Experiences of Digital Technology for Home Support Workers – The need for a human centered approach

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EXECUTIVE SUMMARY

Home Support Workers (HSWs) care for older people as well as people with disabilities and long-term conditions by providing personal support with activities of daily living in their homes. They deliver a range of services that enable people to take part in their community, to have quality of life, recover from and cope with challenging situations. This can include the provision of medications, cooking, cleaning, and often intimate personal care work. For example, an HSW might assist a person to get out of bed in the morning; perhaps using technology such as a hoist. They might assist with hygiene and ensure that a person has had their mediciation. HSWs perform specialised tasks for people with complex conditions. Most importantly, HSWs ensure people can live a life with dignity.

As in many Western countries, in Aotearoa New Zealand this work has traditionally been underpaid, classed as un-skilled and continues to be undervalued. However, as became even more evident during the COVID-19 pandemic, HSWs do essential, highly skilled work in caring for our most vulnerable and isolated, while putting themselves at considerable risk. With the onset of serial health crises combined with an ageing population, it becomes vital that governments take action to ensure the long-term sustainability of this workforce.

We argue that this is particularly relevant in contexts such as Aotearoa New Zealand, where services are publicly funded and privately delivered by mainly for-profit providers.

New platform technologies are currently being introduced by providers, both private and non-profit, to mediate relationships between care recipients (clients) and HSWs. They have been publicized by actors within the homecare sector as a potential solution to challenges related to health sector strains associated with an ageing population. And much like in other sectors, platform technologies such as apps are represented as offering empowerment for workers and autonomy for clients.

This report critically investigates these claims and the broader impact of the introduction of platform technologies on the working lives of HSWs and their ability to provide dignified care for their clients.

Drawing on 16 in-depth Zoom interviews and 1 focus group with Aotearoa-based HSWs, we argue that platform technologies as currently used are exasperating pre-existing systemic failures, which have also been severely exposed by the COVID-19 pandemic.

We summarise their experiences through the four themes of Digital Frustration, Precarity, Health and Safety and Communication Inequality, highlighting a lack of input for HSWs into the purpose, design, implementation and monitoring of the technology.

We argue that this lack of voice is linked to the publicly funded and privately delivered system, which often puts private gain before the interests of care workers and their clients.

Digital Frustration

We found that a lack of input into the design of the technologies and communication channels being used by HSWs impacts not only worker wellbeing but also the quality of care that can be provided.

Precarity

We found that the technologies often add to the already significant burden of unpaid labour, while cementing trends towards de-skilling and loss of professional autonomy.

Health and Safety

We found that during the COVID-19 crisis failures in platform technology and other communication systems left HSWs and their clients exposed to undue risks, while a lack of respect and recognition from both providers and the public further cemented a perception of HSWs being under skilled.

Communication Inequality

We found that the technology renders HSWs as constantly accessible to providers, but at the same time they lack access to decision-makers and sufficient information on their clients to do their jobs safely.

Overall, the evidence indicates that platform technology is being used to increase economic efficiencies for the private providers, rather than increase quality, safety and effectiveness of services. To ensure that the new technology contributes to a sustainable workforce and high-quality care going forward, we make the following recommendations (see Conclusion section for more details):

1. Improve the systemic context surrounding platform technology. Rather than providing a band aid to a broken system, we argue that for the technology to improve care and empower workers it must be introduced within a context of increased funding and stronger accountability mechanisms.

2. Include worker voice in the development of human-centred platform technology. Rather than economic efficiency as the only driver behind the design and implementation of platform technology, we argue that the voices of HSWs must be included through an adoption of the principles of human-centred design, which are grounded in wellbeing and user satisfaction.

INTRODUCTION

The systemic context: the privately delivered and individualised model

Home Support Workers (HSWs) care for older people as well as people with disabilities and long-term conditions by providing personal support with activities of daily living in their homes. Their tasks include meal preparation, house work, personal care, administering medication and so on. While no legal distinction exists, their working conditions vary considerably between those who travel from client to client providing multiple short visits in a single shift (mostly for older people), and those who care for younger people with a disability on a live-in basis, providing 24-hour support. However, all are employed to 'help people to live in their own homes and maximise their independence' (Careerforce, 2023). In other words, HSWs support people when there is need to continue to live autonomous lives in their communities rather than residing in institutions.

The Aotearoa New Zealand care sector workforce is sizable (around 55,000 workers) and predominantly female (87%) and Pākehā, with Māori (18%), Indian (5%), Samoan (4%) and Filipino (3%) constituting the highest proportions of ethnic minority populations in the sector (Ravenswood et al., 2021). Like other female-dominated, frontline professions, care work has been historically underpaid (Chatzidakis et al., 2020), reflecting 'the lack of value afforded to domestic and family work' (Macdonald, 2021a, p. 13). In terms of age, over 35% of care workers are in the 55-64 age category, with only 11% aged 25-34 (Ravenswood et al., 2021). As remarked on by several participants in our study, this is linked to the lack of cultural and economic value placed on this work, meaning it is less attractive to younger people, with implications for the long-term sustainability of the sector.

Underpayment for HSWs in Aotearoa New Zealand has historically been linked to a publicly funded but privately delivered structure whereby a multitude of service providers compete for publicly funded government contracts[1] through a tender system. Rather than resourcing at the community level, funding is linked to individual clients, who are constructed as 'empowered' consumers of care (Macdonald, 2021a; McGregor, 2001). Combined with strong pressures for government to reduce costs, in reality, individualised care translates into the provision of the bare minimum, which is regularly below the care levels that are needed (Douglas & Ravenswood, 2019). Further, the individualised funding system erodes the working conditions of HSWs, as per-client funding is passed from government departments to providers, translating into piecemeal, per-client pay. In other words, shortfalls in funding are absorbed by clients whose needs are not met and by HSWs who are not fairly compensated for the work they do.

Two pieces of legislation have been introduced to partially address this systemic failure, but both have been limited in their effects. Before 2016, HSWs received little to no pay for travel in-between clients and time in-between shifts (care is generally required in the mornings and evenings, with a lull period in the middle of the day). The Home and Community Support (Payment for Travel Between Clients) Settlement Act 2016 introduced payment both for travel costs and the time spent travelling to and from clients (at the rate of the New Zealand minimum wage). However, payment for travel costs was capped at 50c a kilometre and only paid if the first client is more than 15km from the HSW's home. As well as being complex in terms of provider administration, the provisions in the act have failed to keep up with soaring petrol prices and the costs of maintaining a vehicle.

The Care and Support Workers (Pay Equity Settlement) Act 2017 was passed by the National government following union and worker pressure, campaigning, and lobbying. Each of the various court processes were challenged by employers and the National party. Litigation followed a landmark decision by The Employment Court in 2013 in favour of a care worker who claimed 'that her wages as a caregiver were low because she was a woman' (Douglas & Ravenswood, 2019, p. 186), in reference to The Equal Pay Act 1972. The 2017 Act increased pay rates, with four levels linked to length of service or qualification level. Further, employers became 'expected to do everything reasonable to ensure' (p. 8) HSWs attained NZQA Health and Wellbeing Certificates, between levels 2 and 4, with funding provided by government for the training (although not the time spent training). The Act also introduced guaranteed minimum hours.

While the act was a step towards pay equity to recognise the undervaluing of the work, in practice, due to weak accountability mechanisms (e.g., through procurement rules), the provisions were implemented insufficiently. Private providers remained in control, and acted to guarantee their profits while minimising their liabilities. This translated into 'some providers deliberately put[ting] care and support workers on lower guaranteed hours, so that they could more readily adapt to changes in clients' (Douglas & Ravenswood, 2019, p. 33). Consequently, more than half of HSWs work less than 30 hours a week, and nearly two thirds 'would like to have more hours of work' (AUT Business Faculty, 2021). Further, the period guaranteed hours are fixed for varies by provider, with the most common allocation within the participants of this study being just two weeks. Should an HSW lose a client (as often happens), the worker would have just two weeks to prepare for a fall in wages. This means that HSWs often do not have a secure and foreseeable income.

[1] Specifically, from District Health Boards (now Te Whatu Ora), the Ministry of Health and the Accident Compensation Corporation.

HSWs (particularly those that travel from client to client), despite legislative changes, therefore still face considerable hardships related to low guaranteed wages, insecurity of earnings, as well as underpaid and unpaid hours. Even though their hourly wage is on average higher than residential care workers, and a majority hold permanent contracts (Ravenswood et al., 2021), they face structural precarities linked to a privately delivered and individualised care system. These make the workforce particularly vulnerable to crises such as COVID-19, and endanger the long-term sustainability of the profession during a time when Aotearoa New Zealand's population is ageing (Hennessy & Rodrigues, 2019), and where people in need of care and governments alike have been shown to prefer home-based care (Davey, 2006). In response to these challenges, in 2020 a new alliance of unions and advocacy organisations called for an end to the broken and fragmented system of funded home support to ensure real dignity and appropriate conditions for both those receiving and providing care.

Platform technology for economic efficiency over community wellbeing

In this context of an insufficiently funded and privately delivered care sector with an undervalued workforce without much support and security, technology is often constructed as a solution which offers more efficient care provision (Hennessy & Rodrigues, 2019). In this worldview, technological determinism (the belief that technology sits outside of society and can fix its problems in an objective way) combines with a neoliberal ideology in which 'states are inefficient and private markets are more cost-effective and consumer-friendly' (McGregor, 2001, p. 83). Efficiency gains through technology thereby promise to avoid an increase in funding to the care sector through providing more cost-effective services (Hennessy & Rodrigues, 2019; Macdonald, 2021a).

Through this paradigm, technologies such as GPS are designed 'to track the real-time location of homecare workers' (S. Moore & Hayes, 2018, p. 103), with minimal consideration of privacy implications or any mechanisms to link this technology to improved client and worker safety. Similarly, electronic timesheets and rostering are deployed, not to empower workers or provide them with greater autonomy, but for 'reducing supervisors' time and contact with support staff' (Macdonald, 2021a, p. 8). And workforce management technologies that automate the the work of HSWs and fragment it into checkbox lists seek to prevent money being wasted paying HSWs to perform anything other than narrowly defined care tasks (Macdonald, 2021a; S. Moore & Hayes, 2018).

It is claimed that these efficiency gains will have broader benefits for society. For example, industry leader and ex-Geneva CEO Veronica Manion, has been quoted as suggesting that automation in the homecare sector will ultimately lower costs and enable staff pay to increase (Slade, 2018). And not for profit provider Nurse Maude's CEO has said 'Digital technology across both the back office and at point of care has a huge role to play in enabling us to be as productive and efficient as we can to maximise the impact of the scarce health dollar' (Microsoft NZ News Centre, 2019).

In the healthcare sector, these different technological features are often, but not always, combined into one smart phone application. These 'apps' are platform technologies, defined here as digital infrastructures which mediate two or more groups (Srnicek, 2017, p. 25). The rise of the 'gig economy' as enabled by platform technologies, sits within the aforementioned technologically determinist and neoliberal ideologies. Silicon Valley, despite nods towards progressivism, privileges liberal individualism, with mythologies of entrepreneurship, freedom, and empowerment associated with technological development, in actuality eliding massive inequality and worker exploitation. Therefore, platform technology is not neutral but interwoven with economic, social and political processes (Anjali Anwar et al., 2022; McKenzie, 2022; Van Dijck et al., 2018). Srnicek (2017) coined the term 'platform capitalism' to place the rise of the platform gig economy within longer-term trends in capitalist production.

Pohle and Voelsen (2022) use the term 'techno-political configuration' to delineate the international alliances between governments and technology companies which shape the materiality of increasingly vital infrastructure, including health infrastructure. As neoliberalised states have withdrawn from the provision of infrastructure, the larger platform operators, aided by light-touch regulation, have increasingly filled the void (Plantin et al., 2018). Indeed, in Aotearoa New Zealand, both private and not for profit care providers have formed partnerships with large, multinational technology companies to develop vital care infrastructure. For example, charitable provider Nurse Maude has contracted Microsoft to generate a platform which 'provides...a 360-degree view of the patient, [and] more automated rostering'. In the promotional article on the Microsoft blog, Nurse Maude CEO Jim Magee is quoted as being 'a firm believer in the value of technology to enhance services and improve patient care' (Microsoft, 2019).

Internationally, platform care infrastructure, which generates partnerships between governments, technology companies, and private providers, has included the introduction of 'Uber for care' platforms (Macdonald, 2021b; Moore & Hayes, 2018; Trojansky, 2020). Trojansky (2020) uses the term 'uber-isation' to describe platform operators 'intervening in sectors where formal and relatively regulated employment is the norm' (p. 13). Evidence from the EU, UK, and Australia suggests the uber-isation of care carries significant risks of deteriorating working conditions, increasing isolation from other workers and managers, de-professionalisation, and the loss of employment rights or protections through the classing of workers as independent contractors (Macdonald, 2021a; Trojansky, 2020).

At the same time, care workers and their actions are rendered visible to the providers as data, a valuable resource which Srnicek (2017) describes 'the new oil'. The extraction of data creates privacy issues, which are well documented (Dencik et al., 2019; Koutsimpogiorgos et al., 2020). Less well documented is that data extraction is a one-way, monologic communicative channel, with no way for the HSWs to respond to, or even access the data collected and analysed about them. Further, government policy

around data extraction in Aotearoa New Zealand must be shaped by its Te Tiriti o Waitangi obligations, which consider the data sovereignty rights of Maori (Jansen, 2016). Te Mana Raraunga have developed a full collection of principles which must be considered (Te Mana Raraunga, 2018).

Mycare was launched in 2019 to instigate an independent contractor model in Aotearoa New Zealand (Mycare, 2018), similar to that seen overseas. On that platform carers are expected to curate a profile, on the basis of which, together with their ratings, clients select them for a micro-contract of care work. As independent contractors, carers who are assigned work through the platform are not entitled to employment rights such as annual leave, or protections such as sick pay. However, this model has not yet predominated in Aotearoa New Zealand's care sector, partly due to the way the homecare sector is configured, whereby there is comparatively less access to government funding sources for this type of company.

Despite this, platform technologies are still being introduced by the major providers who do receive public funds. Geneva Healthcare are a particularly notable large provider, offering both the 'Geneva My Homecare' app which incorporates functionality similar to an 'uber for care' provider into a traditional service provider, as well as the 'Geneva LIVE Mobile App' which offers more straightforward workplace management functionality. Many other service providers have rolled out apps to streamline processes in a similar style to Geneva. While there is significant variance in the capabilities of such apps, common features and capacities include rosters and daily run sheets, client information, electronic notes, incident reporting, and administrative forms such as leave applications.

In 2018, HSWs at Geneva (with their unions PSA and E tū) made their concerns about the app 'My Homecare' and its impact on health and safety, privacy and conditions public via unions PSA and E Tū. Union action at this time involved writing to New Zealand's privacy commissioner to express concern about the types of digital information that might be collected about them (Etū & PSA) and some preliminary guidelines were developed in conjunction with Geneva. Publicly, Geneva responded to HSW and union concerns by stressing the potential that My Homecare has for providing choice and control to clients (such as in the blog on their website entitled "Geneva Defends Clients' Rights To Choose Their Carers"). Similarly, large providers meet resistance from HSWs about the introduction of workforce management technology by foregrounding their potential to improve client and worker experiences. Geneva, for example, promotes their app on their website as empowering for its workers, as 'Making Work Life Better' (Geneva Healthcare, 2023). Some of the benefits for workers listed include 'Get paid on time and accurately', 'Instant access to your past, present and future schedule', 'Easy communication with Geneva', 'Apply for leave', 'Select your preferred hours of work' and 'Client details plus alerts & notes to give you a comprehensive overview'.

Conceptualising the rollout of these apps, we prefer the term 'platformisation' to 'uber-isation'. Uber denotes a quite specific model in a male-dominated sector, that does not necessarily apply to the female-dominated sphere of care work (Tandon & Rathi, 2021). Platformisation is also better able to capture broader and subtler trends towards the adoption of platform practices in diverse sectors and workplaces, including those traditionally characterised as relatively secure and well unionised (Huws, Spencer, & Coates, 2019). The term captures longer term shifts in the workplace driven partly by recent developments in technology, such as heightened surveillance, 'casualisation, management by algorithm rather than human and a lack of a worker voice' (Spencer & Huws, 2021, p. 6). To reiterate our earlier point, platformisation is also linked to drives for efficiency through the Taylorist rationalisation of management structures and the centralisation of office staff into call centres. In other words, platformisation means the degradation of working conditions through the back door.

Worker participation as an integral part of digitalised workplaces
The above international research highlights that the ways in which the care sector has adopted digital and platform technologies have not been beneficial to workers. However, workers and their unions are not fundamentally opposed to the use of technology in workplaces. The Trade Union Advisory Committee (TUAC) to the Organisation for Economic Cooperation and Development (TUAC, 2017) acknowledges that '[n]ew technologies offer the prospect of improving productivity and transforming the economy in ways that support and protect decent working conditions' (p. 2). If a technology is managed and governed well it has the potential to improve working conditions and the quality of life of workers in all sectors. For technology to fulfil its full potential, TUAC underlines that digital innovation processes must be based on co-design through social dialogue.

To overcome the challenges of using platform technology as illustrated above, decent work principles must apply. As TUAC states very explicitly '21st century digital progress cannot go hand in hand with 19th century working conditions' (p. 4). Union involvement in digitalisation processes at work continues a long tradition of supporting workers in times of transition and transformation in their workplaces and across sectors and economies.

The International Labour Organisation (ILO), a tripartite organisation made up of representatives from government, employers and unions, developed a roadmap for a human-centred future at work in its Centenary Declaration for the Future of Work in 2019 (ILO, 2019). The road map highlighted that for sustained, inclusive and sustainable economic growth, as well as full and productive employment it was necessary to have decent work

> 'policies and measures that ensure appropriate privacy and personal data protection, and respond to challenges and opportunities in the world of work relating to the digital transformation of work, including platform work. (p. 7)'

The report continues to underline that a human-centred approach to the future of work must harness

> 'the fullest potential of technological progress and productivity growth, including through social dialogue, to achieve decent work and sustainable development, which ensure dignity, self-fulfilment and a just sharing of the benefits for all (p. 3)'

In the context of digitalisation, for the improvement of working conditions and the delivery of services to be aligned, the participation of workers and their unions in processes affecting data and technology is essential. Workers need opportunities to participate in the whole technology and data life-cycle at work. This includes the design of a particular piece of technology; its data collection, control and access; its use and associated rules; as well as its implementation, monitoring and co-governance. Global Unions Federations (GUF) such as Public Services International (PSI) and UNI Global have developed guidance on management and governance of technology to prevent the misuse of workers' data and degrading the delivery of services. Common themes in these documents are the creation of transparency, clear responsibilities, data protection and rights, making adjustments to the technology, monitoring risks and impacts on workers as well as co-governing technology.

Involving workers in the management and governance process of new technology is in the interest of employers, unions and the public to ensure high-quality, effective and dignified services to those who need them. The human-centred approach resonates with the Culture-Centred Approach (CCA); it represents the creation of new, vital voice infrastructures for democratic decision making related to technology at work within existing structures such as unions.

The Culture-Centred Approach (CCA)

The Culture-Centered Approach (CCA) is a meta-theoretical framework and applied methodology for addressing health, economic and information inequalities within disadvantaged communities (Dutta, 2018, 2020). The framework is designed to foreground the voices of the historically marginalised, empowering them to collaboratively create a conceptual framework for interpreting their experiences of precarity and health inequality, which serves as the basis for co-creating community-led solutions. While predominantly applied in geographical communities, rather than workforces, the CCA has also been employed to enable impactful campaigns by oppressed migrant workers in Singapore (Dutta et al., 2018), as well as Uber drivers here in Aotearoa (Salter & Dutta, 2022).

The CCA prescribes the practices of deep listening with humility and reflexivity from the research team (Elers et al., 2021), where academics co-create voice infrastructures with 'the margins of the margins' (Dutta, 2020b). Building voice infrastructures includes the capacity to participate in democratic decision-making, usually through the

establishment of a Community Advisory Group (CAG), which works with the academic researchers to plan how to carry out the research in their communities. Further down the line, the CAG will be at the centre of decision-making on how to apply and disseminate the research, including designing campaigns which aim to shift public opinion and influence policy.

METHOD

Project background, recruitment and participants

Our work with HSWs stemmed from relationships with E tū and the Public Service Association (PSA), the two unions which represent the HSW workforce. The latter have been particularly helpful in getting this project off the ground, as well as guiding the focus of our research. Our early interest was in gig economy apps like Mycare (discussed in the Introduction). However, a meeting with Melissa Woolley (Assistant Secretary at the PSA) in February 2022 clarified that HSWs in Aotearoa are essentially employed on an as-and-when required basis and certainty of work and income can be changed with as little as two weeks' notice. A decision was therefore made to concentrate on this workforce.

Participant recruitment proceeded through the sharing of a poster on the closed PSA Home Support Workers Facebook Group, facilitated by the union. An initial six interviews were conducted from the first post in February, before an additional seven following a second post in May. Three further interviews were secured through personal contacts, making a total of 16. The focus group was conducted on 30 October 2022, with just two participants (we were hoping for 4-6). All interviews were conducted over Zoom and lasted between 60 and 120 minutes. Interview and focus group participants were mailed a $40 countdown voucher as koha for their time.

In terms of workforce split, 13 worked on piecemeal contracts travelling from client to client, while 3 were disability shift workers. Participants were asked to complete a demographic questionnaire before the interview, with questions on gender, age, disability, number of hours worked (including minimum guaranteed), qualification level, ethnicity and immigration status. 14 identified as female (87.5%) and 2 male (12.5%). In terms of ethnicity, 14 identified as Pākehā and 2 Asian (both had migrated to Aotearoa). As we wanted to make sure our research gave voice to the margins of the margins, we did attempt to recruit more migrant workers through placing an advertisement in Migrant News, but this failed as a method for reaching this group.

In terms of age, two were aged 24-34 (13.33%), two aged 35-44 (13.33%), four aged 44-54 (26.66%), two aged 55-64 (13.33%) and five aged 65-74 (33.33%). While over 30% of participants being over 65 was an outlier in comparison to the wider population of care workers (see Ravenswood et al., 2021), the age distribution is generally reflective of the care workforce – particularly the low percentage of workers under 44.

INTERVIEW PROCESS

Interviews were held over Zoom and the format was in-depth and semi-structured, lasting between 45 and 120 minutes. Interviews followed a schedule of themes which was flexible enough to allow for the articulation of anecdotes from the participants, which were often not only highly insightful but also aided the building of rapport, meaning they would later become receptive to more probing or politically loaded questions (Tracy, 2019). Thereby we started the interviews with general questions on the nature of their work tasks, length of shift, how long they have worked as an HSW and in care work more generally, etc, before moving into questions on precarity and unpaid hours, technology, health and safety and COVID-19. We ended with asking them what they would like to see changed, both at the micro level of their work sites and at the macro level of structural, policy changes, in order to inform the recommendations made in this report, in line with the participant-led kaupapa of the CCA.

Perhaps because of the older, more experienced and activist-oriented nature of our sample, many participants were more than willing to expand on these latter topics through the articulation of narratives. In some cases, we found that we did not have enough time to discuss the impact of technology on their work, which we intended to be a primary focus. After the first six interviews held in February, we therefore adapted the schedule for the later interviews so that these questions were asked earlier and in more depth. Having completed this first batch of six earlier interviews also provided us with the opportunity to analyse these first, drawing out key themes which informed the focus of the later interviews and focus group.

Interviews were recorded to the cloud, making use of Zoom's auto-transcription function. While this is quite accurate, there are still many errors and we employed an undergraduate student, Lily Anderson, to check the transcripts for accuracy and make amendments where needed. We employed a thematic analysis (Braun & Clarke, 2006), where initial descriptive codes were generated before merging these into broader, theoretically informed themes (see also Tracy, 2019). Both researchers initially coded each transcript individually, keeping separate codebooks, which were later discussed before agreeing on the most prominent themes. This was facilitated through a shared folder in the Dropbox platform.

The key themes are discussed in the results section that follows.

RESULTS

On merging the two code sets, we established four key themes, which were emergent as the most prominent from the voices of the HSWs, in relation to their experiences of the introduction of platform technology into their workspaces. These were digital frustration, precarity, health and safety and communication inequality, discussed in the sections below.

To respect the anonymity of research participants, while ensuring we articulate the voices of the workers directly, participants have been given culturally appropriate pseudonyms in quotation marks next to extracts from interview transcripts.

DIGITAL FRUSTRATION

As discussed, the majority of the HSW participants articulated a lack of input into the design of the platform technology that is re-shaping their work lives, or access to communication channels for the highlighting of broken functionalities. This lack of voice undermined the technology's capacity to create efficiencies in their labour or empower the workers. Indeed, broken or missing functions, unmonitored communications by office staff, and extra tasks related to the platform design added additional forms of labour, which are unpaid (see Precarity). Frustration does not just impact HSWs, but those clients whose quality of care suffers when HSWs lack access to information and avenues for reporting.

Several participants complained that a function to apply for leave through the app was either missing or not working. "Liz" (along with other participants) complained that once leave had been requested through the platform, she would receive no email confirmation and the request would often be ignored by office staff., "Anna" had to perform the additional unpaid labour of creating a screenshot of the request, before 'hound[ing] them to get it approved'. "Martha" had 'asked for a holiday [...] about six weeks ago and [...] haven't heard back yet'. Participants were of the opinion that this was indicative of a general culture within the providers of making it difficult for HSWs to request leave, with the platform technology creating an extra barrier to communication with office staff, rather than improving or streamlining it. One participant, "Maria", complained about the lack of tailored options when it came to requesting leave on the app. Specifically, she was unable to request study leave or COVID-19 leave when requesting time off. She finds the 'the app very restricting', to such an extent that she 'prefer[s] paper' to the use of the platform.

Additionally, participants complained that errors in pay accuracy remained after the introduction of the platforms, creating additional labour in getting those errors resolved. The problem of erroneous pay is amplified by frequent last-minute changes to daily

rosters and run sheets. Some degree of last-minute changes are inevitable but for many participants the ways that these changes are managed are chaotic, despite (and also because of) the introduction of the platforms. For example, "Martha" explained that inefficiencies and understaffing by the providers meant that 'the rigmarole to make sure that you get paid, you know is ridiculous'. "Liz" detailed that ambiguities in communications through the platform meant that:

> you have to contact the human, to clarify nearly everything that you do on there. You need to back it up by contacting a human, because you don't have to have received the message or received anything. So it's kind of a waste of time…

Inaccuracies also seem to be linked to restrictions on HSWs in terms of their ability to make changes to their rosters or their daily activities through the platforms. Not all companies document additional, unrostered visits on the apps, so HSWs must keep a record of these themselves. On the other hand, other service providers can and do alter rosters and/or daily run sheets in real time which can create confusion for support workers. For HSWs whose work patterns were communicated via changes on the platform, only office-based coordinators/schedulers were authorised to make changes. That changes are often made at the last minute, with very little warning for HSWs, can lead to distress for the clients, such as confusion as to what time their carer would be coming.

Other inaccuracies include outdated care plans. For example, "Karly" articulated that a client she had seen the morning of the interview had a plan that was two years old. While plans could be accessed through Karly's platform, this would be a waste of time for her if the provider is not ensuring that the information is accurate and up to date. An employee of another provider, "Sharon" complained that there was no function for her to make clinical notes related to their visit to a client. Instead, clinical notes are 'written in a folder that's kept at the client's house' and rarely (if ever) clinically reviewed and are not accessible to HSWs ahead of a visit. This means when working with unfamiliar clients they are unable to review what needs to be done to assess, for example, whether they are willing or even qualified to complete the required tasks. While there is much promise for app-based systems to deliver up to date information in real time and support scheduling, it does not appear that this potential is being realised.

However, the greatest digital frustration for HSWs in terms of using the app was linked to what should be the simplest functions: logging in. For example, "Nawal" detailed that she had to log in to the app four times for one client:

> …like if I go to one client, I have to log in from my house to login first and then you know, and then travel starts when I leave the house, I have to […] login again. And then log in again, visit the client and then I can start the work, and when I finish the work I have to log in again.

Several participants explained that this requirement to log in often got in the way

of their ability to provide cares to the clients, taking focus away from often urgent tasks which need completing. Forgetting to login once at a clients home would frequently mean extra unpaid labour, as they would have to explain to the schedulers/ coordinators what happened (as they lacked an ability to amend information afterwards). GPS tracking data could be used to confirm that they had indeed gone to the client's house, but there were often errors with this, whereby the client's house could not be located. These errors were accentuated in rural areas which lacked cell phone coverage. Indeed, poor coverage by the health provider's chosen cell phone provider often meant that HSWs were forced to use the platforms on their own phones and were not compensated for data use.

PRECARITY

This theme focuses on the different forms of unpaid labour HSWs perform, both directly and indirectly related to the introduction of the platforms, as well as broader trends towards de-skilling and loss of professional autonomy resulting from platformisation.

As alluded to in the previous section and discussed in the introduction, rather than receiving a salary or even block-pay per shift, HSWs who travel from client to client are paid in a piecemeal, per-client way. One participant, "Karly", surmised that this means HSWs hold effective 'zero hours contracts'. Despite having a guaranteed number of hours on their contract, these are in effect kept very low, in order to reduce provider liability should they lose clients. The piecemeal pay system also means that, as well as the extra unpaid labour introduced by the new technology, their waiting, break time, administration and training time (with some exceptions to the latter) are all unpaid.

Travel time and costs are compensated using the complex system described in the introduction, however, the evidence from the interviews suggests that this is rarely sufficient or equivalent to their hourly wage. Indeed, only distances over 15km are classed as "exceptional travel", for which they are paid the equivalent of their hourly wage. Anything below that distance is paid well below this. For instance, "Liz" recounted how one job was '14km's there, 14km's back', which took her 30 minutes in total. For this time she was recompensed just $6, well below the national minimum wage, never mind her hourly wage.

Further, the per kilometre rate for travel costs is insufficient to cover the rising cost of petrol, let alone maintenance, WOFs, insurances, etc. For example, "Liz" stated that she can spend almost half her income on petrol, 'over $200 a week [...] when I [...] get a $550 pay'. They also miss out should they 'get held up in roadworks or car accidents' ["Maria"], with a per-kilometre rate not accounting for such delays, which would be particularly frequent in urban areas.

In terms of administration time, "Martha" described HSWs as 'unpaid administrators

extraordinaire', due to their propensity to undertake tasks such as leaving notes, attending meetings, or filling in forms during unpaid gaps in their rosters. "Melissa" related how she would be expected to attend client meetings and read minutes and emails like a salaried employee, but in her own time. And as "Martha" puts it, she may be lucky and finish a client earlier than scheduled, whereby she would have time to complete her admin work in the car, but 'mostly [...] it's unpaid hours'. Even this small amount of paid admin time may soon be taken away from them, as several participants recounted how the providers are currently pushing to dock pay should an HSW leave a client 15 minutes early, for example. This practice of linking pay received to exact time spent with clients at capped rates was also an outcome of electronic monitoring of care work in the UK (S. Moore & Hayes, 2018).

Waiting time between clients is also often unpaid, as often participants had 'split shifts' ["Martha"], or long periods in the middle of the day where they had no clients scheduled. "Deborah" described how she:

> might have an hour, where I have no client from 8.30 to 9.30. During that time I don't get paid, I sit on the side of the road in my car and I wait before I can go to the next client. That may happen for me mid-morning around 11.30 and I have to sit around and wait to go to the next client and I don't get paid for that time

When asked how many hours she works per week, "Anna" said she gets between '20 and 25 hours' paid, but with 'travel and sitting around time' added she is actually working 30 hours. This means that between a quarter and a third of her work time is unpaid or underpaid.

In terms of break time, they are allocated a 10-minute paid break in their shifts, but in reality they do not have time to take this. As "Deborah" conveys, she would need to unfairly choose one of her clients to leave 10-minutes early. A half hour lunch break would be unpaid, as this would be counted as a gap in their rosters.

Other areas of unpaid time include research and training time, which discourages these practices and contributes to the de-skilling of the workforce. As "Anna" relates, to do their job properly, HSWs have to do research into a variety of conditions, such as 'dementia, Parkinson's, etc... And that's a lot of research you've got to do before you go, which is of course not something we get paid for'. And while the fees associated with the stipulated Health and Wellbeing courses are paid for, the time spent taking those courses is not. Even time spent in face-to-face training on how to get properly fitted with N95 masks to deal safely with COVID-19-positive clients was unpaid. "Sharon" was told that this would take 'only 10 minutes or so' when it actually took an hour.

As well as training, the COVID-19 pandemic added to their unpaid hours in other ways. "Sharon" related how, rather than sending it out to her, she had to go and collect PPE from her provider's physical office, in her own time and using her own petrol. "Liz" recounted how she had to spend time on the phone to her central office to order

additional PPE when her normal supply ran out, which was never 'enough to last'. Rather than supplying her with a month or two's worth of PPE, "Sharon's" provider only gave them 'enough to last a fortnight', adding to their burden when supplies ran low.

There also appeared to be uncertainty or ambiguity around the government COVID-19 subsidy, due to poor communications from the providers. For instance, "Martha" was unsure whether she would only receive 80% of her pay should she contract the virus and have to take time off work, or whether her employer would make up the other 20%.[2] This knowledge-gap seemed worse for "Nawal", a migrant of colour, who appeared completely unaware of the government COVID-19 subsidy, thinking she would take sick or annual leave should she contract the virus.

"April" articulated how the COVID-19 pandemic had added to HSW precarity by disturbing normal schedules. While for some, it meant more work than they could handle due to increased demand and decreased supply (more HSWs falling sick and less migrants able to enter the country to cover gaps), it also meant:

> rosters became very unsettled so we were probably seeing 10-12 maybe 15 different clients in a week. And most of the clients we didn't even know or […] had […] before.

As discussed, new clients means extra unpaid labour, as the HSWs would be expected to read the care plans, any notes left by their previous carers, plus do research into conditions they were unfamiliar with. This is made more time consuming by the fact such information was not always readily accessible.

For some participants, this chopping and changing of schedules indicated a more general shift towards the de-skilling of the HSW workforce, whereby they would be constantly expected to slot into new clients, performing standardised tasks. There is some evidence from overseas research (see Tandon & Rathi, 2021; Ticona & Mateescu, 2018), confirmed in the voices of the HSWs, that the introduction of the platforms is contributing to this trend, whereby the app specifies the tasks they are to perform for the client in a checkbox format. This de-prioritises the gradual building up of relations, as that work does not get included in the task-list. The building of relations can be the most skilled facet of their work, with their proficiency gradually accumulating with life and career experience. "Sarah" pointed out that this work is often of crucial importance to the clients, particularly if 'they've got no relatives' and are thereby reliant on the HSW for company. In the below extract, "Sharon" describes how the checkbox breaks down her tasks:

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[2] According to Employment New Zealand, 'Under the Leave Support Scheme, an employer must make their best endeavours to pay employees at least 80% of their normal wages or salary, but never less than the minimum wage'. https://www.employment.govt.nz/workplace-policies/coronavirus-workplace/COVID-19-guidance-payroll/#:~:text=Under%20the%20Leave%20Support%20Scheme,at%20their%20agreed%20wage%20rate.

> So when we sign in there's a list on the client's…there's a list of the activities we've got to do, so if it's meal prep it's there. It will say support clients making meals, or you make a meal for them, or it will say 'other'. If it's showering, there's a list of items for showering. And it's like a checkbox type thing.

As "Sharon" describes, the task of assisting the client in having a shower is broken down into 'a list of items' via mediation through the platform. This list of items (or micro-tasks) would not account for context, or the shifting needs of the client, and would depend on care-plans being up to date (which as discussed, they often are not). Further, the rigid structure would not take account of the professional judgement of the client's needs made by the HSW, based partly on their personal connection built up over time.

Another way that the introduction of the platforms appears to be eroding professional autonomy is the ability of HSWs to have foresight over their roster. The amount of time in advance HSWs could see their roster varied considerably, with one participant saying they could see ten days in advance. Others, however, said they could 'only see today's… and tomorrow's roster' ["Sharon"], having just two days advance notice. This was of particular issue in the context of the pandemic, which, as described, means 'everything swaps and changes all the time' ["Anna"].

Several participants also commented on the effect of the management restructures on their professional autonomy. While two participants were enthusiastic about the loss of local managers and office branches, due to the freedom and autonomy this confers, the majority felt isolated and distanced from key sources of professional advice (more on this in the Communication Inequality section). As "Sarah" describes below, replacing local managers with a call centre means both the loss of contextual knowledge about the clients and the loss of clinical expertise:

> the restructuring, it's had a big impact on how we work. We had a manager in our area in the [local] hospital that we could go and see, she knew all our clients. Since last year, they changed that and made it a call centre. While I really respect the people in the call centre, they have no idea, they have been employed for call centre work. Incoming calls, outgoing calls. They have no background or training like we have had to have to do this job.

Finally, several HSWs felt that the higher trained they became, through progressing up the NZQA Health and Wellbeing Certificate levels, the less hours they would be offered by the schedulers/coordinators, as they became more expensive. For "Anna", this disincentivises her from taking the training and building up her professional expertise, as:

> a lot of people say as if you get Level three or Level four you become more expensive than the company don't like using you as much. Because you earn more money so I'm sticking at Level 2 for now.

HEALTH AND SAFETY

This theme speaks to the exposure of the HSW participants to health and safety risks as part of their work, both from COVID-19 and other sources which existed pre-pandemic. While not directly linked to the introduction of platform technology, many of the examples below can be seen as part of general trends towards platformisation, with its associated rationalisation and cost-cutting.

Firstly, as has been argued previously by the PSA and E tū unions (see PSA, 2022), HSWs confirmed that they had not been provided with sufficient amounts and good enough quality PPE to do their jobs safely during a pandemic. This seemed to be the case for all the providers employing HSWs who participated in this study, except one. Client-to-client HSWs are particularly vulnerable during a pandemic due to the nature of their jobs, whereby they must come into close contact with multiple clients in a single day. Further, all HSWs assist clients with washing and showering, where they are likely to come into contact with bodily fluids. Therefore, as well the heightened risk of becoming infected themselves, they are also likely to infect vulnerable elderly and disabled people due to the necessity of travelling between multiple clients in quick succession.

The PPE issue was particularly acute during the early stages of the pandemic, when they were issued with 'food grade gloves' ["Liz"] which would disintegrate on contact with water. "Liz" held the opinion that 'other companies [were] still sending food grade' gloves in February 2022, nearly two years into the pandemic, even if her own provider had ceased this practice.

Multiple participants described chronic PPE shortages in the early stages of the pandemic, whereby some were forced to buy 'my own stuff' ["Sarah"] and/or use informal networks. For example, "April" described how she stockpiled and 'shared around gloves', which is 'how we got through'. PPE then became another source of expense for the HSWs, which was not recompensed by the providers. This was particularly expensive during the early stages of the pandemic, when sanitiser 'was about $20 a bottle' ["Sarah"] due to shortages.

The provision of PPE of insufficient quality continued into early 2022, when Aotearoa first began to cope with high numbers of infections due to the Omicron outbreak. At a time when the health advice was to wear masks that were 'tightly fitted to the face such as a P2 or N95' (Health Navigator New Zealand, 2022), participants reported that they would only be supplied with N95s when one of their clients was a 'verified COVID-19 positive patient' ["Sarah"]. Otherwise, they would only be supplied with 'the blue surgical mask' ["Alma"] which do not fit tightly to the face. The science tells us that individuals can become infectious to others before becoming symptomatic, only after which point they are likely to seek a test. Further, many HSW clients suffer from conditions such as dementia or Parkinson's which may limit their awareness of being infected. By way of contrast, the three live-in disability shift worker participants were supplied with and

required to wear 'layers and layers of PPE, so gloves, apron, the duck bill mask, and the visor at all time' [Tristian] when dealing with COVID-19-positive clients.

There were also no rules in place around clients wearing masks, whereby its 'up to them if they want to wear a mask when we arrive. Most of them don't, there's the odd one or two that do' ["Anna"]. Training for HSWs on COVID-19 risk also seemed inadequate, as much of the instructions came by email, which they do not get paid time to read. While there was face-to-face training on wearing N95 masks and gowns for dealing with COVID-19-positive patients, as discussed, they were often not paid for this time.

There was also pressure on participants to 'go back to work' following an infection 'if you're asymptomatic' ["Martha"], even if they were still testing positive. And while non-essential workers were told to stay at home if someone in their household tested positive during the Omicron outbreak, HSWs, classed as 'critical workers […] still have to work even as a household contact' ["Liz"]. Further, with the lack of available workers due to so many HSWs having to isolate with COVID-19 infections, cover was needed to be brought in from other areas, substantially enlarging the size of client bubbles and furthering the spread of the virus from region to region.

COVID-19 was not the only health and safety risk articulated by the participants which affected both HSWs and clients. Several clients reported communication breakdowns deriving from the rationalised systems where the platforms and call centres are replacing human managers and local offices (more on this in the *Communication Inequality* section below). For example, "Sarah" recounted an incident where she had a client 'that was bleeding' from a fall. Whereas in the pre-rationalised system she would be able to call or text her manager for advice, they 'are now on a call system', where she is denied immediate access to a manager, and is instead required to call a call centre. She described how she was 'sitting on a call waiting […] add[ing] to stress and pressure' because she didn't know the extent of the client's injuries. In one particularly distressing incident, a call centre allocated an extra client to a HSW without full knowledge of the client or the HSW. Upon arriving and speaking with the client, it because evident to the HSW "Kath" that what was required of her went beyond her comfort and skill, which was distressing and 'traumatic' for her.

As well as managers, participants reported a decrease in the number of nurses available to seek advice from in emergency situations. As described by "April" below, this can jeopardise the client's safety:

> …if we had any problems we just ring up the nurse and if she wasn't available right then, she would ring you back or contact you at the nearest possible time. Now we can't even get onto, we can't even find a nurse, we don't even have one in the [local] office. So you know, there's no one to call if there's an emergency.

While Alma described how the understaffing of qualified nurses also led to the

previously described issue of out-of-date care plans. She recalled one situation where she 'had to do relief for a client without a care plan'. When she arrived at the house, she was told that 'the Coordinator told the client's family to make their own care plan'.

The two participants who were migrants of colour also described racist incidents, including both abuse from clients and structural racism from their employers. "Nawal" described how she felt that schedulers were less likely to 'fill our gaps' in rosters than they would a 'white person', particularly if they felt the client was 'a little bit hard'. "Alma" also felt that immigrant workers could be more easily exploited by providers as they 'have that mentality where you just keep your head down and play a part of the grateful immigrant'.

Health and safety risks more directly linked to platformisation included RSI strains from phone use, with "Sarah" describing how her:

> arms suffer from the phone […] Because we have the phone all the time, they're in our pockets from the time you get up, you will always bring them up to unlock. You've got to put notes on them, you're checking your rosters, so the phones are like an extension of your body.

"Anna" also highlighted the danger of traffic accidents from digital distraction, with schedulers making last-minute changes to their rosters, either through the platform, by phone or by text, while they are driving between clients. Research has also shown that information overload from digital sources can contribute to burnout, or 'technostress' (Singh et al., 2022), contributing further to the considerable toll on mental wellbeing suffered by HSWs.

Indeed, "Karly" articulated that 'the stress [of the job] is actually massive', to an extent to which 'GPs are encouraging them' to leave the profession. On top of 'the physical exhaustion', Karly described the 'the emotional battering the mental battering' associated of working in an understaffed and under-resourced sector where the lives of vulnerable people were put at risk.

COMMUNICATION INEQUALITY

This section focuses specifically on the inequality in communication channels experienced by the HSW participants, which is reinforced by the platform infrastructure. Linked to Digital Frustration, this theme concentrates on the way that the HSWs must always be accessible to providers (e.g., available for last-minute roster changes and other communications), but at the same time they lack access to decision-makers and sufficient information on their clients to do their jobs safely. Simultaneously, the HSWs feel like they lack a voice within both their provider organisations and the wider public, complaining of a lack of understanding of the realities of their profession while not being valued as essential workers.

Several participants commented on their tracking and surveillance by the providers through the platforms, and the impact this has on trust. Some of the more developed platforms, linked to the larger providers, had GPS tracking functions, which can tell if the HSW is actually at the house they are purported to be, or as "Sharon" put it, 'to make sure we are where we are saying'. Rather than being neutral technology, this function implicitly constructs the HSW as someone not to be trusted, a self-interested worker who may be gaming the system for their own benefit. As "Martha" articulated, the technology was justified by her manager in the following terms, reflecting a high degree of 'distrust': 'so I want to know that you didn't [go] into McDonald's across the road from [the client], that was the comment'.

Surveillance appeared to go beyond GPS tracking to being able to 'access everything' ["Liz"] on the phone, as well as the previously discussed tracking time spent with clients and tasks completed. The data created by these functionalities then becomes the private property of the (often for-profit) providers, who are free to analyse and use it as they wish, generating significant data privacy and sovereignty issues.

HSW participants commented on the dehumanised nature of their interactions with the providers since the introduction of the platforms, as well as the difficulty of speaking to decision-makers to get issues resolved. To get through to someone, HSWs are forced to wade through layers of 'faceless' ["Liz"] bureaucracy. And as "Deborah" conveys below, urgent messages for someone to get back to them by phone often get lost in the system or they receive an impersonal reply by email:

> …as far as I'm concerned it's just got worse in fact you very seldom hear from them. It's difficult to get through to them, I mean […] the last few times of ringing payroll it just seems to go to voicemail, you ring you tell them what your problem is, expecting to hear back and the next thing you get an email telling you what they're doing about it, and what you have to do. And it's like well that's real impersonal or you'll ring the call centre ask them to do something, or you leave a message […] And it just doesn't happen. These are huge breakdowns in communication.

The problem was not simply related to diminished quantity of communication, but also quality. One participant remarked that her provider would send so many long emails that sorting through them for important information became unfeasible. Participants commented that communication from and with the providers had got so poor that they were reliant on social media, messenger groups, coffee groups and the union to derive the information they required. "Martha" described how she was a member of a messenger group of HSWs located within a particular geographic area, which facilitated the sharing of important contextual information on clients that meant they could comfortably cover for each other. Whereas with local hubs this information would 'go through the office […] since it's gone to a service centre' this communication channel has broken down, forcing them to act on their own.

However, most HSW participants were not so lucky to have this support network of trusted colleagues, with many going to national Facebook groups such as the unions' and providers' for information. "Anna" commented that the topic of conversation on these groups was most often the 'lack of communication' from the providers, whereby 'everything seems to disappear into a black hole and nobody seems to find it a good idea to let us know what's happening'.

If they are not a member of a local coffee group, or they do not attend union meetings, their face-to-face interactions with colleagues can be limited to occasions when there are two HSWs required for a single client at the same time. And in this circumstance the HSWs are likely to be very busy with a client, so time for "chewing the fat" about work issues is non-existent or very much limited. "Sharon" articulated how her provider actively discouraged HSWs from talking to each other, because 'they think we're gonna be gossiping [about clients] or something'. In a similar way to surveillance, these assumptions reflect a lack of trust by the providers in the HSWs, while eroding their sense of professional autonomy. This is also reflected in a sense of not being listened to, with their feedback channels for complaints and suggestions very much limited or ignored. As "Karly" puts it, 'there [is] never any feedback about anything, even the things that legally they are meant to feed you back on. There's just nothing.'

This feeling of not being listened to contributed to a sense that the HSWs 'aren't respected' ["Karly"] by their employer, as well as lacking a voice within their organisations. And this went wider than their employers to the general public, who they saw as failing to recognise them as essential workers, providing vital home care to vulnerable people throughout the pandemic, putting their own health at risk. As "Sarah" articulates below, HSWs didn't get the same recognition in the media as nurses or doctors, for example:

…when you listen to people on media, it's always about how wonderful a nurse is, or how wonderful a doctor is, and it's like well actually as a support worker I am first port of call to keep that person out of the hospital. I'm the one that sees them everyday to make sure their meds are taken, that they've got any change in their health. I'm the one that looks after them and sometimes I think we do far more than what a nurse does, because the nurse just rocks up, they have a team to support them.

For some this lack of public recognition is linked to a lack of understanding of the complexity of the HSW's work, with many members of the public who haven't had relatives needing home care thinking they are basically cleaners, or 'we're just going in and running a duster around people's place' ["Evelyn"]. This misses the most highly skilled, relational work that they do with vulnerable, often lonely, clients. The work of providing emotional support for clients is similar to 'a counsellor' for "Maria". Others attribute this lack of understanding by the public to the relative invisibility of HSWs, who, unlike many nurses, undertake their work inside private homes.

CONCLUSIONS

Drawing on 16 in-depth Zoom interviews and 1 focus group with Aotearoa-based Home Support Workers (HSWs), this report highlights several areas of significant concern in the current move towards platformisation. Rather than introducing efficiencies or empowering workers, the introduction of the platforms without worker or client input into their design creates Digital Frustration, accentuates Precarity, generates Health and Safety risks and furthers Communication Inequality.

This report is not an argument against platform technology and other digital technology per se, which do indeed have the potential to empower workers and clients and improve services. The problem is the lack of human-centred approach around the design and evaluation of the technologies, where they are instead introduced in a top-down, monologic way to introduce economic efficiencies, rather than increase quality, safety and effectiveness of services. We argue that this approach is linked to the broader systemic context, where home care services in Aotearoa New Zealand are generally publicly funded, but delivered privately. This context means that market dynamics shape care; private companies are incentivised to improve efficiency and lower costs in pursuit of profit and non-profit companies must adopt similar practices in order to receive government funding. Thus, rather than being "magic bullets" that improve worker and client conditions, care platforms at present primarily work in ways that benefit care providers and follow market dynamics. This comes at the expense of the quality of care clients receive, worker safety, and worker experience more broadly. Indeed, the evidence presented here suggests that the technologies being employed in the home care sector, most notably the platforms, are actually exasperating the pre-existing systemic failures, which have also been severely exposed by the COVID-19 pandemic.

The four themes of Digital Frustration, Precarity, Health and Safety, Communication Inequality deriving from the voices of the HSWs make clear that HSWs are working and clients are living in a broken system. Digital Frustration outlined the material and emotional consequences for HSWs of a lack of input into the design of the technologies, including platforms like apps, that are re-shaping their work lives. Precarity conveyed how the use of this technology adds to their already significant unpaid labour, while cementing trends towards de-skilling and loss of professional autonomy. Health and Safety showed how the poorly designed platform technology and other communication systems, combined with the incentives of for-profit providers, left them and their clients exposed to undue risks during the COVID-19 crisis. While Communication Inequality illustrated that lack of voice, respect and recognition from both providers and the general public misses the highly skilled nature of their work and erodes their professionalism. Together, the four themes raise serious

concerns over the long-term sustainability of the home support workforce, during a time of serial health crises and an ageing population.

We would like to add that these themes are not exhaustive of all experiences of the HSW participants. The four themes paint a negative overall picture of their experiences of platform technology, but it is important to note that not all of the participants had a blanket negativity about technology and its potential. The significant diversity of technological systems employed by service providers means that experiences varied widely. For example, several participants recognised that the platforms had reduced the paperwork burden for both HSWs and office staff, whereby they were no longer required to submit hardcopy time sheets.

Moreover, some workers felt pay accuracy had improved, with the technology reducing instances of inaccuracies deriving from human error. "Melissa" was positive about the easy access to clients' progress notes, whereby she could 'read what the other support workers have written forever' which suggests immense potential for such applications. However, many support workers lamented the lack of access to up-to-date information about clients, suggesting that such a technological benefit is not widely being realised. Another participant, "Maria", was enthusiastic about the breakdown of her work tasks into a tick-box list as it provides her with protection from clients who ask her to do additional tasks which fall outside of her responsibilities, such as 'clean[ing] the oven'. And as mentioned, two participants were also happy to work in a rationalised system whereby there were very few managers in their local areas, enjoying the relative freedom and autonomy this enables. Ultimately, each support worker story is contingent, dependant on provider, funding body, client mix, geographic location and other factors.

It is also important to note that the three disability shift workers had quite different experiences with technology than the other 13 participants. While there are many similarities in the nature of the care being by all HSWs, there are marked differences in client circumstances and support funding packages which impact the different workers work patterns and renumerations. While two of these HSWs worked for an organisation that had so far instigated little in the way of platform technology, another, "Tristian", worked for an organisation which had introduced 'web based software' three years prior. Rather than being excluded from having a voice in suggesting improvements to the software, Tristian communicated how the developers could be contacted via his manager in order to get broken functionalities fixed, which they would 'resolved pretty quick'.

RECOMMENDATIONS

Following these conclusions, we offer the following recommendations, grounded in the voices of the worker participants.

1) IMPROVE THE SYSTEMIC CONTEXT SURROUNDING PLATFORM TECHNOLOGY.

Significant improvements to the overall context of home care in Aotearoa New Zealand must be made. There are evidentially substantiative issues related to how home care is funded, delivered, and accounted for. Working conditions must be improved alongside the development of platform technology systems in order to deliver substantiative changes for clients and workers. As such, the authors make three suggestions for improving working conditions for HSWs:

a. **Workers with income security and shift work.** Moving HSWs away from the current piecemeal, per-client pay structure and replacing it with full time and part time shift work with stable hours of work and income, similar to other roles in the health sector. This would prevent the technology from further embedding de-skilling and loss of professional autonomy. This would recognise HSWs as trusted professionals with status and professional decision-making autonomy, ensuring the long-term sustainability of the workforce. It would also remove the issue of unpaid labour, while ensuring that they have time for breaks.

b. **Better Resourcing.** As they are required to perform their roles, and to promote increased worker voice and agency with technology, all HSWs should be provided with cars and phones, with all vehicle maintenance, fuel, phone data, etc. paid for by the provider organisations. Where required, tablets and laptops should be provided so that they can make notes, answer emails, and perform other administrative duties. Further, PPE matching current clinical health advice should be provided to reduce risk to both workers and clients.

c. **Strengthen accountability.** Provider contracts should have clauses which strengthen accountability through procurement. Providers should be contractually required to improve working conditions, provide better training and support, and monitor wellbeing, while taking active steps to improve it.

2) INCLUDE WORKER VOICE IN THE DEVELOPMENT OF HUMAN-CENTRED PLATFORM TECHNOLOGY.

Technologies being used within the home care centre must be explicitly human centred and demonstrably improve the quality and safety of home care. Worker and client voices should be actively incorporated both at the design and improvement levels, through a cyclic process of continuous evaluation and consultation grounded in Te Tiriti o Waitangi. Specifically, the authors suggest three levels:

a. **Design**. Worker voices through their union must be involved in the development of these technologies.

b. **Evaluation**. Mechanisms for accounting for the impacts of technologies on worker and client outcomes should be strengthened to ensure that technologies do not exacerbate safety risks or negatively impinge upon their working conditions. Worker voices must be incorporated into evaluation frameworks so that technological modifications and improvements can be made which are grounded in the requirements of those who use them.

c. **Appropriateness**. Any technology being utilised in Aotearoa New Zealand must uphold Te Tiriti o Waitangi and respect Māori data sovereignty. Data collection processes must be clear and transparent. All data that pertains to individual workers, including their work patterns and movements, should be accessible to them. Technology used in the homecare sector should uphold the mana and dignity of HSWs, rather than erode the significant professional expertise the workforce has.

Implementing the above changes will ensure that the HSW workforce is robust and sustainable by attracting and retaining workers and ensuring their well-being, while enabling them to provide dignified, high quality, responsive services.

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