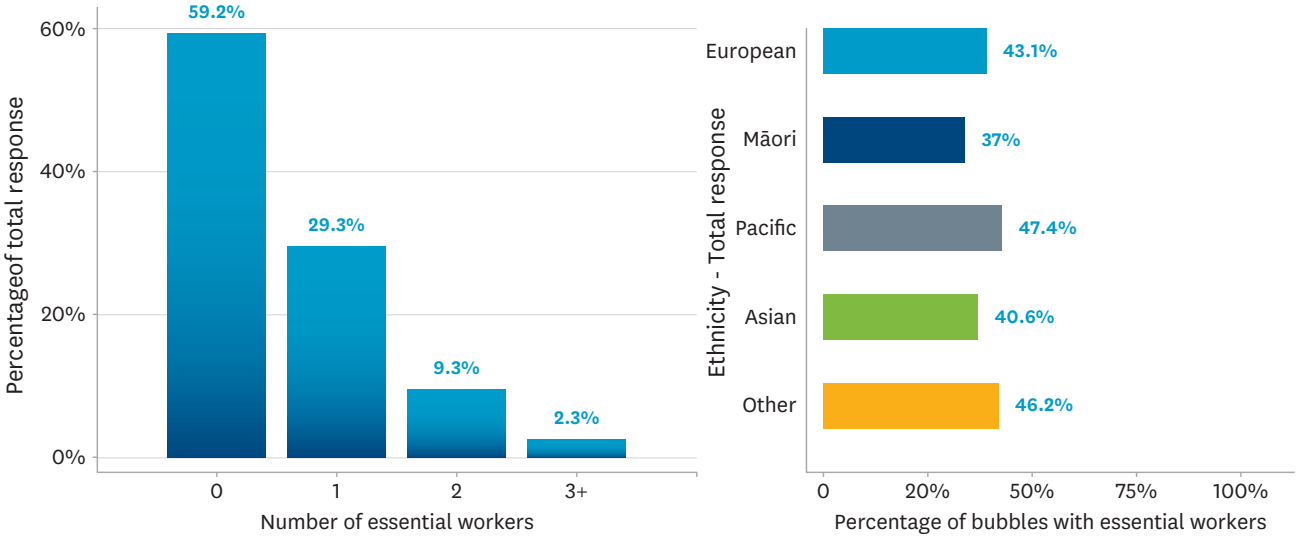
Note: Child ethnicity reported as externally prioritised according to Stats NZ Level 1 ethnicity groupings.

Figure 5: Bubble size

3.4.2 Essential workers

During Alert Level 4 (Lockdown) and Alert Level 3 (Restrict), members of the public were required to work from home. Only workers of essential services were able to leave their household bubbles to attend work as long as they complied with necessary health and safety protocols (19). Essential workers included those who were medical professionals, residential facility staff, border security, some education staff, building and construction workers, and those working in primary industries.

Two in five children (41%, n=934) had an essential worker as part of their household bubble(s). However, Pacific children had the highest proportion (47%, n=148) of essential workers (Figure 6). Despite the increased risk for Pacific communities during the pandemic, due to higher numbers involved in essential work, Pacific providers and communities were able to mitigate this risk by mobilising and providing mass accessible COVID-19 testing, as well as responding to other needs in a holistic way, for example providing food and social care for the elderly (4). Pacific peoples make up 8.1% of the Aotearoa New Zealand population, but make up 12% of those who have been tested for COVID-19, highlighting the proactive response by our Pacific communities (20).



Note: Child ethnicity reported as externally prioritised according to Stats NZ Level 1 ethnicity groupings.

Figure 6: Number of children with essential workers in bubble

3.5 School During Lockdown

Lockdown saw the closure of in-person educational facilities, where face-to-face learning abruptly ceased. With very little time to prepare for new ways of learning, students and teachers were required to adapt quickly to distance and online instruction. Efforts were taken by schools, teachers, students, government, and families and whānau to continue instruction and learning where possible (21). However, the major shift in schooling modality understandably provided some new challenges for learning.

3.5.1 School attendance

Children responded to a question about whether they had returned to school. Three percent (n=76) of children had returned to school at the time the COVID-19 Wellbeing Survey was undertaken (Table 1). It is likely these children had parents who were considered essential workers, and thus the children could attend school but with restricted movement and mixing.

3.5.2 School satisfaction

Students' feelings about school and schoolwork are inextricably linked to their engagement and attention on learning tasks (22). Positive feelings towards school are key for promoting academic success and buffering against disengagement from learning (23). The Multidimensional Student Life Satisfaction Scale (MSLSS) enabled children to report on different aspects of engaging with school in lockdown (24). Items were adapted to reflect the lockdown "bubble" environment. Children were able to respond on a five-point scale: "Never", "Sometimes", "Often", "Almost Always", and "I don't know". Scores across six items were summed, with a minimum possible score of zero and a maximum score of 18. The six statements that students responded to were:

1. I look forward to doing school work in my bubble
2. I like school work in my bubble
3. School work in my bubble is interesting
4. I wish I didn't have to do school work while in my bubble
5. There are many things about school in my bubble that I like
6. I enjoy the school activities I do in my bubble

Table 1: School attendance during lockdown

	Children	
	n	%
Doing schoolwork at home	2183	90%
Returned to school	76	3%
Missing	162	7%

The mean school satisfaction score across all children was 9.4, reflecting scores in the mid-point between sometimes and often satisfied. The upcoming sections in this report will explore how school satisfaction scores differed by experiences during lockdown and demographic characteristics.

With the change to schooling modality, it was expected children and their families would have some struggles with schooling as they juggled new ways of working, learning, and doing home-life. Indeed, many of the children in this study indicated their lack of enjoyment in school through the open-ended response questions. An example response is provided below.

WHAT'S IT LIKE BEING IN LOCKDOWN?

"I didn't enjoy it because we were separated from people. School was very hard and mum and dad were always worried about it."

3.6 Connections

Social connections are an essential aspect of child and youth wellbeing (25). Concern has been raised as to the impact of COVID-19 social restrictions for children given most were isolated from friends and family (26). Although shared experiences of the pandemic may have brought some households together, there was also the potential for COVID-19 restrictions to make it more difficult for children to find meaningful and supportive connection. Limited social contact has potential to reduce perceived closeness and belonging and increase loneliness and feelings of isolation (27). One of the key aims of the COVID-19 Wellbeing Survey was to understand both the actions taken by children to connect with others and the levels of felt connection during Alert Levels 3 (Restrict) and 4 (Lockdown) restrictions.

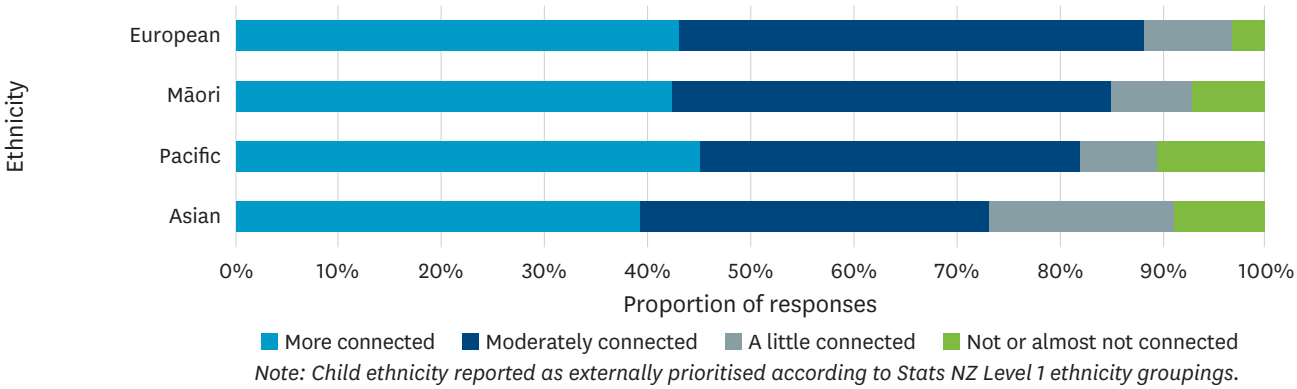
KEY FINDINGS:

- Eighty-six percent of children were categorised as 'moderately connected' or 'more connected' to friends and family outside of their household bubbles.
- Children living in higher deprivation areas were less likely to have frequent connection with family and friends outside of their household bubble (Figure 8).
- The most popular methods for connecting with friends and family included video calling, telephone, texting/chatting, and platforms such as Google Classrooms/Seesaw.

3.6.1 Connection with friends and family

Ninety-eight percent (n=2193) of children reported connecting with their friends and family outside of their bubble at some point during COVID-19 restrictions (e.g., via social media platforms, telephone, and texting). Based on the frequency of this contact, children were categorised into four groups: more connected, moderately connected, a little connected, and not/almost not connected. Eighty-six percent (n=1914) of children were categorised as 'moderately connected' or 'more connected'. However, 5% (n=113) of children were relatively unconnected with friends and family.

Differences in connection were evident across sociodemographic groups. Boys had less frequent connection than girls, with 16% (n=168) of boys categorised into the 'a little connected' or 'not/almost not connected' groups, compared with 11% (n=131) of girls. One in five Asian (n=52), and Pacific (n=33) children were categorised into the 'a little connected' or 'not/almost not connected' groups (Figure 7), while this was one in seven for Māori (n=66) and one in ten for European children (n=146).



Note: Child ethnicity reported as externally prioritised according to Stats NZ Level 1 ethnicity groupings.

Figure 7: Connectedness by ethnicity

Children living in higher deprivation areas (NZDep2013 deciles 9–10) were less likely to have frequent connection with family and friends outside of their household bubble (Figure 8). Given much of this connection was facilitated online, this may reflect lower access to technology in these areas.

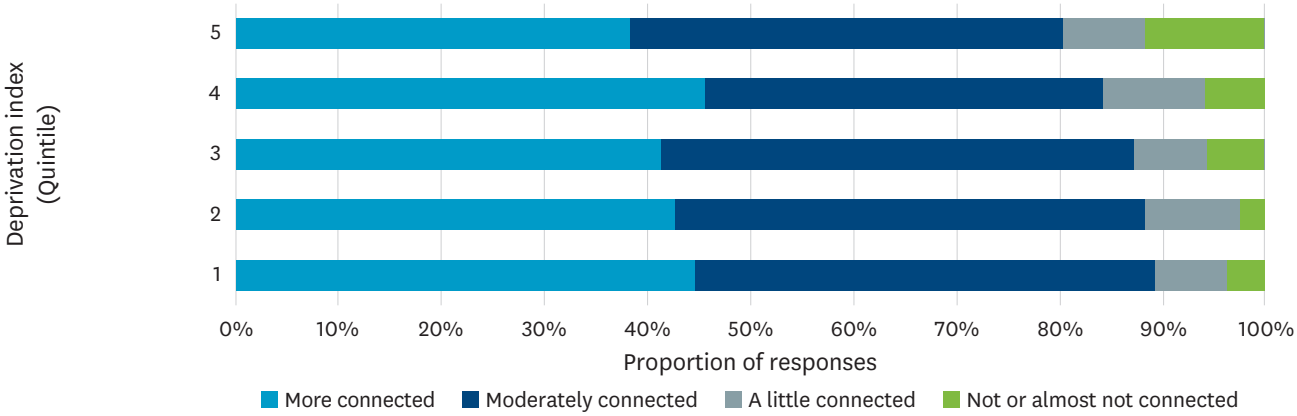


Figure 8: Connectedness by deprivation index

Children with larger household bubbles had less frequent connection (see Figure 9), potentially a reflection of the larger network already available within the bubble.

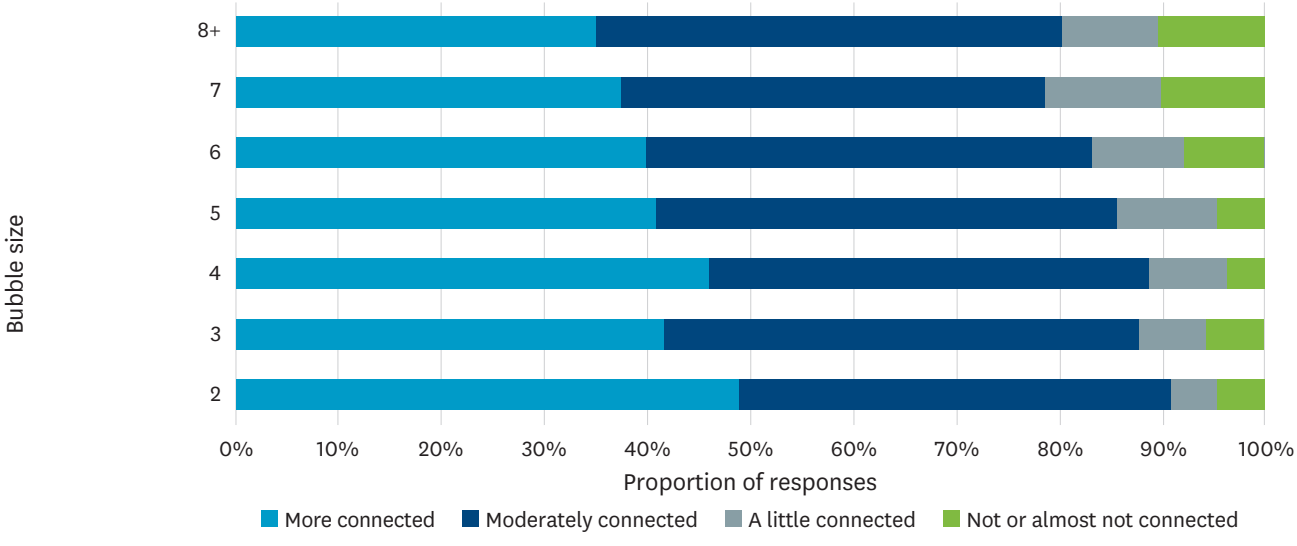


Figure 9: Connectedness by bubble size

Connectedness tended to be lower among children whose parents had reported concerns about their child's behaviour (Figure 10). In contrast, those with vision concerns reported somewhat higher levels of connectedness than other groups, including those for whom no concerns had been raised.

Overall, while many of the children in this study were well connected to people outside of their household bubble, some children still had difficulties with being socially separated from their family and peers, as indicated by the quote below.

WHAT'S THE HARDEST THINGS ABOUT LOCKDOWN?

"Not being able to see my friend, not being able to go to school, not being able to touch anything."

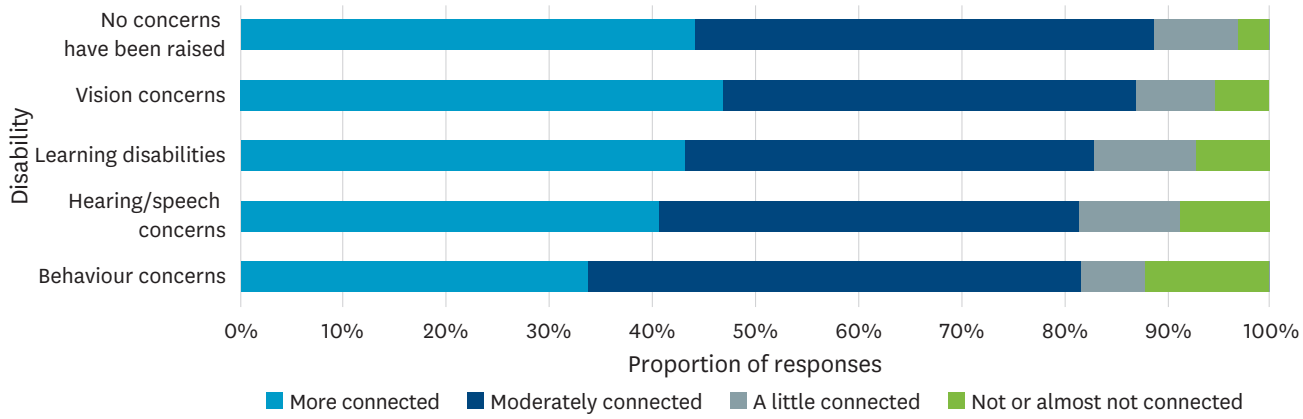


Figure 10: Connectedness by disability

3.6.2 Type of contact

Children were asked how they kept in contact with their friends and extended family who were not part of their household bubble(s) during COVID-19 restrictions. A variety of methods were used to keep in touch with those outside their bubble (see Table 2). The most popular methods for connecting with friends were video calling (e.g., Facetime/Zoom/Other videoconferencing), telephone, and other online platforms such as Google Classrooms/Seesaw. In contrast, for connecting with family, texting/chatting and video calling were the most common methods.

Table 2: Method of contact with friends and extended family

	Friends		Family	
	n	%	n	%
Telephone	695	35%	1283	64%
Texting, chatting	1133	57%	871	43%
Facetime/Zoom/Other videoconferencing	1656	83%	1523	76%
Platforms such as Google Classrooms/Seesaw	1013	51%	47	2%
Apps such as WhatsApp/House Party	415	21%	402	20%
Online Games	954	48%	245	12%
In person (even if with physical distancing)	523	26%	639	32%
Letters	178	9%	158	8%
Other	217	11%	93	5%

3.7 Household Dynamics

COVID-19 lockdown typically saw families spending more time together as people were restricted to their household bubbles, bar essential movements (28). This change to daily lives and routines, required families to negotiate new ways of home-life, work, and school within their households. The blurring of lines between these domains likely had different effects across families.

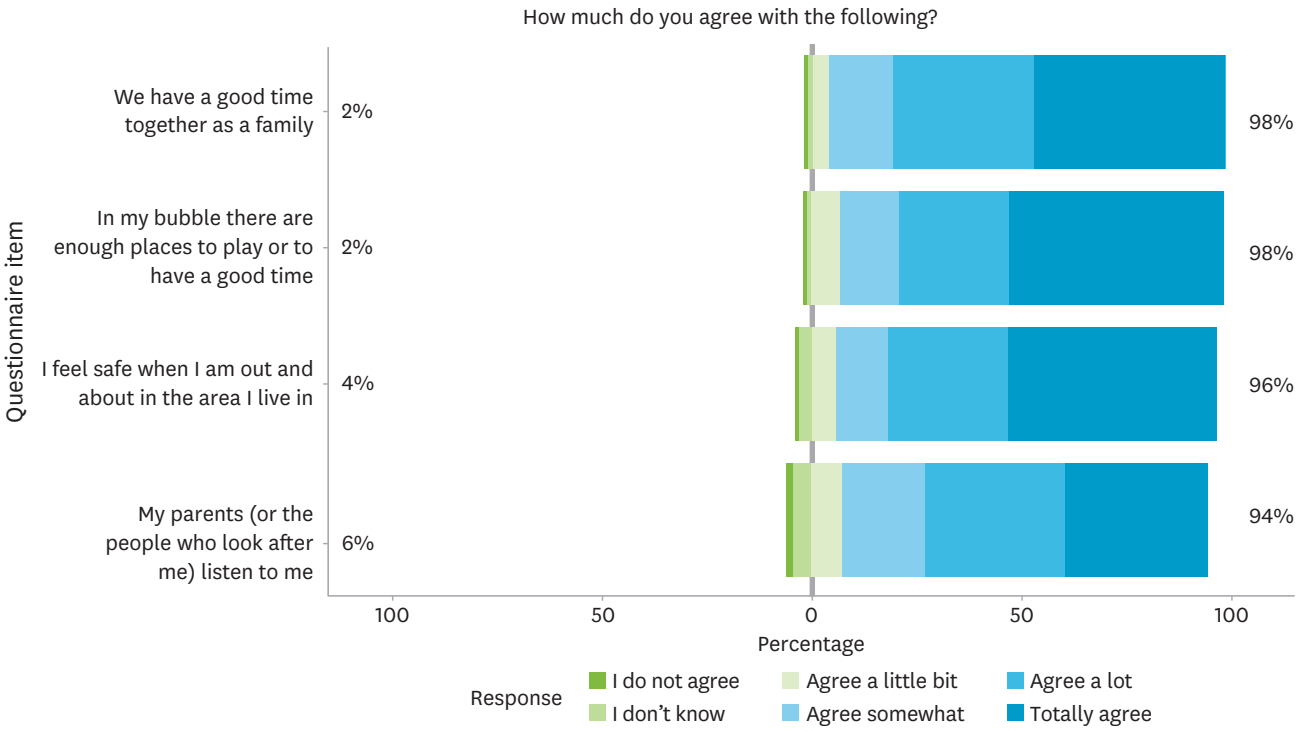
KEY FINDINGS:

- Seventy-nine percent of children agreed they had a good time with their family in lockdown.
- However, 13% of children rarely felt listened to by the people who looked after them in their bubble(s).
- Many children (38%) worried sometimes, often, or always that their family did not have enough money in lockdown.
- School satisfaction scores did not differ by frequency of concern about family money situation.

Generally, children reported positive experiences of family life within their bubbles (Figure 11), with 79% (n=1776) agreeing a lot/totally agreeing they had a good time with their family. When asked about their home life, the majority of children (77%, n=1783) agreed a lot/totally agreed that they had enough places to play or have a good time in their household. The quote below reflects these experiences.

WHAT ARE THE BEST THINGS ABOUT LOCKDOWN?

"Being able to spend more time with my family and I am able to talk to my friends a lot. We are happy with each other."



Note: Percentages represent the proportion of children who reported categories on either side of the centre line.

Figure 11: Children's reports of household dynamics during lockdown

Some children reported more challenging experiences during lockdown. Twelve percent (n=278) of children did not agree they felt safe when they were out and about in their neighbourhood very much of the time. Reasons for these experiences may be related to fear around COVID-19 as many children, when answering the open-ended response questions, mentioned their worries about COVID-19 in the community. An example of one of these quotes is opposite.

WHAT HAS WORRIED YOU MOST IN LOCKDOWN?

"That when my family members are out shopping, they could just come back with the virus."

Thirteen percent (n=298) of children indicated rarely feeling listened to by the people who looked after them in their bubble (as indicated by the 'I don't know', 'I do not agree', and 'agree a little bit' categories). Early adolescence is a time of significant cognitive development alongside increases in autonomy, which, in some cultures, can also see an increase in family conflict (29). It may be children were not feeling listened to as they were experiencing the heightened family conflict that can arise during developmental stage. However, this interpretation requires further examination.

Children were asked how often they worried about how much money their family had during lockdown. While over half of children did not worry about money at all (52%, n=1170), many worried sometimes, often, or always (38%, n=860; Figure 12).

School satisfaction scores were examined by children's level of worry about money to understand if financial concerns were affecting children's perceptions of their schooling during lockdown. Figure 13 shows very similar median school satisfaction scores across the children who had different levels of worry. There were no significant differences in mean scores of reported school satisfaction in lockdown by level of concern about family money situation.

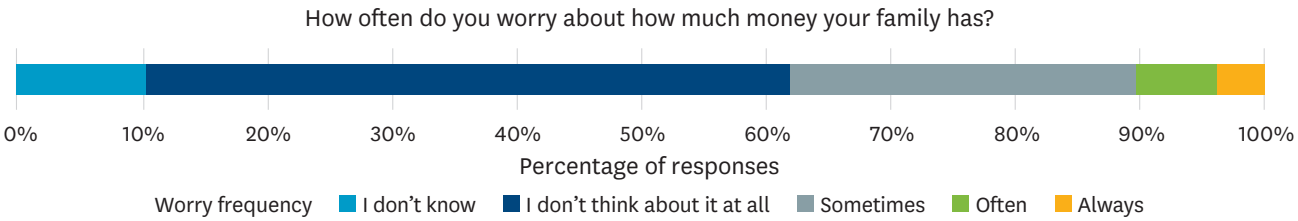


Figure 12: How often children worried about money during lockdown

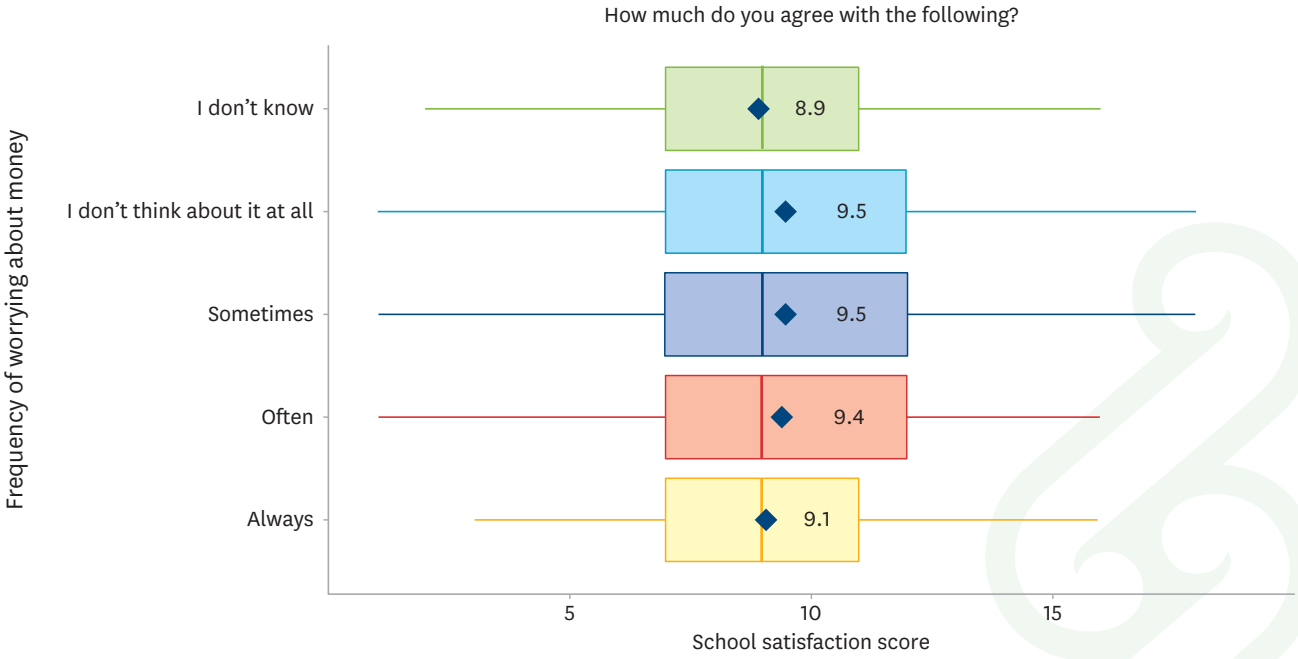


Figure 13: Box plot of children's school satisfaction by level of worry about money

3.8 Positive Experiences

Positive childhood experiences have been demonstrated to provide protective effects during times of heightened risk (30). As the COVID-19 pandemic and associated restrictive measures posed a threat to child wellbeing, children were asked about seven different resilience factors—family support, community participation, school connection, contact with friends, feelings of safety, family cohesion, and having someone to share their feelings with.

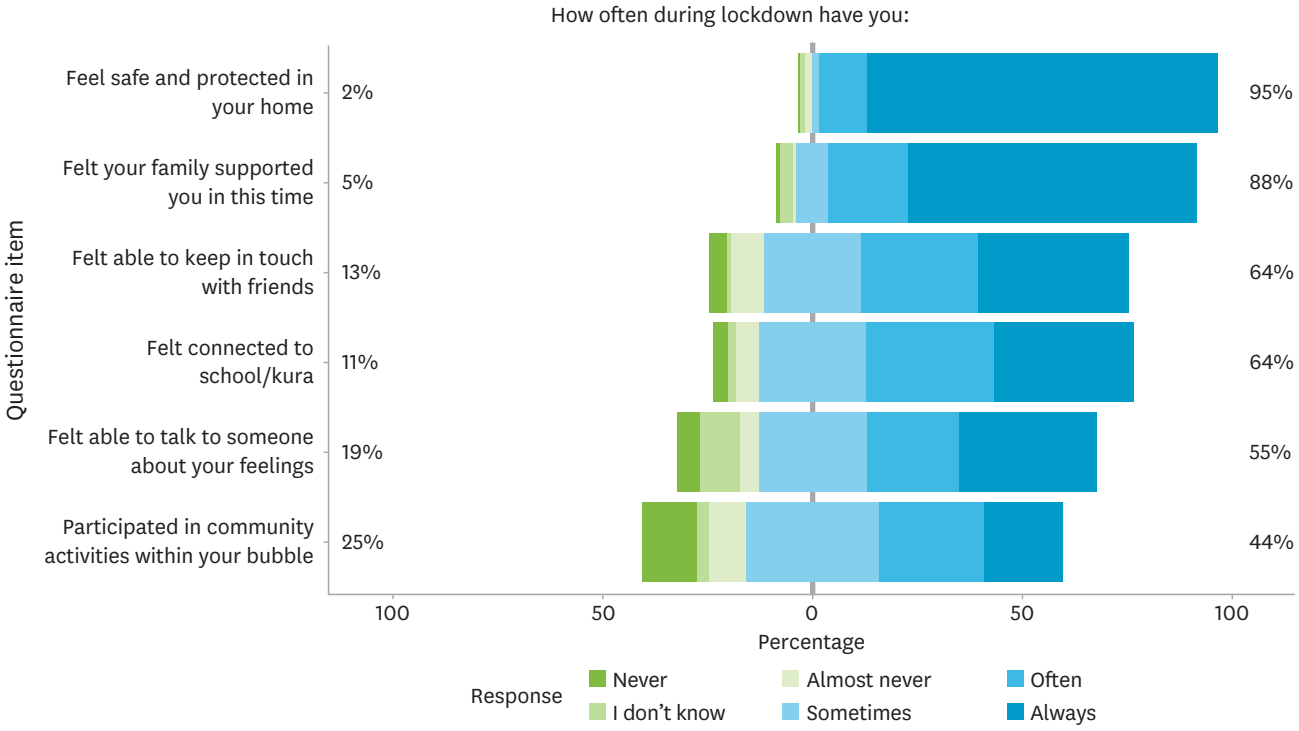
KEY FINDINGS:

- Eighty-eight percent of children felt supported by their family.
- However, many children (45%) did not feel they had someone they could talk with about their feelings very frequently.
- Children who were always involved in community activities had higher school satisfaction.

Figure 14 details children's reports of how often they had positive experiences during lockdown. Eighty-eight percent (n=1981) of children felt supported by their family during the pandemic restrictions. Some children (25%, n=569) reported feeling connected to their school or kura only some of the time. When asked about having someone to talk to about their feelings, a large proportion (45%, n=1021) did not feel they had someone they could share with very frequently. Given many children expressed concern about the stress their family was under during the lockdown restrictions (see section 3.7), it may be that these children viewed sharing their emotions as a further burden and did not want to add to family stress. However, an alternative and potentially more likely explanation, is that given the pre-adolescent age of the children who took part in the study, peers and others outside of the immediate family context are likely becoming more essential for emotional support than in earlier-childhood (29). With reduced contact, many children may not have been receiving the social support they required, as exemplified in the quote below.

WHAT'S IT LIKE BEING IN LOCKDOWN?

"I think for me it was hard because one of my friends was kinda some[one] I could pour my emotions out but I don't have her number..."



Note: Percentages represent the proportion of children who reported categories above/below the centre group. The percentage of the centre group (i.e., those reporting "sometimes") reflects the proportion not reported in the graph.

Figure 14: Positive experiences in lockdown

3.8.1 Community involvement and school satisfaction

COVID-19 control measures heavily restricted involvement in community. However, many people found creative avenues to connect with their neighbourhoods and existing communities in novel ways. Tens of thousands of New Zealanders participated in a nationwide teddy bear hunt where stuffed toys were placed in windows across the country for children to spot from a distance as they explored their local neighbourhoods (31).

Others connected online with church or mosque activities.

As shown in Figure 15, the level of engagement with community activities (either online or in their bubble) varied considerably. About one in five children reported never or almost never engaging in community activities, while almost half (44%) reported often or always doing so.

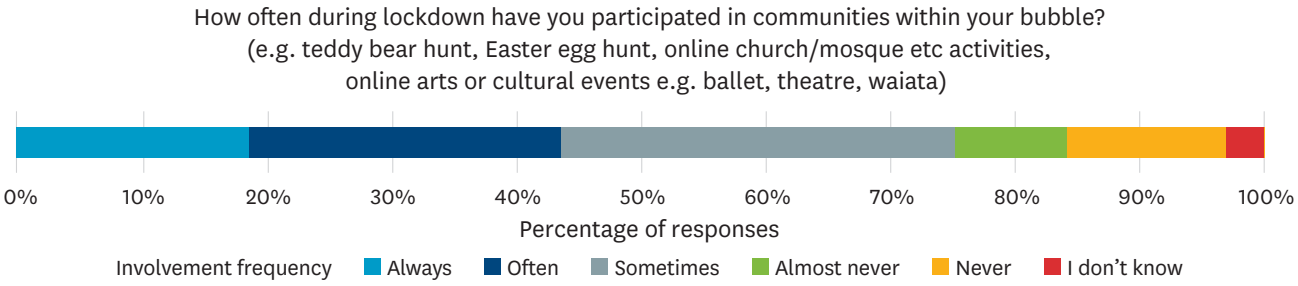


Figure 15: Community involvement during lockdown

Given previous research demonstrates the importance of such engagement for other areas of life such as schooling (32), reports of community participation were compared to school satisfaction scores. As seen in Figure 16, school satisfaction scores differed across levels of community involvement during lockdown. Children who indicated always being involved in community activities during lockdown had significantly higher school satisfaction scores compared to all other groups (as indicated by Welch's t-test). Frequent participation in community activities was associated with an increased enjoyment and liking of school during COVID-19 restrictions.

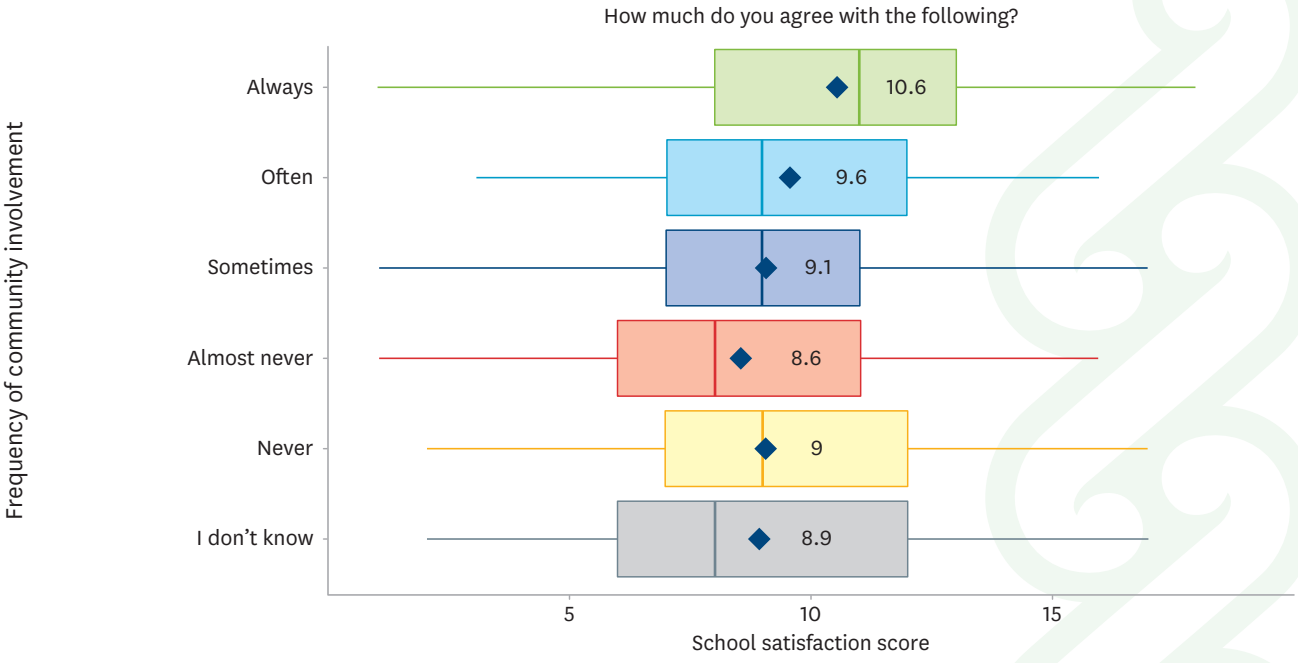


Figure 16: Box and whisker plot of school satisfaction scores by children's level of community involvement during lockdown

3.9 Activities

Activity engagement is a key asset for child and youth wellbeing, helping to shape identity, form relationships, and develop essential life skills (33). During COVID-19 restrictions, many children had the chance to spend more time doing various activities together with other members of their household bubbles.

KEY FINDINGS:

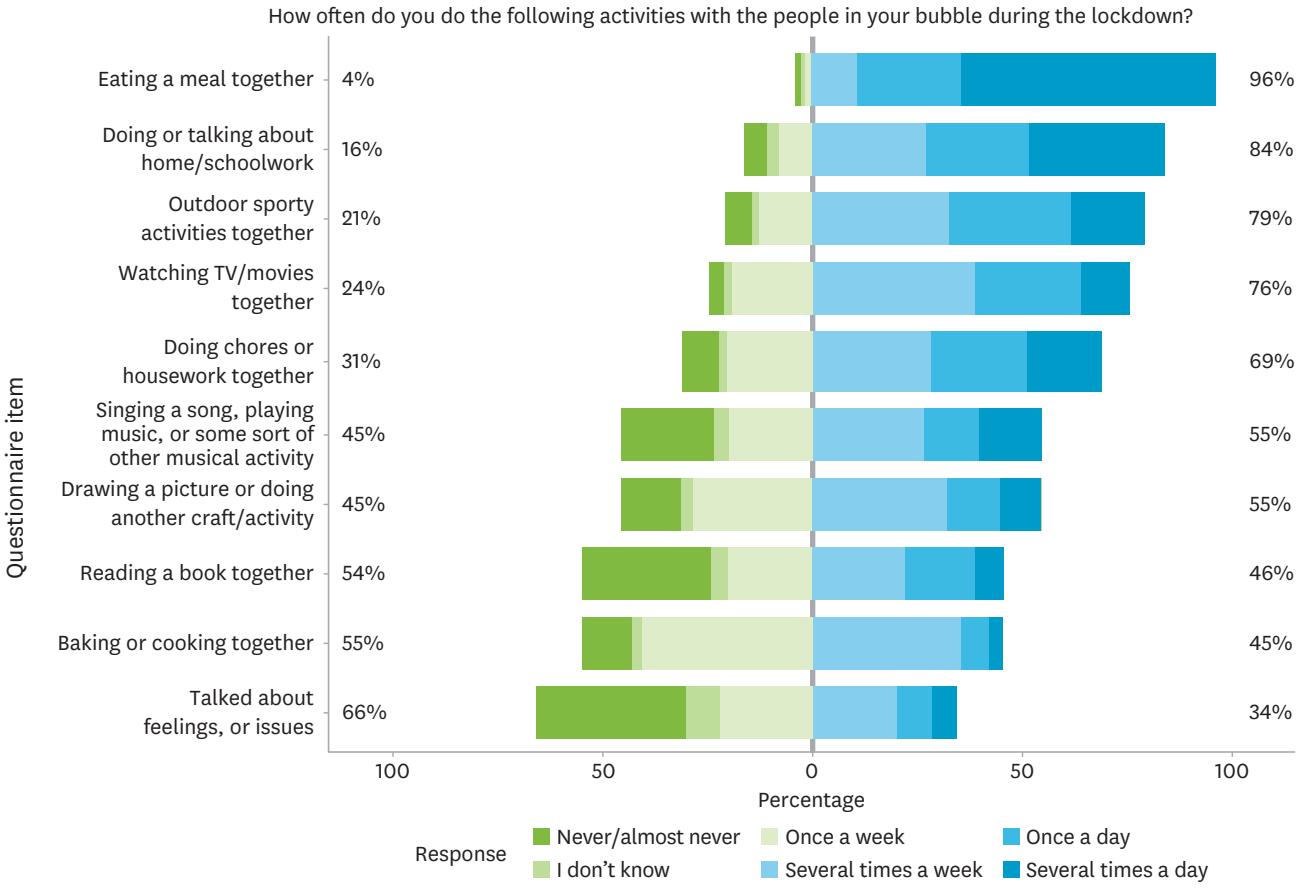
- A large proportion of children (84%) had people in their bubble involved in their school work several times a week or more.
- Ninety-six percent of children regularly shared a meal with their bubble.
- Increases in participation across all reported activities related to an increase in school satisfaction, with the exception of watching TV/movies.

3.9.1 Participation in activities

The COVID-19 Wellbeing Survey asked children about the types of leisure activities they did with others in their household bubbles (Figure 17). Eighty-four percent (n=1856) had others in their bubble involved in their school work several times a week or more. Many children expressed their enjoyment of having more time to do activities with those in their bubble, as indicated in the quote below.

WHAT ARE THE BEST THINGS ABOUT LOCKDOWN?

"...going out for walks everyday with my mum, baking more with my family, and doing activities too."



Note: Percentages represent the proportion of children who reported categories on each side of the centre line.

Figure 17: Bubble activities during lockdown community involvement during lockdown

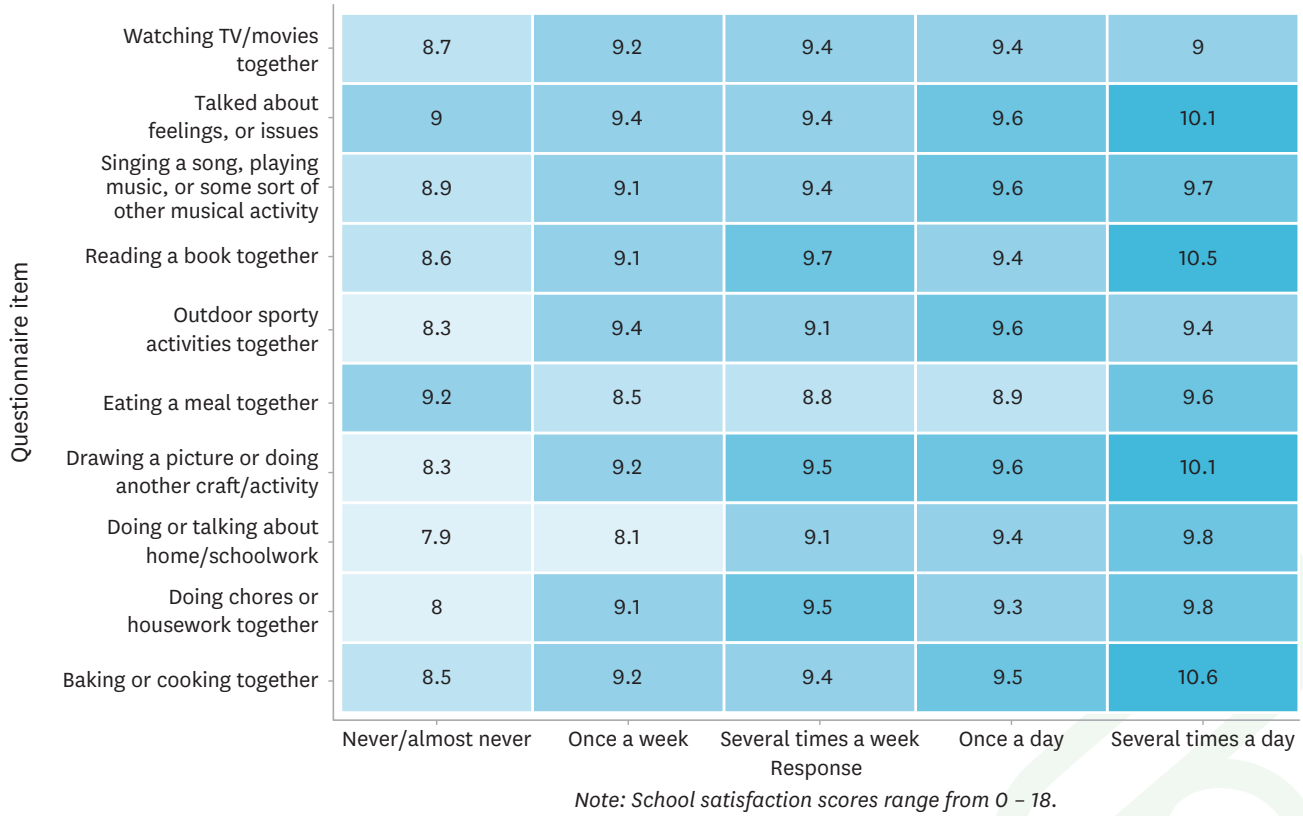
Ninety-six percent (n=2120) of children indicated they shared a meal together with their bubble frequently during lockdown. Shared meal times have been found to create greater opportunities for sharing during childhood and adolescence (34). However, 66% (n=1449) of children in this study did not talk about their feelings or issues frequently with those in their bubble despite the vast majority sharing a meal often. It may be that children were turning to others outside their bubble for emotional disclosure. Alternatively, lockdown restrictions may have had negative repercussions for children, in which case strategies for supporting children's self-disclosure may be needed in future crises given this can promote mental and emotional wellbeing.

3.9.2 Activity participation and school satisfaction

Activities during lockdown were also compared to school satisfaction scores. Figure 18 shows how the frequency of various activities a young person participated in during lockdown related to overall school satisfaction:

- Increased participation levels across all activities related to an increase in school satisfaction, with the exception of watching TV/movies together in which there was no relationship.
- High involvement in reading, and cooking/baking with people inside their bubble (multiple times per day) corresponded with the highest levels of school satisfaction (mean scores=10.5 and 10.6, respectively).
- Children who never/almost never engaged in homework or housework with others in their bubble generally saw the lowest levels of school satisfaction (mean scores=7.9 and 8.0, respectively).

There is a clear relationship between frequency of activity participation with others and school satisfaction, with engaging in these activities once a day or more positively contributing to school satisfaction. These findings give insight into factors that supported enjoyment of school during lockdown and align with previous research suggesting that both family involvement and activity participation is associated with positive child and youth development and enhanced wellbeing (33,35).



Note: School satisfaction scores range from 0 – 18.

Figure 18: Mean school satisfaction with participation in various activities during lockdown

3.10 Device Use

Internationally, device-based activities increased substantially during COVID-19 restrictions as other extracurricular and recreational activities were suspended (36, 37). This section explores the apps and screen-based activities Aotearoa New Zealand children used during lockdown.

KEY FINDINGS:

- YouTube was the most popular app used by children in lockdown (76% of children used this app).
- Sixty-seven percent of children used devices every day for school/homework.

3.10.1 Apps used in lockdown

Children were asked about the apps they used in lockdown (Figure 19). The most commonly used apps were YouTube (76%, n=1675), Google Hangouts (38%, n=842), TikTok (33%, n=718), and Facebook Messenger (23%, n=515). As the children in the GUiNZ cohort advance into the adolescent years, an upswing in social media use is expected. Many children were using TiKTok and many other apps that are not permitted until they are 13+ years of age, emphasising the need for increased cyber-safety knowledge for children and young people—particularly if COVID-19 and the associated lockdowns have accelerated the uptake of social media among children approaching adolescence.

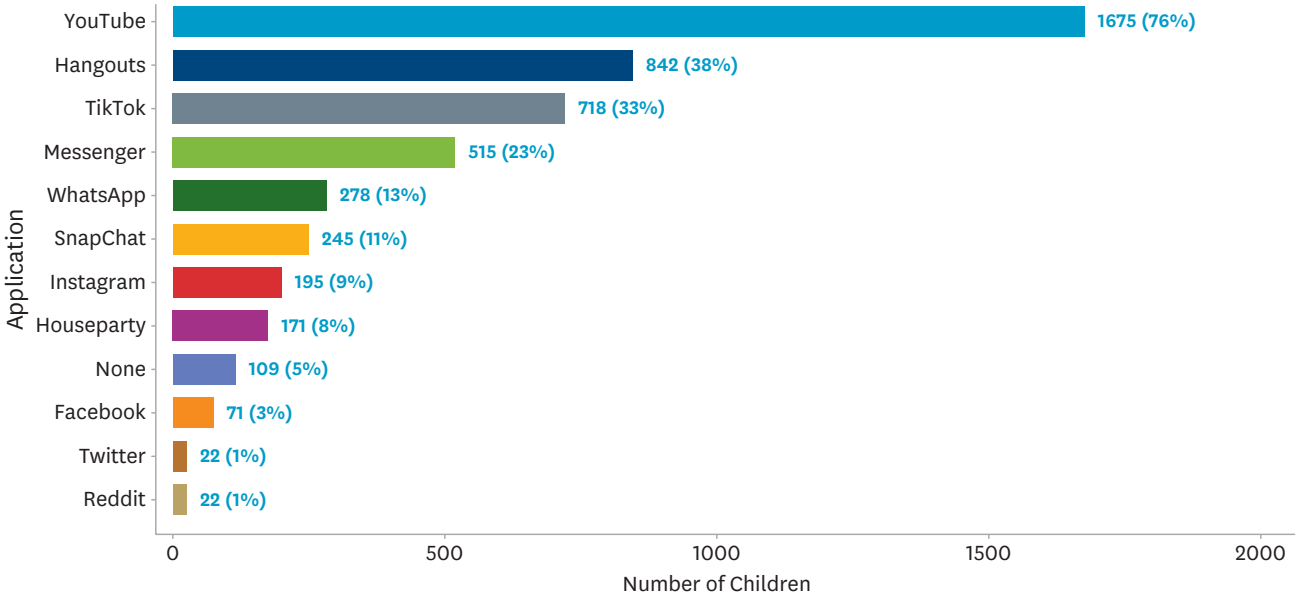


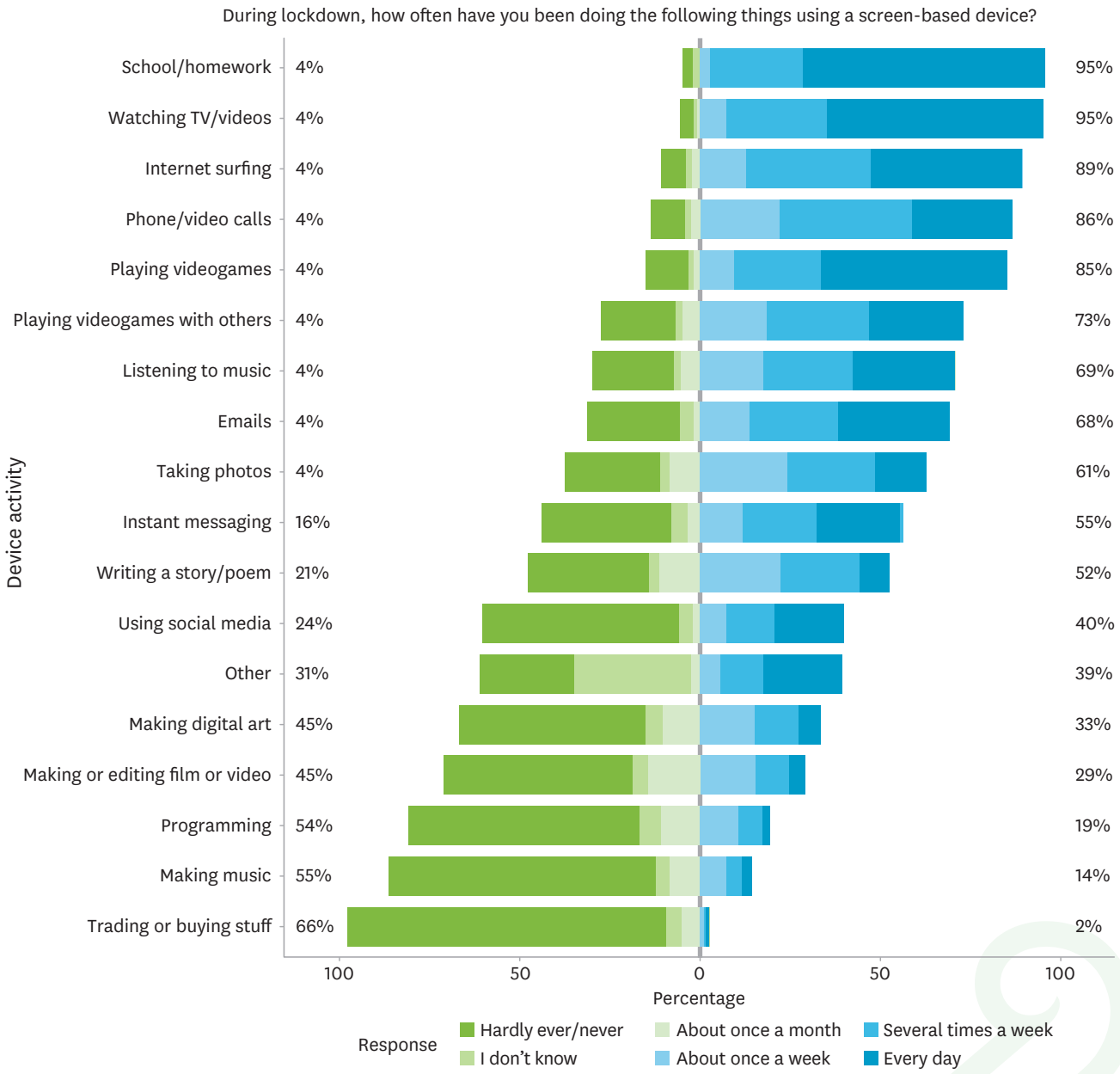
Figure 19: Apps used by children in lockdown

3.10.2 Frequency of screen-based activities

Children used devices for a wide range of screen-based activities during lockdown (Figure 20).

- Sixty-seven percent (n=1500) and 60% (n=1348) of children used devices every day for school/homework and watching TV/videos respectively.
- Most children (85%, n=1896) played video games at least once a week. Video gaming was a source of social connection too, with 73% (n=1619) reporting playing video games with others at least one a week or more.
- Devices were seldom used for trading or buying stuff, making music, or programming.

Almost all children (95%, n=2144) were using devices for school/homework at least once a week. However, a small percent of children (5%, n=163) rarely used devices for school/homework during the lockdown period. These children may have had alternative ways of doing schoolwork that did not involve devices, but considering most schooling shifted to an online delivery mode, a more likely explanation is that both uptake and access to schoolwork varied for some children in Aotearoa New Zealand. Further investigation into whether there were systemic barriers preventing effective engagement with online schooling is warranted to identify gaps in schooling throughout the pandemic, and to ensure equitable access to schooling in the future.



Note: Percentages represent the proportion of children who reported categories on either side of the centre line.

Figure 20: Frequency of screen-based activities

4. Longitudinal Findings

The previous sections have reported the experiences of children in Aotearoa New Zealand during COVID-19 lockdown restrictions. Collated information about this cohort from earlier data collection waves provides an opportunity to make comparisons between time points. Findings related to questions from the COVID-19 Wellbeing Survey about activities, screen time, and school are compared to the same questions asked at the eight-year DCW to determine change over time. Findings are related to various demographic characteristics to explore the nuances of this change. The upcoming GUiNZ 12-year DCW will also be important for enabling these findings to be further explored to understand the longer term impact of COVID-19.

4.1 Comparisons of Activity Participation

At both the eight-year DCW and lockdown, activities (e.g., reading, outdoor sporting activity, and chores) that the children participated in with their family were reported. Analyses were undertaken to explore the change in activity participation across the DCWs.

KEY FINDINGS:

- Between eight-year and lockdown, there was a 21% increase children doing outdoor sporting activities with their family once a day.
- Children reported a 23% increase baking or cooking with someone in their family several times a week in lockdown.
- There was a 34% increase of children stating that they never or almost never talked about their feelings.

Figure 21 shows the increase and decrease between frequency of activity participation. There was a 21% increase in children doing outdoor sporting activity with their family once a day since eight years of age. With children's regular sporting activities (e.g., organised sport through schools and clubs) being postponed and many family members working from home, the lockdown restrictions likely allowed for more time for shared outdoor activities to be done at home or in local parks (e.g., backdoor cricket).

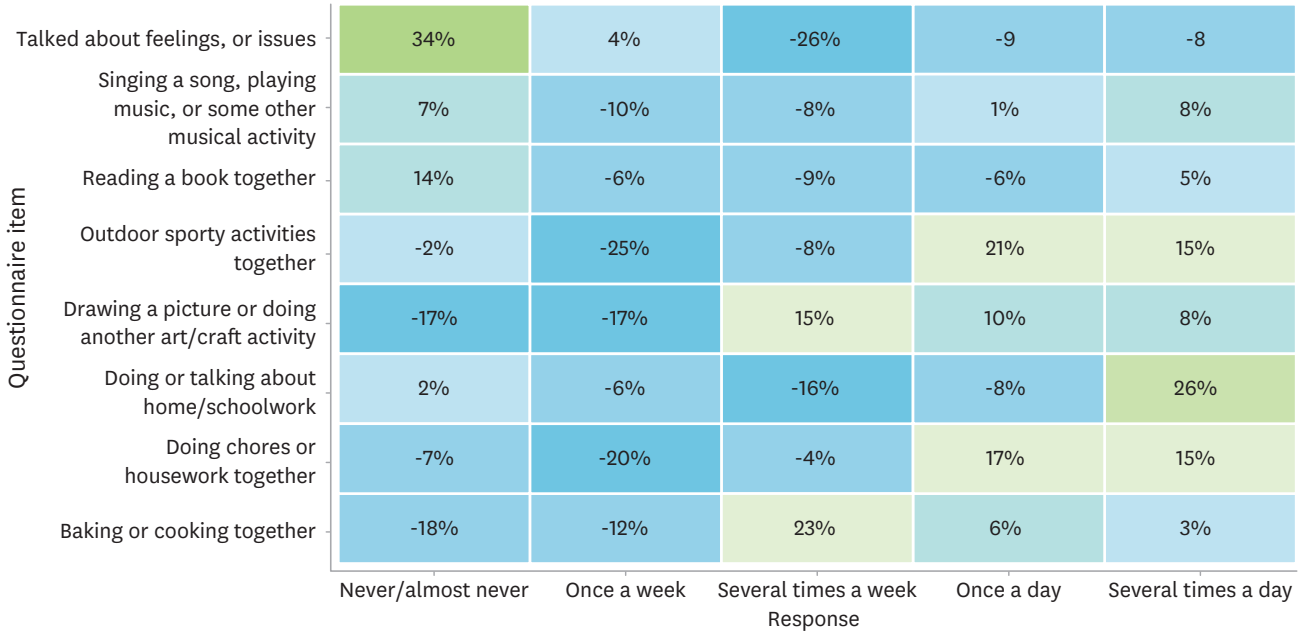


Figure 21: Difference in activity participation between eight-year and lockdown

There was a 26% decrease in frequency of talking about feelings and issues several times a week, and a 34% increase of children stating that they never or almost never talked about their feelings. As suggested in section 3.8 (Positive Experiences), it is likely this is, at least in part, related to the pre-adolescent developmental stage where peer relationships are becoming increasingly important in terms of self-disclosure, emotional support, and openness, sometimes more so than family relationships (29).

The frequency of talking about feelings and issues between eight-year and lockdown was also examined across demographic groupings. There was no significant difference by gender, socioeconomic position, or bubble size. In terms of ethnicity, Asian children reported a greater decline between age eight and lockdown than other ethnic groups. These findings warrant further investigation to establish why this decline was particularly greater for these children (e.g., they may have had others outside their household bubble they were sharing with instead).

Comparisons between activity participation during the lockdown and eight-year DCWs need to be interpreted with caution. While they may be attributed to the unique circumstances of COVID-19 restrictions, differences may also be due to the older age of the cohort at the lockdown survey, different perceptions of involvement (i.e., mother-report versus child-report), or the wider range of people in the bubble. Indeed, the higher frequency of engagement in chores may well be due to children perceiving their own contribution as much higher than their mothers' perception. Nevertheless, the much higher frequency reported by children in terms of not talking about their feelings is notable and potentially concerning.

4.2 Screen Time

Three in ten (n=661) children reported less than three hours of screen time per weekday during the lockdown, with around one in five (n=452) children reporting six or more hours of screen time per week day. Figure 22 shows a histogram of weekday screen time and weekend screen time, with the overlap represented by the darker blue colour. On average, children spent more time on their devices during weekdays compared to weekends; likely a function of high levels of device use for schoolwork on weekdays. The exception was for children living in high deprivation areas who reported almost no difference in screen use between weekdays and weekend days.

Screen time during lockdown was compared to mothers' reports of their children's screen time at eight-years-old. On average, children at age eight spent 2.2 hours in front of screens during the weekdays and 1.5 hours on the weekend days. This screen time increased during lockdown with children reporting an average of 4.8 hours of screen time per day during the weekdays and an average of 4.0 hours for the weekend days. Much of this increase may be attributed to most schoolwork moving to online delivery during lockdown. Additionally, increased screen time hours are consistent with figures observed in Australian children of a similar age, so may be typical of screen use at this life stage (36).

At age eight there was a statistically significant difference in screen time according to socioeconomic position (Table 3), with children from the highest neighbourhood deprivation grouping (Quintile 5) reporting a higher average screen time of 2.6 hours per weekday and two hours per weekend day, relative to those in other deprivation groups. In contrast with age eight, during lockdown, children living in areas with the least socioeconomic deprivation (Quintile 1) reported the highest screen time during the weekdays, with an average of five hours a day. Weekend screen use patterns during lockdown were more aligned with age eight, with children from higher deprivation areas (Quintile 5) reporting the highest average of 4.5 hours on the weekend days.

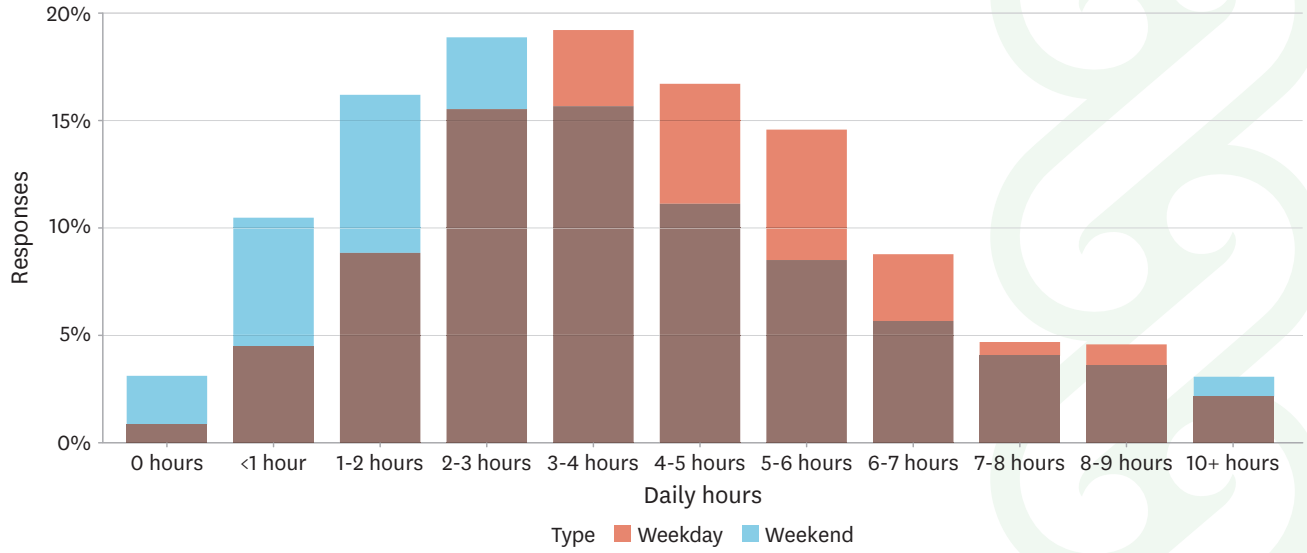


Figure 22: Time spent on screens during weekdays and weekends in lockdown

Table 3: Average hours of screen time at eight-year and lockdown by area-level socioeconomic deprivation quintile (NZDep2013).

	Eight-year		Lockdown	
	Weekday	Weekend	Weekday	Weekend
NZDEP Quintile 1 (lowest deprivation)	2.1	1.4	5.0	3.9
NZDEP Quintile 2	2.0	1.5	4.7	3.8
NZDEP Quintile 3	2.2	1.5	4.7	4.0
NZDEP Quintile 4	2.4	1.7	4.6	4.1
NZDEP Quintile 5 (highest deprivation)	2.6	2.0	4.6	4.5

The finding that weekday device use increased much less for children living in areas in the highest deprivation quintile (2 hours compared with 2.5-3 hours for the lowest 3 quintiles) may reflect different approaches to teaching and learning in lockdown by different schools—those in higher deprivation areas may have been more likely to opt for more hard copy learning options in response to publicised issues around lack of device access for some children (38). However, children were not explicitly asked about the reasons for time spent in front of screens, so caution is needed when interpreting these conclusions.

4.3 Comparisons of School Satisfaction

Collated information about this cohort from the eight-year DCW provides an opportunity to make comparisons between school satisfaction scores during lockdown restrictions. As described in previous sections, children were asked about their school satisfaction at age eight and again during the COVID-19 Wellbeing Survey.

KEY FINDINGS:

- School satisfaction was lower during lockdown compared with at age eight for just over three-quarters of the cohort.
- Tamariki Māori experienced the largest decline in average school satisfaction, while children of Asian and Pacific ethnic groups reported the smallest declines.
- School satisfaction scores tended to be higher for children in larger bubbles, and declines tended to be smaller.
- Device usage (especially weekend use) was associated ith lower school satisfaction at both age eight and during lockdown.

Considerable declines between these two time points are evident. Differences in scores for the COVID-19 Wellbeing sample at eight-year and lockdown DCWs are presented in more detail in Figure 23, where the overlap is represented by the darker brown colour. This histogram shows the decrease in school satisfaction during lockdown across the full cohort of children who responded to the COVID-19 Wellbeing Survey (note: the participants shown are matched; 87% (n=2099) of those who took part in the survey about lockdown had responded to the school satisfaction scores at age eight). Overall school satisfaction scores dropped markedly between the eight-year DCW (mean=11.7) and the COVID-19 Wellbeing Survey (mean=9.4).

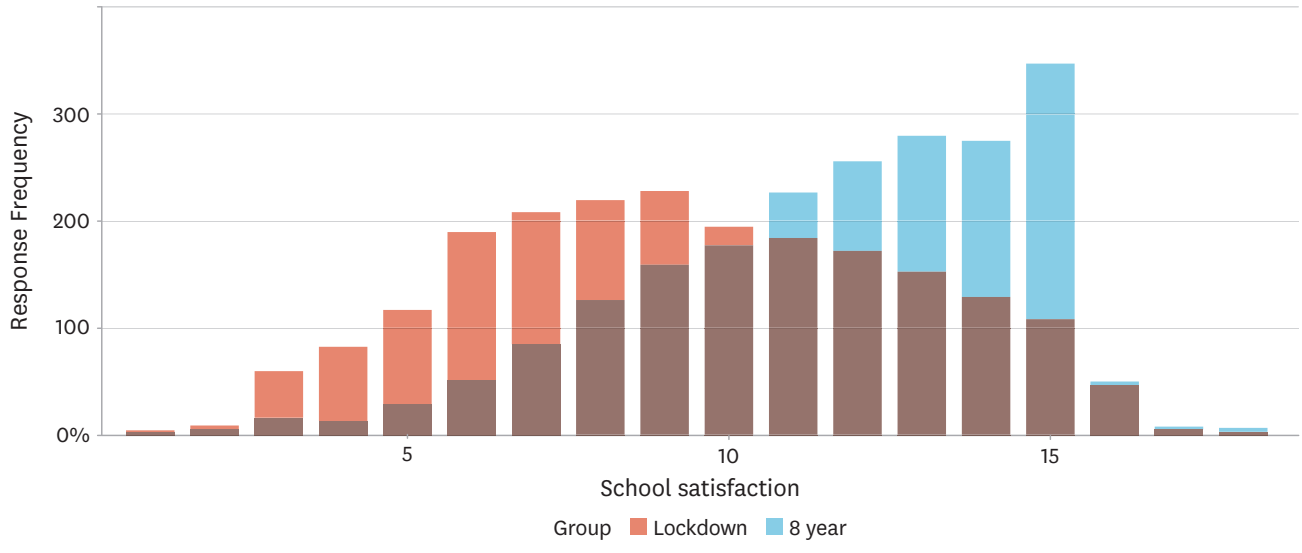


Figure 23: Histogram of school satisfaction at eight-year and lockdown

Of the children who had school satisfaction scores at both timepoints, 76% (n=1604) experienced a decrease in satisfaction since age eight. Given the considerable change to schooling modality, it is understandable that school satisfaction declined for the majority of children. Adapting to online and distance learning appears to have been challenging for many children. However, it is noteworthy that many children continued to report high satisfaction and one in four children (n=495) reported an increase in school satisfaction between age eight and lockdown. Responses to the open-ended questions indicate that some children enjoyed the flexibility of the distance learning routine, having increased independence, and more free-time during lockdown, as exemplified in the quotes below. Interestingly, there were no differences in the likelihood of increased or decreased school satisfaction by demographic groupings (socioeconomic position, gender, ethnicity, or bubble size).

WHAT ARE THE BEST THINGS ABOUT LOCKDOWN?

"I get to wake up later because I don't have to leave early for school."

"Distance learning. Organising myself to change from a normal school routine to being independent at home using devices to do daily school work."

"Having time to yourself and getting school work done in my own time."

4.3.1 Comparisons of schooling across sociodemographic characteristics

School satisfaction scores were analysed across different sociodemographic groupings at age eight and lockdown. Changes between these time points were also assessed.

Gender

For both the eight-year and lockdown DCWs boys generally had lower school satisfaction than girls. The difference in school satisfaction between boys (-2.4) and girls (-2.2) remained fairly similar between the two DCWs, indicating that the decline in school satisfaction was similar for both genders.

Socioeconomic position

The spread of school satisfaction scores were broadly similar across Aotearoa New Zealand deprivation quintiles, with the exception of Quintile 4 (NZDep2013 groups 7–8) which had a significantly larger decline in mean satisfaction than all other quintiles (-2.8; see Figure 24).

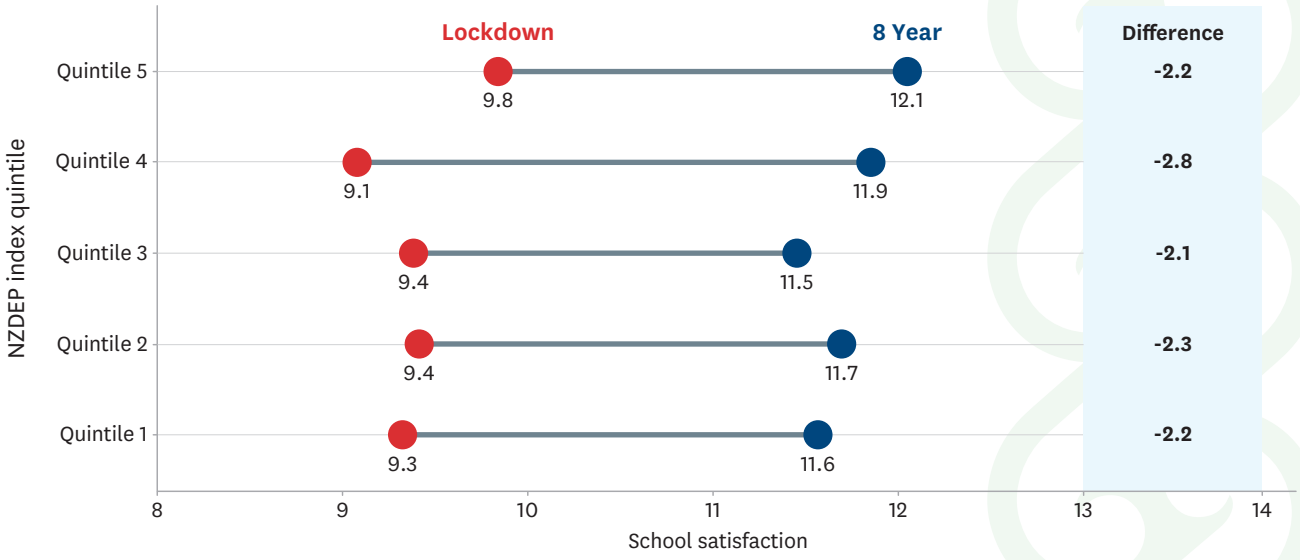


Figure 24: Change in school satisfaction between eight-year and lockdown by socioeconomic position

Ethnicity

Figure 25 displays the mean scores for each ethnic group at both timepoints and shows the difference between these school satisfaction scores. At age eight, school satisfaction was broadly similar across ethnic groups. There were marked declines reported for each ethnic group during lockdown but the degree of decline differed between groups.

Tamariki Māori experienced the largest decline in mean score, with a decrease of 2.6 points. Children in the European and Other ethnic categories also saw a substantial decline in mean score, with decreases of 2.5 and 2.4 respectively. Children of Asian and Pacific ethnic groups saw the smallest relative decreases, with drops in mean school satisfaction scores of 1.7 and 1.6 respectively—a significantly smaller decline compared to Māori, European, and children of other ethnicities.

For Pacific children, higher levels of school satisfaction in lockdown may relate to the larger network available within the bubble for many children. Pacific children, on average, reported larger bubble size (see section 3.4) and this face-to-face social interaction may have acted as a protective factor against lower school satisfaction. Indeed, previous research finds social connectedness to be key factor in school satisfaction—one that fosters more enjoyment in children's learning (39).

Further investigation of schooling experiences across ethnic groups is warranted to more extensively understand the reasons for ethnic differences in school satisfaction, particularly given the sample bias (see Appendix D).

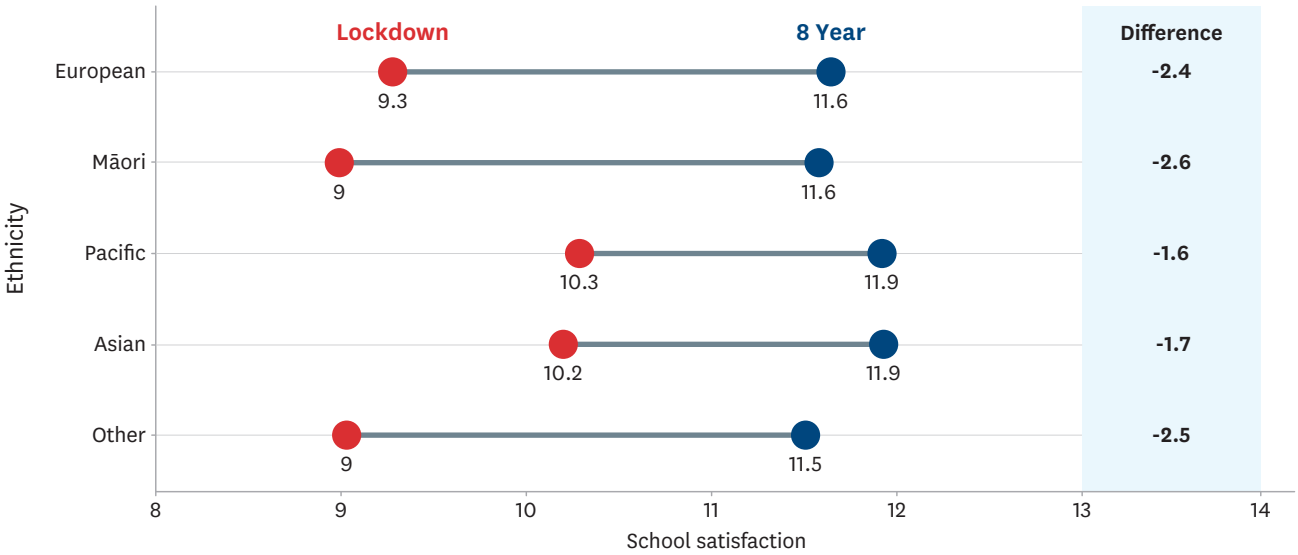


Figure 25: Change in school satisfaction between the eight-year and lockdown by ethnicity

Bubble size

In terms of bubble size, school satisfaction scores tended to be higher for children in larger bubbles (see Figure 26), and declines tended to be smaller across the two timepoints. These children may have benefited from the greater face-to-face socialisation that came with having larger bubbles and positioned them to take greater enjoyment from distance learning. For those in a bubble size of two, school satisfaction declined markedly, and significantly more than those in larger bubbles, especially compared with bubbles of 7 – 8+ people. Children in bubbles of sizes 3 – 6 people generally had similar school satisfactions to both each other and the overall mean.

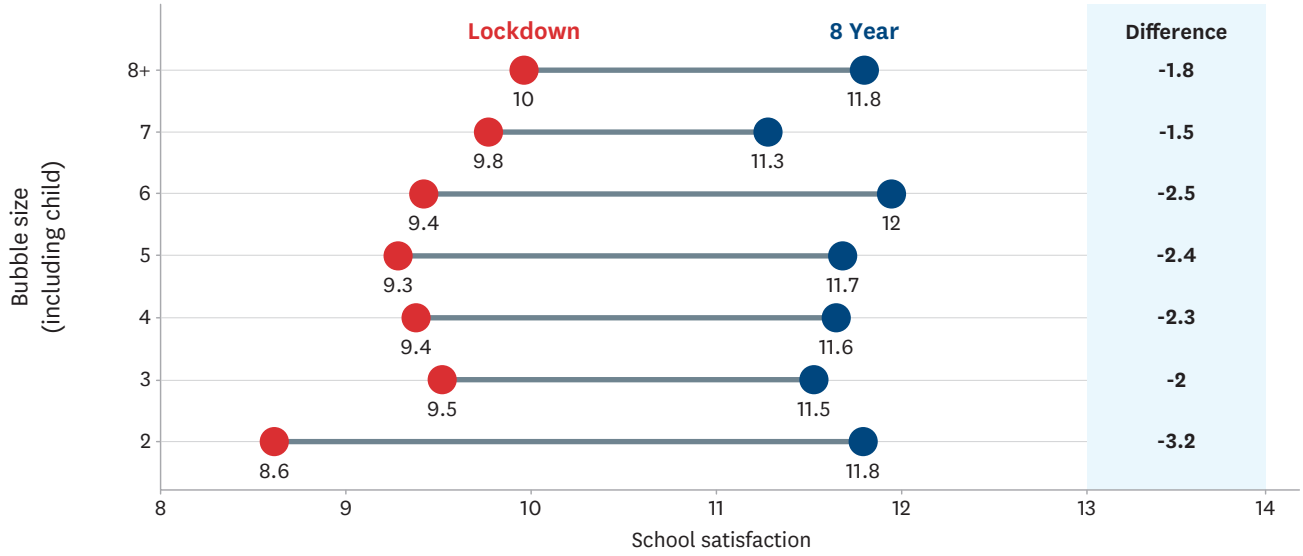


Figure 26: Change in school satisfaction between eight-year and lockdown by bubble size

Disability

Children generally saw similar declines in school satisfactions between time points regardless of the type and whether they had a disability or not (Figure 27). Additionally, there was no significant difference across group means (as indicated by the ANOVA test statistic).

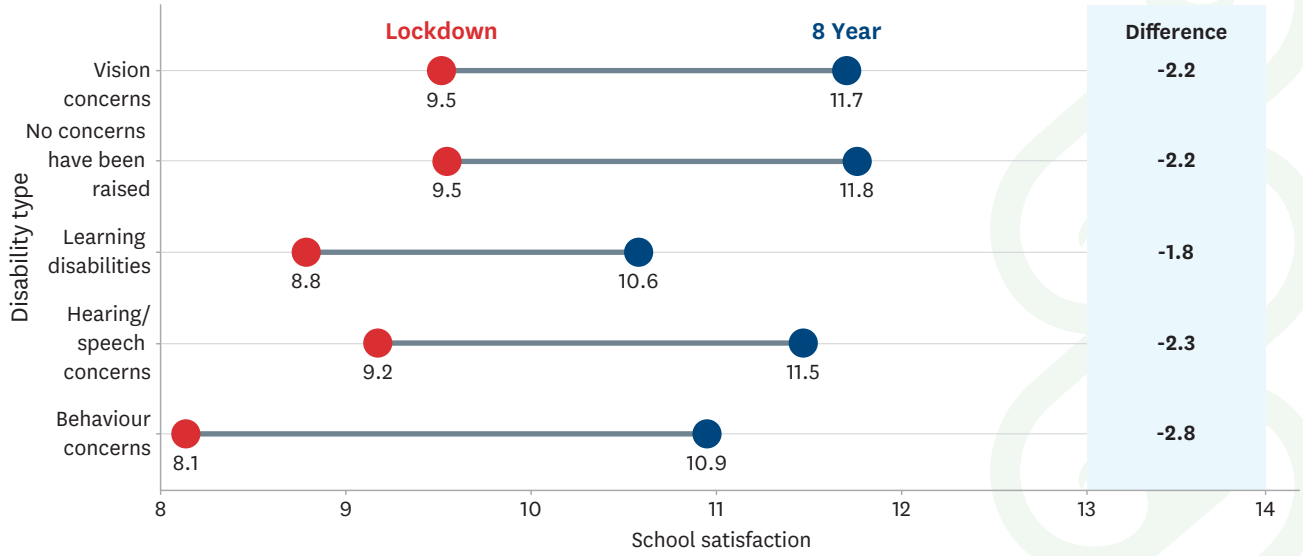


Figure 27: Change in school satisfaction between eight-year and lockdown by disability

Bullying at age eight

At age eight, children were asked how frequently they were bullied by other students at school. These reports were compared to school satisfaction scores at lockdown to understand if this bullying was having lasting effects on schooling over time. Figure 28 shows school satisfaction declined a similar amount for each group, with no differences relative to the level of bullying at age eight. However, when examining differences in school satisfaction at lockdown only, those who indicated they were never/hardly ever bullied maintained significantly higher school satisfaction than those who were. It is likely that experiences of bullying at age eight had persistent effects into lockdown.

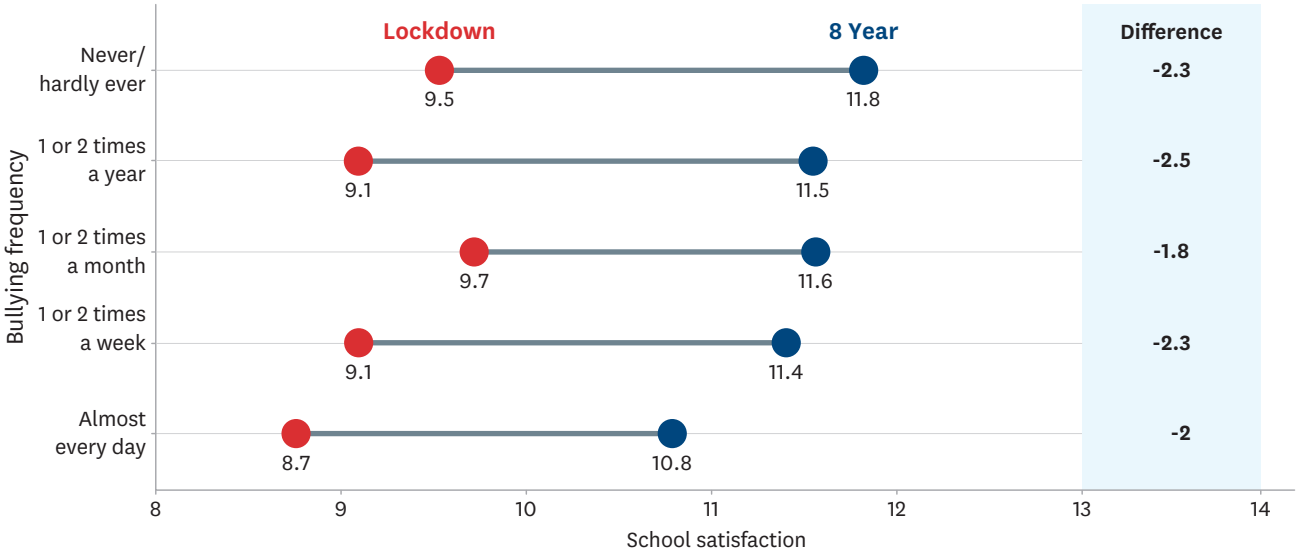


Figure 28: Change in school satisfaction between eight-year and lockdown by bullying frequency at age eight

Screen time

School satisfaction and screen time were examined longitudinally at age eight and lockdown. Children were grouped into categories depending on their reported screen time at both time points. These groups were examined in regard to school satisfaction scores over time. For weekday screen use, analyses revealed the decline in school satisfaction scores was slightly larger for those reporting <2 hours of daily weekday use, compared to those in other usage groups. However, generally the decline over time was similar across groups (Figure 29). There were no significant differences in mean score at lockdown, and a weak negative relationship between school satisfaction and screen time at age eight.

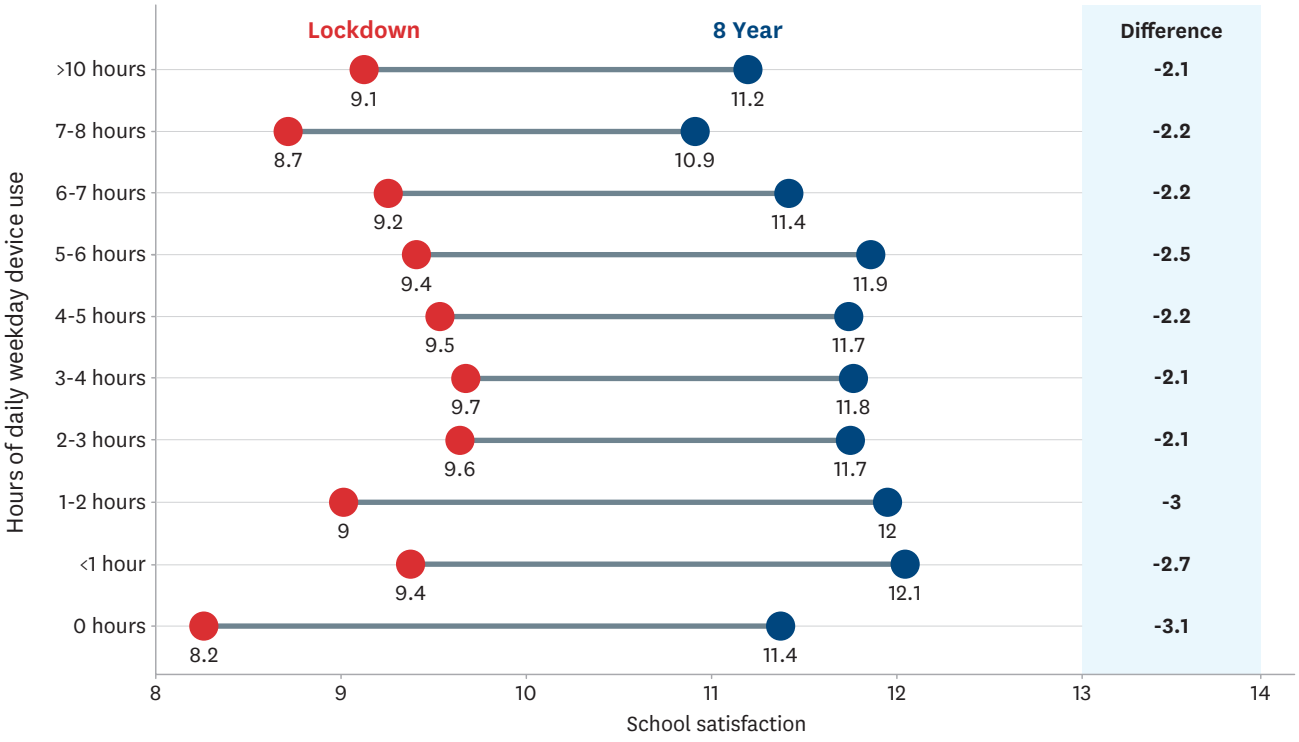


Figure 29: Change in school satisfaction between eight-year and lockdown with weekday device usage

As indicated in Figure 30, a decline in school satisfaction was evident as weekend screen time increased at both the eight-year DCW and lockdown DCW. No significant differences in the amount of decline in school satisfaction between the two time points were observed across different weekend screen usage groups.

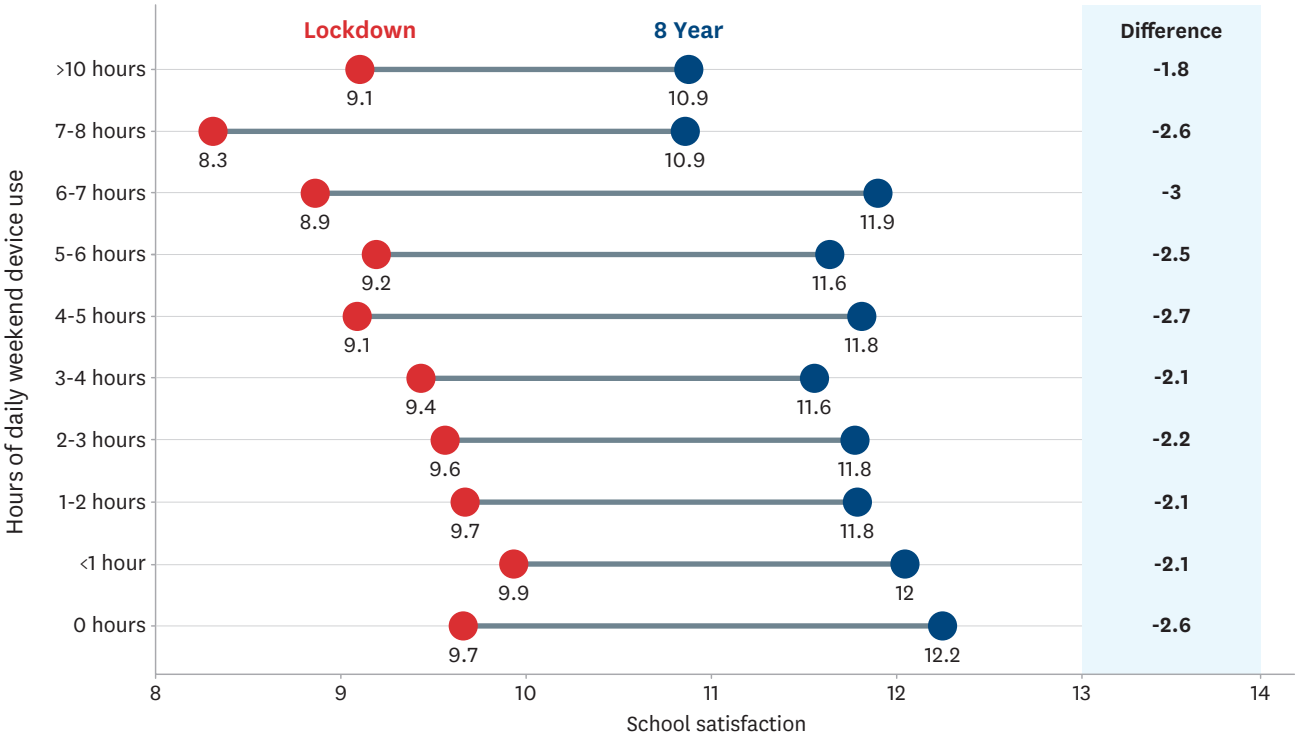


Figure 30: Change in school satisfaction between eight-year and lockdown with weekend screen usage

This section has provided a detailed account of the demographic differences in the school satisfaction scores compared with school data collected at age eight. Overall, there were marked declines in school satisfaction. However, when asked about what they were most excited for when lockdown was over, many children expressed their excitement for returning to school, as indicated opposite.

WHAT ARE YOU MOST EXCITED FOR WHEN LOCKDOWN IS OVER?

"Getting back to school and playing on playground and seeing other kids."

5. Discussion

The COVID-19 Wellbeing Survey was designed to hear directly from children in Aotearoa New Zealand about their life during lockdown. The findings provide a snapshot of the experiences of the 2,421 children who participated in the survey during some of the strictest COVID-19 restrictions. Insights into their COVID-19 'bubbles', activities, home life, school, media and screen use, and connectedness are provided. The data from the survey were also linked to data collected in previous GUiNZ DCWs to contextualise these experiences.

The findings from the COVID-19 Wellbeing Survey add to the current understanding of the impact of COVID-19 lockdowns on children in Aotearoa New Zealand. The results align with other Aotearoa New Zealand studies (13, 14, 40), and confirm some of the positive aspects of lockdown such as increased family time, and more self-regulated and autonomous learning. Negative experiences of lockdown such as decline in schooling also resonate with other findings (41, 42). Importantly, the COVID-19 Wellbeing Survey was able to provide a comparison with the same children at age eight, which is valuable in itself, but alongside other data can deepen our understanding of the current short-term effects and provide insight into possible longer-term issues.

In line with a study conducted with parents of Māori and Pacific students (43), one of the key issues brought to light in this report is the exacerbation of existing social and educational disparities. Yet, both studies found larger household 'bubbles' to be a protective factor for students' learning—an insight for policy in terms of a supportive schooling experience for students who are often underserved in Aotearoa New Zealand.

The finding of children reporting more outdoor activities with their families during lockdown suggests positive daily routines of physical activity were being implemented during lockdown restrictions. However, this finding also raises concerns about these routines being lost when normal patterns of life are resumed. Similarly, simple moments of quality family interaction, such as baking together, may also be lost in the return to pre-lockdown daily routines. Differently, when examined with school satisfaction, these findings hint at the links between family and home activities and school engagement that are worth considering.

The digital divide is another area of concern that has consistently been raised in other Aotearoa New Zealand studies (14). These findings provide a tangible finding that could readily be addressed.

Largely, the results in this report suggest that, despite these strict lockdown restrictions, families were able to create positive environments and experiences for children. For example:

- Eighty-eight percent of children felt supported by their family during the pandemic restrictions.
- Almost all children (96%) regularly shared a meal with their family.
- A large proportion of children (84%) had people in their bubble involved in their school work several times a week or more.
- Since age eight, there was a 21% increase in children doing outdoor activities with their family once a day.
- Engaging in activities at least once a day corresponded with higher school satisfaction scores. This observation was evident across a wide range of activities including household chores, sports, and baking or cooking.

Children displayed an impressive ability to adapt to the dramatic changes to everyday life and work with the challenges of distance-learning and being socially distanced from friends and family. For instance:

- Despite the abrupt change to school modality, many children (64%) still reported feeling connected to their school or kura often or always.
- Responses to open-ended questions indicated some children enjoyed the flexibility to the distance learning routine, having increased independence, and more free-time during lockdown.
- Most children stayed in frequent (virtual) contact with others, with 86% categorised as 'moderately' or 'more' connected to friends and family outside of their household bubbles.

However, for many children lockdown created significant challenges and deepened existing inequities. For example:

- Tamariki Māori experienced the largest decline in mean score of school satisfaction between age eight and lockdown.
- Those who indicated they were bullied at age eight had significantly lower school satisfaction scores than those who were never/hardly ever bullied.
- A large proportion (45%) did not feel they had someone they could share their feelings with very often.
- Since age eight there was a 26% decrease in frequency of talking about feelings and issues several times a week, and a 34% increase of children stating that they never or almost never talked about their feelings.

As the COVID-19 pandemic continues, the ongoing monitoring of children is essential for understanding the impacts of the pandemic and implement strategies to reduce harmful effects. Additionally, understanding the positive implications of the pandemic and associated restrictions can reveal important learnings to taken forward into post-pandemic ways of life. Hearing from children themselves, and their diverse experiences, is key for the designing of strategies and supports to be implemented by government and agencies.

Implications

Although the results may not be generalisable to the experiences of all children in Aotearoa New Zealand, the findings from this report provide much needed information to guide further development of appropriate response strategies to support children, families and whānau throughout and after the pandemic. Moving forward, policy makers may wish to think about how these findings can be taken to:

Support families to continue to connect with each other

Children and their families and whānau demonstrated tenacity in the face of adversity. In contrast with initial concerns, many were able to create home environments and experiences that saw the majority of children in this study reporting lockdown as a largely positive time. These experiences and the connection between families and whānau had positive implications for satisfaction with schooling during lockdown, particularly for those in larger household bubbles. Supporting families to continue to connect with each other in the ways they did during lockdown is a promising avenue for enhancing learning. In particular, facilitating family participation in community activities, and arts and cultural events may boost successful schooling experiences.

Tailor post-pandemic strategies to children with differing experiences

This report has highlighted the very different experiences of lockdown for children in Aotearoa New Zealand. Differences across sociodemographic characteristics were evident, for example, across school satisfaction scores, device use, and connectedness with friends and family outside of household bubbles. Post-pandemic strategies targeted towards children should be tailored and appropriately reflective of the vast range of experiences during the pandemic.

Identify additional emotional and social supports

Many children reported social and emotional experiences that are concerning and indicate they may not have been receiving the support they required during lockdown. Given learnings about the long-term consequences of traumatic events on children's lived for example, from the Canterbury earthquakes, the social and emotional challenges children faced during lockdown is of concern. The fact that many children felt they were rarely listened to, may not have had enough opportunities to share their feelings and issues with others, and some had increased anxiety over money, are all factors that need ongoing monitoring. Existing programmes that were in in place in Canterbury post-earthquakes, such as Mana Ake, provide a good model for school-based social and emotional support for children and their families and whānau. Other trauma-informed schooling, arts-based or social and emotional approaches could be integrated into school programmes to provide support and continue to foster resilience to future crisis events.

Implications for schooling

This shift to online- and distance-based learning happened swiftly and on an untested scale, requiring rapid trial and error accompanied by uncertainty from many teachers, schools, and children. As the New Zealand Government and schools reflect on this process and strategise for the future, the findings from this report may add some valuable suggestions.

Results point to these children having very different experiences of schooling in lockdown. For example, children in larger bubbles generally saw higher levels of school satisfaction whereas children in bubble sizes of two (including the cohort child) tended to have the lowest scores. Out of all ethnic groups, tamariki Māori experienced the largest decline in

mean score of school satisfaction between age eight and lockdown, and also had the lowest average satisfaction. Investigation of the specific systemic factors responsible for these differing schooling experiences during lockdown is needed to ensure COVID-19 does not further exacerbate existing inequities.

Experiences of bullying at age eight was found to have a lasting effect on school satisfaction during lockdown, with those who indicated they were never/hardly ever bullied at eight-years-old having significantly higher school satisfaction scores than those who were bullied. Whether this bullying has persisted since the children were eight years old and throughout lockdown, or if earlier experiences of bullying are having lasting effects, is unclear. Either way, bullying prevention and response strategies need to be examined and children who experience bullying require targeted support. It should be noted that increased screen time and device use by children was observed. This potentially increased the pervasive nature of cyberbullying where in-person forms of bullying were not occurring (44). Further research is needed to understand bullying during lockdown and the effects of bullying generally in more detail. Meaningful interventions need to be enacted to mitigate these effects of bullying on learning and other aspects of child wellbeing.

Results from this study point to device use increasing substantially since age eight. Given the lockdown restrictions, age of the children, and learning shifting predominantly online, this increase in screen time was not unexpected. However, results in this report suggest that device access may have been more limited for children from lower socioeconomic areas. Strategies to ensure equitable access to devices and online schooling options are needed.

Finally, many children reported high feelings of connectedness to school despite distance learning. Additionally, several children responded to the open-ended questions with comments about the enjoyment and freedom flexible learning gave them. Given these positive results, schools and children should be commended for their efforts to adjust to a highly challenging set of circumstances. These findings also suggest providing new ways to give children more flexibility, independence, and free time, and autonomy to self-regulate their learning where they require and request it may be of value.

6. Strengths and Limitations

A strength of the GUiNZ longitudinal cohort study is having the ability to compare data from before COVID-19, to the data collected during the pandemic to understand the experiences of COVID-19 in light of earlier context. Comprehensive data were available for many variables of interest from previous DCWs, meaning recall bias was minimised. The ability to calibrate the COVID-19 findings to baseline data from previous DCWs is unique to the GUiNZ study within the Aotearoa New Zealand context. Other Aotearoa New Zealand research on the experiences and wellbeing of children at the time of the pandemic has been cross-sectional in design and unable to compare to baseline reports from before the COVID-19 lockdown. However, some of the observed changes are likely to be confounded with the cohort's increasing age and not solely attributable to factors relating to the pandemic. Thus, the long-term impact of COVID-19 on the GUiNZ children and their families/whānau will be able to be more fully understood in future DCWs.

However, almost two thirds of the cohort did not participate in the survey. As an opportunistic survey, it was not expected that all children in the GUiNZ cohort would be reached, so it was anticipated that the sample may not be representative of the full cohort and Aotearoa New Zealand children in general. In particular, response bias was evident across sociodemographic groupings meaning specific findings related to subgroups may not be representative. This survey was also the first attempt at an online DCW with the children in the GUiNZ cohort. The response rate of 42% is considered high for a digital survey (16), and provides preliminary evidence as to the potential for successful utilisation of digital technology in future DCWs. However, there was differential engagement with the online survey by demographic characteristics including ethnicity and deprivation levels. Considering this information along with some non-response likely due to digital inequity, there is need to further explore connectivity and barriers to digital engagement as the study engages more directly with the cohort of 'digital natives'.

The data collection processes utilised for the eight-year DCW and the COVID-19 Wellbeing Survey were also different, with face-to-face interviews used for the eight-year DCW, compared to a remote, self-completed online survey for the COVID Wellbeing Survey. This difference in data collection methods may have impacted on the ability of the data to be compared across DCWs. Additionally, some of the data on the same measures compared over time were phrased slightly differently and/or informed by different participants (i.e., mother reported at eight-year and child reported at lockdown). How these different questions were interpreted over time and by the different informants may have varied. Therefore, these findings should be interpreted with some caution.

The data are self-reported and therefore subject to some degree of bias. For example, more objective measures of activity involvement, screen and media use, and household dynamics may not align with the self-reported measures and some questions may be impacted by social desirability bias. However, as this survey sought to understand the experiences of children during the COVID-19 lockdown, the best way to collect this data was from the children themselves. Consequently, self-report measures were deemed the most appropriate tool for this study.

Finally, the instrument used to measure school satisfaction has not been validated in children aged 10-11 years within an Aotearoa New Zealand sample. Preliminary testing of the instrument in analyses for this report suggested the scale has good reliability (as indicated by a high Cronbach alpha value of 0.9). However, further invariance testing and validation of the tool is needed to ensure the validity of the results in this report.

7. Future Directions

This survey was administered opportunistically during the time of an unexpected global pandemic and a strict national lockdown period in Aotearoa New Zealand. The advantage of the survey was that it utilised an existing cohort of children with well-characterised demographic, home-life, school, and wellbeing information. The intent of the survey was to capture a snapshot of life during this high stress time, through the eyes of the children themselves. Future DCWs will be important to assess the on-going and long-term impact of the COVID-19 pandemic and associated lockdowns for children and their families. In particular, the upcoming 12-year DCW will collect data from the GUiNZ cohort in 2021/22.

The longitudinal analyses in this report are focused on comparing responses to the COVID-19 Wellbeing Survey with the eight-year data. The eight-year DCW was the most recent DCW to the COVID-19 lockdown and therefore, provided the most proximal data for comparison. Future work could explore the longitudinal analyses in this report in more detail, using data from earlier GUiNZ DCWs.

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Further information about the GUiNZ, governance and design of this longitudinal study is available on our website: www.growingup.co.nz

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APPENDICES

APPENDIX A: Additional detail related to the study methods.

This appendix describes the study design, data collection process, and survey questions in more detail than in the main body of the report.

Study Design

An electronic survey (the COVID-19 Wellbeing Survey) was designed and distributed to all eligible children in the GUiNZ cohort via an emailed link to their parent's email address (the parent was identified as the person who had completed the "Mother questionnaire" at the most recent DCW the child had taken part in). Children were deemed eligible if their parent had not withdrawn from the GUiNZ study prior to May 2020, the primary caregiver had a contact email address, and the cohort child was living in Aotearoa New Zealand at the time of survey distribution. Children who solely communicated in Te Reo Māori (n=13) were ineligible for the survey, as translation of the questionnaire was unfortunately not possible given time constraints associated with the need to distribute the survey during the lockdown period. Additional data have been sourced from previous GUiNZ DCWs to contribute additional demographic variables and variables that enable longitudinal analyses.

Ethics Approval

Ethical approval for the survey was obtained from the Northern B Health and Disability Ethics Committee on the 29th of April 2020 (NTY/08/06/055 AM15).

Data Collection

The survey was designed in-house by members of the GUiNZ research team, and the 'Our Voices' research team (the 'Our Voices' project is funded by a Ministry of Business, Innovation and Employment grant). The Qualtrics® digital platform was used, as it met the security and storage requirements of the University of Auckland. Davanti Consulting Limited were engaged to assist with getting the survey prepared in the platform, and to develop an engaging interface for the children completing the survey. GUiNZ had an existing relationship with Davanti via the 'Our Voices' research project. The data collection process was undertaken in collaboration with the GUiNZ research team.

On the 8th of May 2020, when Aotearoa New Zealand was in Alert Level 3 (Restrict), the COVID-19 Wellbeing Survey was sent to all eligible GUiNZ participants via an invitation email to each child's primary caregiver. The invitation included an individualised link to the survey, which directed them to a web-based online survey accessible on all devices (computer, tablet, phone). The survey remained live until 24 May 2020. This survey was also sent to the GUiNZ pilot group, 'Leading Light: Rōpū Pīata', who normally experience the data collection measures before the GUiNZ cohort and provide feedback to guide data collection strategies. However, in this instance, given the time pressure to get the survey into field during the lockdown period, the Leading Light group were engaged at the same time as the main cohort, with a focus on trialling the electronic connections and digital responses from this group. Responses from the Leading Light group have been excluded from the final dataset for analyses given significant differences in key demographic variables from the main cohort (e.g., being 6-15 months older) and challenges in comparing consistent outcomes for this group over time.

The front page of the survey described the purpose of the questionnaire and gave children the opportunity to accept or decline to participate. Children could complete the survey independently or receive help from a family member if required. To increase compliance with survey completion, a general media campaign promoting the survey to GUiNZ participants was run whilst the survey was live. While koha are typically offered to participants

as part of main data collection waves, this was not possible for the COVID-19 Wellbeing Survey.

Variables

The following sections described the measures used for analyses in this report, including how each variable has been derived and used.

Linked socio-demographic measures from previous GUiNZ DCWs

Sociodemographic and ethnicity measures were linked from previous GUiNZ DCWs, specifically:

- **Sex**. Based on data collected at 6-weeks, participants were grouped into boy or girl, as assigned at birth.
- **Age**. Calculated using the child's date of birth (as recorded at 6-week) and the date each young person participated in the COVID-19 Wellbeing Survey, as per the date stamp within the online survey.
- **Socio-economic position**. Based on NZDep2013 from data collected in the eight-year DCW. NZDep2013 uses 2013 Aotearoa New Zealand census data to derive an indicator of socioeconomic hardship based on selected dimensions of neighbourhood deprivation (45). Deprivation scores are categorised into 10 deciles, with decile 1 representing the 10% of neighbourhoods that are the least deprived, and 10 the most deprived. Quintiles are used in bivariate and multivariate analyses to increase cell counts.
- **Maternal education**. Determined using the mother's report of their highest education level at the Antenatal DCW. Five levels of education are used: No secondary school qualification; Secondary school/ NCEA 1–4; Diploma/Trade Cert/NCEA 5–6; Bachelor's degree; Higher degree.
- **Maternal age**. Calculated using the mother's date of birth as reported at the Antenatal DCW, and the date each child participated in the COVID Wellbeing Survey as per the date stamp within the online survey. Maternal age is grouped into six categories: ≤30 years; 31-35 years; 36-40 years; 41-45 years; 46-50 years; >50 years.
- **Child's ethnicity**. As reported by the mother at the 54-month DCW, with one or more ethnicities permitted. Ethnicity was externally prioritized based on Stats NZ Level 1 ethnicity groupings in the following order of priority: Māori, Pacific, Asia, Middle Eastern/ Latin American/African, Other or European if used as an independent variable (17). For analyses conducted on separate ethnic groups, ethnicity was coded across multiple variables (using total response coding) based on Stats NZ Level 1 ethnicity groupings (dummy variables indicating if the participant belongs to a specific ethnicity or not). In other words, multi-ethnic participants were included in each relevant ethnic group. Missing values of ethnicity at the 54-month DCW were replaced with the child's ethnicity reported by the mother at the 9-month DCW.
- **Disability**. Schooling experiences in COVID-19 restrictions may differ for children who have been identified with a disability. For this reason, school outcomes were investigated according to disability. At the 8Y DCW mothers were asked if they had areas of concern about their child's wellbeing and development, for example, in relation to vision, hearing, speech, growth/development, and behaviour. Based on these data, concerns have been grouped for analyses into: Hearing and/or Speech concern; Vision concerns; Learning difficulties; Behavioural concerns; and No concerns. Other concerns (e.g., concerns about growth/development) indicated by mothers at the eight-year DCW were not used due to small cell sizes.

Measures of COVID-19 experiences

The following measures from the COVID-19 Wellbeing Survey are used for analyses in this report:

- **Bubbles**. The term 'bubble' is used to describe a household unit which is self-isolating. During Covid-19 Alert Levels 3 and 4 people in Aotearoa New Zealand are instructed to stay at home only with those in their bubble and restrict contact with other bubbles. The COVID-19 Wellbeing Survey asked children to report how many people were living in the household at the time of the survey; how many bubbles the child was in at the beginning of lockdown and, if more than one, how often they moved between bubbles (Every day; Every week; Less often); and their relationship to others in their bubble(s).
- **Connectedness**. Children were asked to report how often during lockdown they connected with family and friends outside of their household bubbles using a six- point scale (Everyday; A few times a week; Weekly; Fortnightly; Less than fortnightly; Only once or twice). A 'connectedness' variable was derived and categorised as below:
  - Not/Almost Not Connected: Responded that they connected with both friends and family fortnightly or less.
  - A Little Connected: Responded that they connected with either friends or family once per fortnight or more.
  - Moderately connected: Responded that they connected with either friends or family a few times a week or more.
  - More Connected: Responded that they connected with both friends and family a few times a week or more each.

- **Positive childhood experiences**. Children were asked how often during lockdown they had: Felt able to talk to someone about their feelings; Felt their family supported them in this time; Participated in community activities within their bubble; Felt connected to school/kura; Felt able to keep in touch with friends; Felt safe and protected in their home; and, Felt worried about how people in their home were getting on. Each statement had six options for answering (Never; Almost never; Sometimes; Often; Always; I don't know). These seven questions were adapted from (but are not identical to) the Positive Childhood Experiences Scale which was adapted from four subscales included in the validated "Child and Youth Resilience Measure–28" (30).
- **Activities**. Children were also asked about the activities they did during lockdown with others in their bubble(s). These activities included: book reading; watching TV/movies; talking about their feelings or issues; singing, playing music or other musical activity; outdoor sports activities; baking or cooking; chores; drawing or other art/crafts; and eating meals. Children indicated how often they did each of these activities on a five-point scale from Never/almost never to Several times a day. Participants were asked the same questions at the eight-year DCW and have been linked for analyses in this report.
- **Screen-based activities**. Children were asked about their screen-based activities during lockdown (e.g., schoolwork, social media, sending/receiving emails). Participants were also asked to indicate the amount of time during lockdown that they spent doing each activity using a five-point scale ranging from Every day to Hardly ever/never. These same measures were used in the eight-year DCW and have been linked for analyses in this report.
- **Screen time**. Children were asked to indicate the hours they spent on screen during an average school day during lockdown (Monday–Friday). Time spent on screens during a weekend day (Saturday–Sunday) was also recorded. This was compared with mother's reports of their child/ren's time spent on devices at age eight.
- **School satisfaction**. Six items from the Multidimensional Students Life Satisfaction Scale (MSLSS) were used to assess school satisfaction during lockdown; these items had the highest factor loadings in the original 8-item MSLSS, as identified by Rowe and colleagues (24). These questions were adapted to be relevant to lockdown (e.g., I look forward to doing schoolwork in my bubble). When the COVID-19 Wellbeing Survey was sent to participants, most children were still doing their schooling remotely from home however, some had recently returned to school. For children attending school in person, the six questions asked participants to respond in relation to their schooling when they were at home (e.g., I enjoyed the school activities I did in my bubble). Each statement had five answer options (0 = Never; 1 = Sometimes; 2= Often; 3 = Almost Always; I don't know). Scores across the six items were summed (after reverse coding the negatively worded item). Sum scores ranged from 0–18, with higher number reflecting higher levels of school satisfaction. People who answered "I don't know" were assigned a 'missing data' status for the statement. The same six items were asked during the eight-year DCW (though without the reference to "bubbles") and responses from those who participated in the COVID-19 Wellbeing Survey have been linked for analyses.

APPENDIX B: Survey questionnaire

Child Questionnaire

Growing Up in New Zealand
University of Auckland
Email: contact@growingup.co.New Zealand
www.growingup.co.New Zealand

NOTE: The question numbers below are as they appear in the online survey but are not visible to the children.

Introduction

Welcome to this *Growing Up in New Zealand* special survey to find out more about your experience of the Covid-19 "lockdown".

You have been a part of *Growing Up in New Zealand* since you were born and that means you're in a special position to help us understand what it is like for New Zealand children to be living through these strange times.

By helping us with this survey, you're speaking on behalf of lots of New Zealand children. You're making a real difference and your voice and experience can help decision-makers to improve lives for all Kiwi children and families now and in the coming months.

The survey is short and easy. We're going to ask you some questions about the past few weeks when we've all had to stay at home in our "bubbles" to help stop the spread of Covid-19.

Lots of people have called this "lockdown" or "Level 4". Your "bubble" is the people you've been sharing your home or homes with over this time.

In this survey, there are no right or wrong answers. We want to hear what you think and feel. All of your answers will be kept private. We will ask for your name, but this will not be kept with the information you provide. You might want to ask an older family member to help you fill in the survey. It's totally fine to do this. Please start the survey and pick the answer that best fits with how you think or feel. We want to know what matters to you.

You can skip any questions you don't want to answer by clicking on the NEXT button.

Q1 Are you happy to take part in this special *Growing Up in New Zealand* survey? You can say yes or no.

Select the option below.

- ◯ Yes
- ◯ No → Go to END OF QUESTIONS and to the Closing statement

Q2 What is your full name?

Q3 When is your birthday?

(Day) (Month)

Q4 How old are you today in years?

Q5 How many people are living in the house you are in right now?

Number of children – including you (aged less than 18)

Number of adults (18 or over)

Total

Q6 At the beginning of lockdown (in level 4) did you have more than one bubble?

- ◯ Yes
- ◯ No

Q7 **If yes, At the beginning of lockdown (in level 4), how many bubbles did you have?**

Q8 **If yes, During the highest level of lockdown (level 4), approximately how often did you move between bubbles?**

- ◯ Every day
- ◯ Every week
- ◯ Less often

Tell us about the people in your bubble

Q9 **Type the names of the other people in your level 4 bubble (don't include yourself)** (Choose up to 10)	**Q10** **Who they are to you? (e.g. mum, dad, aunty, brother etc.)**	**Q11** **How old are they? – if you know (if you are not sure you can guess)**	**Q12** **Tick the box if they lived with you before the level 4 lockdown?**	**Q13** **Did they have to leave the house to go to work somewhere else during level 4 lockdown?** (You can choose more than one. It is okay if you don't select one)	**Q14** **Who has looked after you in lockdown?** (You can choose more than one. It is okay if you don't select anyone)

My family and local neighbourhood

Q15 **How often during lockdown have you:** (Choose the best one for each line)	Never	Almost never	Sometimes	Often	Always	I Don't know
Felt able to talk to someone about your feelings	◯	◯	◯	◯	◯	◯
Felt your family supported you in this time	◯	◯	◯	◯	◯	◯
Participated in community activities within your bubble (e.g. teddy bear hunt, Easter egg hunt, online church/mosque activities etc, online arts or cultural events e.g ballet, theatre, Waiata)	◯	◯	◯	◯	◯	◯
Felt connected to school/kura	◯	◯	◯	◯	◯	◯
Felt able to keep in touch with friends	◯	◯	◯	◯	◯	◯
Felt safe and protected in your home	◯	◯	◯	◯	◯	◯
Felt worried about how people in your home were getting on	◯	◯	◯	◯	◯	◯

Q16 How often do you worry about how much money your family has?

(Choose the answer that is closest too how you feel)

- ◯ Always
- ◯ Often
- ◯ Sometimes
- ◯ I don't think about it at all
- ◯ I don't know

Q17 How much do you agree with the following? (Choose one for each line)	I do NOT agree	Agree a little bit	Agree somewhat	Agree a lot	Totally agree	I don't know
My parents (or the people who look after me) listen to me	◯	◯	◯	◯	◯	◯
We have a good time together as a family	◯	◯	◯	◯	◯	◯
In my bubble there are enough places to play or to have a good time	◯	◯	◯	◯	◯	◯
I feel safe when I am out and about in the area I live in	◯	◯	◯	◯	◯	◯

Q18 Tell us if you have gone back to school already or are still at home in your bubble?

- ◯ 18.1 I am still doing school work at home in my bubble
- ◯ 18.2 I have gone back to school

Q19 If 18.1, How often are the following statements true? (Choose one for each line)	Never	Sometimes	Often	Almost always	I don't know
I look forward to doing school work in my bubble	◯	◯	◯	◯	◯
I like school work in my bubble	◯	◯	◯	◯	◯
School work in my bubble is interesting	◯	◯	◯	◯	◯
I wish I didn't have to do school work while in my bubble	◯	◯	◯	◯	◯
There are many things about school in my bubble that I like	◯	◯	◯	◯	◯
I enjoy the school activities I do in my bubble	◯	◯	◯	◯	◯
I am looking forward to going back to how school was before we had lockdown	◯	◯	◯	◯	◯
I am worried about missing out on my usual school work while we are in lockdown	◯	◯	◯	◯	◯

Q20 If 18.2, when you were doing school in your bubble, how often were the following statements true? (Choose one for each line)	Never	Sometimes	Often	Almost always	I don't know
I looked forward to doing school work in my bubble	◯	◯	◯	◯	◯
I liked school work in my bubble	◯	◯	◯	◯	◯
School work in my bubble was interesting	◯	◯	◯	◯	◯
I wished I didn't have to do school work while in my bubble	◯	◯	◯	◯	◯
There were many things about school in my bubble that I liked	◯	◯	◯	◯	◯
I enjoyed the school activities I did in my bubble	◯	◯	◯	◯	◯
I looked forward to going back to how school was before we had lockdown	◯	◯	◯	◯	◯
I was worried about missing out on my usual school work while we were in lockdown	◯	◯	◯	◯	◯

Media use

Q22 Do you have internet at home?

(Tick one only)

- ◯ Yes
- ◯ No (go to next section)
- ◯ I don't know

Q23 Do you have a device that you can use during lockdown?

- ◯ Yes
- ◯ No

Q24 What device have you been using during lockdown?

(you can choose more than one)

- ◯ Tablet (e.g. an iPad)
- ◯ Laptop or Computer
- ◯ TV
- ◯ Smartphone (e.g. an iPhone or a Samsung Galaxy)
- ◯ Gaming console (e.g. Xbox, PSP or Playstation)
- ◯ Music player (e.g. iPod)
- ◯ Kindle or other eReader
- ◯ Smart watch (e.g. fitbit)
- ◯ A virtual reality headset
- ◯ Something else (list here):

_____

- ◯ I don't know

Q25 Do any of your devices have a camera? (pull through answers from previous questions)

Child will select from the list pulled through from previous question and tick if the device has a camera

Q26 Do you belong or use any sites listed below?

(Select as many as you use)

- ◯ None
- ◯ Facebook
- ◯ Messenger
- ◯ Houseparty
- ◯ Reddit
- ◯ Tik Tok
- ◯ Instagram
- ◯ Snapchat
- ◯ Twitter
- ◯ WhatsApp
- ◯ YouTube
- ◯ Hangouts
- ◯ Something else? List them here:

_____

_____

_____

_____

Q21 **How would you say your health is right now?** (Choose one only)	Excellent	Very good	Good	Fair	Poor
	◯	◯	◯	◯	◯

Q27 **During lockdown, how often have you been doing the following things using a screen-based device?** (Choose the best one for each line)	Every day	Several times a week	About once a week	About once a month	Hardly ever / never	I don't know
School work and homework	◯	◯	◯	◯	◯	◯
Making phone calls or video calls e.g. Skype/ Facetime	◯	◯	◯	◯	◯	◯
Sending and receiving emails	◯	◯	◯	◯	◯	◯
Using social media (e.g. TikTok, Snapchat)	◯	◯	◯	◯	◯	◯
Instant messaging (e.g. WhatsApp, iMessage, Facebook Messenger, text message, chat)	◯	◯	◯	◯	◯	◯
Listening to music on your device	◯	◯	◯	◯	◯	◯
Taking photos	◯	◯	◯	◯	◯	◯
Watching TV or movies or videos (e.g. Netflix, Lightbox, TVNew Zealand On Demand, YouTube and music videos)	◯	◯	◯	◯	◯	◯
Playing games - on your own on your device	◯	◯	◯	◯	◯	◯
Playing games – with your family/bubble members/friends on a device	◯	◯	◯	◯	◯	◯
Searching the internet (e.g. Google)	◯	◯	◯	◯	◯	◯
Creating digital art (art using a computer)	◯	◯	◯	◯	◯	◯
Making or editing a film or video	◯	◯	◯	◯	◯	◯
Making new music, songs or sound recordings	◯	◯	◯	◯	◯	◯
Writing a story or poem	◯	◯	◯	◯	◯	◯
Coding/ programming	◯	◯	◯	◯	◯	◯
Trading or buying stuff on your device (not as part of a game)	◯	◯	◯	◯	◯	◯
Other activity using a screen-based device (Type here)	◯	◯	◯	◯	◯	◯

Q28 Have you had any contact (face-to-face, telephone or online) with your friends outside your family during lockdown?

- ◯ Yes
- ◯ No

Q29 If yes - how have you been in contact with friends?
(You can select as many as you need)

- ◯ Telephone
- ◯ Texting, chatting
- ◯ Facetime/Zoom other videoconferencing,
- ◯ Online platforms such as Google Classrooms/ Seesaw
- ◯ Apps such as WhatsApp/HouseParty
- ◯ Online Games
- ◯ In person (even if with physical distancing)
- ◯ Letters
- ◯ Other (type here)

Q30 How often have you connected with your friends during lockdown?
(Answer for each of platforms identified above)

- ◯ Everyday
- ◯ A few times a week
- ◯ Weekly
- ◯ Fortnightly,
- ◯ Less than fortnightly
- ◯ Only once or twice

Q31 Earlier we asked you about contact with friends. Now we would like to know about contact with extended family not living with you. Have you had any contact (face-to-face, telephone or online) with extended family members / whānau not living with you (e.g. grandparents, aunts, uncles, cousins etc) during lockdown?

- ◯ Yes
- ◯ No

Q32 If yes - how have you been in contact with family not living with you?
(You can select as many as you need)

- ◯ Telephone
- ◯ Texting, chatting
- ◯ Facetime/Zoom other videoconferencing,
- ◯ Online platforms such as Google Classrooms/ Seesaw
- ◯ Apps such as WhatsApp/HouseParty
- ◯ Online Games
- ◯ In person (even if with physical distancing)
- ◯ Letters
- ◯ Other (type here)

Q33 How often have you connected with your family not living with you during lockdown?
(Answer for each of the platforms identified above)

- ◯ Everyday
- ◯ A few times a week
- ◯ Weekly
- ◯ Fortnightly
- ◯ Less than fortnightly
- ◯ Only once or twice

Q34 During lock down, on a school day (Monday - Friday), about how many hours a day are you spending on screens (including schoolwork)?

- ◯ 0 hours
- ◯ Up to 1 hour
- ◯ Between 1 and 2 hours
- ◯ Between 2 and 3 hours
- ◯ Between 3 and 4 hours
- ◯ Between 4 and 5 hours
- ◯ Between 5 and 6 hours
- ◯ Between 6 and 7 hours
- ◯ Between 7 and 8 hours
- ◯ Between 8 and 9 hours
- ◯ More than 10 hours (if so how many to the nearest hour?)

Q35 During lock down, on a weekend day (Saturday-Sunday), about how many hours a day are you spending on screens (including schoolwork)?

- ◯ 0 hours
- ◯ Up to 1 hour
- ◯ Between 1 and 2 hours
- ◯ Between 2 and 3 hours
- ◯ Between 3 and 4 hours
- ◯ Between 4 and 5 hours
- ◯ Between 5 and 6 hours
- ◯ Between 6 and 7 hours
- ◯ Between 7 and 8 hours
- ◯ Between 8 and 9 hours
- ◯ More than 10 hours (if so how many to the nearest hour?)

Depression (heading not included in digital survey)

Q36 Below is a list of the ways you might feel or behave. Please pick how much you have felt or acted this way during the past week. (Choose one for each line)	Not At All	A Little	Some	A Lot
I was bothered by things that usually don't bother me	◯	◯	◯	◯
I felt like I couldn't pay attention to what I was doing	◯	◯	◯	◯
I felt down and unhappy	◯	◯	◯	◯
I felt like I was too tired to do things	◯	◯	◯	◯
I felt like something good was going to happen	◯	◯	◯	◯
I felt scared.	◯	◯	◯	◯
I didn't sleep as well as I usually sleep	◯	◯	◯	◯
I was happy	◯	◯	◯	◯
I felt lonely, like I didn't have any friends	◯	◯	◯	◯
It was hard to get started doing things	◯	◯	◯	◯

Anxiety (heading not included in digital survey)

Q37 **This set of questions also asks you how you have been thinking, feeling, or acting. For each item, please select the answer that seems most true for you during the past week. Remember there are no right or wrong answers, just answer how you have been feeling recently.** (Choose one for each line)	Never	Almost Never	Sometimes	Often	Almost always
I felt scared	◯	◯	◯	◯	◯
I worried about what could happen to me	◯	◯	◯	◯	◯
I felt worried	◯	◯	◯	◯	◯
I felt like something awful might happen	◯	◯	◯	◯	◯
I worried when I went to bed at night	◯	◯	◯	◯	◯
I feel nervous	◯	◯	◯	◯	◯
I worried when I was at home	◯	◯	◯	◯	◯
I got scared really easily	◯	◯	◯	◯	◯
I was afraid that I would make mistakes	◯	◯	◯	◯	◯
I thought about scary things	◯	◯	◯	◯	◯

Activities

Q38 How often do you do the following activities with the people in your bubble during the lockdown? (Choose one for each line)	Never/ almost never	Once a week	Several times a week	Once a day	Several times a day	I don't know
Reading books together in my bubble	◯	◯	◯	◯	◯	◯
Watching TV/movies together in my bubble	◯	◯	◯	◯	◯	◯
Talking about feelings, or issues in my bubble	◯	◯	◯	◯	◯	◯
Singing a song, playing music, or doing some other musical activity in my bubble	◯	◯	◯	◯	◯	◯
Drawing a picture or doing another art/ craft activity in my bubble	◯	◯	◯	◯	◯	◯
Homework and/ or school work or talking about homework or school work in my bubble	◯	◯	◯	◯	◯	◯
Outdoor sporty activities together (e.g. passing a ball, going for a walk, bike-riding, scootering) in my bubble	◯	◯	◯	◯	◯	◯
Baking or cooking together in my bubble	◯	◯	◯	◯	◯	◯
Doing chores or housework together in my bubble	◯	◯	◯	◯	◯	◯
Eating a meal together in my bubble	◯	◯	◯	◯	◯	◯

Q39 How true are the following statements about the food and drinks you have been having during the lockdown. If you think you eat the same as before select I do NOT agree (Choose one for each line)	I do NOT agree	Agree a little bit	Agree somewhat	Agree a lot	Totally agree	I don't know
I eat more food than before	◯	◯	◯	◯	◯	◯
I eat more often during the day than before (more meals and snacks)	◯	◯	◯	◯	◯	◯
I eat more fruit than before	◯	◯	◯	◯	◯	◯
I eat more vegetables than before	◯	◯	◯	◯	◯	◯
I eat more potato chips, chocolate, biscuits, cake or lollies	◯	◯	◯	◯	◯	◯
I drink more fizzy drink than before	◯	◯	◯	◯	◯	◯
I drink more water than before	◯	◯	◯	◯	◯	◯
I eat a greater variety (different types) of food than before	◯	◯	◯	◯	◯	◯

Q40 What did you like most about the food in your bubble?

Type your answer below

Q41 What foods did you miss most in your bubble?

Type your answer below

Tell us more about how you have felt in the last few weeks

Q42 What have been the best things for you about being in lockdown?

Type your answer below

Q43 What have been the hardest things for you about being in lockdown?

Type your answer below

Q44 What has worried you most about being in lockdown?

Type your answer below

Q45 What are you most excited for/ about when lockdown is over?

Type your answer below

Q46 Is there anything else you want other people to know about what it's like to be in lockdown for you?

Type your answer below

APPENDIX C: Survey response rate

	Eligible cohort	Participated in survey	Response rate	Logistic model	
	N	n	%	Odds Ratio	P-value
Total	5756	2421	42.1	-	
SEX					
Boy	2964	1200	40.5	1	Ref
Girl	2784	1220	43.8	1.15	0.024
Missing	<10	<10	-		
ETHNICITY (prioritised)					
European	2599	1339	51.5	1	Ref
Māori	1390	498	35.8	0.76	<0.001
Pacific	738	213	28.9	0.70	0.002
Asian	867	315	36.3	0.69	<0.001
Other	131	55	42.0	0.98	0.917
Missing	31	<10	-	-	-
SOCIOECONOMIC DEPRIVATION					
Low (1-3)	1800	919	51.1	1	Ref
Medium (4-7)	1899	890	46.9	1.01	0.939
High (8-10)	1345	517	38.4	1.01	0.950
Missing	712	95	13.3	-	-
RURALITY					
Urban	4445	2058	46.3	1	Ref
Rural	599	268	44.7	0.828	0.047
Missing	712	95	13.3	-	-
MOTHER AGE					
≤ 30 years	159	34	21.4	1	Ref
31 - 35 years	700	188	26.9	1.34	0.226
36 - 40 years	1298	459	35.4	1.56	0.061
41 - 45 years	1873	891	47.6	1.94	0.005
46 - 50 years	1381	685	49.6	2.12	0.002
>50 years	343	163	47.5	1.94	0.01
Missing	<10	<10	-	-	-
MOTHER EDUCATION					
No secondary school qualification	319	95	29.8	1	Ref
Secondary school/NCEA 1–4	1277	423	33.1	1.03	0.85
Diploma/Trade Cert/NCEA 5–6	1762	632	35.9	1.11	0.518
Bachelor's degree	1419	717	50.5	1.69	0.002
Higher degree	961	547	56.9	1.99	<0.001
Missing	18	<10	-	-	-

APPENDIX D: Demographic variables

	Participated in the survey (N=2421)	
	N	n
SEX		
Boy	1200	50%
Girl	1220	50%
Missing	<10	-
ETHNICITY (prioritised)		
European	1339	55%
Māori	498	21%
Pacific	213	9%
Asian	315	13%
Other	55	2%
Missing	<10	-
ETHNICITY (total response)		
European	2017	83%
Māori	498	21%
Pacific	317	13%
Asian	343	14%
Other	64	3%
Missing	<10	-
SOCIOECONOMIC DEPRIVATION		
Low (1-3)	919	38%
Medium (4-7)	890	37%
High (8-10)	517	21%
Missing	95	4%
RURALITY		
Urban	2058	85%
Rural	268	11%
Missing	95	4%
MOTHER AGE		
≤ 30 years	34	1%
31 - 35 years	188	8%
36 - 40 years	459	19%
41 - 45 years	891	37%
46 - 50 years	685	28%
>50 years	163	7%
Missing	<10	-
MOTHER EDUCATION		
No secondary school qualification	95	4%
Secondary school/NCEA 1–4	423	17%
Diploma/Trade Cert/NCEA 5–6	632	26%
Bachelor's degree	717	30%
Higher degree	547	23%
Missing	<10	-

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