Informal caregivers' caregiving experiences during the COVID-19 pandemic in Aotearoa New Zealand: A biopsychosocial analysis

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This nationwide study uses Engel's biopsychosocial model to explore the biological, psychological, and social aspects of older informal caregivers' experiences during the COVID-19 pandemic in Aotearoa New Zealand. Through purposive sampling, we conducted in-depth interviews with 81 participants from the New Zealand Health, Work and Retirement (HWR) longitudinal study. This paper employs the biopsychosocial model to holistically analyse these experiences, identifying support needs for older informal caregivers. Using grounded theory, our analysis reveals a mix of positive and negative experiences among informal caregivers. Findings suggest that support systems and COVID-19 guidelines for older informal caregivers in Aotearoa New Zealand were poorly understood, with varying levels of positive and negative impacts reported by participants. This paper highlights the resilience and unmet needs of older informal caregivers during the pandemic, demonstrating the value of biopsychosocial model in understanding their experiences and needs for culturally responsive, accessible and better-communicated support systems.

Key words: *Biopsychosocial model, Caregiving, COVID-19, Informal caregiver, Older people*

INTRODUCTION

Informal caregivers, typically family members or friends, who provide unpaid care and support to someone who needs assistance due to illness or disability, have been described as the backbone of the health system as many societies rely on their unpaid labour to provide continuing care (Burholt et al., 2022; Greenwood et al., 2019; Rodger et al., 2015). Informal caregivers are generally older in age; in Aotearoa New Zealand (New Zealand hereafter), informal caregivers are more likely to be over 65 years old (Ministry of Social Development, 2021). International research indicates that older populations are relatively more vulnerable and at higher risk in disaster and crisis situations (Ahmadi et al., 2018; Oliva et al., 2013; Pickering et al., 2021; Sakashita et al., 2013), and older populations faced higher levels of isolation before the COVID-19 pandemic (Rico-Uribe et al., 2018; Steptoe & Rafnsson, 2015), which was further exacerbated by the lockdown mandates and other prevention measures as part of the COVID-19 response in many countries (Losada-Baltar et al., 2021; Spiers et al., 2021). Despite informal caregivers' contributions to those who require care due to illness, injury, disability or old age, especially through the COVID-19 pandemic in New Zealand, their experiences have been poorly explored. Employing Engel's biopsychosocial model (1977), this paper aims to address this knowledge gap.

Older informal caregivers in the pandemic context

Globally, COVID-19 increased pressures on health systems (Schmitz et al., 2022), and health and human services were reported to be in short supply during the pandemic for informal caregivers (Lindroos & Douglas-Smith, 2023; Schmitz et al., 2022). As McGary and Arthur (2008) report, care recipients had traditionally been the main concern for service providers, resulting in the needs of informal caregivers being often overlooked. Despite the importance of the informal caregivers' role, the implications of the mandates and restrictions during the pandemic on the physical and mental well-being of informal caregivers are thus far unclear (Ngamasana et al., 2023).

Informal caregivers often face burdens related to the caregiving role (Caputo et al., 2016; Mosquera et al., 2016; Vellone et al., 2011). Both male and female informal caregivers were reported to be at greater risk of depression in England (Steptoe et al., 2015), while Ngamasana et al.'s US study (2023) suggests that informal caregivers face chronic stressors with potential health and mental health effects such as greater risk of depressive symptoms, even under normal circumstances (see also Roth et al., 2018). Some also experience hardships on a daily basis due to structural inequalities. Thus, many authors expected that informal caregivers would be overwhelmed by caregiving responsibilities, and face additional hardships and increased burdens due to the pandemic (Baji et al., 2019; Hayashi et al., 2021; Kilaberia et al., 2020).

Some studies have reported an increased workload for informal caregivers due to the pandemic and lockdown measures (Ammar et al., 2020; Budnick et al., 2021; Monahan et al., 2020). Burholt et al. (2022) also reported on the effects of extended periods of confinement for

those providing care. Falvo et al. (2021) reported that, while older people were already subject to ageism, the stigma of being labelled "at risk" due to their age became exacerbated during the pandemic (see also Barber, 2017). This could have psychological effects on caregivers, potentially leading to negative health outcomes (Hunt et al., 2022; Zwar et al., 2021). In New Zealand, this "high-risk" population was considered those aged 70 and older, younger Māori, and those who experienced underlying health conditions (Onder et al., 2020).

However, research to date shows mixed findings on the experience of caregiving during the COVID-19 pandemic (see, e.g., Allen et al., 2022; Barnard et al., 2024; Lightfoot et al., 2021; Uekusa et al., 2025). Despite early concerns about mental health effects, their experiences were not necessarily negative. Indeed, despite the perceived vulnerability resulting from increased care demands, limited resources and social isolation, older informal caregivers coped well with the pandemic, often reporting better mental and emotional well-being than their younger counterparts (e.g., Lightfoot et al., 2021; Uekusa et al., 2025). Having positive mindsets, life experiences, emotional bonds with the care recipients, and emergent social capital are some of the explanations suggested in the research for older people's resilience and the "silver linings" they found (Lightfoot et al., 2021; Stephens & Breheny, 2022; Stephens et al., 2024; Uekusa et al., 2025). While the caregiver's role has not necessarily been linked to negative health outcomes such as depressive symptoms and other mental health issues during the pandemic, Allen et al. (2022) showed that, in New Zealand, lower living standards and cohabitation with the care recipients were associated with increased depression, and lower living standards, unemployment, and lower help from friend/family networks were associated with increased anxiety. These results highlight the importance of individual and social circumstances that moderate the effects of pandemic stress on negative health outcomes. Studies have also suggested that, during the pandemic, the positive and negative aspects of caregiving fluctuated, only partially explaining the potential impacts of caregiver experiences (Morrison & Williams, 2020). Further theorising and empirical work is required to explain these more complex relationships between stressful experiences and mental health.

Our review revealed that the growing literature on informal caregivers has yielded contradictory results with a lack of clear explanations. By employing a theoretical model, this study aims to contribute to a more nuanced account of the experiences of informal caregivers during the COVID-19 pandemic.

Biopsychosocial Models

Informal caregiving often has implications for the health and mental health of the caregivers, impacting their own physical, psychological and social wellbeing, which can often be worsened by crisis and disaster situations (Caputo et al., 2016; Su & Fan, 2024; Vellone et al., 2011). However, it is important to note that caregiving experience is complex and multidimensional (Fredriksen-Goldsen & Muraco, 2010). For this reason, we used Engel's biopsychosocial model (1977) to look at informal caregivers' caregiving experiences and wellbeing through an intersectional lens of biological, psychological and social environmental perspectives. The biological component refers to genetic vulnerabilities, physical symptoms and the relationship between the body and disease (Bolton & Gillett, 2019; Havelka et al., 2009). The psychological component encompasses psychological factors, including mindset, self-esteem, emotional states (such as anxiety, depression, anger and fear), and cognitive ability (Anim et al., 2022; Jokinen & Hartshorne, 2022; Roberts, 2023). The social and environmental factors refer to social engagement, available supports, socioeconomic status (SES) and interpersonal factors (Bolton & Gillett, 2019; Da Silva et al., 2018).

The present study asked: What are the experiences and needs of older informal caregivers in New Zealand in a pandemic situation? Due to its multi-systems approach, Engel's biopsychosocial model (1977) allows our analysis to focus on the interconnected nature of biological and psychological factors, personal circumstances, and social structural factors.

METHOD

Participants

Study participants were selected from the pre-existing HART's (Health and Ageing Research Team at Massey University) New Zealand Health, Work and Retirement (HWR) longitudinal study[1] participants, using a purposive sampling method. Purposive sampling is appropriate as it allowed the researchers to target informal caregivers aged 55 years or older in New Zealand, oversampling rural and Māori participants to ensure diversity of voices amongst informal caregivers, particularly from groups that are typically understudied. We used the following criteria to select participants: 1) those who are 55 or older; 2) those who were an informal caregiver during the pandemic in New Zealand; and 3) those who had expressed interest in participating in interview research in the 2020 HWR survey. Initially, of 1937 participants who expressed their interest in interviews, 407 respondents who self-identified as informal caregivers were considered potential participants. These potential participants received an information letter outlining details of the study and provided with a 0800 number and email to contact us if they wished to participate or required further details. 80+ participants called or emailed us, and the research team contacted them by phone, email and text to schedule interviews. Between May 2023 and February 2024, we conducted a total of 81 interviews with older informal caregivers from across New Zealand.

Participants' mean age was 66.1 years, the youngest participant was 57 and the oldest was 88. A total of 34 male and 47 female participants included 49 Pākehā (European New Zealander), 35 Māori and four others[2], with 39 participants based in rural areas and 42 in urban areas. Using the Economic Living Standard Index (ELSI), 70% of participants living standard can be described as

[1] For more information about the HWR study, please go to HART's website: https://hart.massey.ac.nz

[2] Some participants selected more than one race/ethnicity

"good", followed by 17% "comfortable" and 12% "in hardship". Participants in this study did not have any form of formal training for caregiving. Table 1 and Table 2 below present participants' relationships with their care recipients and their health conditions.

Table 1. Health conditions of care recipients

Care recipient's main illness & health conditions	
Dementia/Alzheimer's disease	11
Cancer	7
Physical/intellectual disability	4
Autism	4
Primary progressive multiple sclerosis	1
Physical decline (semi-independent)	15
Heart problems	6
Stroke	5
Mastectomy	1
Depression	1
Drug & alcohol addiction	1
Mobility issues (e.g. fall risk)	9
Incontinence	1
Unspecified	16
Total	81

Table 2. Care recipients

Care recipient*	
Parent	20
Spouse/partner	29
Sibling	2
Child	7
Grandchild	3
Extended family	5
Friend	6
Neighbour	4
Flatmate	1
Other	10

*Some participants cared for more than one recipient

Procedure

Demographic data was prerecorded as part of the HWR database and was openly offered by participants during interviews. The research team travelled across New Zealand to conduct 81 in-depth interviews, with 74 being completed face-to-face, four via Zoom and three by phone. All interviews were audio-recorded with the participant's agreement. The interviews followed a semi-structured approach, which aided in prompting recalling of experiences, emotions, and challenges. The interview guide was informed by our prior research and relevant literature, and some pilot interviews were conducted with caregivers to develop and refine questions. The semi-structured approach allowed the research team to explore participants' accounts in more depth and expand on emerging topics and ideas and to circle back to interesting points that would be missed otherwise. The interviews typically lasted one hour, with an additional 30 minutes allotted after the first hour for when participants felt they had more to say.

This research, classified as low risk, received ethics approval from the Health and Disability Ethics Committee [2022 EXP 13416] on 22 October 2022. To protect participant's privacy, all identifiers have been removed, and pseudonyms are used in our report of the findings.

Data analysis

We employed an interpretative approach and opted for in-depth qualitative interviews, focusing on informal caregivers' experiences and perceptions during the pandemic between March 2020 and December 2022 as New Zealand's response to COVID-19 shifted to a long-term management approach rather than emergency response (Royal Commission of Inquiry, 2024). We employed an inductive, thematic analysis of interview data (Braun & Clarke, 2006). All the interviews were transcribed by the research team and then coded. Coding led to the identification of commonalities which were then interpreted as key themes. The authors utilised 'memoing' as a reflexive method that enabled critical thinking and lessened any personal bias (Charmaz, 2006). Constant comparative analysis was employed to ensure that patterns identified across the data were refined as new codes were introduced (Chun Tie et al., 2019; Urquhart, 2013). Once the key and overarching themes were identified, the biopsychosocial model (Engel, 1977) was applied to structure the themes and explore their relationships. Participants' caregiving experiences were then analysed in relation to each core theme (including interactions and relationships with other factors) to examine the need for support and to identify any specific resources required by informal caregivers.

Positionality

The three authors of this paper are part of a larger, culturally and ethnically diverse research team (including Māori scholars). The authors are two male and one female researchers, including both emerging and established scholars from academic backgrounds in psychology and sociology. We identify as Pākehā and Asian. The lead author has personal experience with caregiving, while other authors bring extensive expertise in research on ageing, health and disasters. Although none of the three authors identify as older informal caregivers, as qualitative researchers trained in psychology and sociology, we are acutely aware of the power imbalance between researchers and participants. We make a conscious effort to minimize such power imbalance and potential biases in interpreting participants' narratives, while remaining committed to understanding their subjective experiences and situated knowledge.

ANALYSIS AND COMMENTARY

The analysis identified themes reflecting interactions between the biological, psychological or social aspects of their wellbeing which were interrelated. Each of these themes were labelled as biopsychological, psychosocial and biopsychosocial. Within each theme, both positive and negative aspects of wellbeing were described. Despite

some heightened mental health challenges, participants also focussed on aspects of resilience and wellbeing. Here we describe the negative and positive aspects of each theme in turn with extracts from the participants' talk as illustrations.

Biopsychological: Interactions between physical health and psychological issues.

Anxiety and fear linked to care recipients' vulnerability

While study participants generally exhibited psychological resilience, some participants expressed feelings of fear, anxiety, frustration and distress during the pandemic. These feelings were often exacerbated by care recipients' health conditions (see Table 1) and, in some cases, their own. Oliver, a Pākehā/European New Zealander participant in his 60s caring for his wife, shared his concerns:

> *It was just a question of how to protect her. How do I protect her? How do I help her? She never went out even though we had the van [to self-isolate]. She never went because of the fear of us going through it, and that is a big thing.*

This sentiment was common among many study participants; they felt fear and anxiety about the potential risk of their care recipients contracting COVID-19.

Participants expressed concerns about the vulnerability of their care recipients due to their health conditions, leading to heightened anxiety and stress. For instance, Donna, a Pākehā/European New Zealander participant in her 60s caring for her daughter, stated: "Because our support workers were going to other people as well… and with not really knowing how bad this whole thing was going to turn out to be. We opted for a complete lockdown because she is immune compromised". Ted, a Pākehā/European New Zealander participant in his 70s caring for his wife, also shared these fears:

> *None of her family, friends or even medical people wanted to be the one that infected her. We all knew it would definitely have killed her. There was stress in terms of anxiety not to get it, particularly in the case of someone in the condition of my wife, who, almost certainly, wouldn't survive COVID if she got it.*

Care recipients suffered a range of health issues and conditions requiring care. Caring for immunocompromised individuals and those with significant health conditions during the pandemic understandably increased the anxiety, stress and isolation among these informal caregivers.

Dual burden: Caregivers' own health challenges

Participants also grappled with their own health challenges, including mobility limitations, hip replacements, medication use and sleep disturbance. These physical ailments significantly impacted their ability to function, care for their loved ones and increased their susceptibility to the virus. Catherine, a Pākehā/European New Zealander participant in her 60s caring for her son, lamented: "I had a foot injury as well… I'm really used to being out and swimming, but I can't do that anymore, and it's hard to look after my son". Similarly, Daniel, a Māori participant in his 60s living in a rural area and caring for his wife, shared their health journey: "I mean, when you're in it [referring to the health system], and I'm in it too. I have got buggered legs. I have had eight total hip replacements". These personal health issues compounded the already significant stress of caregiving during the pandemic creating a dual burden of caring for immunocompromised vulnerable individuals while managing their own health challenges.

Intergenerational health concerns

Anxiety and stress among participants were exacerbated not only by their own health conditions and those of their care recipients, but also by broader concerns about family vulnerability. Some participants perceived intergenerational health complications related to the COVID-19 vaccine, which appeared to run in their family. For example, Fred, a Pākehā/European New Zealander participant in his 70s caring for his wife, recounted:

> *Our daughter ended up in hospital after the jab. The first one, heart problems... My granddaughter got the jab and she ended up in hospital with heart problems; she has never had heart problems. Grandson, same thing. But my son-in-law was fine.*

The perception of family history associated with the vaccines and health issues increased Fred's feeling of anxiety and fear that the vaccines would severely affect the care recipient. This impacted on his ability to provide care and keep the care recipient safe. Fear of transmitting the virus to vulnerable loved ones underscored the need for stringent protective measures, contributing to informal caregiver burden and emotional strain. Additionally, familial health patterns and pre-existing health conditions further complicated caregiving dynamics, highlighting the interconnectedness of biological and psychological aspects. The interplay between these perceived biological factors and increased stress and anxiety, underscores the complex nature of participants' caregiving experiences during the pandemic.

Psychosocial: Interactions between Psychological and Social aspects of experience

Social isolation, emotional distress and distrust in public communication

Feelings of fear, anxiety, frustration and distress during the pandemic were often associated with social aspects of the pandemic experience such as isolation which was imposed by government policy. Isolation emerged as a significant issue for some older informal caregivers in our study, leading to profound feelings of loneliness and separation from their formal and informal support networks. The inability to visit family and friends compounded these feelings, disrupting the social interactions that some participants relied upon for emotional and psychological support. Mary, a Pākehā/European New Zealander participant in her 60s caring for her mother and ex-husband, described this experience:

> *Yes, we were adjusting. We could not go and see family as we regularly did. And they could not come and see us. So, the big adjustment was the lack of family contact and friends. We were isolated and lonely here.*

Similarly, James, a Māori/Samoan participant in his 60s, expressed the difficulty of not being able to see family: "Just not having people coming over like family was hard,

that was hard. But I have to say, you got to be safe". The social isolation experienced by these participants was ironically exacerbated by the restrictions necessary to ensure their safety and that of their care recipients. Although some maintained contact via digital devices, separation from friends and family not only heightened feelings of loneliness but also added additional burdens for the informal caregivers who felt cut off from their usual sources of comfort and support.

In terms of provision of public support, some participants shared their feelings of frustration due to unclear communication and guidelines from the government, which sometimes included their political views rather than caregiving-related challenges. To avoid awkward situations, the research team avoided controversial topics such as vaccination, anti-government and conspiracy theories where possible. However, it is worth noting that some participants were frustrated because unclear communication from the government and media confused them about what (medical) services were available and accessible (see also Barnard et al., 2025). Fred expressed his frustration:

> *The other thing that got to us mostly was all the lies that were told by the government. For starters, we got told that there's lots of PPE gear. But our doctor could not get any. The doctors could not get enough PPE, so [my wife and I] could not visit our doctors.*

These narratives underscore the social and psychological challenges faced by participants during the pandemic. In the following sections, we will delve into the interactions of social and environmental factors with the psychological dimensions of the experiences of informal caregivers.

Rural and urban informal caregivers: Environmental influence on social isolation and coping

Those living in rural environments often felt that their pre-existing geographical isolation meant that the COVID-19 pandemic did not exacerbate their sense of isolation. Instead, they experienced a continuity of their usual way of life. Emma, a Māori participant in her 60s living in a rural area and caring for her husband and mother-in-law, highlighted the freedom associated with rural living: "I think, in town, people are probably a little bit hesitant about even going and walking around outside and around the neighbourhood sort of thing. But here, we had the freedom of the whole farm to walk over". This sense of freedom extended beyond physical space to a sense of self-sufficiency. While rural living has its challenges, many rural participants felt, more psychologically prepared for the pandemic due to their routine practices of, for example, stockpiling supplies. Amelia, a Māori participant in her 70s living in a rural area and caring for her husband, illustrated this preparedness:

> *We were fortunate because we had, you know, plenty of food. I think people that would have been concerned that, you know, they didn't have lots of food, so we didn't have to kind of race out and buy a whole lot of stuff because I knew that, well, we had plenty of meat.*

However, the geographical isolation that provided these benefits also posed significant challenges, particularly in terms of accessing support services during the pandemic. Sophia, a Māori/Fijian participant in her 60s living in a rural area, responded:

> *There is very little support service in [town name]. Nothing. The support was mostly in Auckland. We found the services that are in Auckland, but not so much here. We realised how isolated we were. I know there's no taxi service or bus service in this town. Nothing.*

Urban participants also felt that, just like rural informal caregivers, the pandemic imposed new levels of isolation on them, disrupting their usual social interactions and routines. However, they also benefited from better infrastructure and support systems. Urban participants reported being able to maintain social connections in creative ways, such as through engaging in conversations in supermarket queues and sharing food. Ave, a Māori participant in her 60s caring for her husband, shared: "All I can remember is that I've got sick of queues [at the supermarket]. But weirdly, I also enjoyed them because it means the people are out and have contact with them in a normal way". Oliver described a unique way of staying connected through sharing excess fruit:

> *We had all our feijoas coming out at the very first lockdown. So I put them out because I had so many of these damn things. I put them out as a bin outside my front door. And I had people coming along and taking the feijoas and, you know, taking the foods and the feijoas and giving me recipes back in return and thank you notes. That was a big part of our isolation because that was the only contact we had that time, literally with the outside world of people collecting fruit from outside our front door. It's just amazing.*

These interactions, although limited, provided crucial social engagement among urban informal caregivers who were socially isolated during and probably even before the pandemic. Thus, the social environment in which informal caregivers operate significantly influenced their experiences, coping mechanisms, and psychological responses, highlighting the complex interplay of positive and negative experiences.

Practicing cultural identity and rituals through the pandemic

In addition to geographic and infrastructural contexts, cultural frameworks shaped how study participants, particularly, among Māori informal caregivers, made sense of their social and emotional experiences during the pandemic. Restrictions on traditional practices, such as tangihanga (traditional funeral), caused distress within Māori communities. This is vividly illustrated by the following accounts from Isabella, a Māori participant in her 60s caring for her husband:

> *Right at the beginning of COVID, we had a very traumatic occasion where my nephew, my sister's son, died of an aneurysm and we were not allowed to go to his tangihanga. We were not allowed to travel. [due to the COVID restrictions]. That was the most horrific experience, and his wife had to deal with it by herself. The family who lived in tents, sneaked through and were able to help her. But the Waikato police would go down and, you know, tell them, "No tangi!" It was just horrific. I don't think I*

will ever get over that. The feeling that you can't go to whānau's tangi, you can't help, you can't do anything.

Many Māori participants in this study reported experiencing significant distress due to the inability to conduct and go to tangihanga during the pandemic. This restriction had profound psychological impacts, as traditional mourning practices are crucial for the grieving process and cultural continuity, particularly for Māori. While the inability to hold funerals is not unique to Māori informal caregivers (i.e., other groups, such as Muslims, who typically conduct funerals within 24 hours of the deceased's passing, faced similar challenges), the disruption of these cultural practices had a marked effect on their psychological wellbeing.

Cultural expectations placed significant additional pressure on some Māori participants, particularly in their role to care for their kaumātua (older people). Our study revealed that informal caregiving for kaumātua and anyone who requires care was not only an obligation but a deeply ingrained cultural expectation, as kaumātua are considered taonga (treasure) within te ao Māori (Māori culture, Māori worldview, Māori ways of being) who are keepers of tikanga (knowledge, wisdom, and cultural customs). A poignant reflection of this cultural expectation is exemplified in the following account from Lily, a Māori participant in her 70s who was the oldest sibling responsible for caring for her kaumātua:

Unfortunately, throughout my life, I have been a caregiver to my mother when she had cancer when I was a kid and to my father when he was sick when I was a teenager. So, I do, you know? Caregiving has been openly the eldest daughter, unfortunately, that's what your job becomes.

Lily did not necessarily report the negative impact of such cultural expectations on her caregiving experiences or wellbeing during the pandemic. However, Māori participants often expressed reluctance to seek external support, citing a pervasive belief that whānau should care for their own, even if external support was available and needed in the face of pandemic-induced adversities (see also Barnard et al., 2024; Barnard et al., 2025). As articulated by Mila, a Māori participant in her 60s living in a rural area: "I know there's a lot of support out there for [name] for caring for his mum. But he doesn't want [any external support], he and his sister don't want that. I'm an assistant and don't want that either".

In contrast, cultural factors do not always pose challenges in caregiving during the pandemic. For Māori participants, maintaining ties to iwi (tribe), hapū (sub-tribe), and their whakapapa (genealogy) and traditions was especially vital when caring for kaumātua. Evelyn, a Māori participant in her 60s caring for her mother-in-law, highlighted this importance: "[her mother-in-law] started talking a lot about her whakapapa and her childhood, which was really interesting to listen to. And this meant a lot to me". This participant emphasised the significance of kaumātua and the power of sharing whakapapa.

Psychosocial resilience: Solidarity, embodied agency and everyday practice

Participants' experiences of informal caregiving during the pandemic were shaped not only by the challenges of isolation but also by unexpected moments of connection, cooperation and psychological strength rooted in their everyday lives. These forms of psychosocial resilience—emerging through social solidarity, everyday experiences and reflections on past hardships—became critical in helping participants adapt and cope during a time of uncertainties. Many study participants recounted stories of neighbours and community members coming together to help one another, fostering a sense of unity and solidarity. For instance, Noah, a Māori participant in his 70s caring for his grandchildren and partner's sister, reflected:

I think the positive [came out of the pandemic] really was all the neighbours clubbing together and helping one another. That was good. [For example], they have got a couple of teenage boys next door, and they were quite helpful because, I mean, we have still got an acre and a half here, and they help us do things.

Similarly, Emma underscored this sentiment, stating: "It was sort of surreal, yes, slowed the pace down, and it was a real together time, whānau and community coming together".

Moreover, some participants noted their relationships with care recipients improved during the pandemic due to increased time spent together, sharing time and space and engaging in conversations. When asked if they thought their relationships with care recipients were strengthened during the lockdown, Liam, a Pākehā/European New Zealander participant in his 60s living in a rural area and caring for his mother, responded affirmatively:

Yes, [our relationship] was absolutely strengthened. Yes, it was and some of those long silly natters when your old relation brings up stuff that's happened in her life. We had a lot of conversations about things she learned at school and what it was like, just all that stuff. Yeah, it was nice.

The majority of participants felt that the community came together, and social relationships within households, neighbourhood's communities were strengthened and became beneficial, reinforcing wellbeing and a sense of connection amid broader social disruptions.

Beyond relational support, participants exhibited a strong and grounded mindset, often focusing on positive aspects of their lives and displaying what we describe as "embodied agency"—form of resilience rooted in everyday experiences, practical knowledge and past experiences. This agency was not abstract but lived and enacted through daily problem-solving and a practical orientation to challenges. For instance, Emma shared:

I think most people were quite resilient, especially in rural communities, and we can sort of tend to figure out our own problems and work through it. I don't know about the mental health problems; we don't have mental health issues here.

This statement highlights how some participants leveraged their everyday experiences of living in rural areas to navigate challenges during the pandemic.

Past experiences also played a crucial role in how some participants mentally managed the pandemic-related challenges. Some drew on previous hardships and disasters, such as the 2011 Christchurch earthquakes, to navigate the pandemic, and these experiences provided a

framework for psychological resilience. For example, Oliver reflected:

> *I talked about preparedness after the [Christchurch] earthquake. During COVID, we remembered that we had an emergency kit because that had all of our disinfecting creams for that, and we had all of our other stuff as well. Our food in case we needed it. The only thing we hadn't put aside was water. Basically, people from Christchurch were able to tap into those experiences of post-earthquake trauma, saying, "I've already prepared some of the stuff. I might not have kept it up to date, but I knew what that was like".*

Such recollections illustrate how past experiences with disasters and life challenges served as protective factors, providing participants with a sense of preparedness and resilience. This historical perspective, not only informed their experiences during the pandemic but also reinforced their ability to adapt and cope with new challenges.

Biopsychosocial: Physical and cognitive health interacts with the social environment and psychological distress

Participants provided invaluable insights into how all aspects of the model; biological, psychological and social factors, interacted to influence their experiences.

Participants recounted instances where care recipients struggled to comprehend the pandemic-related restrictions, leading to emotional distress and repetitive behaviours, which then led to emotional distress among their caregivers. Some care recipients with intellectual disabilities and dementia posed particular difficulties for informal caregivers. For example, Jane, a Māori participant in her 70s caring for her daughter, shared her frustration:

> *It was horrible. My daughter was in a facility. She kept asking, why can't I see you? You're not going to die, are you? I'm not going to die? Oh God, it was just emotionally worse than physically for me because she couldn't understand why she couldn't go home.*

Similarly, Alice, a Pākehā/European New Zealander participant in her 60s caring for her mother, also explained:

> *The government announced the lockdown over the news, and I missed the bit where you could actually go. Well, it's easier than [my mother, who has dementia] was with us, but she did not understand what was happening and why we were rushing off to get to her place to get things organised, she didn't understand and could not grasp what was happening. So, this was pretty stressful. And then, every couple of days, she would flip and would not know that she was here; I needed to keep explaining it to her over and over.*

These challenges, which informal caregivers face daily but were exacerbated during the pandemic, highlight the potential strain on informal caregivers' mental health as they navigated caregiving complexities during the lockdowns.

Access to social and respite support

The availability of social support significantly influenced the experiences of participants. Participants often expressed uncertainty about where to find the support that they needed during the pandemic, with a lack of clear channels for assistance being a common challenge (see Barnard et al., 2025). When asked what they thought could have been done to better support informal caregivers during the pandemic, Mary responded:

> *What would have probably been a really good thing would be even just a phone contact because I do not think that there was any. There may have been helplines, but I did not know, I am not aware of where to find support*.

Some participants felt that, for various reasons, traditional forms of support ceased during the pandemic, leaving them without essential assistance, and support that was available to informal caregivers during the pandemic was difficult to access (see also Barnard et al., 2025).

The need for better forms of support, particularly in the form of respite care, was highlighted by Ted: "I don't see how honestly apart from them giving me a nurse or caregiver to come and stay here. Because all the rest homes were closed down and there was no respite care". When Oliver was asked how we could better look after the caregivers, he emphasised the ongoing need for respite care:

> *Respite care for caregivers has always been the number one issue I have. And we've been lucky enough to have people come. And when [name] came over from London, she stayed with us for a month at the beginning of this year, and it was a completely different situation that I could relax, and not having to just do what I just did now [referring to leaving room to provide support to the care recipient].*

Participants in this study recognised the importance of social and family support, with Māori participants particularly emphasising the significance of whānau, whanaungatanga (relationships, sense of family connection) and cultural traditions in maintaining their physical and psychological wellbeing (see also Barnard et al., 2024).

Emerging social divisions

While unity and togetherness initially prevailed during the early phase of the pandemic, some participants who chose not to be vaccinated later experienced feelings of social exclusion, highlighting emerging social divisions due to vaccination status. This was particularly challenging for those whose care recipients were in care facilities or received home visits. For example, Mary shared:

> *There was a problem because I did not get vaccinated. When they eventually opened up the rest home again. And there was a draconian attitude, and the manager would not let me in to see my mother. And my mom had dementia.*

Similarly, Fred expressed his frustration: "There were suggestions of [home-visit] support. But if you approach anybody, they say, 'Oh, well, we can't come, you're not vaccinated'. Or, you know, they say 'we're flat out…'". In the context of the pandemic and the divisions caused by different attitudes towards social mandates, the caregivers described how their personal choices about physical

wellbeing impacted on their own psychological health and ability to provide support for care recipients.

DISCUSSION

Older informal caregivers' experiences during the pandemic were shaped by a complex and dynamic interplay between biological. Psychological and social (environmental) factors. Our findings revealed both negative and positive aspects of wellbeing that arose these intersecting domains, ranging from cognitive and physical strain to heightened resilience, community solidarity and cultural continuity. Despite the significant biological, psychological and social challenges to wellbeing, participants were more independent and mentally capable than common age-based stereotypes of older people being feeble, slow, weak and frail (see, e.g., Barber, 2017). While biological and psychological factors often receive more attention, the strength of the biopsychosocial model lies in its ability to integrate social environment factors that shape the health and wellbeing of individuals, families and communities. This holistic approach recognises that the social environment plays a crucial role in influencing informal caregivers' health outcomes and resilience.

Community support and embodied resilience

Our research found that, despite the multifaceted challenges posed and exacerbated by the pandemic, participants found "silver linings" in the forms of community support, strengthened whānau and family ties, and a heightened sense of togetherness (see also Lightfoot et al., 2021; Rahimi et al., 2021; Tulloch et al., 2022). This sense of social cohesion and togetherness during times of adversity is a well-documented and well-theorised phenomenon in disaster research (see, e.g., Matthewman & Uekusa, 2021). Media also reported how neighbours, family members and community groups recognised the specific vulnerability of older adults due to the pandemic and subsequent lockdowns, and spontaneously provided much needed human and social services. For example, Wynn (2021) reported that a couple provided 1000 home-cooked meals and delivered them to isolated kaumātua. Student volunteer groups such as the Student Volunteer Army, working with grocery stores, became shopping aids for isolated older people (Carlton et al., 2022; Nadkami, 2020). Disaster researchers have observed that, amidst the challenges and hardships posed by a disaster, a temporary state of social solidarity, cohesion and unity emerge among individuals and communities, reflecting a shared identity, mutual support and community resilience (Matthewman & Uekusa, 2021). As exemplified here, during the lockdowns, emergent and pre-existing organisations and community groups identified vulnerable individuals and spontaneously filled the gaps in human and social services (see, e.g., Carlton et al., 2022; Nadkami, 2020; Rata Foundation, 2024; Stephens et al., 2024; Wynn, 2021). Thus, the impact of social environment factors on study participants' caregiving experience and general wellbeing became even more evident when we examined the impacts of increased unity and community relationships during the pandemic (see also Uekusa et al., 2025).

Cultural expectations and Indigenous resilience

While participants did not elaborate on their reasons for not accessing available support nor share any emotional impacts of such cultural expectations on their wellbeing, it is likely that, especially among Māori participants, deep-seated whānau ties and a cultural emphasis on whanaungatanga (interpersonal relationships, kinship) underscored a prevailing expectation to keep caregiving within the family unit. Studies by Nikora et al. (2004) and Williams et al. (2018) demonstrate that caregiving within whānau is deeply ingrained in te ao Māori, highlighting the need to reassess current approaches that predominantly emphasise external caregiving support. Overall, cultural dimensions of informal caregiving during the pandemic revealed both unique challenges and sources of empowerment among participants, especially those of Māori. The restrictions on traditional cultural practices such as tangihanga and cultural expectations posed significant emotional and psychological hardships, yet the preservation of cultural narratives and practices provided a sense of continuity and resilience, underscoring the critical role of cultural values in the caregiving experiences during the pandemic. (please also see Barnard et al., 2024 for a more detailed analysis of Māori participants' experiences).

Embodied agency and psychological resilience

The role of embodied agency and psychological resilience, rooted in everyday problem-solving and culturally grounded knowledge, was especially evident among those who had navigated long-term adversities such as rural isolation or systemic neglect. However, it is important to note that not all participants experienced resilience equally, underscoring the importance of considering these psychological and social environmental factors in supporting informal caregivers to navigate the pandemic. Indeed, our analysis using the biopsychosocial model highlighted both the strengths and vulnerabilities of informal caregivers. While participants experienced an increased sense of unity and community support, providing emotional and practical assistance, the unity was often short-lived, fragile and sometimes fractured by political and social divisions, particularly regarding vaccination status (see Matthewman & Uekusa, 2021 for limits of "disaster communitas"). Furthermore, for some, the ongoing pressure of caregiving and health-related anxieties led to cumulative stress, particularly when compounded by limited support and limited access to respite care (see also Barnard et al., 2025). These insights underscore the importance of fostering inclusive support systems that can sustain community resilience beyond times of crises. The merit of using the biopsychosocial models allowed us to consider not only psychological agency but also community-level social agency, reflected in the increased solidarity among communities. Changes in the social environment significantly shaped participants' experiences and overall wellbeing, both positively and negatively.

In addition to the changing contexts as a crucial factor for informal caregivers' health and wellbeing, we argue that the biopsychosocial model should also integrate the historical component. Participants in this study felt confident in their ability to manage during the pandemic, mainly due to their life experiences, often conceptualised

as "resilience in older people" (Lima et al., 2023). Past experiences, such as previous disasters, epidemics or any life events, provided a framework for preparedness and resilience among participants.

Rural-urban divide and systemic inequalities

Rural participants reported unique experiences of informal caregiving by geography, infrastructure gaps and longstanding inequalities in service provision. They were accustomed to the lack of access to services and the sense of isolation, thereby establishing a strong sense of community support even prior to the pandemic. Indeed, rural informal caregivers in this study reported a lack of support and infrastructure in place outside of big cities and extends to issues of transportation, which may determine their decision to seek medical treatment, health care, care support and respite among others (see e.g., Arsenault-Lapierre., 2023; Cohen et al., 2020; Cohen et al., 2021; Disbrow et al., 2021; Longstreth et al., 2020; Qian et al., 2023; Shuffler et al., 2023). While study participants did not explicitly report, Fox and Butler (2023) suggest that a lack of access to health services due to one's geographical location led to informal caregivers in rural domains being less prepared to deal with their own health declines. However, the example in our analysis suggests that this rural dweller developed psychological resilience partly due to living in rural communities where resources are relatively limited and residents face rural and health inequalities on a daily basis (see, e.g., Fearnley et al., 2016; Pomeroy, 2022). These past and everyday experiences can be considered a crucial form of embodied agency at both psychological and social levels. Our analysis revealed a clear dichotomy in how rural and urban participants experienced caregiving during the COVID-19 pandemic, with each social environment presenting unique challenges and advantages.

Gaps in support and the need for inclusive services

Many study participants mentioned the need for better, more accessible and more flexible support (see also Barnard et al., 2025). However, they were often unsure about the specific types of support they wanted aside from respite care, which was crucial for informal caregivers. Participants emphasised the importance of culturally appropriate support and suggested that better communication methods, such as dedicated phone lines, could help them navigate their own psychological distress and that of their care recipients (see Barnard et al., 2025 for more details). This type of support was seen as vital for emotional and social wellbeing. While helplines were provided by Te Whatu Ora (https://www.tewhatuora.govt.nz) during the pandemic, to our knowledge, they were not specifically aimed at informal caregivers. This highlights a clear disconnect between available, both pre-existing and emerging, services provided by authorities and community groups and the practical needs of caregivers, whether due to the nature of the pandemic or the lack of visibility of support services. Our study suggests that informal caregivers in our study needed clearer guidelines, better communication and greater accessibility to support during the pandemic.

Conclusion

Our findings reinforce the value of Engel's biopsychosocial model in understanding the multidimensional nature of older informal caregivers' experiences during the pandemic. However, as participants' narratives revealed, we suggest extending the model to incorporate historical and cultural dimensions, as these were crucial in shaping both their vulnerability and sources of resilience. This study highlights the importance of recognising informal caregivers' embodied agency, social embeddedness, and past experiences as vital sources during crises, while also highlighting the need for systemic change in service design and communication. Despite these valuable insights provided by this study, it is important to acknowledge its limitations, including the lack of demographic diversity and generalisability as we could not capture all experiences and support needs due to the sample limitations. Leveraging the lessons learned from this study and addressing these gaps could significantly enhance the wellbeing and resilience of informal caregivers in similar crises.

References

Ahmadi, S., Khankeh, H., Sahaf, R., Dalvandi, A. & Hosseini, S.A. (2018). Daily Life Challenges in an Earthquake Disaster Situation in Older Adults: A Qualitative Study in Iran. *Journal of Clinical & Diagnostic Research*, *12*(4), 8-12. https://doi.org/10.7860/JCDR/2018/32699.11377

Allen, J., Uekusa, S. & Alpass, F.M. (2022). Longitudinal Cohort Study of Depression and Anxiety Among Older Informal Caregivers Following the Initial COVID-19 Pandemic Response in Aotearoa New Zealand. *Journal of Aging and Health, 34*(4-5), 653-665. https://doi.org/10.1177/08982643211052713

Ammar, A., Chtourou, H., Boukhris, O., Trabelsi, K., Masmoudi, L., Brach, M., Bouaziz, B., Bentlage, E., How, D., Ahmed, M., Mueller, P., Mueller, N., Hsouna, H., Aloui, A., Hammouda, O., Paineiras-Domingos, L., Braakman-Jansen, A., Wrede, C., Bastoni, S., & Pernambuco, C., Mataruna-Dos-Santos, L., … Hoekelmann, A. (2020). COVID-19 Home Confinement Negatively Impacts Social Participation and Life Satisfaction: A Worldwide Multicenter Study. *International Journal of Environmental Research and Public Health*, *17*(17), 6237. https://doi.org/10.3390/ijerph17176237

Anim, M.T., Adongo, C.A. & Yirdong, F. (2022). African cultural values in the biopsychosocial-spiritual care model to manage psychological symptoms in adults with sickle cell disease in Ghana, West Africa. *Mental Health, Religion & Culture, 25*(2), 177-196. https://doi.org/10.1080/13674676.2021.2025351

Arsenault-Lapierre, G., Bui, T.X., Le Berre, M., Bergman, H. & Vedel, I. (2023). Rural and urban differences in quality of dementia care of persons with dementia and caregivers across all domains: a systematic review. *BMC Health Services Research, 23*(1), 102. https://doi.org/10.1186/s12913-023-09100-8

Baji, P., Golicki, D., Prevolnik-Rupel, V., Brouwer, W.B.F., Zrubka, Z., Gulácsi, L. & Péntek, M. (2019). The burden of informal caregiving in Hungary, Poland and Slovenia:

results from national representative surveys. *The European Journal of Health Economics, 20*(S1), 5-16. https://doi.org/10.1007/s10198-019-01058-x

Barber, S.J. (2017). An Examination of Age-Based Stereotype Threat About Cognitive Decline. *Perspectives on Psychological Science, 12*(1), 62-90.

Barnard, T., Uekusa, S., Stephens, C. & Alpass, F. (2025). "'Call-it-in': Addressing informal caregivers' support needs during the pandemic". *New Zealand Medical Journal, 138*(1613), 24-35. https://doi.org/10.26635/6965.6716

Barnard, T., Uekusa, S., Phibbs, S., Matthewman, S., Stephens, C., Alpass, F. & Tamaira, M. (2024). "Understanding Māori informal caregivers' experiences during the COVID-19 pandemic through Te Whare Tapa Whā". *Kōtuitui: New Zealand Journal of Social Sciences*, *20*(4), 781-799. https://doi.org/10.1080/1177083X.2024.2433727

Bolton, D. & Gillett, G. (2019). The Biopsychosocial Model of Health and Disease. Palgrave Pivot Cham. https://doi.org/10.1007/978-3-030-11899-0

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Budnick, A., Hering, C., Eggert, S., Teubner, C., Suhr, R., Kuhlmey, A. & Gellert, P. (2021). Informal caregivers during the COVID-19 pandemic perceive additional burden: findings from an ad-hoc survey in Germany. *BMC Health Services Research, 21*(1), 353. https://doi.org/10.1186/s12913-021-06359-7

Burholt, V., Balmer, D., Frey, R., Meha, P., Parsons, J., Roberts, M., Simpson, M.L., Wiles, J., Gregorzewski, M., Percival, T. & Reddy, R. (2022). Health equity and wellbeing among older people's caregivers in New Zealand during COVID-19: Protocol for a qualitative study. *PLOS ONE, 17*(7), e0271114. https://doi.org/10.1371/journal.pone.0271114

Caputo, J., Pavalko, E.K. & Hardy, M.A. (2016). The Long-Term Effects of Caregiving on Women's Health and Mortality. *Journal of Marriage and Family, 78*(5), 1382-1398. https://doi.org/10.1111/jomf.12332

Carers UK. (2020). Caring behind Closed Doors – Forgotten Families in the Coronavirus. *Carers UK.* https://www.carersuk.org/reports/caring-behind-closed-doors-forgotten-families-in-the-coronavirus-outbreak/

Carlton, S., Nissen, S., Wong, J.H.K. & Johnson, S. (2022). "A shovel or a shopping cart": lessons from ten years of disaster response by a student-led volunteer group. *Natural Hazards*, *111*(1), 33-50. https://doi.org/10.1007/s11069-021-05043-7

Charmaz, K. (2006). *Constructing grounded theory: a practical guide through qualitative analysis*. SAGE.

Chun Tie, Y., Birks, M. & Francis, K. (2019). Grounded theory research: A design framework for novice researchers. *SAGE Open Medicine*, 7, 205031211882292. https://doi.org/10.1177/2050312118822927

Cohen, S., McIlmail, J. & Greaney, M. (2020). "Rural-Urban Differences in Informal Caregiving, Caregiving Intensity, and Health-Related Quality of Life". *Innovation in Aging*, *4*(1), 253.

Cohen, S.A., Kunicki, Z.J., Nash, C.C., Drohan, M.M. & Greaney, M.L. (2021). Rural-Urban Differences in Caregiver Burden Due to the COVID-19 Pandemic among a National Sample of Informal Caregivers. *Gerontology and Geriatric Medicine, 7*. https://doi.org/10.1177/23337214211025124

Da Silva, J.A.P., Geenen, R. & Jacobs, J. W. G. (2018). Chronic widespread pain and increased mortality: Biopsychosocial interconnections. *Annals of the Rheumatic Diseases, 77*(6), 790.

Disbrow, E.A., Arnold, C.L., Glassy, N., Tilly, C.M., Langdon, K.M., Gungor, D. & Davis, T.C. (2021). Alzheimer disease and related dementia resources: Perspective of African American and caucasian American family caregivers in Northwest Louisiana. *Journal of Applied Gerontology, 40*(2), 209–219. https://doi.org/10.1177/0733464820904568

Engel. G. (1977). The need for a new medical model: a challenge for biomedicine. *Science, 196*(4286), 129-136.

Falvo, I., Zufferey, M. C., Albanese, E. & Fadda, M. (2021). Lived experiences of older adults during the first COVID-19 lockdown: A qualitative study. *PLOS ONE, 16*(6), e0252101. https://doi.org/10.1371/journal.pone.0252101

Fearnley, D., Lawrenson, R. & Nixon, G. (2016). "Poorly defined" – unknown unknowns in NZ rural health. *New Zealand Medical Journal, 129*(1439), 77–81.

Fox, M.T. & Butler, J.I. (2023). Rural caregivers' preparedness for detecting and responding to the signs of worsening health conditions in recently hospitalised patients at risk for readmission: a qualitative descriptive study. *BMJ Open, 13*(12), e076149. https://doi.org/10.1136/bmjopen-2023-076149

Fredriksen-Goldsen, K. I. & Muraco, A. (2010). Aging and Sexual Orientation: A 25-Year Review of the Literature. *Research on Aging*, *32*(3), 372–413. https://doi.org/10.1177/0164027509360355

Greenwood, N., Pound, C., Brearley, S. & Smith, R. (2019). A qualitative study of older informal carers' experiences and perceptions of their caring role. *Maturitas, 124*, 1-7. https://doi.org/10.1016/j.maturitas.2019.03.006

Havelka, M., Lučanin, J.D. & Lučanin, D. (2009). Biopsychosocial Model – The Integrated Approach to Health and Disease. *Collegium Antropologicum, 33*(1), 303-310. https://hrcak.srce.hr/39603

Hayashi, E., Mitani, H., Murayama, H., Anzai, T., Studer, R., Cotton, S., Jackson, J., Bailey, H., Kitagawa, H. & Oyama, N. (2021). Characterizing the role of, and physical and emotional burden on caregivers of patients with heart failure: Results from a cross-sectional survey in Japan. *Geriatric Nursing, 42*(2), 379-385. https://doi.org/10.1016/j.gerinurse.2021.01.010

Hunt, J., Le Caire, T., Schroeder, M., O'Toole Smith, K., Marschall, K. & Walaszek, A. (2022). The Use of Health Care and Community-Based Services by People Living With Dementia and Their Caregivers During the COVID-19 Pandemic. *Western Medical Journal, 121*(3), 226-230.

Jokinen, R.R. & Hartshorne, T.S. (2022). Anxiety Disorders: A Biopsychosocial Model and an Adlerian Approach for Conceptualization and Treatment. *Journal of Individual Psychology, 78*(2), 155-174. https://doi.org/10.1353/jip.2022.0022

Kilaberia, T., Bell, J., Bettega, K., Mongoven, J., Kelly, K. & Young, H. (2020). Impact of the COVID-19 pandemic on family caregivers., *Innovation in Aging, 4*(1), 950.

Lightfoot, E., Moone, R., Suleiman, K., Otis, J., Yun, H., Kutzler, C. & Turck, K. (2021). Concerns of Family Caregivers during COVID-19: The Concerns of Caregivers and the Surprising Silver Linings. *Journal of Gerontological Social Work, 64*(6), 656-675. https://doi.org/10.1080/01634372.2021.1898512

Lima, G.S., Figueira, A.L.G., Carvalho, E.C., Kusumota, L. & Caldeira, S. (2023). Resilience in Older People: A Concept Analysis. *Healthcare*, *11*(18), 2491.

Lindroos, A. & Douglas-Smith, N. (2023). Exploring informal caregivers' well-being during covid-19 through online discussion forums. *Scandinavian Journal of Caring Sciences, 28(1),* 104-113. https://doi.org/10.1111/scs.13199

Longstreth, M., McKibbin, C., Steinman, B., Slosser-Worth, A. & Carrico, C. (2020). Exploring informational and referral needs of individuals with dementias and informal caregivers in rural and remote areas. *Clinical Gerontologist, 10*(2), 1-13. https://pubmed.ncbi.nlm.nih.gov/31920164/

Losada-Baltar, A., Jiménez-Gonzalo, L., Gallego-Alberto, L., Pedroso-Chaparro, M. D. S., & Fernandes-Pires, J. & Márquez-González, M. (2021). "We Are Staying at Home." Association of Self-perceptions of Aging, Personal and Family Resources, and Loneliness With Psychological Distress During the Lock-Down Period of COVID-19. *The Journals of Gerontology: Series B, 76*(2), 10-16. https://doi.org/10.1093/geronb/gbaa048

Matthewman, S. & Uekusa, S. (2021). "Theorizing disaster communitas". *Theory and Society*, *50*(6), 965-984.

McGarry, J. & Arthur, A. (2008). Informal caring in late life: a qualitative study of the experiences of older carers. *Journal of Advanced Nursing, 33*(2), 182-189.

Ministry of Social Development. (2021). Carers play a crucial role in enabling people to live and participate in their communities. *Ministry of Social Development.* https://www.msd.govt.nz/documents/about-msd-and-ourwork/publications-resources/information-releases/cabinet-papers/2021/appendix-two-whoare-carers.pdf

Monahan, C., Macdonald, J., Lytle, A., Apriceno, M. & Levy, S. R. (2020). COVID-19 and ageism: How positive and negative responses impact older adults and society. *American Psychologist, 75*(7), 887-896. https://doi.org/10.1037/amp0000699

Morrison, V. & Williams, K. (2020). Gaining longitudinal accounts of carers' experiences using IPA and photograph elicitation. *Frontiers in Psychology,* 11, 2429-2444.

Mosquera, I., Vergara, I., Larrañaga, I., Machón, M., del Río, M. & Calderón, C. (2016). Measuring the impact of informal elderly caregiving: a systematic review of tools. *Quality of Life Research, 25*(5), 1059-1092. https://doi.org/10.1007/s11136-015-1159-4

Nadkami, A. (2020, Apr 02). New World to work with Student Volunteer Army as shopping aids for elderly, vulnerable customers. *Stuff.* https://www.stuff.co.nz/business/120752635/new-world-to-work-with-student-volunteer-army-as-shopping-aids-for-eldery-vulnerable-customers

Nikora LW, Karapu R, Hickey H, et al. (2004). Disabled Maori and disability support option and the Ministry of Health. *Maori & Psychology Research Unit, University of Waikato*. https://hdl.handle.net/10289/460

Ngamasana, E. L., Zarwell, M. & Gunn, L. H. (2023). Physical and mental health of informal caregivers before and during the COVID-19 pandemic in the United States. *BMC Public Health, 23*, 2349. https://doi.org/10.1186/s12889-023-17164-8

Oliva, N. L., Wexler, B., Gullickson, G., Manco, M., Layton, A., McLean, S. & Brunskill, S. R. (2013). Disaster Preparedness for Veterans with Dementia and Their Caregivers: Evolution of an Educational Intervention. *Gerontologist, 52*, 93-93.

Onder, G., Rezza, G. & Brusaferro, S. (2020). Case-fatality rate and characteristics of patients dying in relation to COVID-19 in Italy. *JAMA, 323*(18), 1775-1776. https://doi.org/10.1001/jama.2020.4683

Pickering, C. J., Dancey, M., Paik, K. & O'Sullivan, T. (2021). Informal Caregiving and Disaster Risk Reduction: A Scoping Review. *International Journal of Disaster Risk Science, 12*(2), 169-187. https://doi.org/10.1007/s13753-021-00328-8

Pomeroy, A. (2022). Reframing the rural experience in Aotearoa New Zealand: Incorporating the voices of the marginalised. *Journal of Sociology, 58*(2), 236-252.

Qian, Y., Asad, S., Park, E.M., Mills, J.A. & Kent, E.E. (2023). Rural resilience during COVID-19: the lived experience of North Carolinian rural-dwelling cancer caregivers. *Supportive Care in Cancer, 31*(7), 396. https://doi.org/10.1007/s00520-023-07840-1

Rahimi, T., Dastyar, N. & Rafati, F. (2021). Experiences of family caregivers of patients with COVID-19. *BMC Family Practice, 22*, 137. https://doi.org/10.1186/s12875-021-01489-7

Rātā Foundation. (2024). Connecting during COVID-19: Student Volunteer Army. *Rātā Foundation.* https://ratafoundation.org.nz/en/community-stories/connecting-during-covid-19-student-volunteer-army

Rico-Uribe, L.A., Caballero, F.F., Martín-María, N., Cabello, M., Ayuso-Mateos, J.L. & Miret, M. (2018). Association of loneliness with all-cause mortality: A meta-analysis. *PLOS ONE, 13*(1), e0190033. https://doi.org/10.1371/journal.pone.0190033

Roberts, A. (2023). The biopsychosocial model: Its use and abuse. *Medicine, Health Care and Philosophy, 26*(3), 367-384. https://doi.org/10.1007/s11019-023-10150-2

Rodger, D., O'Neill, M. & Nugent, L. (2015). Informal carers' experiences of caring for older adults at home: a phenomenological study. *British journal of community nursing, 20*(6), 280-285.

Roth, D.L., Brown, B., Rhodes J.D. & Haley W. E. (2018). Reduced mortality rates among caregivers: does family caregiving provide a stress-buffering effect? *Psychology Aging, 33*(4), 619. https://doi.org/10.1037/pag0000224

Royal Commission of Inquiry. (2024). *Lessons from COVID-19 to prepare Aotearoa New Zealand for a future pandemic: Main report – Phase One*. https://www.covid19lessons.royalcommission.nz/reports-lessons-learned/main-report/

Sakashita, K., Matthews, W.J. & Yamamoto, L. G. (2013). Disaster preparedness for technology and electricity-dependent children and youth with special health care needs. *Clinical Pediatrics, 52*(6), 549-556. https://doi.org/10.1177/0009922813482762

Schmitz, A., Quashie, N. T., Wagner, M. & Kaschowitz, J. (2022). Inequalities in caregiving strain during the COVID-19 pandemic: conceptual framework and review of the empirical evidence. *International Journal of Care and Caring,* 1-14. https://doi.org/10.1332/239788221x16592761870899

Schulz, R. & Tompkins, C.A. (2010). Informal Caregivers in the United States: Prevalence, Caregiver, Characteristics, and Ability to Provide Care. In National Research Council of the National Academies (ed.). *The Role of Human Factors in Home Health Care: Workshop*

Summary. The National Academies Press: Washington, DC.
Shuffler, J., Lee, K., Fields, N., Graaf, G. & Cassidy, J. (2023). Challenges experienced by rural informal caregivers of older adults in the United States: A scoping review. *Journal of Evidence-Based Social Work, 20*(4), 520-535. https://doi.org/10.1080/26408066.2023.2183102
Spiers, G. F., Liddle, J., Kunonga, T. P., Whitehead, I. O., Beyer, F., Stow, D., Welsh, C., Ramsay S.E., Craig, D. & Hanratty, B. (2021). What are the consequences of caring for older people and what interventions are effective for supporting unpaid carers? A rapid review of systematic reviews. *British Medical Journal Open, 11*, e046187. https://doi.org/10.1136/bmjopen-2020-046187
Stephens, C. & Breheny, M. (2022). Diverse experiences among older adults in Aotearoa/New Zealand during COVID-19 lockdown: A qualitative study. *Australasian Journal on Ageing, 41*(1), 23-31. https://doi.org/10.1111/ajag.12995
Stephens, C., Uekusa, S. & Breheny, M. (2024). Older adult's experiences during the second year of the COVID-19 pandemic in Aotearoa New Zealand: Diversity and change in long term disaster situations. *International Journal of Disaster Risk Reduction, 100*, 104198.
Steptoe, A., Shankar, A. & Rafnsson, S. (2015). The Emotional Wellbeing of Older Carers. *International Longevity Centre, University College London.* https://ilcuk.org.uk/wp-content/uploads/2018/10/The-emotional-wellbeing-of-oldercarers.pdf
Su, Q. & Fan, L. (2024). Impact of caregiving on mental, self-rated, and physical health: evidence from the China health and retirement longitudinal study. *Quality of Life Research 33*, 1-10. https://doi.org/10.1007/s11136-024-03659-3
Tulloch, K., Mccaul, T. & Scott, T. L. (2022). Positive Aspects of Dementia Caregiving During the COVID-19 Pandemic. *Clinical Gerontologist, 45*(1), 86-96. https://doi.org/10.1080/07317115.2021.1929630
Uekusa, S., Barnard, T., Allen, J., Stephens, C., Alpass, F., Matthewman, S., Phibbs, S. & Tamaira, M. (2025). "Beyond hardships: Resilience, opportunities and positive experiences of older informal caregivers in Aotearoa New Zealand during the COVID-19 pandemic". *Journal of Gerontological Social Work,* pp.1-25 (online first). https://doi.org/10.1080/01634372.2025.2539742
Urquhart, C. (2013). *Grounded Theory for Qualitative Research: A Practical Guide.* SAGE Publications, Ltd.
Vellone, E., Fida, R., Cocchieri, A., Sili, A., Piras, G. & Alvaro, R. (2011). Positive and negative impact of caregiving to older adults: a structural equation model. *Professioniinfermieristiche, 64*(4), 237-248.
Williams LA, Moeke-Maxwell T, Wiles J, et al. (2018). How family caregivers help older relatives navigate statutory services at the end of life: a descriptive qualitative study. *Palliative Medicine, 32*(6), 1124–1132.
Wynn, K. (2021, Sep 8). Coronavirus Covid-19 Delta lockdown: Couple provide 1000 home cooked meals to isolated elderly. *New Zealand Herald.* https://www.nzherald.co.nz/kahu/coronavirus-covid-19-delta-lockdown-couple-provide-1000-home-cooked-meals-to-isolated-elderly/O5ZUVRBVQWUVVRR2IVZ4YPLM4I/
Zwar, L., Angermeyer, M.C., Matschinger, H., Riedel-Heller, S.G., König, H.H. & Hajek, A. (2021). Are informal family caregivers stigmatized differently based on their gender or employment status?: a German study on public stigma towards informal long-term caregivers of older individuals. *BMC Public Health, 21*(1), 1-14. https://doi.org/10.1186/s12889-021-11955-7

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Acknowledgements
The authors would like to thank all the study participants for their time to participate in this research project, as well as the HART researchers, Marcus Tamaira, Hannah Phillips and Vicki Beagley, for their assistance. The author would also like to thank the anonymous reviewers, Dr. Marc Wilson and the journal editorial team.

Funding
This research was supported by Health Research Council of New Zealand (HRC) Emerging Researcher First Grants [HRC 22-553].