

# An Investigation of the Experiences of Physiotherapists During the Aotearoa New Zealand COVID-19 Pandemic 2020

Pei Han Goh *MPhy (Sports), BSc (Hons)*

*Centre for Health Research and Rehabilitation, School of Physiotherapy, University of Otago, Dunedin, New Zealand*

Jennifer Mepham *BSc (Hons)*

*Chairperson, Physiotherapy New Zealand Cardiorespiratory Special Interest Group, New Zealand*

Brigitte Eastwood *PGCertPhty, BPhy*

*Committee Member, Physiotherapy New Zealand Cardiorespiratory Special Interest Group, New Zealand*

Margot A. Skinner *PhD, MPhEd, DipPhty*

*Centre for Health Research and Rehabilitation, School of Physiotherapy, University of Otago, Dunedin, New Zealand*

## ABSTRACT

Mental distress associated with the COVID-19 pandemic is recognised among frontline health professionals. Experiences of physiotherapists in New Zealand during the initial outbreak in early 2020 were explored in an online survey made available to members of the professional association in February 2021. Respondents ( $n = 326$ ) included physiotherapists from both the public and private sectors. Mental distress was a key factor across all workplaces: 48% ( $n = 132$ ) experienced stress and 44% ( $n = 120$ ) felt anxious and overwhelmed. Furthermore, despite being “essential workers”, 55% ( $n = 11$ ) of physiotherapists working in acute hospitals were excluded from collaborations due to misconceptions about their roles by other health professionals or poor communication. Respondents from acute hospital settings encountered a lack of training (30%;  $n = 10$ ) and those from both acute, non-acute/community settings experienced inadequate access to personal protective equipment (44%;  $n = 19$ ). Study outcomes suggest more work needs to be done at the managerial level to understand and support the contribution physiotherapists make as key members of the interprofessional team and to support physiotherapists’ wellbeing across all workplaces.

**Goh, P. H., Mepham, J., Eastwood, B., & Skinner, M. (2022) An investigation of the experiences of physiotherapists during the Aotearoa New Zealand COVID-19 pandemic 2020. *New Zealand Journal of Physiotherapy*, 50(3), 133–149. <https://doi.org/10.15619/NZJP/50.3.05>**

Key Words: COVID-19, Mental Health, Pandemic, Physiotherapists

## INTRODUCTION

The outbreak of the coronavirus disease (COVID-19) caused by a coronavirus known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) took the world by storm following its discovery in December 2019, and has yet to show signs of slowing down (World Health Organization, 2021a). As at June 2022, the number of registered cases worldwide had surpassed 540 million, with more than six million lives lost and numbers are still growing (World Health Organization, 2022). As the virus that causes COVID-19 is mainly transmitted through droplets or aerosols generated by coughing, sneezing, or exhalation, physiotherapists working in close contact with patients with suspected or confirmed COVID-19 are at a high risk of contracting the virus (World Health Organization, 2021b).

Emerging literature globally has revealed that physiotherapists were not prepared to work under pandemic conditions due to various reasons. In a qualitative exploratory study, physiotherapists working across 11 public hospitals in Spain reported feeling overwhelmed and described the outbreak as an apocalypse, highlighting the lack of pandemic preparedness (Palacios-Ceña et al., 2021). A separate survey study conducted in Poland found that all 106 physiotherapists working in hospitals whose data were included in the survey experienced

high rates of emotional exhaustion, scoring an average of 32.31 on the Pasikowski burnout scale (where scores above 27 indicate high burnout) (Pniak et al., 2021). Common factors attributing to the mental stress and lack of pandemic readiness included inadequate access to appropriate personal protective equipment (PPE), barriers to communication, and inadequate training (Billings et al., 2021; Hoernke et al., 2021; Vindrola-Padros et al., 2020).

While New Zealand managed to learn from the rest of the world and suppress the virus effectively through public health measures during the early phases of the pandemic (Ministry of Health, 2021d), this does not mean physiotherapists were immune from the psychological burden and distress associated with their work and work environment during the pandemic. Furthermore, physiotherapists will continue to be challenged due to the ongoing pattern of the resurgence of the SARS-CoV-2 virus, with new variants of the virus emerging across the globe (World Health Organization, 2021c). The importance of learning from the initial pandemic is paramount to better prepare physiotherapists in practice as well as for their wellbeing.

Therefore, this research project aimed to explore the experiences of physiotherapists during the first wave of the pandemic

in 2020. Professional work experience, including symptoms experienced that were associated with physical or emotional stress; engagement in physiotherapy services; training in the management of patients with suspected or confirmed COVID-19; and access to PPE were explored. Lessons learnt from the outcomes of this study may assist physiotherapists to prepare for the future while the COVID-19 pandemic continues, and for similar potential events.

## METHODS

### Study design, setting, and ethics

The research was undertaken as a collaboration between the School of Physiotherapy at the University of Otago and the Cardiorespiratory Special Interest Group (CRSIG) of Physiotherapy New Zealand (PNZ), the national physiotherapy professional body. The concept of a survey was developed in May 2020 in response to informal reports of inconsistent access to PPE by physiotherapists, received by the CRSIG committee. This is a mixed-method study involving the analysis of a data set obtained from the first four sections (Appendix A), of a larger survey that comprised eight sections. Sections 1–4 asked questions about the initial lockdown (demographics, professional work experience, PPE access, and personal safety/wellbeing) when New Zealand went into alert levels 3 and 4 in March–June 2020, in response to the COVID-19 pandemic (4 being the highest of the four-tiered alert level system) (New Zealand Government, 2021). Not included were sections 5, which related to support systems, and sections 6–8, which were relevant only to those living in Auckland during the

second lockdown in August 2020. The survey was administered between February and March 2021. Ethics approval was obtained from the University of Otago Human Ethics Committee (reference number D21/054) and Māori consultation was also undertaken.

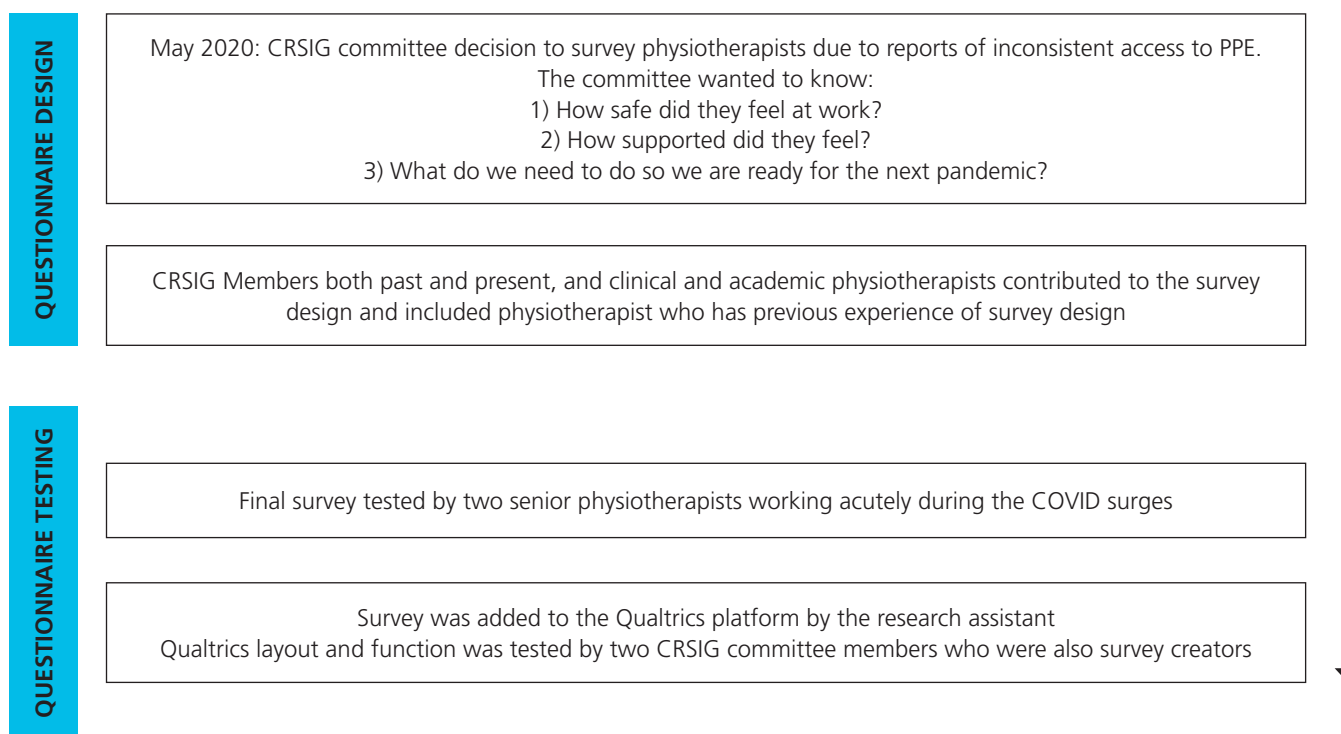
A cross-sectional exploratory approach was utilised for the research. Figure 1 details the survey development, including the objectives of the survey, how it was pilot tested, and survey dissemination. Three physiotherapists experienced in questionnaire development drafted the survey. Where relevant, a Likert scale was adopted for answers to reduce bias (Likert, 1932). The final draft questionnaire was trialled by two senior physiotherapists who worked in a District Health Board during the lockdowns. Based on their responses, small revisions were made to ensure the content validity was established. The final survey was then placed into Qualtrics<sup>SM</sup> (Provo, Utah, USA) by the research assistant and tested for flow by JM and BE (Figure 1).

### Participants

The survey target population was physiotherapists in New Zealand. An invitation to participate in the Qualtrics-based online survey was sent via a group email on 2 March 2021, to all PNZ members, numbering over 4,100 members (Physiotherapy New Zealand, 2020). Subsequently, a link to the Qualtrics<sup>SM</sup> survey was separately disseminated via two Facebook pages on 8 March 2021 – “Physio Stand Up” (1,400 members) and “Physio Board” (1,900 members) – some of whom would have received the initial invitation. An information sheet and the

**Figure 1**

*Details of the Survey Creation*



Note. CRSIG = Cardiorespiratory Special Interest Group [of Physiotherapy New Zealand]; PPE = personal protective equipment.

questionnaire were made available to members via the PNZ website. Clicking on the survey link implied informed consent. Survey respondents could choose not to answer particular questions in the survey. A reminder email was circulated by PNZ on 22 March 2021, before the survey closed on 31 March 2021.

### Data collection

The raw data collated from each of the surveys completed and returned were recorded on an excel file. Responses were deidentified by assigning a numerical ID to each survey.

Section 1 included demographic data regarding ethnicity, duration of physiotherapy practice, highest professional qualification, usual workplace(s), and vulnerability status (e.g., immunocompromised, pregnant, over 70 years of age) during the lockdown. Section 2 related to the experiences of respondents across the range of workplaces, and summary descriptions of training or education that physiotherapists received about their role in managing patients with suspected or confirmed COVID-19 during alert levels 3 and 4. Section 3 comprised questions about respondents' accessibility to PPE; and section 4 related to information regarding the personal wellbeing of respondents during alert level 4. Examples taken to illustrate the purpose of survey questions in answering the research questions can be found in Appendix A, Table A1.

### Data processing

In Section 1, ethnicity groups were classified per the level

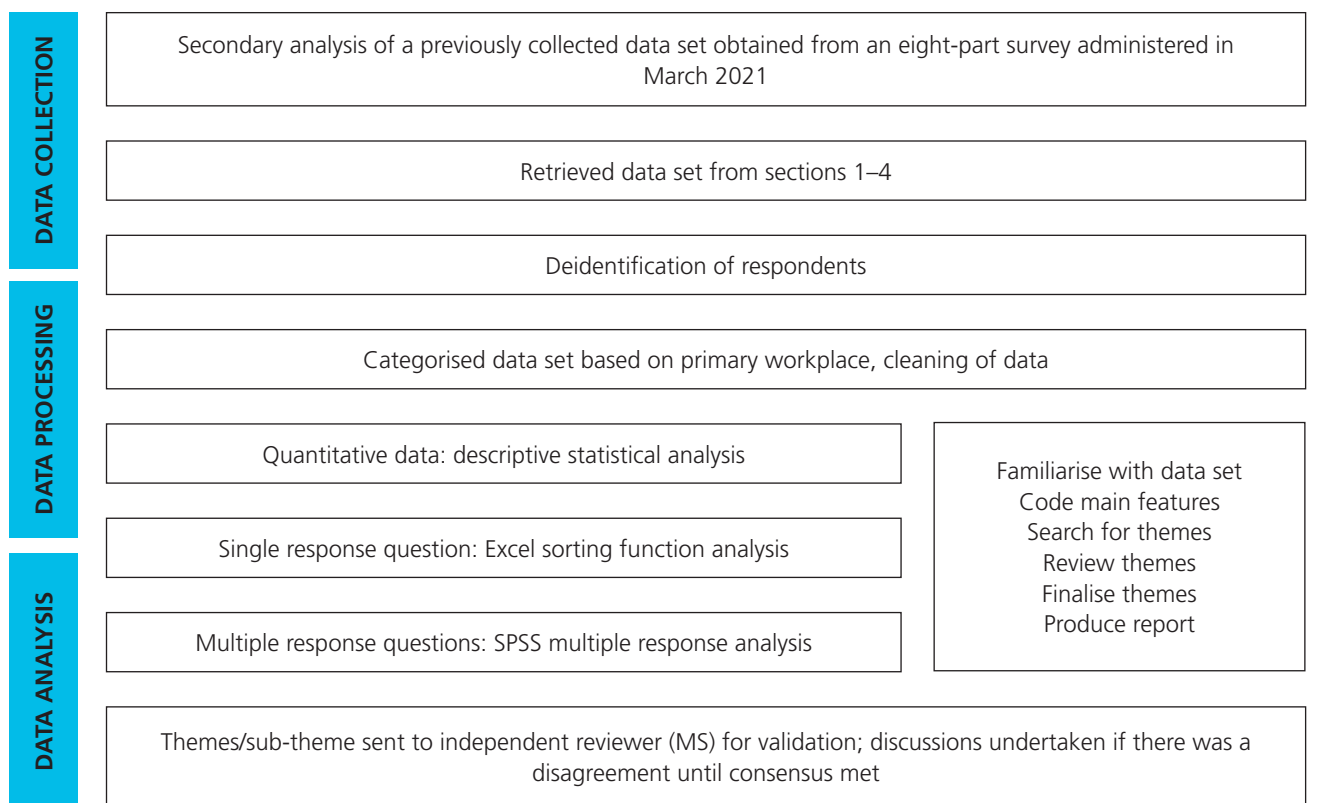
one recommendation from Statistics New Zealand (Ethnicity New Zealand Standard Classification 2005 V22.1.0). The 21 responses for the "usual workplace(s)" were grouped under six workplace descriptors (Appendix A, Table A2). In Section 2, the seven "primary places or work" indicated during alert levels 3 and 4 were grouped under five workplace descriptors: telehealth; acute hospital (both tertiary and rural hospitals); not working; non-clinical work from home; and non-acute hospital/ community (rehabilitation hospital and community). The data were then analysed according to those five descriptors to obtain a cross-section of workplace experiences during alert levels 3 and 4. Data cleaning was then performed for each question to account for any missing responses. Figure 2 illustrates the flowchart of methodology used in this study.

### Data analysis

The data were analysed using the IBM SPSS Statistics for Macintosh (Version 27.0.1) and Microsoft Excel for Macintosh (Version 16.53). Descriptive statistical analysis was undertaken for multiple choice questions to derive the frequency and percentages of categorical data that were coded. Responses with missing data were not included in the analysis of the particular question. Questions with single responses were analysed using the Excel data sorting function, while those where multiple responses were allowed were analysed using the SPSS multiple responses analysis function (Figure 2).

**Figure 2**

*Flowchart of Methodology*



Note. SPSS = IBM SPSS Statistics for Macintosh; MS = Margot Skinner.

Thematic analysis of the comments received from open-ended questions was performed by PHG to make sense of the narratives and identify major concepts within the data set (Braun & Clarke, 2006). The main features of the data were analysed in a deductive and semantic manner. Codes with similar meanings were clustered together to search for common themes and sub-themes. The prefinal themes were then reviewed in relation to the coded data set before being confirmed by PHG and MS. To enhance the trustworthiness of the interpretation of the comments, an Excel spreadsheet containing comments of respondents along with the themes and sub-themes derived by PHG was sent to MS for consensus checking. Discussions were undertaken if there were disagreements regarding the themes until a consensus was met (Figure 2).

## RESULTS

### Characteristics of respondents

A total of 326 surveys were returned. All questions in Sections 1–4 were completed by 80% ( $n = 261$ ) of the participants. Table 1 summarises the characteristics of the respondents who participated in the survey. The majority identified their ethnic background as European (86%;  $n = 307$ ) and 6% ( $n = 18$ ) as Māori. The vast majority had been in practice for more than 10 years (78%;  $n = 253$ ), and 64% ( $n = 205$ ) of the 325 respondents had postgraduate qualifications. Over half of the respondents worked in private practices (51%;  $n = 211$ ), with 20% ( $n = 81$ ) in community care. Others were involved in hospital work (inpatient: 12%;  $n = 48$  and outpatient: 11%;  $n = 45$ ) (Table 1).

During alert levels 3 and 4, about three-quarters of the respondents were working from home doing telehealth (50%;  $n = 158$ ), non-clinical work (10%;  $n = 31$ ), or not working (16%;  $n = 50$ ). Seventeen per cent of respondents ( $n = 52$ ) were working in an acute hospital and 7% ( $n = 21$ ) in a non-acute hospital/community; 8% ( $n = 26$ ) of the respondents identified themselves as vulnerable workers, due to reasons such as a respiratory condition (35%;  $n = 9$ ), pregnancy (23%;  $n = 6$ ) or being immune-compromised (19%;  $n = 5$ ) (Table 1).

### Signs and symptoms associated with physical or emotional stress

Figure 3 illustrates the frequency experienced by 275 respondents of the signs and symptoms commonly linked to physical or emotional stress. Respondents could indicate as many symptoms as applied; hence, the number of responses exceeded the  $n$  value. Anxiety, feelings of being overwhelmed, and mood changes were the top three commonly experienced symptoms: 48% ( $n = 132$ ), 44% ( $n = 120$ ), and 38% ( $n = 103$ ), respectively (Figure 3). Table 2 details the distribution of signs and symptoms experienced based on workplaces, where a higher percentage of respondents from the telehealth group reported feeling anxious (53%;  $n = 72$ ) and overwhelmed (48%;  $n = 66$ ), compared to those working in acute hospital settings (41%;  $n = 21$  and 47%;  $n = 24$ ) or non-acute hospital/community settings (50%;  $n = 10$  and 35%;  $n = 7$ ) respectively.

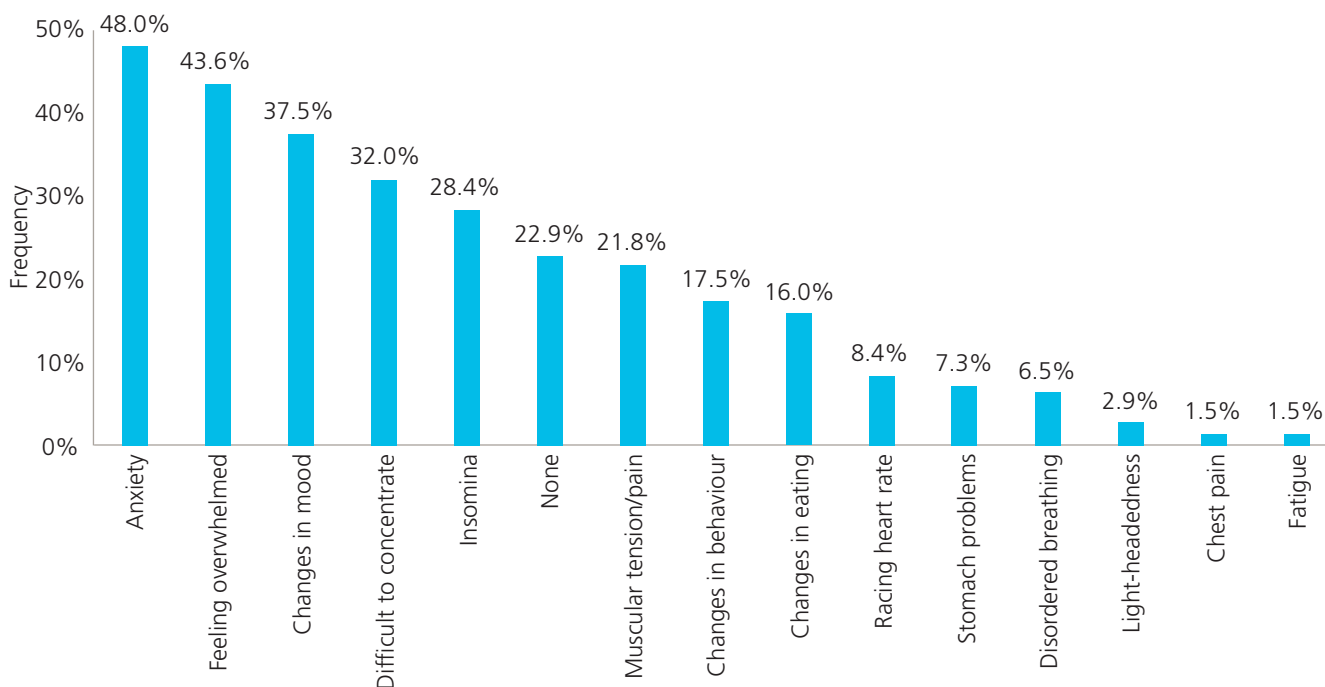
**Table 1**

### Characteristics of Respondents

Characteristic (number of respondents)		$n$ (%) of responses
Ethnicity (multiple responses; $n = 355$ )	European	307 (86)
	Māori	18 (6)
	Pacific Peoples	0 (0)
	Asian	16 (5)
	Middle Eastern/Latin American/African	10 (3)
	Other Ethnicity	2 (1)
	Residual Categories	2 (1)
Duration of practice ( $n = 323$ )	> 10 years	253 (78)
	5–10 years	30 (9)
	< 3 years	19 (6)
	3–5 years	18 (6)
	Undergraduate student	3 (1)
Highest education level ( $n = 325$ )	Degree	93 (29)
	Postgraduate certificate	85 (26)
	Postgraduate diploma	61 (19)
	Master's	53 (16)
	Diploma	20 (6)
	PhD	6 (3)
	Student physiotherapist	5 (2)
Usual workplace (multiple responses; $n = 414$ )	Private practice/Industries	211 (51)
	Community care	81 (20)
	Hospital inpatient	48 (12)
	Hospital outpatient	45 (11)
	Academia	24 (6)
	Clinical management/Advisor	5 (1)
Primary workplace during levels 3 and 4 ( $n = 312$ )	Telehealth	158 (50)
	Acute hospital	52 (17)
	Not working	50 (16)
	Non-clinical work from home	31 (10)
	Non-acute hospital/community	21 (7)
Vulnerable status during lockdown ( $n = 318$ )	No	292 (92)
	Yes (multiple responses)	26 (8)
	Respiratory condition	9 (35)
	Pregnant	6 (23)
	Immunocompromised	5 (19)
	I do not wish to answer	3 (12)
	Cardiac condition	2 (8)
Diabetes	1 (4)	

**Figure 3**

Frequency of the Signs and Symptoms Experienced by Respondents (N = 275)



**Table 2**

Signs and Symptoms Experienced Based on Workplaces During Alert Levels 3 and 4 (Multiple Responses)

Signs and symptoms	Acute hospital (51 respondents; n = 156 responses)	Non-acute hospital/ community (20 respondents; n = 48 responses)	Telehealth (137 respondents; n = 434 responses)	Non-clinical work from home (29 respondents; n = 79 responses)	Not working (38 respondents; n = 96 responses)
Anxiety	21 (41)	10 (50)	72 (53)	14 (48)	15 (40)
Feeling overwhelmed/ forgetful	24 (47)	7 (35)	66 (48)	13 (45)	10 (26)
Changes in mood	20 (39)	4 (20)	54 (39)	10 (35)	15 (40)
Difficult to concentrate/ make decisions	18 (35)	6 (30)	48 (35)	7 (24)	9 (24)
Insomnia	15 (29)	3 (15)	46 (34)	8 (28)	6 (16)
Muscular tension/pain	9 (18)	2 (10)	34 (25)	5 (17)	10 (26)
Changes in behaviour	7 (14)	3 (15)	24 (18)	7 (24)	7 (18)
Changes in eating	9 (18)	2 (10)	24 (18)	5 (17)	4 (11)
Racing heart rate	4 (8)	1 (5)	13 (10)	0	5 (13)
Disordered breathing	5 (10)	1 (5)	10 (7)	0	2 (5)
Stomach problems	7 (14)	1 (5)	8 (6)	3(10)	1 (3)
Light-headedness	4 (8)	0	4 (3)	0	0
Chest pain	0	0	2 (2)	1 (3)	1 (2)
Fatigue	2 (4)	0	2 (2)	0	0
None	11 (22)	8 (40)	27 (20)	6 (21)	11 (29)

Note. Data presented as n (%).

### Engagement in physiotherapy services

A sub-group of 117 respondents provided descriptions regarding the services provided at their workplace during alert levels 3 and 4. Table 3 summarises the four major themes that emerged from the analysis of the work descriptions, where respondents were either engaged, not fully engaged in their work, unable to work,

or not in practice. Further analysis of comments under each major theme resulted in sub-themes being identified, where descriptors provided the reasons for the variation in types of work engagement (Table 3). (See also Appendix A, Table A3 for examples of quotes that best represent the sub-themes).

**Table 3**

*Themes and Sub-themes From Thematic Analysis*

Themes	Engagement of physiotherapy services				
	Sub-themes				
	Acute hospital (n = 30)	Non-acute hospital/ community (n = 11)	Telehealth (n = 46)	Non-clinical work from home (n = 12)	Not working (n = 18)
Engaged (n = 75)	Seen as essential (n = 17)	Seen as essential (n = 9)	Sole practitioners/ contractors (n = 10)	Managers or leaders (n = 8)	–
	Change in role (n = 2)	Change in role (n = 2)	Change in role (n = 1)	Change in role (n = 1)	–
	–	–	Expected to self- manage clinical diary (n = 13)	–	–
	–	–	Regular communication (n = 12)	–	–
Not fully engaged (n = 24)	Not seen as essential (n = 6)	–	Not seen as essential (n = 8)	Not seen as essential (n = 3)	–
	Poor communication (n = 5)	–	Poor communication (n = 2)	–	–
Unable to work (n = 12)	–	–	–	–	Reduced clinical load (n = 9) Lack of resources (n = 2) Poor communication (n = 1)
Not in practice (n = 6)	–	–	–	–	Not practising (n = 4) Student (n = 2)
	Education or training received at various workplaces				
	Acute hospital (n = 33)	Non-acute hospital/ community (n = 7)	Telehealth (n = 42)	Non-clinical work from home (n = 11)	Not working (n = 16)
Training provided (n = 73)	Employer (n = 23)	Employer (n = 7)	Employer (n = 23)	Employer (n = 5)	Employer (n = 12)
	–	–	–	School of Physiotherapy (n = 1)	School of Physiotherapy (n = 2)
Self-directed learning (n = 36)	Self-initiated (n = 10)	–	Self-initiated (n = 8)	Self-initiated (n = 1)	Self-initiated (n = 1)
	–	–	Professional bodies (n = 9)	Professional bodies (n = 2)	Professional bodies (n = 1)
	–	–	Ministry of Health (n = 2)	Ministry of Health (n = 2)	–



Themes	Access to personal protective equipment				
	Sub-themes				
	Acute hospital (n = 31)	Non-acute hospital/ community (n = 12)	Telehealth (n = 65)	Non-clinical work from home (n = 13)	Not working (n = 18)
Always accessible (n = 91)	Readily available (n = 14)	Readily available (n = 5)	Readily available (n = 29)	Readily available (n = 7)	Readily available (n = 9)
	Initial shortage (n = 3)	Initial shortage (n = 2)	–	–	–
Not always accessible (n = 48)	–	–	Self-funded (n = 17)	Self-funded (n = 2)	Self-funded (n = 3)
	Lack of supplies (n = 8)	Lack of supplies (n = 3)	Lack of supplies (n = 3)	–	Lack of supplies (n = 2)
	Inappropriate fit (n = 4)	–	–	–	–
	Restricted access (n = 2)	Restricted access (n = 1)	–	–	–
	–	Misinformation (n = 1)	–	–	–
	–	–	Difficulty sourcing (n = 7)	Difficulty sourcing (n = 3)	Difficulty sourcing (n = 4)
	–	–	Self-funded (n = 9)	Self-funded (n = 1)	–

Of the 117 respondents, 64% ( $n = 75$ ) were engaged in work, while 31% ( $n = 36$ ) were not fully engaged or unable to work due to assorted reasons categorised in Table 3. All respondents from the non-acute hospital/community and 63% ( $n = 19$ ) of those from acute hospital settings were seen as being essential workers and had a stake in the planning of the day-to-day running of services ( $n = 9$  and  $n = 17$ , respectively). Others at home who continued to be engaged in work were either sole practitioners or contractors ( $n = 10$ ), clinicians who self-managed their work diaries ( $n = 13$ ), or leaders supporting their team members ( $n = 8$ ). For example, one respondent who was doing non-clinical work from home stated, "I manage a team of 12 ... I supported them throughout lockdown" (Appendix A, Table A3). Some physiotherapists remained engaged in work but had a change in role, with 6 experiencing a shift from the outpatient setting to the acute wards or other services (Table 3). For example, a respondent in the telehealth group stated that some colleagues were "relocated towards ED", and another respondent working in an acute hospital wrote "decanting staff in the event the hospital was inundated with patients" (Appendix A, Table A3).

However, 37% ( $n = 11$ ) of the respondents working in the acute hospital setting were not fully engaged; the reasons were that doctors and nurses saw the physiotherapists as "non-essential", despite the roles physiotherapists have in cardiopulmonary management ( $n = 6$ ). For example, "we were represented as Allied health and so CR PHTY [cardiorespiratory physiotherapy] needs were not highlighted"; or the physiotherapists encountered poor communication with management

concerning the services that should be provided ( $n = 5$ ), e.g., "It was poor with no communication with the physio team" (Table 3; Appendix A, Table A3). Others did telehealth or non-clinical work as their usual workplace, such as in a school, was closed ( $n = 11$ ) or they encountered a reduction in clinical load ( $n = 9$ ), e.g., "One staff member continued to work. Two of us did not work" (Table 3; Appendix A, Table A3).

#### Training or education

There were 189 physiotherapists (61% of 308 question respondents), who reported a lack of training or education in the management of patients with suspected or confirmed COVID-19. The majority of those who did not receive education were in home settings doing telehealth, non-clinical work, or not working (84%;  $n = 158$ ), while 16% ( $n = 31$ ) worked in healthcare facilities (acute hospital: 10%;  $n = 18$ ; non-acute hospital/community: 7%;  $n = 13$ ).

Among the remaining 119 respondents (39% of question respondents) who said they received education or training, 109 provided descriptions of the source and type of education/training they received.

Table 3 summarises the themes and sub-themes that emerged from the thematic analysis: 67% ( $n = 73$ ) of the respondents had training provided and the remaining 33% ( $n = 36$ ) had an opportunity for self-directed learning. The majority of those working in an acute hospital (70%;  $n = 23$ ) and all in non-acute hospital/community (100%;  $n = 7$ ) settings were provided with education or training by their employers, while 30% ( $n = 10$ ) from the acute hospital setting initiated their learning via

online resources such as webinars (Appendix A, Table A3). For those who were at home, guidance for self-directed learning came from professional bodies such as PNZ, the Physiotherapy Board of New Zealand (total  $n = 12$ ), and the Ministry of Health (total  $n = 4$ ) (Table 3; Appendix A, Table A3). Topics that were commonly covered in both the acute and non-acute hospital/community settings were the use of PPE, infection control, and respiratory-related interventions (Appendix A, Table A3).

### Accessibility to PPE

Fewer than half of the 291 respondents (43%;  $n = 125$ ) to the question regarding their accessibility to PPE said they “always” had access to the appropriate type of PPE relevant to their work. Meanwhile, 40% ( $n = 117$ ) indicated that their accessibility to PPE was limited to “most of the time” (27%;  $n = 78$ ), “half of the time” (4%;  $n = 12$ ), “not very often” (5%;  $n = 15$ ), and “never” (4%;  $n = 12$ ).

Table 3 summarises the themes and sub-themes that emerged after analysing the descriptions from 139 respondents regarding their experiences with access to PPE. Thematic analysis of the comments resulted in accessibility being classified as “always” (65%;  $n = 91$ ) or “not always” accessible (35%;  $n = 48$ ) (also see Appendix A, Table A3).

While 56% ( $n = 24$ ) of the 43 respondents working at acute and non-acute hospital/community settings reported that they “always” had accessibility to PPE, 44% ( $n = 19$ ) encountered a lack of access due to reasons such as insufficient supplies ( $n = 11$ ). For example, one respondent from an acute hospital setting stated, “Don’t have supply of N95 masks”, while another from a non-acute hospital/community setting stated that PPE “were not provided by allied health and nor were they readily available”. Another example was inappropriate mask fit ( $n = 4$ ), with one respondent stating that they “failed their N95 mask fitting tests” (Appendix A, Table A3). Other reasons included restricted access to PPE ( $n = 3$ ), with supply “under lock and key”, or misinformation ( $n = 1$ ) where the physiotherapist stated they “were essentially told no PPE was required” (Table 3; Appendix A, Table A3). For those who were at home, comments were linked to returning to their usual workplaces at alert level 2 (Appendix A, Table A3). Within this group, PPE accessibility was limited by the difficulty in sourcing supplies ( $n = 14$ ), e.g., “struggled to source PPE” or the need for self-funding ( $n = 10$ ), e.g., “had to purchase own masks” (Table 3; Appendix A, Table A3).

## DISCUSSION

This survey aimed to investigate the experiences of physiotherapists during the initial response to the COVID-19 pandemic in New Zealand in March 2020. The key outcomes indicated that nearly 50% of respondents across all workplaces experienced signs and symptoms commonly linked to physical and emotional stress (Table 2); a reduced engagement in work, as other health professionals (e.g., doctors and nurses) saw them as non-essential; or encountering communication barriers with management (Table 3; Appendix A, Table A3). Not all physiotherapists were provided with education or training related to their role in the management of patients with suspected or confirmed COVID-19. Even if they did, some had to undertake self-directed learning instead of undergoing formal training provided by employers (Table 3). Furthermore, not all

physiotherapists had access to appropriate PPE for their work (Table 3). These findings suggest there was a lack of pandemic readiness concerning physiotherapists in New Zealand during the initial outbreak.

The impact of pandemics on the psychological wellbeing of healthcare workers is not new knowledge, with a recent systematic review of 46 qualitative studies reporting on the negative effect of a range of pandemics on the mental health of frontline healthcare providers (Billings et al., 2021). The findings from their review included studies from Australia, Canada, Hong Kong, and South Korea, among others. Outcomes from our study in New Zealand were in line with the findings from the review, with 48% of physiotherapists saying they felt anxious and 44% felt overwhelmed (Figure 3).

In contrast to the systematic review by Billings et al. (2021), the current study found that percentages of physiotherapists using telehealth, who felt anxious and overwhelmed, showed a similar trend to the responses from those working in an acute hospital setting (53% and 48% versus 41% and 47%, respectively) (Table 2). This may suggest that physiotherapists were generally not coping well during the initial response, and, besides being involved in the direct treatment of patients with suspected or confirmed COVID-19, other factors such as stress at home may have contributed to the stress experienced. The findings may also indicate there was not enough done to support physiotherapists to prepare them at the start of the pandemic and suggest that more needs to be done to enhance the wellbeing of physiotherapists in New Zealand. Future work exploring the reasons that accounted for the stress experienced could be investigated, and potential findings could be used to propose strategies to improve the wellbeing of physiotherapists.

Globally, physiotherapy services were affected at the time of the initial outbreak of the pandemic, and continue to be negatively affected due in part to restrictions enforced on the movement of people within countries, states, or cities, resulting in the categorisation of services as “essential” or “not essential” (Prvu Bettger et al., 2020). Locally, during the initial pandemic, the only physiotherapy services considered essential were those involved in emergency and acute care to “preserve life or limb only” (Ministry of Health, 2021b, 2021c). However, 37% ( $n = 11$ ) of respondents from the acute hospital setting were not fully engaged in work, as they were seen as non-essential by other health professionals, or faced issues with communication from management (Table 3; Appendix A, Table A3). While the categorisation of physiotherapy as an “allied health profession” may explain why others viewed physiotherapists as “non-essential”, it appears to have resulted in the lack of consideration for cardiorespiratory physiotherapy (Appendix A, Table A3), which is an essential service provided in acute care (Thomas et al., 2020). Further, the lack of clear communication resulting in loss of work engagement is concerning, given that inconsistent communication could affect the sense of preparedness and ability to cope with an unfamiliar situation (Billings et al., 2021; Vindrola-Padros et al., 2020). Consequently, the findings may warrant the need for further clarification with acute hospital stakeholders and management regarding the essential role of physiotherapists, and also ensure that hospital leaders and management provide clear directions



for physiotherapists, who continue to provide services during this and other pandemics.

There is strong evidence that training on the safe use of PPE and infection control during a pandemic enables health professionals to allay anxiety and execute their roles safely and with greater confidence (Billings et al., 2021). A lack of such training has been associated with feeling unprepared and an inability to deliver face-to-face healthcare services (Hoernke et al., 2021; Vindrola-Padros et al., 2020). Also, the current recommendation is that physiotherapists in acute hospitals must be trained in the safe and appropriate use of PPE, and infection prevention and control to prevent transmission of COVID-19 (Thomas et al., 2020). Despite the evidence and recommendation, outcomes from the current study continue to echo other research findings that highlight the lack of such training; even where training was provided, results from other studies showed it involved limited practical engagement (Billings et al., 2021; Vindrola-Padros et al., 2020). In the present study, 10% of the respondents from acute hospital settings and 7% from non-acute hospital/community settings did not receive any education or training, and 30% of respondents from acute hospital settings had to seek information from various external resources instead of being provided with training by their employers (Table 3).

Such findings suggest that a group of physiotherapists in acute and non-acute hospital/community settings were not adequately equipped with the knowledge to keep themselves safe, while providing physical face-to-face services during the pandemic at that time.

The fast-changing environment during the pandemic with asymptomatic cases, who may be present in unsuspecting places, coupled with physiotherapy interventions involving close contact with patients, means that physiotherapists working face to face with patients should be provided with training on aspects such as the proper use of PPE and infection control, regardless of the profile of their patients. The outcomes of this study suggest that more could have been done. In particular, leaders should have ensured they provided physiotherapists, who continued to deliver services during the pandemic in acute and non-acute hospital/community settings, with formal training to enhance their readiness. This is an essential ongoing requirement.

Accessibility to PPE has been a key concern globally in the current pandemic. Serious implications associated with limited access prompted World Physiotherapy to launch an advocacy campaign on PPE for physiotherapists (World Physiotherapy, 2021). Globally, health professionals have had inadequate access to PPE, resulting in significant fear, stress, and anxiety (Billings et al., 2021; Hoernke et al., 2021). Similarly, the outcomes from the present study indicated that physiotherapists did not always have accessibility to PPE appropriate to their work type, with only 43% indicating they “always had access”. Further, 44% of those in acute and non-acute hospital/community settings encountered barriers such as insufficient supplies, inappropriate mask fit, and restricted access (Table 3).

While the lack of supplies can be explained by the global shortage of PPE due to the sudden surge in overall demand (World Health Organization, 2020), factors such as

inappropriate mask fit and restricted access were concerning, as physiotherapists work in close contact with patients or perform cardiorespiratory interventions that would require appropriate protective gear to prevent droplet or aerosols transmission (Ministry of Health, 2021a; Thomas et al., 2020; World Physiotherapy, 2020). The findings suggest the need for better clarification, particularly to medical and nursing colleagues, about the level of protection physiotherapists require to execute their role safely during a pandemic. As well, clarification on the need for physiotherapists to access PPE in acute and non-acute hospital/community settings is required for those who control access to PPE at management level.

### Implications

The outcomes of this study suggest that more work needs to be done at the managerial level to support the physiotherapy profession during a pandemic, particularly in acute and non-acute hospital/community settings where physiotherapists continue to provide physical face-to-face services. First, both workplace and personal wellbeing support should be considered in all work settings. Second, a demonstrated improvement in interprofessional practice is required, where the role of physiotherapists in acute hospitals is better understood and appreciated, to ensure that essential services such as cardiorespiratory physiotherapy continue to be delivered. Third, consistent training and education to keep physiotherapists safe needs to be ensured, particularly for those who continue to provide services in acute and non-acute hospital/community settings that operate during a pandemic. Finally, access to relevant PPE could be improved for those who continue to work in acute hospital and non-acute hospital/community settings, with a need to ensure stakeholders understand the nature of the duties and the risk physiotherapists face with COVID-19.

### Strengths and limitations

Independent parallel coding was not possible due to the design of the research project; hence, although the themes and subthemes were independently reviewed and then discussed by two authors, the interpretation may not be as robust. Second, the study is considered small in scale with an 8% response rate – reasons could include the lack of email or social media access during the period of survey dissemination or a lack of incentive for physiotherapists to participate in an eight-part survey, which may have appeared lengthy. Future studies could explore the mode of distribution that would best capture responses from a larger number of physiotherapists before dissemination, such as incentives to encourage participation or shortening the survey.

Also, the sample was primarily made up of physiotherapists with > 10 years of practice (78.3%), which means that the findings of this qualitative study may be generalised to this group of practitioners but not others. Experienced clinicians may also have a stronger perspective on the value of having their experiences surveyed and documented, acknowledging the value research brings to the profession not only to be heard, but also for future pandemic planning. The skewed response could also indicate there were more physiotherapist members of PNZ and/or the two Facebook groups, who were experienced clinicians. In addition, PNZ membership is about 75% of the approximately 5,800 physiotherapists who held an Annual Practising Certificate in New Zealand in early 2021,

and those physiotherapists who work in acute hospitals are not consistently members of PNZ (Physiotherapy Board of New Zealand, 2021). Future surveys may explore other platforms to capture responses from a wider range of experiences within the profession. In consideration of the above limiting factors, the generalisability of the results from this study may be limited to the more experienced physiotherapists. Further work could be done to explore the perspectives of those whose views were not captured in this study.

Despite the limitations, the outcomes of this cross-sectional study captured a range of experiences of physiotherapists across various work settings during the initial pandemic, which provides a general perspective on the issues occurring in different areas at the time of the initial lockdown. The results also provided valuable information to justify establishing processes to enhance the professional and personal wellbeing of physiotherapists in Aotearoa New Zealand. Future research may consider methodologies that could quantify and correlate the experiences to the wellbeing of physiotherapists during the pandemic, to solidify proposals for a change.

## CONCLUSION

Physiotherapists had varying experiences in response to the initial lockdown in Aotearoa New Zealand in 2020. A key outcome of this cross-sectional study indicated that physiotherapists were going through a stressful period and may not have been ready to cope with an ongoing pandemic. While there were physiotherapists who seemed to be navigating well with adequate resources, others within the profession were not. This study has brought to light the concept that more work may need to be done to enhance the readiness and safeguard the wellbeing of physiotherapists in Aotearoa New Zealand during the ongoing pandemic.

## KEY POINTS

1. Physiotherapists in Aotearoa New Zealand may not have been coping well during the initial COVID-19 pandemic and may require further workplace and personal wellbeing support both in the early phase of this pandemic and any subsequent pandemics.
2. A better appreciation of the role of the physiotherapist in tertiary hospitals is needed through interprofessional practice to ensure their contribution is clarified and secured.
3. Consistent training and education need to be provided to all physiotherapists who continue to provide physical face-to-face services during the pandemic.
4. Further clarification with stakeholders is required regarding the PPE physiotherapists require.

## DISCLOSURES

No funding sources were used for the study. None of the authors has any conflict of interest.

## PERMISSIONS

This study was approved by the University of Otago Ethics Committee (reference number D21/054).

## ACKNOWLEDGEMENTS

The authors are grateful for the technical assistance from the University of Otago librarians, Thelma Fisher and Trish Leishman, and research assistant, David Jackson.

## CONTRIBUTIONS OF AUTHORS

The primary author (PHG) undertook all the analysis of the data and drafting of the manuscript; all other co-authors undertook the initial development of the survey, discussion of results, contributed to the writing of the manuscript and approved the final draft.

## ADDRESS FOR CORRESPONDENCE

Margot Skinner, Centre for Health Research and Rehabilitation, School of Physiotherapy, University of Otago, 325 Great King Street, Dunedin 9016, New Zealand.

Email: skinnermargotnz@gmail.com

## REFERENCES

- Billings, J., Ching, B. C. F., Gkofa, V., Greene, T., & Bloomfield, M. (2021). Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: A systematic review and qualitative meta-synthesis. *BMC Health Services Research*, 21, Article 923. <https://doi.org/10.1186/s12913-021-06917-z>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Hoerke, K., Djellouli, N., Andrews, L., Lewis-Jackson, S., Manby, L., Martin, S., Vanderslott, S., & Vindrola-Padros, C. (2021). Frontline healthcare workers' experiences with personal protective equipment during the COVID-19 pandemic in the UK: A rapid qualitative appraisal. *BMJ Open*, 1, Article e046199. <https://doi.org/10.1136/bmjopen-2020-046199>
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 140, 5–55.
- Ministry of Health. (2021a, August 10). *COVID-19 infection prevention and control – interim guidance for DHB acute care hospitals*. [https://www.health.govt.nz/system/files/documents/pages/ipc\\_interim\\_guidance\\_for\\_dhb\\_acute\\_care\\_hospitals\\_110821\\_0.pdf](https://www.health.govt.nz/system/files/documents/pages/ipc_interim_guidance_for_dhb_acute_care_hospitals_110821_0.pdf)
- Ministry of Health. (2021b, September 3). *COVID-19: Advice for community allied health, scientific and technical providers*. <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-information-health-professionals/covid-19-advice-community-allied-health-scientific-and-technical-providers#a14>
- Ministry of Health. (2021c, September 10). *COVID-19: Essential services in the health and disability system*. <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-response-planning/covid-19-essential-services-health-and-disability-system>
- Ministry of Health. (2021d, September 27). *COVID-19: Current cases*. <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-current-cases>
- New Zealand Government. (2021, September 27). *About the alert system*. <https://covid19.govt.nz/alert-levels-and-updates/about-the-alert-system/#covid-19-alert-system>
- Palacios-Ceña, D., Fernández-de-Las-Peñas, C., Palacios-Ceña, M., de-la-Llave-Rincón, A. I., & Florencio, L. L. (2021). Working on the frontlines of the COVID-19 pandemic: A qualitative study of physical therapists' experience in Spain. *Physical Therapy*, 101(4), pzab0245. <https://doi.org/10.1093/ptj/pzab025>
- Physiotherapy Board of New Zealand. (2021, September). *Annual report 2020/21*. <https://www.physioboard.org.nz/wp-content/uploads/2021/08/Physiotherapy-Board-Annual-Report-2021-web.pdf>

- Physiotherapy New Zealand. (2020). *Annual report 2020*. [https://pnz.org.nz/Folder?Action=Download&Folder\\_id=318&File=PNZ%20Annual%20Report%202020.pdf](https://pnz.org.nz/Folder?Action=Download&Folder_id=318&File=PNZ%20Annual%20Report%202020.pdf)
- Pniak, B., Leszczak, J., Adamczyk, M., Rusek, W., Matlosz, P., & Guzik, A. (2021). Occupational burnout among active physiotherapists working in clinical hospitals during the COVID-19 pandemic in south-eastern Poland. *Work*, 68(2), 285–295. <https://doi.org/10.3233/wor-203375>
- Prvu Bettger, J., Thoumi, A., Marquovich, V., De Groote, W., Rizzo Battistella, L., Imamura, M., Delgado Ramos, V., Wang, N., Dreinhofer, K. E., Mangar, A., Ghandi, D. B. C., Ng, Y. S., Lee, K. H., Tan Wei Ming, J., Pua, Y. H., Inzitari, M., Mmbaga, B. T., Shayo, M. J., Brown, D. A., ... & Stein, J. (2020). COVID-19: Maintaining essential rehabilitation services across the care continuum. *BMJ Global Health*, 5(5), Article e002670. <https://doi.org/10.1136/bmjgh-2020-002670>
- Thomas, P., Baldwin, C., Bissett, B., Boden, I., Gosselink, R., Granger, C. L., Hodgson, C., Jones, A. Y. M., Kho, M. E., Moses, R., Ntoumenopoulos, G., Parry, S. M., Patman, S., & van der Lee, L. (2020). Physiotherapy management for COVID-19 in the acute hospital setting: Clinical practice recommendations. *Journal of Physiotherapy*, 66(2), 73–82. <https://doi.org/10.1016/j.jphys.2020.03.011>
- Vindrola-Padros, C., Andrews, L., Dowrick, A., Djellouli, N., Fillmore, H., Bautista Gonzalez, E., Javadi, D., Lewis-Jackson, S., Manby, L., Mitchinson, L., Mulcahy Symmons, S., Martin, S., Regenold, N., Robinson, H., Sumray, K., Singleton, G., Syversen, A., Vanderslott, S., & Johnson, G. (2020). Perceptions and experiences of healthcare workers during the COVID-19 pandemic in the UK. *BMJ Open*, 10(11), Article e040503. <https://doi.org/10.1136/bmjopen-2020-040503>
- World Health Organization. (2020, March 3). *Shortage of personal protective equipment endangering health workers worldwide*. <https://www.who.int/news/item/03-03-2020-shortage-of-personal-protective-equipment-endangering-health-workers-worldwide>
- World Health Organization. (2021a, May 13). *Coronavirus disease (COVID-19)*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19>
- World Health Organization. (2021b, April 30). *Coronavirus disease (COVID-19): How is it transmitted?* <https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-how-is-it-transmitted>
- World Health Organization. (2021c, September 22). *Tracking SARS-CoV-2 variants*. <https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/>
- World Health Organization. (2022). *WHO coronavirus disease (COVID-19) dashboard*. <https://covid19.who.int/>
- World Physiotherapy. (2020). *Recommendations for physiotherapists working with people with COVID-19*. <https://world.physio/sites/default/files/2020-07/recommendations-factsheet-English-v2.pdf>
- World Physiotherapy. (2021). *#PPE4PT advocacy campaign*. <https://world.physio/covid-19-information-hub/ppe4pt-advocacy-campaign>

## Appendix A

**Table A1**

*Selected Survey Questions Used to Illustrate Their Purpose in Answering the Research Questions*

Section	Item	Question	Purpose
1	1,2,3,4,6,6a	Ethnicity, duration of physiotherapy practice, professional qualification, usual workplace(s), and vulnerability status during alert levels 3 and 4.	To explore the demographics of survey respondents.
2	2	Primary workplace during March–June 2020 alert levels 3 and 4.	To identify where people were working, and categorise the data set based on workplaces.
2	3, 3a	In your primary workplace, were physiotherapists working in clinical roles included in the planning of the day-to-day running of services? Please provide a comment to your answer.	To investigate if physiotherapists were involved in the engagement of physiotherapists in work.
2	4, 4a	Did you receive training or education on the role of physiotherapy in the management of patients with suspected or confirmed COVID-19? Please describe the training or education you received.	To investigate if people were educated on their role in the management of patients with suspected or confirmed COVID-19, and what kind of training or education was provided.
3	3, 3a	How often did you have access to appropriate PPE relevant to your type of work? Please give examples, if possible.	To investigate if physiotherapists were getting the PPE they required, and the reasons why it did not happen.
4	7	The following are symptoms that may be associated with physical or emotional stress. Please indicate which, if any, applied to you.	To investigate if respondents were affected physically and/or emotionally.

Note. PPE = personal protective equipment.

**Table A2**

*The Six Main Workplaces*

Main workplaces	Responses from survey
Private practice/industries	Private practice community Sports centre/Gym Industry/Occupational health Rural practice
Community care	Community/District Schools Rest home
Hospital inpatient	ICU/HDU ED/Admissions Adult acute wards Paediatric acute wards Inpatient rehabilitation environment Private hospital medical/surgical Private hospital nonacute
Hospital outpatient	Outpatient department/Hospital clinic Paediatrics outpatient/Community paediatrics
Academia	Academia/Tertiary institute – education Academia/Tertiary institute – research Clinical educator for students Student
Clinical management/advisor	Clinical management/Advisor

Note. ED = emergency department; HDU = high dependency unit; ICU = intensive care unit.

**Table A3**

Examples of Quotes that Best Represent the Themes and Sub-themes

Themes	Engagement of physiotherapy services				
	Sub-themes				
	Acute hospital (n = 30)	Non-acute hospital/ community (n = 11)	Telehealth (n = 46)	Non-clinical work from home (n = 12)	Not working (n = 18)
Engaged (n = 75)	Seen as essential (n = 17) #181: "Physiotherapists were consulted as part of a multidisciplinary team"	Seen as essential (n = 9) #145: "Our role as rehabilitation therapists did not stop"	Sole practitioners/ contractors (n = 10) #179: "I took full control of my reception as well as the clinical side of my business"	Managers or leaders (n = 8) #176: "I manage a team of 12 ... I supported them throughout lockdown"	-
	Change in role (n = 2) #170: "...decanting staff in the event the hospital was inundated with patients ..."	Change in role (n = 2) #151: "I was transferred to work on inpatient wards"	Change in role (n = 1) #273: "...some colleagues were relocated towards ED ..."	Change in role (n = 1) #63: "Organised flu vaccine for the school ..."	-
	-	-	Expected to self-manage clinical diary (n = 13) #73: "Physiotherapists were expected to monitor emails and Gensolve for online bookings ..."	-	-
	-	-	Regular communication (n = 12) #110: "Daily communication with colleagues and business owners"	-	-

Themes	Engagement of physiotherapy services				
	Acute hospital (n = 30)	Non-acute hospital/ community (n = 11)	Telehealth (n = 46)	Non-clinical work from home (n = 12)	Not working (n = 18)
	Sub-themes				
Not fully engaged (n = 24)	Not seen as essential (n = 6) #325: "...we were represented as allied health and so CR PHTY [cardiorespiratory physiotherapy] needs were not highlighted"	-	Not seen as essential (n = 8) #146: "Schools were closed, we offered teletherapy to families, most declined"	Not seen as essential (n = 3) #173: "School physio/ hand therapist so could not see students unless very urgent care"	-
	Poor communication (n = 5) #80: "It was poor with no communication with the physio team"	-	Poor communication (n = 2) #44: "Not transparent – decisions came from leadership who are not physiotherapists"	-	-
Unable to work (n = 12)	-	-	-	-	Reduced clinical load (n = 9) #163: "One staff member continued to work. Two of us did not work"  Lack of resources (n = 2) #189: "If Northland had better internet service/ access, I would have been able to do telehealth"  Poor communication (n = 1) #233: "We wrongly led to believe!! ... we should have been there in level 4 if needed"
Not in practice (n = 6)	-	-	-	-	Not practising (n = 4) Student (n = 2)



Education or training received at various workplaces

Themes

Sub-themes

	Acute hospital (n = 33)	Non-acute hospital/ community (n = 7)	Telehealth (n = 42)	Non-clinical work from home (n = 11)	Not working (n = 16)
Training provided (n = 73)	Employer (n = 23) #191: "mask fitting, proning, respiratory adjuncts, donning and doffing etc."	Employer (n = 7) #103: "...staff-led in-service on resp [respiratory] physio in COVID"	Employer (n = 23) #98: "PPE education, hand washing review"	Employer (n = 5) #180: "Education sessions, resources provided, prompt sheets, flow charts etc."	Employer (n = 12) #163: "Screening questions. Cleaning treatment room limiting contact time. Avoiding hands on and shared breathing space"
Self-directed learning (n = 36)	Self-initiated (n = 10) #275: "webinars and articles"	–	–	School of Physiotherapy (n = 1) #48: "General information from School of Physiotherapy"	School of Physiotherapy (n = 2) #45: "...given education from Otago Physio school"
	–	–	Self-initiated (n = 8) #102: "just reading on websites"	Self-initiated (n = 1) #61: "Bulletins and links to articles/ commentary from clinical advisors"	Self-initiated (n = 1) #138: "On-line reading"
	–	–	Professional bodies (n = 9) #214: "Main source of information from Ministry of Health and PBNZ and PNZ"	Professional bodies (n = 2) #121: "Shared resources and discussion with other physios via CRSIG"	Professional bodies (n = 1) #36: "board [PBNZ]"
	–	–	MoH (n = 2) #101: "Ministry of Health guidelines only"	MoH (n = 2) #167: "Ministry of Health procedures..."	–

The accessibility to PPE					
Sub-themes					
	Acute hospital (n = 31)	Non-acute hospital/ community (n = 12)	Telehealth (n = 65)	Non-clinical work from home (n = 13)	Not working (n = 18)
Always accessible (n = 91)	<p>Readily available (n = 14) #282: "Never had problems accessing masks, sanitiser, gloves, face shields. Was given own goggles"</p> <p><i>Initial shortage</i> (n = 3) #129: "...At the beginning, there were no small N95 masks available but these became available towards the end"</p>	<p>Readily available (n = 5) #82: "Able to access gloves, gowns and basic masks at all times..."</p> <p><i>Initial shortage</i> (n = 2) #267: "Initially we did not have access to PPE but later on we did"</p>	<p>Readily available (n = 29) #89: "I have been provided with gloves, masks and hand sanitiser which I always carry"</p>	<p>Readily available (n = 7) #170: "Our clinic was closed, so we did not need PPE gear, but we had masks, gloves and gowns in storage"</p>	<p>Readily available (n = 9) #40: "As we returned to person to person contact in level 2 our only measure was masks and gloves. There was no problem with the supply of these"</p>
Not always accessible (n = 48)	<p>Lack of supplies (n = 8) #152: "Don't have supply of N95 masks..."</p>	<p>Lack of supplies (n = 3) #287: "They were not provided by allied health and nor were they readily available on the wards I worked on"</p>	<p>Self-funded (n = 17) #265: "We didn't need this for Level 3/4 as at home but were able to get a supply of masks, gloves and face shields while in lockdown in prep for returning to clinic"</p>	<p>Self-funded (n = 2) #85: "Was able to source necessary PPE through private enterprises and contacts. No PPE obtained through the DHB or MoH"</p>	<p>Self-funded (n = 3) #141: "Purchased my own clinic supplies of PPE masks both fabric/reusable and disposable..."</p> <p>Lack of supplies (n = 2) #182: "Disinfectant ran out in one hospital to wash hands"</p>

<p><i>Inappropriate fit</i> (n = 4)  #70: "...most workers in the hospital failed their N95 mask fitting tests and they had no alternatives to provide us with..."</p>	-	-	-	
<p><i>Restricted access</i> (n = 2)  #325: "...it was a terrible time where we needed to campaign hard to educate anyone who would listen about how we perform our duties and where we needed protection..."</p>	-	-	-	
<p><i>Restricted access</i> (n = 1)  #212: "In the early days the supply was under lock and key"</p>	-	-	-	
<p><i>Misinformation</i> (n = 1)  #151: "We were essentially told no PPE was required..."</p>	-	-	-	
-	-	<p><i>Difficulty sourcing</i> (n = 7)  #73: "...there was a huge wait for masks and gloves when we returned to work"</p>	<p><i>Difficulty sourcing</i> (n = 3)  #117: "At one point it was not possible to order facemasks or hand sanitiser"</p>	<p><i>Difficulty sourcing</i> (n = 4)  #268: "The clinic owner struggled to source PPE"</p>
-	-	<p><i>Self-funded</i> (n = 9)  #75: "contractor in community and no PPE provided – had to purchase own masks"</p>	<p><i>Self-funded</i> (n = 1)  #94: "...some requested we bring our own as contractors"</p>	-

Note. CRSIG = Cardiorespiratory Special Interest Group [of Physiotherapy New Zealand]; DHB = District Health Board; MoH = Ministry of Health; PBNZ = Physiotherapy Board of New Zealand; PNZ = Physiotherapy New Zealand; PPE = personal protective equipment.