Exploring the Digital Health Literacy of Psychologists in Aotearoa, New Zealand

Rushaina Variava

A thesis submitted in partial fulfilment of the requirements for the degree of Master of Health Psychology, The University of Auckland, 2021

Abstract

Globally, digital health is gaining significant momentum due to its advantages in improving health outcomes, minimising barriers to access, and promoting an equity approach. However, it was the recent COVID-19 pandemic that had the greatest impact on the ways that psychologists' practice due to the rapid implementation of digital health within healthcare settings in Aotearoa. Within this changing context of psychological practice, there is a need to ensure psychologists are digitally competent. Although evidence indicates the importance of digital health literacy among healthcare providers and the concept is discussed within research, little is known about what this involves for psychologists. Thus, the need to assess the digital health literacy levels of the psychologist workforce is important to inform digital psychological practice in Aotearoa.

The current study had three key objectives: 1) to explore the digital health literacy of psychologists working in Aotearoa, 2) to investigate which factors influence the use of digital technologies within psychological practice, and 3) to measure whether factors such as compassion and burnout predict the development of digital health literacy within this group. A sample of 195 psychologists were recruited to complete an online mixed methods questionnaire. Participants provided demographic data and completed a Digital Health Literacy Scale, the Compassion Scale, the Maslach's Burnout Inventory: Emotional Exhaustion, and questions regarding their digital practice.

Our findings revealed that psychologists hold some digital health literacy and generally report being competent in their ability to deliver psychological practice using digital technologies. However, it is evident that improvements are required, and further training opportunities are needed. Statistical analyses found that compassion predicted digital health literacy within this group and contrary to expectations, no relationship was found

between burnout and digital health literacy.

In conclusion, findings from this exploratory study provide valuable insights into the digital health literacy of the New Zealand psychologist workforce and offer avenues for future investigation. Recommendations from findings also include developing culturally appropriate standards of digital psychological practice and the inclusion of digital health literacy as a mandated competency for psychologists in Aotearoa New Zealand. Overall, the current study argues that digital health literacy should be a core competency for psychological practice.

Acknowledgements

This project would not have been possible without the support and generosity from the most incredible people. Thank you all for your integral contribution.

To begin, a massive thank you to my supervisors, Dr.Lisa Reynolds and Dr.Rosie Dobson. I was fortunate to have two sets of eyes and perspectives throughout this process. It's been an enjoyable and rewarding experience and I am grateful for your time, expertise, and knowledge. Thank you for the privilege to engage in such exciting and novel work which has real potential to make tangible differences in psychological practice. A special thank you and mention to Meihana, for your amazing support and valuable insights. I really appreciate the time and advice you dedicated to shaping this research.

This section would also be incomplete without acknowledging my village - my supportive and beautiful family, without whom I would have never had the courage to follow my dreams. Thank you all for your unwavering support and unconditional love across my life. Thank you for instilling such a passion for learning, providing constant motivation and for walking alongside me throughout this journey.

To my amazing friends, thank you for always being here. Thank you for taking the time to understand this research and letting me bore you with my passion for this work, for helping with recruitment, being so supportive and of course, spamming me with more motivational memes than I could count. I appreciate all of you.

To everyone across all the organisations and social media groups who helped with the promotion and recruitment for the project, thank you for your time and effort. We would have never reached as many people as we did without your support.

Most importantly, thank you to everyone who participated, for your time and for sharing your views. This project would not be possible without your valuable input.

To the reader, thank you for taking the time to engage with this research. I hope you enjoy reading about the importance of digital health literacy in psychological practice - just as much as I did.

This thesis is dedicated to all those who stand with me every day. I am forever grateful. Thank you.

Table of Contents

List of Figures

List of Tables

Chapter 1: Introduction to Psychological Practice and its Changing Context in Aotearoa

1.1 Introduction

Psychologists provide psychological support and treatment to clients and their whānau, and play a critical role within healthcare (Wahass, 2005). Psychologists hold a unique skill set, with the necessary competencies and knowledge to improve psychological functioning, minimise health inequities and enhance health outcomes (Stewart et al., 2014). Over the last two years, the COVID-19 pandemic has significantly impacted psychological practice and the way psychologists work has dramatically changed. In Aotearoa, the healthcare system is undergoing a rapid digital transformation. Where psychologists traditionally provided psychological services in-person, the need to work remotely has accelerated the delivery of services via digital means (Sammons et al., 2020a). This changing context of psychological practice necessitates that psychologists develop and maintain new digital competencies to practice ethically and safely (Bucci et al., 2019; Morris & Aguilera, 2012). This introductory chapter discusses the fundamental role of psychologists within an evolving context of psychological practice in Aotearoa. It highlights how the rapid diffusion of digital health requires psychologists to develop and maintain new digital competencies to improve health outcomes.

1.2 The Changing Health Service Context in Aotearoa

The World Health Organisation (WHO) has defined health as a "*state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (WHO, 2006).* Attaining a high standard of health is a fundamental human right for all people, regardless of individual characteristics (WHO, 2006). Research has determined a strong association between mental and physical health, particularly in the occurrence and

outcomes of comorbid chronic diseases (Ohrnberger et al., 2017; Wan et al., 2021). The health of New Zealanders is marked by increasing patterns of mental illness. Every-Palmer et al (2020) concluded that during the first COVID-19 lockdown in April 2020, 30% of adult New Zealanders reported moderate to severe psychological distress, and 16% reported moderate to high anxiety levels. The far-reaching impacts of psychological difficulties can affect multiple aspects of a person's livelihood, including their relationships with whānau and support networks, communities, and professional life (Gubman & Tessler, 1987). Furthermore, psychological difficulties are associated with higher rates of risk factors for disease (Scott et al., 2006). Modifiable risk factors such as smoking, unhealthy eating habits, and a lack of exercise can highly influence mortality. Therefore, alleviating risk factors can be tremendously beneficial for health and wellbeing. Psychologists are in a unique position, as they hold specific skills which can help to alleviate the burden of disease.

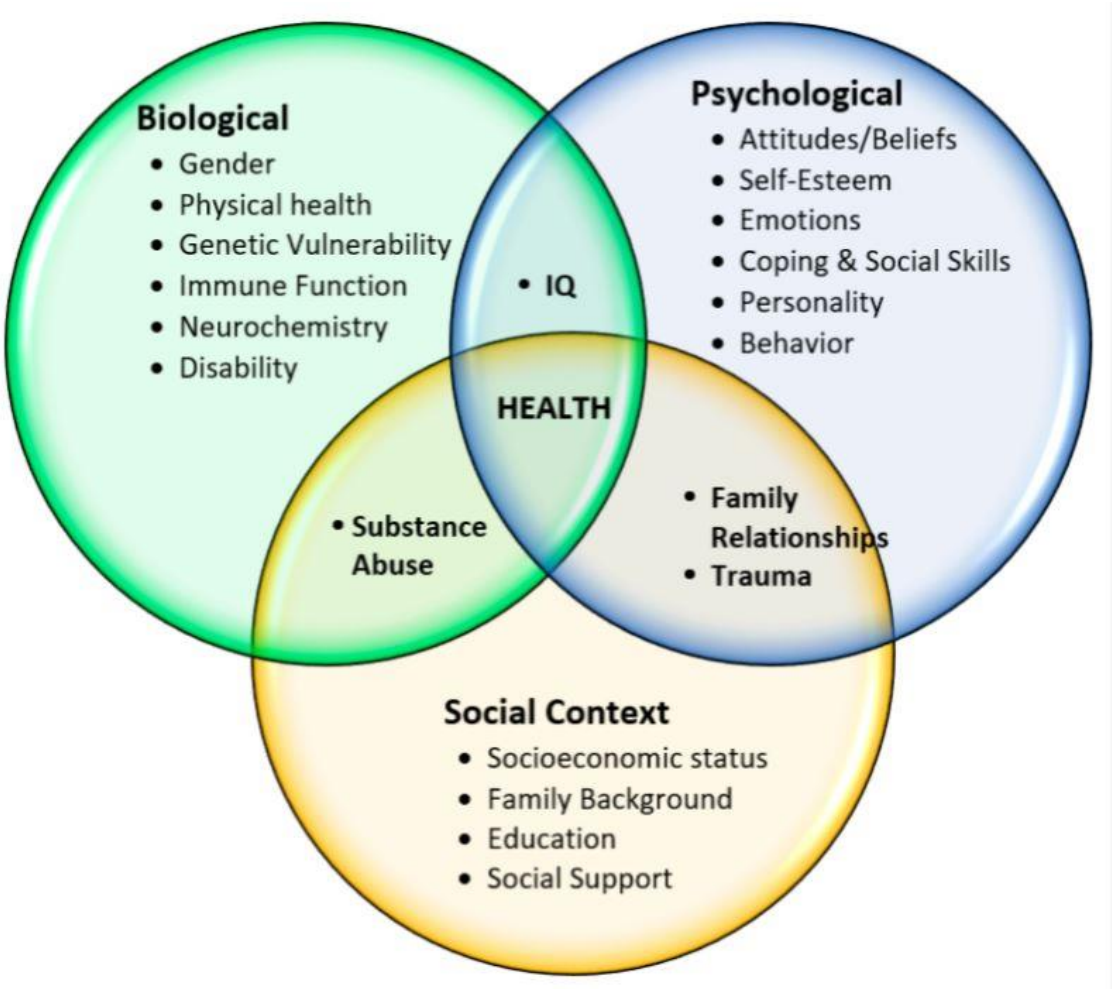
1.3 The Role of a Psychologist

The changing context of healthcare delivery in Aotearoa indicates a strong need for trained healthcare providers, such as psychologists, who can play an essential role across the spectrum of health. Psychologists are also well-positioned to provide psychological input as a part of a systematic response to the COVID-19 pandemic (Houtsma et al., 2021). Psychologists are in high demand due to their capabilities in helping to minimise inequitable adverse health outcomes and improving health and wellbeing (Ross et al., 2009). In general, psychological interventions have proven to have substantial impacts on illness trajectories and the sequelae of illness, signifying the need to embed psychological support within healthcare services. (Wallace et al., 2014). Within multidisciplinary teams, psychologists can help minimise the pressure on healthcare providers by delivering psychological support to clients and their whānau (Stewart et al., 2014; Wahass, 2005).

The role of a psychologist encompasses the skills to assess and treat psychological issues and modify dysfunctional behaviours which are associated with mental and physical health issues (Wahass, 2005; Wan et al., 2021). Psychologists also help modify maladaptive risk behaviours and their influence on disease morbidity and mortality (Wallace et al., 2014). Psychologists are trained under the biopsychosocial model of health, which emphasises the reciprocal interactions between biological, physiological, and psychosocial factors that influence health and illness. Therefore, they can provide distinct benefits within healthcare settings (Gatchel & Oordt, 2003). Typically, interventions utilised to treat medical problems are underpinned by a biomedical or 'dualistic' view of health which posits that the mind and body are separate entities (Gatchel & Oordt, 2003). However, healthcare providers who support individuals with complex illnesses are beginning to recognise the reciprocity between the mind and the body and the importance of addressing the psychological sequelae of illness (Ross et al., 2009). As illustrated in **Figure 1,** the biopsychosocial model of health incorporates consideration of disability, cultural, environmental, genetic vulnerability, attitudes, emotions, cognitions, and socioeconomic status (Naughton, 2018). Thus, psychologists can add significant value within health settings by preventing and reducing disability, managing psychosocial factors which impact illness and improving the adherence and effectiveness of interventions (Ross et al., 2009; Stewart, 2008).

Figure 1

The Biopsychosocial Model of Disease and Illness (Naughton, 2018)



Psychologists are central to recovery as they are armed with extensive skills to collaborate with medical professionals to enhance health outcomes (Proctor & Vu, 2019). As integrative interventions are required that target the complex nature of physical and mental illnesses, psychologists can work alongside other healthcare providers to provide holistic and wrap-around strategies to improve functioning across the psychological, cognitive, emotional, behavioural, and spiritual dimensions (New Zealand Psychologists Board, 2022).

Providing psychological support to individuals to alleviate their distress and enhance functional status are crucial aspects of being a psychologist (New Zealand Psychologists Board, 2022). Psychologists conduct assessments, provide interventions, and support individuals in improving their wellbeing, enhancing functioning, and adjusting to illness (New Zealand Psychologists Board, 2022). Their skills also extend to health promotion,

cognition, and behavioural change domains (Wallace et al., 2014). Psychologists can perform tailored interventions, use formulation skills to adapt and combine strategies and understand evidence-based theories that underpin practice (Mobray, 1989; Stewart et al., 2014). This unique skill set allows psychologists to conduct comprehensive assessments of cognitions, behaviours, and biopsychosocial factors within care contexts (Mobray, 1989). Therapeutic approaches such as cognitive behavioural therapy (CBT), acceptance commitment therapy (ACT), relaxation training, and psychoeducation aim to help individuals effectively manage the factors which influence illness (Ross et al., 2009). Examples of conditions that psychologists are trained to assess and manage include addiction, anxiety, phobias, chronic pain, depression, grief, eating disorders, and stress (New Zealand Psychologists Board, 2022). Therefore, psychologists play a fundamental role within the changing context of healthcare practice.

1.4 Working as a Psychologist in Aotearoa

In Aotearoa, the journey to becoming a registered psychologist comprises certain obligations. The term ‘psychologist’ is registered under the Health Practitioners Competence Assurance Act 2003 (HPCA Act), which mandates that psychologists are competent in their area of expertise and, in doing so, ensures protection of the health and safety of the public (Legislation NZ, 2003). Registered psychologists who wish to practice have certain obligations, including holding a practicing certificate which is renewed annually and developing and maintaining a comprehensive list of professional competencies (New Zealand Psychologists Board, 2022).

The regulation of professional psychology practice is governed by the New Zealand Psychologists Board (NZPB). The Board implemented the Code of Ethics which presents ethical principles and values that psychologists must adhere to within their practice (New Zealand Psychologists Board, 2002). The Code of Ethics was created to unify psychological

practice across the profession, assist psychologists in ethical decision-making, and act as a resource for the public to develop an awareness of the professional responsibilities of a psychologist (New Zealand Psychologists Board, 2002). Respect for the dignity of persons and peoples, responsible caring, integrity in relationships and social justice and responsibility to society are the four fundamental principles that guide ethical psychological practice in Aotearoa (New Zealand Psychologists Board, 2002).

Where Psychologists Work

In Aotearoa, psychologists are employed along a continuum of primary, secondary, tertiary, and preventative care settings, such as hospitals, community mental health centres, primary health organisations, and rehabilitation facilities (New Zealand Psychologists Board, 2022). Within primary care, psychologists are employed to work directly with clients and help improve treatment outcomes for clients (Milgrom et al., 1994). Secondary care includes supporting the management of illnesses and using coping strategies and rehabilitation techniques to assist clients in adjusting to their illness (DHP, 2012). Tertiary care includes providing psychological support and assisting clients' recovery journey (Proctor & Vu, 2019). Within prevention settings, psychologists have been instrumental in preventing disease, promoting healthy lifestyle behaviours, and supporting the management of health conditions (Kasl-Godley et al., 2014). Psychologists may also collaborate with other organisations to develop and implement public health strategies. Furthermore, psychologist training incorporates the ability to deliver interventions across individual, whānau, organisational, and community levels (New Zealand Psychologists Board, 2022).

Access to Psychologists

Despite the immense need for psychologists to contribute towards improving health outcomes in Aotearoa, there are significant issues that deter access to psychologists. The

increasing demand for psychological services results from heavy caseloads, limited resources, and an overall shortage of psychologists (RNZ, 2021a). The New Zealand Government Inquiry into Mental Health and Addiction, He Ara Oranga (2018) referred to the immediate need to grow the psychologist workforce. Other issues embedded within psychological practice which hinder access to psychologists include lengthy waitlists, where clients remain on waitlists for approximately nine to twelve months (RNZ, 2021b). For example, due to unmanageable demands, up to 60 clients per month are being turned away by psychologists (RNZ, 2021a). Factors which delay access to psychologists can aggravate problematic health outcomes and exacerbate help-seeking barriers. Therefore, the difficulty in gaining access to psychologists is an essential issue that underlies the dissemination of psychological services. Within a context where services are stretched and complex care requirements are unmet, the gaps which create barriers to accessing psychological services for people with mental health needs are evident (Oranga Tāngata, Oranga Whānau, 2019).

1.5 Important Core Competencies for Psychologists

In Aotearoa, psychologists register under one of seven scopes of psychological practice. The scopes include intern psychologist, psychologist, clinical psychologist, neuropsychologist, trainee psychologist, counselling psychologist and educational psychologist (New Zealand Psychologists Board, 2022). The scopes inform the type and delivery of psychological practice, and each has specific competencies that must be maintained. As of February 2021, 3627 psychologists are registered under all scopes of practice and hold an annual practicing certificate in Aotearoa (New Zealand Psychologists Board, 2021).

Each psychologist is registered under the HPCA Act (2003). The HPCA Act (2003) requires psychologists to maintain clinical competence, cultural competence, and ethical conduct. To maintain competencies, psychologists must adhere to the Core Competencies and

Cultural Competencies standards (New Zealand Psychologists Board, 2011). Psychologists are encouraged to consistently engage in reflexive practice and upskill themselves through self-development practices, as maintaining competencies is a continuous process.

Core competencies include having knowledge that is necessary for investigating, explaining, describing, predicting, and modifying behaviour, affect and cognition (New Zealand Psychologists Board, 2018). Knowledge of psychological theories, evaluation and research techniques, models of change and methods of psychological enquiry are some key core competencies. Evaluation and critical analysis skills which inform the delivery and application of psychological practice are also examples of skills that underpin the core competencies (New Zealand Psychologists Board, 2018). Additional core competencies include working knowledge of all relevant legislation, codes of practice, best practice guidelines and clients' rights (New Zealand Psychologists Board, 2018). The HPCA Act and the Code of Ethics, combined with the Core Competency standards for psychologists, illustrate the need to continuously develop and maintain competencies for effective and appropriate psychological practice. The NZPB has also developed best practice guidelines to assist psychologists in conducting competent and ethical practice. Examples of best practice guidelines adopted by the NZPB include the Practice of Telepsychology (New Zealand Psychologists Board, 2012) and Informed Consent (New Zealand Psychologists Board, 2017). However, despite the changing context of psychological practice and the rapid diffusion of digital health, there are no specific core competencies that relate to digital health literacy.

Developing and Maintaining Cultural Competencies for Psychologists

Cultural competency refers to holding the necessary awareness, skills, knowledge, and understanding to provide effective and safe psychological services which acknowledge diverse worldviews and practices (New Zealand Psychologists Board, 2011). Cultural

competencies are centred on understanding the historical, social, and political influences on health, especially on psychological wellbeing, and how this pertains to individuals (New Zealand Psychologists Board, 2011). In Aotearoa, the HPCA Act (2003) also mandates that psychologists are culturally competent and conduct psychological practice, which is consistent with Te Tiriti o Waitangi. While the HPCA Act (2003) mandates cultural competencies, the New Zealand Psychologists Board also specifies that psychological practice must reflect paradigms and worldviews of Te Ao Māori, and the beliefs and values which are positioned within tikanga Māori (New Zealand Psychologists Board, 2018).

The New Zealand Psychologists Board has developed Standards of Cultural Competence for all psychologists (New Zealand Psychologists Board, 2011). Psychologists are required to uphold these standards and hold working knowledge of Te Tiriti o Waitangi, which is imperative to culturally competent practice (New Zealand Psychologists Board, 2011). The three main principles of Te Tiriti: participation, protection, and partnership, must also be acknowledged and actioned, especially for the inclusion of Māori (New Zealand Psychologists Board, 2011). Working in culturally competent ways also mitigates the possibility of mistreatment and misdiagnosis. Key elements relating to cultural competence include an understanding of one's own and the client's heritage, values, and assumptions. Cultural competence guidelines also incorporate knowledge of how psychological theories are culturally embedded through the socio-political influences and historical practices, and the ability to modify and incorporate appropriate treatment plans (New Zealand Psychologists Board, 2011). Cultural competence promotes collaborative decision-making, autonomy, and self-determination. However, the Standards of Cultural Competence do not explicitly state how this might be related to the delivery of psychological practice via digital means.

1.6 Health Inequities and Cultural Competency

Cultural competency is recognised as an essential means of reducing ethnic health inequities and enhancing the quality of service in health, especially for Māori who experience disproportionate health inequities in Aotearoa (Curtis et al., 2019).

Māori are tangata whenua (indigenous peoples) in Aotearoa (Little et al., 2013). Te Tiriti o Waitangi prioritises Māori right to health, where Māori are supposed to thrive and have an optimal health status (Ellison-Loschmann & Pearce, 2006). Despite this partnership, growing health inequities are evident, as Māori experience disproportionately poorer health outcomes compared to their non-Māori counterparts (Lee et al., 2017; Sheridan et al., 2011). Te Rau Hinengaro (the New Zealand Mental Health Survey) reported that even though Māori and Pacific adults aged over 16 years had an increased prevalence of mental illness, they were less likely to receive treatment (Wells et al., 2006). These ethnic disparities are increasingly evident in Aotearoa, where Māori, Pacific, and Asian people are increasingly likely to be underdiagnosed with depression and anxiety disorders, compared to New Zealand Europeans (Lee et al., 2017).

The literature also signifies that Māori have higher unmet healthcare needs which are attributed to multiple barriers that inhibit access to care. Jansen and colleagues' (2008) research found that barriers such as distance to travel, lack of suitable appointments, waiting times, lack of autonomy in selecting providers and the inflexibility of healthcare systems, restrict access to quality care. Key themes of significant barriers across the literature also included transport costs, cultural barriers, and low health literacy (Sheridan et al., 2011). Cost is consistently identified as a significant barrier to accessing quality care (Jansen et al., 2008; Sheridan et al., 2011). Cost barriers such as consultation fees, prescription charges, lost wages due to leave from work and children's day-care costs were also identified (Jansen et al., 2008). As tangata whenua of Aotearoa, these inequitable health disparities indicate that

Māori rights, such as the right to health are not being upheld, although this was guaranteed when Te Tiriti o Waitangi was signed (Ellison-Loschmann & Pearce, 2006; Sheridan et al., 2011). The existing 'treatment gap' illustrates vast discrepancies between the proportion of the population in dire need of healthcare services and the proportion of the population that receives treatment (Kazdin, 2017).

As highlighted, there are vast health inequities in Aotearoa which necessitate that psychologists hold cultural competencies and exercise cultural safety to promote the needs of Māori and their whānau. Cultural competency and cultural safety at the individual psychologist, and organizational levels, has been identified as a critical factor in helping eliminate health inequities and contribute towards a healthcare system that delivers culturally appropriate care (Curtis et al., 2019). Additionally, solutions that can help minimise the barriers to care must be considered, which aim to reduce cost and transport barriers, as these can further contribute towards an equitable healthcare system.

1.7 Changing Context of Psychological Practice

The context of psychological practice is swiftly transforming. Rapid advances in digital health, limited clinical resources, and the high demand for psychological assessments and interventions are changing the face of psychological practice (Bucci et al., 2019; Morris & Aguilera, 2012). Novel technological developments present opportunities to empower clients and create strategies to meet the increasing demand for psychological services (Hollis et al., 2015; Kazdin & Blase, 2011).

Digital health has been rapidly implemented into modern day psychological practice, with the COVID-19 pandemic acting as a catalyst and influencing the magnitude of change (Sammons et al., 2020a; Sampaio et al., 2021). Due to the COVID-19 pandemic, psychologists swiftly moved to an "overnight transition from in-office practice to online practice" (Sammons et al., 2020a). The rapid developments and consistent use of these

technologies in our everyday lives further strengthened their diffusion into healthcare provision (Goldschmidt et al., 2021; Morris & Aguilera, 2012). Digital health can potentially transform assessment, diagnosis, and monitoring processes to obtain objectivity and reliability, as objective data can be continuously collected using digital technologies, to provide supplementary insights into behaviours and activities (Hollis et al., 2015). Thus, the extensive availability of digital health has also driven this changing context of psychological practice, where the delivery of psychological services has shifted from traditional, in-person modalities to digital modalities (Ebert et al., 2018; Fairburn & Patel, 2017). The current climate of modern-day psychological practice involves many digitally delivered psychological services such as telehealth services (remote, online sessions), self-management programs, online resources for psychoeducation and interventions, including websites, applications, and online support groups (Richards, 2013).

Within this rapidly changing landscape of psychological practice, psychologists must hold adequate digital competencies to conduct psychological practice safely and ethically (Ebert et al., 2018; Morris & Aguilera, 2012). However, the New Zealand Psychologists Board does not specify digital health literacy as a mandated competency despite this shift. Furthermore, psychologists must be adaptable and flexible to ensure that they can uptake these technologies and maintain their competencies (Bucci et al., 2019). Hence, psychologists must exercise their clinical judgement to respond with the best outcomes for their clients (Sammons et al., 2020b).

1.8 Summary

Psychologists are fundamental to improving health and wellbeing outcomes and minimising health inequities within healthcare settings. In Aotearoa, psychologists are registered under the Healthcare Practitioners Competence Assurance Act (2003). The profession is regulated by the New Zealand Psychologists Board and mandates the

development and maintenance of core competencies and standards of cultural competence. The swift implementation of digital tools and service delivery models during the COVID-19 pandemic to deliver psychological services fronted a rapidly changing context where psychologists switched from traditional in-person modalities to digital modalities. Modern day digital psychological practice requires psychologists to develop and maintain competencies in digital health to ensure the delivery of safe and ethical psychological practice. The current chapter highlighted the role of psychologists within the changing context of psychological practice in Aotearoa.

Chapter 2: Digital Health and Digital Health Literacy

2.1 Introduction

Chapter one described how the delivery of psychological services in Aotearoa is rapidly changing. Developments in digital health, alongside constraints on clinical resources, and demands for tailored, cost-effective interventions, are changing the face of psychological practice (Morris & Aguilera, 2012). The rapid digitalization of psychological services was further catalysed by the COVID-19 pandemic and associated lockdowns, during which psychologists had to utilise digital technology to provide routine care to their clients as in-person services were not possible (Sammons et al., 2020a).

This chapter builds on previous discussions by considering how digital health is translated within the context of psychological practice.

2.2 What is Digital Health?

Digital health refers to the use of digital technologies and accessible data to support New Zealanders in managing their health and wellbeing (Ministry of Health, 2021). Digital health also refers to using accessible data to help people attain higher standards of health and manage illnesses (Ministry of Health, 2021; WHO, 2021). The broad umbrella of digital health incorporates digital technologies such as telecommunications software, telehealth services, electronic health records (EHRs), mobile health (mHealth), and wearable devices (Ronquillo et al., 2017). Although digital health tools such as websites and applications are now commonly used in psychological practice (Morris & Aguilera, 2012), telehealth services are currently the most common digital health solutions (Zor, 2012). Telehealth refers to the provision of healthcare services using technological modalities that could be used as an alternative or as complementary to traditional in-person modalities (American Psychological

Association, 2021). Telehealth offers the ability to conduct psychological practice such as assessment, diagnoses, and supervision processes remotely (Nickelson et al., 1998).

The COVID-19 pandemic influenced an increase in the uptake of digital health in Aotearoa. Before the pandemic, some district health boards (DHBs) had well-established telehealth services. However, for most DHBs, an unanticipated surge in telehealth appointments meant that clinicians had to rapidly adapt to the 'new norm' to deliver healthcare services (HiNZ, 2020). A recent report by Health Informatics New Zealand (HiNZ) revealed that the uptake of digital health across 17 DHBs has drastically increased from conducting approximately 3,300 telehealth consultations from November 2019 to January 2020 (pre-COVID-19) to 34,500 consultations per week in April (HiNZ, 2020). For example, Waitemata DHB has been maintaining an increase in telehealth consultations post-lockdown and is making considerable strides toward integrating telehealth services into routine care to complement in-person consultations (HiNZ, 2020).

Mahoney and colleagues (2021) provided further evidence of the increased uptake of digital health. Their study focused on digital mental health services such as the 'Just a Thought' website which offers psychological support and psychoeducation to New Zealanders (Wisegroup, 2021). Their study demonstrated a significant increase in digital mental health services uptake during the COVID-19 pandemic in Aotearoa, compared to prior months. Prior to the COVID-19 pandemic (from 12 December 2019 to 11 March 2020, the 'Just a Thought' website had 22,937 webpage views, 1907 course registrations, and 181 clinician registrations. Comparatively, during the COVID-19 period (from 12 March 2020 to 11 June 2020), the website had 167,972 webpage views, 5442 course registrations, and 441 clinician registrations (Mahoney et al., 2021). This promising evidence reveals a large volume of users are accessing digital health services. Thus, the increased uptake of digital health is highly evident in Aotearoa.

2.3 The Advantages of Digital Health in Promoting Access and Enhancing Communication

Using digital health to deliver psychological practice in Aotearoa has numerous advantages. As current healthcare service delivery models fail to meet priority groups' (such as Māori and Pacific) requirements, health inequities are growing (Palmer et al., 2019). The use of digital health is seen as a significant advantage and potential solution to address health inequities through improving access to psychological services (Munoz et al., 2018). For clients who live in rural areas or areas with a shortage of trained healthcare providers, digital health can help overcome barriers of access and distance and offer greater flexibility (Hollis et al., 2018; Pote et al., 2021). Using digital interventions may also be increasingly relevant for population groups with disabilities for whom accessing in-person services may prove difficult (Mikolasek et al., 2018).

Additional benefits of digital health include less time spent in travel to and from the provider's office, improved symptom management and monitoring, the opportunity to integrate multimedia such as videos and animation into consultations, and the convenience of communication outside of a traditional healthcare environment (Conard, 2019; Weightman, 2020). Most importantly, some digital health tools such as applications and websites are available twenty-four hours a day, seven days a week, which is especially beneficial for clients who cannot access healthcare services during traditional service hours due to work or whānau commitments. This increased availability of digital technologies supports greater equity in access to healthcare services and provides clients, carers, and others with greater choices (Wyatt & Sullivan, 2005).

As discussed above, an example of accessible psychological services in Aotearoa includes the website 'Just a Thought,' which offers online cognitive behavioural therapy (CBT) resources to help with anxiety, sleep, and mindfulness practice (Wisegroup, 2021).

This digital health resource is a learning tool that enhances mental wellbeing and allows people to access support as required. A benefit of this type of resource is that there is no cost associated with the tool for New Zealanders. The CBT content of this online therapy tool has been clinically tested and proven to alleviate mild-to-moderate symptoms of anxiety and depression (Andrews et al., 2018). Likewise, the high use of other digital health tools, such as social media platforms (e.g. Facebook) provides the potential for clients to access support and health information in engaging and informal ways, bridging barriers to access (Hollis et al., 2018). These advantages may prove beneficial for clients from low socioeconomic backgrounds for whom financial barriers such as the high transport or parking costs prevent access to healthcare services. Hence, digital health has the potential to increase the reach of psychological services to populations most in need and provides convenient and improved access to services for groups whose needs are not being met by conventional services (Conard, 2019; Fairburn & Patel, 2017).

Digital health has the potential to enhance communication between clients and healthcare providers, and also within provider teams because of the opportunity for real-time monitoring and dynamic feedback (Morris & Aguilera, 2012; Wyatt & Sullivan, 2005). These improved communication avenues can result in fewer appointments and increased treatment adherence (Wyatt & Sullivan, 2005). Digital health also opens pathways to collaboration within and across multidisciplinary teams involved in managing people with chronic health conditions (NHS, 2017). For example, electronic health portals employed within many healthcare organisations offers secure access to client health information to multiple teams (Hill, 2016). Thus, digital health can help streamline and integrate information between client and provider teams to deliver psychological practice.

2.4 Digital Health Initiatives in Aotearoa

Government initiatives have been implemented to address barriers to access to ensure the equitable distribution of digital tools. In Aotearoa, a Digital Health Strategic Framework was designed to offer direction and guide the use of digital health to promote an equitable health system (Ministry of Health, 2020a). This framework encompasses a person-centred approach which prioritises the needs of clients, providers, and researchers for optimising digital health services. The framework consists of strategic digital objectives, capabilities that support the development and utilisation of digital technologies, core principles, and a critical focus on enablers and implementation within the digital environment. The development of this framework by the Ministry of Health (2020a) validates the importance of digital health in Aotearoa.

Digital Health 2020 is another initiative designed by the Ministry of Health to develop essential digital technologies outlined in the New Zealand Health Strategy (Ministry of Health, 2020b). Digital Health 2020 guides strategic investments within the health and disability sector and highlights five main components. Firstly, the push towards an electronic health record for New Zealanders is prioritised to streamline health information which is accessible to clients, decision-makers, and healthcare providers. A health and wellness dataset is the second component that supports governmental strategies by providing access to health information and making evidence-based decisions. Thirdly, preventative health IT capability which focuses on information and communication technology capabilities to support public health initiatives is suggested. To boost digital capabilities within hospitals, digital hospitals are proposed. Lastly, regional digital health foundations that provide regional access to health information, help support digital capabilities within hospitals and deliver the electronic health record are proposed (Ministry of Health, 2020b).

This section highlights the delivery of healthcare services is rapidly transitioning from

in-person to digital health modalities. The focus on digital health within these initiatives indicates that the government is placing significant funding and resources to progress the use of digital health, to make it accessible and improve digital capabilities across Aotearoa (Ministry of Health, 2020b).

2.5 Delivering Care During the COVID-19 Pandemic

Digital health can also provide significant benefits during a global pandemic, as it makes it possible to treat, diagnose and support the self-management of illnesses remotely (Mahmood et al., 2020). Digital health has played an essential role in providing convenient access to routine care amidst COVID-19 (Smith et al., 2020). The implementation of digital health allowed healthcare providers such as psychologists to provide routine services during lockdown restrictions and protect their clients and themselves from possible exposure to COVID-19 (Bruce et al., 2020). Thus, digital health worked particularly well in a rapidly changing environment which included social distancing policies and work-from-home instruction orders (Bruce et al., 2020). This shift towards digital health during the COVID-19 pandemic further pushed the transformation of psychological service delivery in Aotearoa.

Using Digital Health to Deliver Tailored Psychological Services

As discussed in Chapter 1, psychological practice typically involves a holistic approach, where psychologists explore the biopsychosocial factors which influence health and illness (Mobray, 1989). As health-related behaviours are influenced by social, cultural, environmental, and client factors, digital health can accommodate a variety of factors to assist the management and treatment of illness (Willcox et al., 2019). This means that digital tools can incorporate a deep understanding of the psychosocial context and perspectives of the patient, indicating endless possibilities for relevant and feasible interventions (Yardley et al., 2015). Therefore, one of the greatest technical benefits of digital health is adapting and

personalizing care for the client (Conard, 2019; Dunn & Hazard, 2019). These personalisation and adaptability features ensure that these digital technologies are relevant to the user and their psychopathology, and matches their needs (Fairburn & Patel, 2017). Personalised features can include the amalgamation of psychosocial, cultural, and environmental factors across these technologies.

Delivering psychological services through digital health has the potential to address the needs of the diverse, multi-cultural population of Aotearoa. It allows for languages and cultural contexts to be adapted to meet clients' needs. For example, Dobson et al., (2017) used mobile phones to deliver a culturally relevant mHealth programme for mothers and whānau. An individually tailored text message-based maternal health program (TextMATCH: Text for MATernal and Child Health) was explicitly developed for Māori, South Asian, Asian, and Pacific families in Aotearoa and delivered in 16 different languages or cultural versions. Feedback received from this mHealth intervention was positive, with participants affirming the messages were easy to understand and culturally relevant (Dobson et al., 2017). The success of this program highlights how digital health such as mHealth interventions are well-suited for multiple ethnic minorities who may experience barriers to accessing healthcare services aligned with their culture or delivered in their language.

Similarly, digital tools which integrate culturally relevant features can also help deliver psychological services to specific demographic groups. For example, SPARX is a computerised cognitive behavioural therapy intervention developed for adolescents seeking help to reduce symptoms of depression in Aotearoa (Merry et al., 2012). This interactive fantasy game included gamification features designed to enhance learning and support behaviour change, uptake, and engagement, especially for adolescents (Fleming et al., 2021). A randomised controlled trial concluded that SPARX had the potential to be an effective alternative for adolescents experiencing depressive symptoms (Merry et al., 2012). Most

importantly, SPARX was considered an acceptable and engaging intervention for Māori adolescents (Shepherd et al., 2015; Shepherd et al., 2018). Engaging with Māori adolescents using digital health tools such as SPARX promotes access and helps address the unmet demand for psychological services (Merry et al., 2012). As Māori adults are more likely to have mild or greater anxiety or depressive symptomology (Ministry of Health, 2020c), the advantage of digital health in delivering psychological services which can be catered to specific audiences is promising.

2.6 Digital Competencies for Digital Health

Although digital health is widely used globally, minimal attention has been devoted to the necessary digital competencies of healthcare providers required to navigate this changing digital landscape and leverage the benefits of digital health (Hill, 2016). The assumption that digital health can benefit clients and transform healthcare service delivery is dependent on the basis that healthcare providers and clients have the appropriate digital competencies to use them effectively (Harris et al., 2019; Kemp et al., 2021).

Digital competence is an important skill set of abilities, strategies, knowledge, and attitudes required for ethical and responsible use of information communication technologies (Ferrari et al., 2012; Jarva et al., 2022). Digital health literacy has been identified as one core digital competency for digital health (Nazeha et al., 2020; Norman & Skinner, 2006). Therefore, digital health literacy is a vital component of this discussion which advances important factors such as access and uptake of effective support tools (Robbins & Dunn, 2019).

Even though digital health is being rapidly implemented, recognition of the mandatory digital competencies required by psychologists to effectively utilise these solutions is absent. Similarly, research exploring the current digital competencies of psychologists working in Aotearoa is lacking.

2.7 What is Digital Health Literacy?

Despite the benefits associated with transforming the delivery of psychological practice, the uptake of digital health has been problematic. Emerging research determined that one key factor which prohibits successful implementation of digital health is the low digital health literacy (or eHealth literacy) of clients and healthcare providers (Ross et al., 2016). Literacy is recognized as an important factor within our society. Literacy skills are critical, especially in the context of health, as clients who are literate can understand and process critical information such as recommended medication dosage, treatment adherence requirements, and clinician advice (Bodie & Dutta, 2008). As healthcare organisations predominantly employ online health portals and move towards electronic health records, the requirement to have appropriate digital health literacy skills for clients and providers to better manage health and communicate effectively within their care environment is heightened (Hill, 2016; Holt et al., 2020). Digital health literacy is one arm of literacy that emphasises the literacy skills required for digital health.

Digital health literacy, or eHealth literacy, is "the ability to seek, find, understand and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem" (Norman & Skinner, 2006). Digital health literacy can be classified as context-specific and analytical skills, which are required to evaluate and navigate the web to search for health information online and make informed decisions (Norman & Skinner, 2006). Due to the growing use of digital health within all disciplines, digital health literacy is considered an essential skill (Norman & Skinner, 2006) and "the right of every New Zealand citizen" (Bunker, 2010).

Digital health literacy skills are necessary to ensure equal access to opportunities and minimise health inequities (Hill, 2016). Identifying the sociodemographic context of digital health literacy is becoming highly necessary, as digital health also plays a significant role in

delivering healthcare services (Papp-Zipernovszky et al., 2021). While substantial evidence is lacking from Aotearoa, a small body of literature is available on the varying levels of digital health literacy across diverse populations. Globally, preliminary data suggests themes of high, medium, and low digital health literacy. For example, generational gaps were evident across 522 respondents in Hungary, where 'Baby boomers' (1946-1964) had the lowest scores of digital health literacy (Papp-Zipernovszky et al., 2021). Comparatively, Kuek and Hakkennes (2020) concluded that within a sample of 407 healthcare providers in Australia, a significant majority (70-80%) of respondents reported high digital literacy. Similar findings were obtained by Shiferaw and Mehari (2019), who found good digital health literacy among 291 healthcare providers in Ethiopia. For Māori and Pacific populations in Aotearoa, for whom health inequities exist, building digital skills can be a step forward to support improvements in digital health literacy, which in turn, enhances health outcomes.

If clients have low digital health literacy, this can perpetuate health disparities and further disadvantage the groups who are most in need (Harris et al., 2019; Lyles & Sarkar, 2015). For example, although health portals can offer clients increased and secure access to their health information, they can be challenging to operate, especially for people with limited digital literacy (Lyles & Sarkar, 2015). Thus, the increased reliance on digital health to disseminate healthcare services and health information can encourage digital health literacy and minimise existing health inequities, or can exacerbate them (Bodie & Dutta, 2008; Dunn & Hazard, 2019; Holt et al., 2020).

The Importance of Digital Health Literacy for Healthcare Providers

Building digital health literacy skills has been considered as a strategy for addressing health inequities (Harris et al., 2019). As these skills are required to access digital health technologies, understand online health information, and communicate across care teams,

building digital health literacy for healthcare providers can promote client use and engagement with digital health (Harris et al., 2019). As digital health literacy fundamentally relates to abilities that can potentially minimise health disparities, it interacts with social determinants of health such as employment, education, and housing (Kemp et al., 2021). Digital health literacy also emphasises the ability of healthcare providers to determine the credibility of resources, interpret health information and comprehend specialized vocabulary (Harris et al., 2019). While analysing and evaluating digital information may be complex and challenging, it allows healthcare providers to disseminate accurate, appropriate, and up-to-date information to a broad audience (Klecun, 2010). While analysing the credibility of resources, healthcare providers must also understand how security and privacy are associated with websites and data encryptions (Tullio et al., 2020). Thus, digital health literacy also involves recognising the importance of privacy, confidentiality, and security when using digital health so that both parties have private and secure interactions (Tullio et al., 2020).

Digital health literacy is as much about the person receiving the care as it is about the healthcare providers delivering the services because it is a process of collaboration and information-sharing (Robbins & Dunn, 2019). For healthcare providers, their digital competencies, knowledge, and confidence can act as a perceived barrier to the implementation of digital health (Pote et al., 2021). Digital literacy levels have also influenced staff engagement and attitudes towards digital technologies (Ajami & Bagheri-Tadi, 2013). As the delivery of healthcare services using digital health keeps evolving, assessing digital health literacy, and continuously upskilling the workforce is essential (NHS, 2017). Therefore, a key strategy for healthcare organisations is to improve the digital health literacy of the community, including the healthcare workforce (NHS, 2017).

The National Health Service (NHS) in the United Kingdom has developed a Health and Care Digital Capabilities Framework designed to improve the digital competencies of the

healthcare workforce (NHS, 2018). It was designed with input from healthcare stakeholders to promote digital enablement and empower staff to enhance their digital capabilities and deliver high-quality care. The framework's focus is to demonstrate that digital health literacy is person-centred and can be categorised into six main domains of capability, illustrated in **Figure 2**.

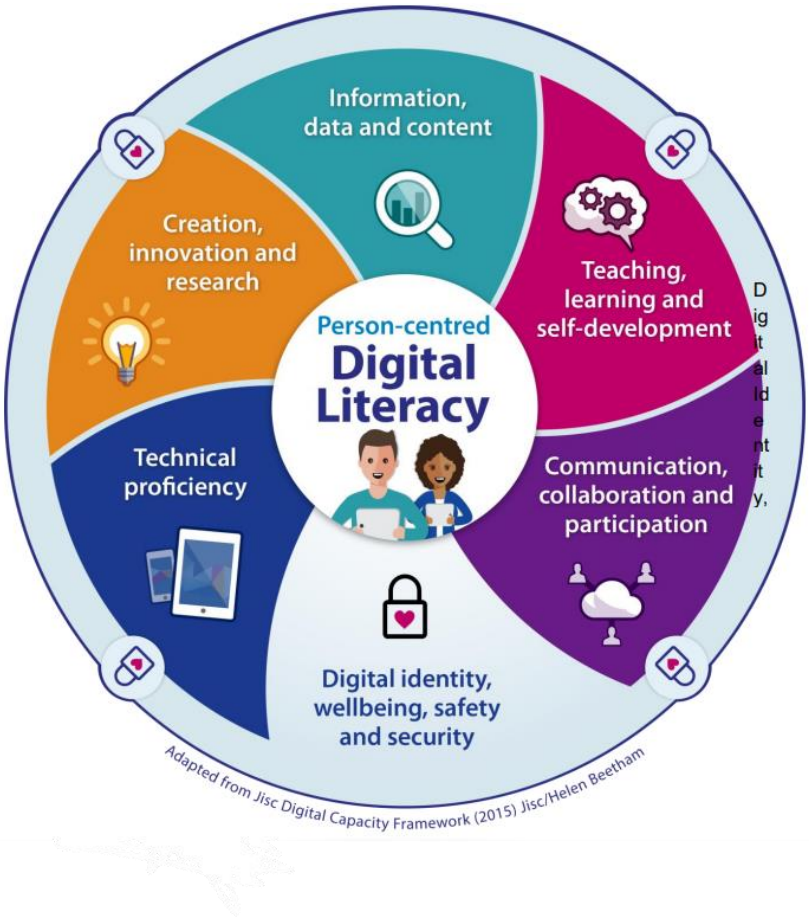


Figure 2

A Health and Care Digital Capabilities Framework (NHS, 2018)

This framework exemplifies the multifaceted nature of digital literacy. It can be implemented for self-assessment, to help identify learning and developmental needs, and inform personal and professional development plans. It can also be applied to guide formal, informal, directed, and self-directed learning for reflection and goal setting, and evaluation of

progress and performance. Furthermore, these six domains can inform training, digital transformation strategies, resources, and interventions to build digital literacy (NHS, 2018).

2.8 Digital Health Literacy for Psychologists

The digital health literacy of the healthcare workforce is a growing focal point (MacLure & Stewart, 2018). Within the New Zealand workforce, if information and communications technology competence are addressed, it is estimated that this can potentially create a productivity gain of approximately $1.7 billion per annum (Bunker, 2010). Thus, addressing digital health literacy skills enhances productivity at the individual, organisational and national levels and contributes to vast social and personal benefits (Bunker, 2010).

Psychologists working in physical, mental, and community health settings must be competent, capable, and confident in using digital health (NHS, 2018). Surprisingly, although this is a crucial topic to investigate, little is known about psychologists' digital health literacy in Aotearoa. Despite the recognition that digital skills for psychologists are required, there are no current standardised guidelines, digital competencies, or registration requirements for psychologists in Aotearoa (New Zealand Psychologists Board, 2021). However, due to the increased use of telehealth services such as telepsychology, the New Zealand Psychologists Board has developed some best practice guidelines for the practice of telepsychology (New Zealand Psychologists Board, 2012). These guidelines include the risks and benefits of telepsychology, regulatory issues, and ethical principles. The main principle is that the standard of care provided via telecommunication technologies should be equivalent to the standard during an in-person consultation (New Zealand Psychologists Board, 2012). However, consideration of the necessary digital competencies psychologists must hold is absent. This absence, coupled with the rapid expansion of digital health, highlights the need

to investigate the current psychologist workforce's digital health literacy and training needs (Pote et al., 2021).

In comparison, the NHS introduced a comprehensive set of digital competencies in collaboration with the British Psychological Society (2020), designed explicitly for psychologists. These digital competencies are categorised under eight distinct domains as shown in **Appendix A.** This list covers vital knowledge and abilities including client consent, client participation, equity of access and choice. Each of these digital competencies is important to adhere to when psychologists work digitally with clients. This list illustrates a set of complex and multidimensional digital competencies which are fundamental for psychologists using digital health to conduct psychological practice (NHS, 2020). This list of capabilities for psychologists can be used to explore the current digital competencies of psychologists working in healthcare settings.

Exploring the digital health literacy of psychologists in Aotearoa can provide important information on potential limitations within training curriculums and inform plans to ensure that the needs of the psychological workforce are met. This is crucial to investigate as training curriculums must support psychologists in conducting ethical and effective psychological practice using any modality (Pote et al., 2021).

As healthcare providers, psychologists should be encouraged to maintain and improve their digital health literacy as technologies advance to ensure they can provide high quality care. Therefore, improving the digital health literacy of psychologists may also help increase the digital health literacy of clients, which may assist in the development of a digitally literate society. This has been found to predict behaviour change and engagement with the healthcare system (Conard, 2019). By improving digital health literacy, healthcare providers can also successfully direct clients to verified and evaluated sites (Klecun, 2010).

Digital health literacy skills also relate to healthcare providers' ability to

communicate effectively with their clients to promote the uptake of digital health solutions. If psychologists have high digital health literacy, they can appropriately use digital health to benefit and promote the use of digital health to their clients. The transactional nature of the existing traditional healthcare system can prove challenging when trying to bring clients into the conversation (Robbins & Dunn, 2019). For the healthcare workforce, particularly psychologists, being advocates and promoting the use of digital health by self-adoption and uptake may be powerful. Clients may seek advice, recommendations, and support from psychologists. Thus, this is an opportunity for the psychologist workforce to improve health outcomes by promoting a collaborative approach where clients use digital health to manage their condition and sustain their care (Harris et al., 2019).

2.9 Developing Digital Competencies

Although digital health literacy has been identified as a core digital competency, there is a lack of existing literature that explicitly examines healthcare providers' digital health literacy (Kuek & Hakkennes, 2020). However, preliminary evidence suggests that some demographic and clinical factors are associated with digital health engagement and digital competencies. There may be a possible overlap between these two distinct components where predictors of digital health engagement may predict digital competencies.

Predictors of Digital Competencies

A study conducted by Shiferaw and colleagues (2020) was one of the first to examine healthcare providers' digital competencies in North-West Ethiopia. Their analysis concluded that demographic characteristics such as sex, profession type, education status, and years of experience were statistically significant predictors for digital competencies. Within this context, male participants were increasingly likely to have greater digital competencies in comparison to female participants. Interestingly, findings concluded that age was not a

statistically significant predictor of digital competencies, regardless of age being considered a significant predictor of digital competencies in other studies (Ajami & Bagheri-Tadi, 2013; Huryk, 2010). A high educational status was also positively correlated with high digital competencies across providers in developing countries (Alwan et al., 2015; Jain et al., 2020; Shiferaw et al., 2020). Lastly, years of experience was also considered as a predictor of digital competency, where increased experience was associated with lower digital competency. This may predict digital competencies, as the process of acquiring novel knowledge and skills takes considerable time and effort (Hames et al., 2020). Shiferaw and colleagues (2020) found that a single unit increase in years of experience translated into 31% less of a chance of having higher digital competency. Findings are consistent with other studies which highlight that increased years of experience are associated with lower digital competency (Alwan et al., 2015; Gour & Srivastava, 2010; Mohammed et al 2013).

Predictors of Digital Literacy

A minimal number of studies exist that specifically examine digital literacies. For example, a study conducted by Kuek and Hakkennes (2020) on the digital literacy of healthcare staff found that participants who indicated that they were frequent users of computers expressed higher confidence levels with digital tools. Particularly, staff aged under 50 years reported significantly increased confidence levels with computers, Microsoft Word, smartphones, email, and the internet compared with staff aged 50 years and over. Findings are consistent where positive correlations are found between the perceived ease of use and attitudes towards digital health, which influenced self-efficacy and the intention to use digital health (Chau, 2001). Another noteworthy study specifically analysed the predictors of digital health literacy within a population with moderate to high cardiovascular risk in Australia. Richtering and colleagues (2017) concluded that clients who were older (approximately 68 years and above), had lower levels of education status, and spent little time on the internet

were found to have lower digital health literacy. After adjusting for demographic factors, time spent on the internet was significantly associated with digital health literacy. Participants who spent less than an hour on the internet every day were 2.45 times more likely to have lower digital health literacy in comparison to participants who spent upwards of an hour per day on the internet. While these studies examined digital literacy, digital health literacy remains unexamined within a psychologist workforce specifically. However, this data indicates that engagement with digital health may predict digital health literacy.

Predictors of Engagement and Uptake of Digital Health

Demographic characteristics, clinical factors, and the abilities and attitudes of healthcare providers have been cited as factors that predict the engagement and uptake of digital health (Boonstra & Broekhuis, 2010; Gagnon et al., 2012). Factors that predict the engagement and uptake of digital health may also contribute to the development of digital health literacy in psychologists in Aotearoa.

Specific demographic characteristics of healthcare providers also influence digital health engagement. While evidence suggests that gender, age, and ethnicity may influence on attitudes towards digital health (Goldstein et al., 2014; Ross et al., 2016), clear associations between these factors remain unestablished. For example, psychologists aged between 50 and 60 years may be reluctant to adapt to the changing context of psychological practice (Zur & Zur, 2011). In comparison, another study found that age did not significantly predict engagement with telepsychology (Pierce et al., 2020).

Clinical factors such as guidelines and competence frameworks, improvements in information technology (IT) governance, and the technologies could also influence the development of digital competencies (Pote et al., 2021). For example, lack of training has been identified as a barrier to developing digital competencies. A survey of 207 health providers found that over 80% of providers believed that current digital health training is

inadequate (Steen & Mao, 2016).

Healthcare providers who hold negative attitudes toward digital health may also hesitate to use digital health in practice (Shiferaw et al., 2021; Zor, 2012). Some providers may feel that digital health may not be beneficial to their clients or lack significant promise, as they may prefer traditional in-person modalities of care. The intention to utilise technology is associated with attitudes towards the technology rather than the actual use, which is influenced by the intention, self-efficacy beliefs, and effort and performance expectancies (Shiferaw & Mehari, 2019). Therefore, understanding healthcare providers' attitudes and which factors they consider as motivators or barriers is crucial to developing digital health competencies.

Overall, there is still a lack of evidence on the specific factors that may predict digital competencies such as digital health literacy in psychologists. However, a combination of multifaceted components, such as clinical and demographic factors that influence the implementation and uptake of digital health may likely influence the development of digital health literacy. To address gaps in healthcare and meet service demands, developing a psychologist workforce with digital health literacy and the motivation to serve communities most in need is imperative (Perrin et al., 2020). Thus, to enhance and maintain the digital health literacy of the psychologist workforce in Aotearoa, the factors that influence and hinder the development of this competency must be identified.

2.10 Summary

Digital health has the potential to transform how psychological services are delivered. Within the broad scope of digital health, an extensive range of digital tools and technologies can help address the vast health inequities in Aotearoa and make psychological services accessible to priority groups. National digital strategies and initiatives have been designed to

offer direction and guide the use of digital technologies to promote an equitable healthcare system (Ministry of Health, 2020b). However, discussions surrounding the delivery of psychological services using digital health requires conversation about psychologists' digital health literacy which is required to ensure effective psychological practice. Digital health also empowers clients through a person-centred approach, which promotes active participation in the care and management of their illness. Thus, the benefits of digital health can be harnessed to support improved health outcomes.

Digital health literacy is a vital component to explore when examining the factors that influence the provision of psychological services. By exploring the digital health literacy of psychologists in Aotearoa, we can identify the existing competencies of psychologists and their possible predictors. By enhancing the digital health literacy of psychologists, digital interventions and solutions could potentially be recommended as first-line treatments and revolutionise psychological practice.

Chapter 3: The Likely Importance of Compassion and Burnout in the Development of Digital Health Literacy in Psychologists

3.1 Introduction

The COVID-19 pandemic necessitated a swift transition to digital health due to the need to deliver continued psychological support in the context of physical distancing and lockdowns (Bruce et al., 2020). With the acceleration of digital health, services such as telehealth have shifted from being optional to being essential (Gray et al., 2020). Preceding chapters have discussed a) the role of psychologists, b) the importance of developing and maintaining competencies in their professional practice, and c) how the rapidly changing context of psychological practice necessitates digital competencies such as digital health literacy. Due to the swift uptake and use of digital health to deliver psychological practice, there is a high need to understand the digital competencies required to ensure the delivery of quality client-centred psychological practice. Preliminary data indicate that clinical and demographic characteristics such as age and years of experience may predict digital competencies (Kuek & Hakkennes, 2020; Shiferaw et al., 2020). However, further investigations are required to understand whether other factors might influence the development of digital competencies in psychologists. With this focus in mind, the current chapter considers how two fundamental elements of psychological practice (i.e. compassion and burnout) may play a role in the development of digital health literacy.

3.2 What is Compassion?

Compassion is recognised as the foundation of effective clinical practice and is expected from healthcare providers (Fernando & Consedine, 2014). Compassion is defined as having an understanding and sensitivity towards the suffering of others, combined with the motivation to alleviate this suffering (Sinclair et al., 2016). Compassion produces an emotional and functional response that pre-empts the mind and body to care for others (Peters

& Calvo, 2014). Compassion is sensitive to suffering and incorporates a caring approach (Peters & Calvo, 2014). Five core dimensions of compassion that have been identified include, 1) the acknowledgement of the presence of suffering, 2) understanding the universality of suffering as a human experience, 3) developing connections to others who are suffering, 4) accepting feelings of discomfort and 5) having the motivation to alleviate the suffering (Gu et al., 2017; Strauss et al., 2016). Therefore, compassion has been primarily theorized as a state, trait, and motivation (Peters & Calvo, 2014).

3.3 How Does Compassion Differ from Empathy and Sympathy?

In essence, compassion is a distinct construct that is fundamentally different from related constructs such as empathy and sympathy (Sinclair et al., 2017; Sprecher & Fehr, 2005).

Empathy refers to the emotional and cognitive processes which focus on obtaining the perspective of others' experiences (Engelen & Rottger-Rossler, 2012; Peters & Calvo, 2014). This indicates that fostering empathy is crucial to society, especially for healthcare providers (Peters & Calvo, 2014). Empathy causes an inward focus, where an individual absorbs the vicarious negative emotion, whereas compassion involves an outward focus and an active caregiving position (Peters & Calvo, 2014). In comparison, sympathy is conceptualised as feeling sorry or pity for another person during their suffering (Post et al., 2014), which lacks any conscious processes or thoughts (Sinclair et al., 2016). Sympathy commonly occurs for people within an ingroup but is less likely to occur for those in the outgroup (Engelen & Rottger-Rossler, 2012).

While empathy, sympathy and compassion are constructs which may be used interchangeably, there are key noteworthy differences between each. As emphasised above, the central aspect of compassion is the incorporation of selfless relational actions, where the altruistic role of the person responding tries to understand the other person (Sinclair et al.,

2016). Therefore, growing research must recognise the position and necessity of compassion within the delivery of healthcare practice using digital health.

3.4 The Need for Compassion in Professional Practice

Integrating compassion within healthcare practice has been associated with numerous advantages. Fostering compassion within healthcare practice has shown to build stronger therapeutic alliances between clients and healthcare providers (Kemp et al., 2021), where clients feel listened to and understood (Sinclair et al., 2016). Compassion can also positively influence health outcomes and symptomology (Vivino et al., 2009). Patient-reported clinician compassion is associated with improved patient satisfaction and lower overall distress (Lelorain et al., 2012). When communication with compassion occurs, clinical teams are increasingly effective, clients' safety and satisfaction is greater, and the ability to improve health-related outcomes is more likely (Lown et al., 2019). Stress buffering effects of compassion have also been identified where Pace and colleagues (2009) concluded that participation in compassion meditation was associated with immune responses to psychosocial stress. This evidence endorses the idea that individuals who have high compassion for others react to stress in healthier ways compared to individuals who do not have high compassion (Pace et al., 2009). Therefore, compassion is vital amongst healthcare providers.

Compassion is central to psychological practice given that the role of the psychologist is to provide support to alleviate others' suffering and distress (Wahass, 2005). Compassion should be weaved into the fabric of psychological practice (Gray et al., 2020). This inclusion can enhance the client-practitioner therapeutic alliance and positively influence health outcomes. Psychologists have an obligation under the HPCA Act (2003) to provide safe, ethical, and compassionate healthcare. Likewise, the New Zealand Psychologists Board, which regulates the profession, also mandates compassionate psychological practice within

the Code of Ethics (New Zealand Psychologists Board, 2002). Therefore, due to the numerous advantages of compassion within healthcare practice, psychologists are expected to provide compassionate and high-quality care to their clients, regardless of the environmental context or the mode of service delivery.

The Importance of Compassion in the Delivery of Digital Healthcare

The COVID-19 pandemic has required psychologists to embrace digital health. Digital health signifies a transformation in the process and manner through which care is delivered (Hilty et al., 2015). The use of digital health has reshaped the ways in which professionalism and values are upheld (Ellaway et al., 2015).

The move to digital health requires that psychologists maintain their compassionate approach. The extensive utilisation of digital health necessitates compassion by providers as they need to know how to leverage digital technologies to better understand the suffering and distress experienced by their clients, and to respond appropriately (Kemp et al., 2021). Kemp and colleagues (2021) substantiated that compassion is a core component of delivering healthcare services through digital health as compassionate perspectives can provide clinicians with enhanced awareness of the client's suffering (Kemp et al., 2021). Therefore, understanding how compassion is associated with digital competencies such as digital health literacy is fundamental to informing the delivery of digital psychological services.

Digital modalities may hinder psychologists from expressing emotional cues that convey compassion compared to an in-person encounter (Wiljer et al., 2019). Compassion can be expressed nonverbally through touch and physical presence in in-person settings. However, the lack of these components within digital modalities may compromise trust and weaken interpersonal connections (Gray et al., 2020). Hence, when using digital health to deliver healthcare services, compensations must be made for the absence of human touch and physical presence so that the quality of services is not compromised (Gray et al., 2020).

Healthcare providers such as psychologists must be able to maintain client-centred approaches through creativity and flexibility when using digital health, ensuring that the focus is placed on the patient's narrative (Terry & Cain, 2016). Healthcare providers must use digital health for positive purposes, which support patient care and compassion (Ellaway et al., 2015). It is likely that psychologists who are highly compassionate are increasingly able to navigate the transition of healthcare service delivery via digital platforms.

Without an understanding of the best practices of digital health for the delivery of compassionate psychological care, there is a high potential that the utilisation of digital technologies may weaken client-practitioner relationships, which are central to building a therapeutic alliance. However, when digital health is employed appropriately, digital health has the potential to strengthen compassion and build strong client-practitioner relationships (Mohr et al., 2013). Therefore, it is essential to examine whether psychologists who are highly compassionate towards others have high digital health literacy. Amongst the rapidly changing context of psychological practice, it may be possible that more compassionate psychologists could be increasingly willing to learn new skills to connect with their clients.

3.5 The Possible Influence of Compassion in the Development of Digital Health Competencies

As emphasised above, the need for psychologists to continuously adapt to evolving digital technologies is crucial. The rapid implementation of digital health offers novel contexts for the delivery of compassionate care, with opportunities for new competencies (Wiljer et al., 2019). Therefore, the definition of clinical competencies needs to be adapted to an increasingly technological world (AMS, 2018). Psychologists must have solid digital competencies grounded in the necessary attitudes, knowledge, and behaviours which will allow them to deliver effective, compassionate care (NHS, 2018).

Current requirements for competencies of psychologists in digital health have not kept

pace with the swiftly changing digital health contexts (Wiljer et al., 2019). Compassionate care is the foundation of healthcare practice and is associated with knowledge and positive attitudes towards digital health (Mesko & Gyorffy, 2019). As discussed previously, positive attitudes toward digital technologies may promote the uptake of digital health and subsequent development in digital health competencies (Shiferaw et al., 2021). Additionally, Kemp et al (2021) also found that healthcare providers' who feel reluctant to incorporate technology into client care may cause a barrier to delivering compassionate care using digital health. This evidence suggests that healthcare providers' attitudes and compassion may likely influence the development of digital competencies.

There is a notable absence of current research explicitly examining the possible influence of compassion in the development of digital health competencies. As psychologists are compassionate and motivated to alleviate suffering, this motivation may likely encourage the development of crucial competencies such as digital health literacy when delivering psychological practice using digital health.

3.6 Burnout in Healthcare Practice

Another factor that seems likely to influence the development of digital competencies is clinician burnout. Healthcare providers are employed within emotionally demanding roles (Kase et al., 2019), and healthcare professions are firmly grounded in human suffering and emotional expectations (Perez-Chacon et al., 2021). As noted, the COVID-19 pandemic is substantially impacting the provision of healthcare services (Hofmeyer et al., 2020) and has brought about an aggravated and stressful workload, heightened feelings of anxiety, uncertainty, and stress (Franza et al., 2020). This uncertain climate has induced significant burnout and compassion fatigue among healthcare providers. Both these constructs are characterized in different ways.

Briefly, compassion fatigue is a psychological state of anxiety or physical/mental

distress associated with the stress of caring for others during a prolonged period (Figley, 2002; Perez-Chacon et al., 2021). Compassion fatigue may hinder the therapeutic alliance between client and healthcare provider, cause communication deficits and influence the provision of compassionate care (Nolte et al., 2017; Perez-Chacon et al., 2021). Most importantly, compassion fatigue may also result in burnout or secondary traumatic stress.

In comparison, it is imperative to recognise the occurrence of burnout within healthcare practice. Burnout is a syndrome categorized by emotional exhaustion and depersonalization (Lahana et al., 2017). Evidence suggests that prolonged contact and exposure to the suffering of clients can also act as a stressor that influences the development of burnout and absence of personal fulfilment in healthcare providers (Canadas-De la Fuente et al., 2018; Duarte & Pinto-Gouveia, 2017). Burnout also encompasses the emotional affect related to feelings of frustration and helplessness which grow in healthcare providers' negative attitudes at work (Algunmeeyn et al., 2020). Core indications of burnout comprise of negative work-related attitudes, pessimism, and dissatisfaction (Dwyer et al., 2021).

Within psychological practice, when a psychologist listens to their client's experiences of trauma, anxiety, or other forms of distress, with the motivation to understand and alleviate their suffering, they may often experience similar emotions themselves (Dehlin & Lundh, 2018). This form of emotional contagion is a rudimentary component of human functioning and empathic concern, where compassion underlies the root of altruistic behaviours (Dehlin & Lundh, 2018). Practice factors such as extended working hours, a high emotional and cognitive load, the stigma of possible infection, and a lack of social support in the work and family environments can contribute to the development of burnout and distress in healthcare providers (Franza et al., 2020). High cognitive loads also contribute to experiences of burnout as the COVID-19 pandemic brings new challenges to the forefront (Simpson et al., 2021). Some additional causes of burnout include environmental factors and

working conditions, such as an overload of work, numerous shifts, and rotating shifts (Molina-Praena et al., 2018). Thus, when psychologists have heavy demands to exercise compassion frequently, they may develop burnout which hinders the delivery of compassionate care and may subsequently influence the development of digital competencies.

The Importance of Avoiding Burnout in Healthcare Practice

The COVID-19 pandemic has invaded professional and personal aspects of life, as healthcare providers experience stressors across both domains (Dwyer et al., 2021). Burnout can have detrimental effects on the health and wellbeing of a healthcare provider and reduce the capacity to provide compassionate and quality healthcare (Lown et al., 2019). Burnout can also result in the development of problematic physical and psychosomatic symptomology (Maslach et al., 2001), as it is associated with suboptimal performance, absenteeism, negative attitudes about work, poor quality of life, and poor psychological wellbeing in healthcare providers (Rahdar et al., 2020).

During these unprecedented times amidst the COVID-19 pandemic, the prevalence of burnout has been high. The loss of expectedness and continuous need for flexibility and adaptation within healthcare practice made providers feel fatigued (Venville et al., 2021). For example, significantly increased rates of stress, burnout, anxiety, and depression were found amongst 627 healthcare providers in Italy who were working with patients who contracted COVID-19. This high prevalence was predominantly found in areas with greater rates of contagion (Trumello et al., 2020). Findings are congruent with other studies, which indicate that the high prevalence of burnout has also been experienced by healthcare providers in Portugal (Serrao et al., 2021). Increased levels of work-related stress were also reported among 83 participants who had to adapt to employing telehealth without any support and were concerned about the impacts of this adjustment (Dwyer et al., 2021). This evidence

corroborates the high need to avoid and minimise triggers that can exacerbate burnout within healthcare practice.

A burnt-out workforce can also have adverse effects on client safety and satisfaction, reduce provider's productivity, high turnover rates, greater rates of clinical errors, and a lack of compassion when treating clients (Bauer-Wu and Fontaine, 2015; Penwell-Waines et al., 2018). Characteristics of burnout further include avoiding client interactions and reduced job satisfaction (De Hert, 2020). Burnout, coupled with increased reports of bullying and reduced morale, may perpetuate a negative cycle that can damage the provider's wellbeing and diminish the capacity to care for others (Bauer-Wu & Fontaine, 2015). In essence, burnout can decrease the quality of care (Shanafelt et al., 2002) and result in higher medical leave and absenteeism (Maslach et al., 2001). Therefore, investigating whether burnout is associated with digital health literacy in psychologists poses an interesting avenue for discussion, given the changing context of psychological practice.

One noteworthy study within this domain indicates the promising relationship between burnout and digital health literacy. A study conducted by Rahdar and colleagues (2020) on health information staff across hospitals in Iran found a significant association between burnout and digital health literacy. Their analysis concluded that for each unit of increase in digital health literacy, the frequency of burnout was reduced by 0.88. This study strengthens assumptions by indicating the presence of a significant negative correlation between burnout and digital health literacy. However, there is a significant shortage of literature on this association for psychologists in Aotearoa.

The Possible Influence of Burnout in the Development of Digital Competencies

Previous sections highlight how burnout can have negative consequences on the health and wellbeing of psychologists, and the importance of avoiding burnout within healthcare practice. Considering all these factors, the influence of burnout on the

development of digital competencies seems likely. It is presumed that these negative characteristics and consequences of burnout may be detrimental to the development of digital competencies such as digital health literacy in psychologists. As psychologists may be facing a heightened cognitive load (Simpson et al., 2021), they may refrain or be reluctant to develop and maintain digital competencies. Maladaptive behaviours such as avoiding client interactions may further demotivate healthcare psychologists from developing and maintaining digital health literacy. Nonetheless, whether burnout influences the development of digital health literacy within the psychologist workforce remains unexplored.

3.6. Summary

Understanding which factors predict the development of digital competencies such as digital health literacy is critical within the changing context of psychological practice. Compassion and burnout are fundamental factors that influence the delivery of psychological practice and seem likely to influence the development of digital health literacy. Where digital health continues to rapidly transform the delivery of psychological practice, psychologists must hold the necessary digital competencies to provide ethical and compassionate psychological practice, especially as the incidence of burnout among this population may be high.

Chapter 4: The Current Study

4.1 Introduction

Previous chapters emphasized how psychologists who are employed at the forefront of healthcare can minimise health inequities and enhance peoples' health outcomes through psychological intervention. These chapters have argued for the timeliness of this research, especially in the context of the COVID-19 pandemic, where the delivery of psychological practice has shifted from traditional in-person services towards digital modalities. This changing context signifies the need for psychologists to hold adequate digital health literacy. Psychologists are expected to develop and maintain new digital competencies continuously, and the evolving context of delivering psychological practice via digital means requires consideration of skills in this area. This chapter highlights the rationale, significance, and proposed aims of this research which seeks to clarify the existing digital health literacy of the psychologist workforce in Aotearoa.

4.2. Rationale and Significance of this Research

As noted in chapter one, the current literature consensus is that a high incidence of chronic mental and physical illnesses exists in Aotearoa (ASMS, 2019). The impact of such illnesses, alongside the growing health inequities in Aotearoa, indicates the need for healthcare providers to recognise the multifaceted interactions between mental and physical health to improve health outcomes (Wahass, 2005). Strategies that can minimise health inequities and enhance health outcomes are of priority in this context (Sheridan et al., 2011).

Emerging research has determined that psychologists can play an imperative role within this context, by improving clients' health outcomes and wellbeing (Gatchel & Oordt, 2003). Psychologists have numerous capabilities, including identifying the biopsychosocial

factors that influence health and illness, supporting the use of coping and management strategies, and positively enhancing lifestyle risk factors (Mobray, 1989). Thus, psychologists can work along the continuum of health, using holistic approaches to enhance psychological functioning across the emotional, cognitive, spiritual, and behavioural dimensions (New Zealand Psychologists Board, 2022).

Chapter two outlines how the rapid implementation of digital health, especially during COVID-19 restrictions, has transformed the delivery of psychological practice (Sampaio et al., 2021). Prior to the pandemic, psychologists traditionally conducted assessments and interventions in-person. However, the necessity of remote delivery of psychological services has shifted the practice towards digital modalities (Fairburn & Patel, 2017; Sammons et al., 2020b). As the need to effectively deliver psychological services online is growing (Andersson, 2016), digital health provides a promising avenue for communicating health information and making psychology services more accessible (Bruce et al., 2020). High engagement, broad reach, and convenient access to healthcare are some of the main benefits of digital technologies (Kemp et al., 2021). Digital technologies offer potential and can catalyse substantial healthcare advances (Conard, 2019).

The changing landscape of psychological practice implies that psychologists hold the necessary digital competencies to work safely and ethically with digital health (Sammons et al., 2020b). Since poor engagement with digital health and a lack of digital competencies influences the quality of patient care, the need to improve the digital health literacy of healthcare providers is heightened (Kuek & Hakkennes, 2020). Effective skills in digital health are necessary to positively affect outcomes (van der Vaart & Drossaert, 2017). Digital health literacy is required for the effective and ethical implementation of digital solutions for patient-centred healthcare (European Health Parliament, 2016). The advances in digital health are only beneficial if we understand how to use them effectively (European Health

Parliament, 2016). Therefore, a competent and digitally literate psychology workforce is required (Ajami & Bagheri-Tadi, 2013; Jimenez et al., 2020).

Prior to the COVID-19 pandemic, some healthcare providers had often been reluctant to embrace digital health, despite its proven benefits. This was attributed to the unwillingness of healthcare providers to adopt digital health (Wade et al., 2014) due to low digital health literacy (Gagnon et al., 2012; Jimenez et al., 2020; Kemp et al., 2021; Ross et al., 2016). Barriers such as these influence the adoption of digital health and further exacerbate health inequities and perpetuate barriers to care. Thus, a comprehensive understanding of the predictors which influence the use of digital health is also crucial to informing the current digital climate and delivery of psychological services in Aotearoa.

Chapter three explores whether personal factors such as compassion and burnout, which are necessary for psychological practice, may be associated with digital health literacy. Compassion in healthcare providers is fundamental for quality healthcare (Wiljer et al., 2019). Within the changing context of healthcare practice, prioritising the delivery of compassionate care and understanding others' suffering and distress through digital modalities is vital (Kemp et al., 2021). Therefore, as compassion is considered an integral component of healthcare practice, understanding its role in developing digital competencies such as digital health literacy is essential. Equally, burnout is also likely to be important. A growing body of literature highlights the significant impact of burnout related to the COVID-19 pandemic amongst healthcare providers (Dwyer et al., 2021). Burnout affects the ability of healthcare providers to deliver high-quality, compassionate care (Lown et al., 2019). Due to the negative consequences of burnout, the need to also investigate whether burnout is associated with digital health literacy is warranted.

In summary, although it is mandatory for psychologists to develop and maintain competency in delivering psychological care, there is a lack of existing literature examining

what competencies might mean in relation to digital health (Kuek & Hakkennes, 2020). Psychologists' perspectives and digital health literacy are underrepresented. There is a shortage of literature that investigates psychologists' digital health literacy and the barriers and enablers that influence the utilisation of digital technologies. Within the current climate, where psychologists may need to provide telehealth services and engage with digital health, wide variations likely exist between providers' comfort and competencies using digital technologies. The extant research also lacks a specific examination of the contextual challenges associated with implementing digital health to meet public health needs (Williams et al., 2020).

4.3 Research Aim

This study aims to address the gaps in the literature by exploring the digital health literacy of psychologists and investigating the factors that influence this group's digital health literacy and use of digital technologies. To achieve this, the overarching aim of this research was to develop a comprehensive understanding of the digital health literacy of psychologists working in Aotearoa. Data from this research will provide insights that can inform digital initiatives to enhance the delivery of psychological services via digital means. This research will provide evidence to highlight the extent to which practicing psychologists use, understand, and appraise health information using digital tools. Obtaining perspectives directly from psychologists will strengthen the applicability of this research within the discipline of psychology.

The research objectives of this study included:

1) *To measure the digital health literacy of psychologists working in Aotearoa.* The focus of this objective was to obtain insights into the existing digital health

literacy of the psychologist workforce and assess whether psychologists hold the skills to practice ethically and safely within the changing context of psychological practice.

2) *To identify the factors associated with digital health literacy in psychologists, including demographic and psychological factors such as compassion and burnout.* The question underpinning this objective was to determine whether any associations exist between underlying factors such as compassion and digital health literacy, and between burnout and digital health literacy.

3) *To identify the barriers and motivations which influence the utilisation of digital technologies within psychological practice.* This objective was set to explore the different types of factors influencing the utilisation of digital technologies.

4.4 Summary

The current research aims to provide insights into the digital health literacy of psychologists working in Aotearoa. Gathering such data can be of significance in developing strategies to improve the delivery of psychological practice and enhance health outcomes in Aotearoa.

Chapter 5: Method

5.1. Introduction

This study was designed to explore the digital health literacy of psychologists working in Aotearoa. The overarching aim of this study was to acquire an understanding of the digital health literacy currently held by the psychologist workforce. Subsequent research objectives of this study focused on identifying factors that influence the development of digital health literacy and the use of digital technologies in psychological practice. A mixed-methods anonymous questionnaire was circulated to registered psychologists who held an annual practicing certificate and were working in Aotearoa to gather relevant data from practicing psychologists. This chapter describes the study design, ethics approval process, participants, procedure, measures, and analytic approach employed to gather information on the digital health literacy of psychologists in Aotearoa.

5.2. Study Design

This study employed a cross-sectional mixed method design to explore the digital health literacy of psychologists working in Aotearoa. The description of the survey is described according to the Checklist for Reporting Results of Internet E-Surveys **(CHERRIES**; **Appendix B**) (Eysenbach, 2004). An anonymous, open questionnaire that incorporated standardized measures of key constructs, tailored questions, and open-ended questions were designed to capture information about the factors that influence digital health literacy development and utilisation of digital technologies (as discussed in Chapter 2; adapted from **Appendix A**). The questionnaire was estimated to take approximately 10 to 15 minutes to complete.

5.3. Ethics

This study was approved by the Auckland Health Research Ethics Committee (AHREC) on 09/03/2021 for three years (REF: #AH22139) (**Appendix C**). Subsequent ethics amendments were obtained to expand recruitment methods, broaden the sample to include currently practising psychologists employed within all settings, and alter some questions to better reflect the study's research objectives.

The participant information sheet (PIS) specified the informed consent process (**Appendix D)**. The PIS included information about the estimated length of time of the questionnaire, the purpose of the project, contact details of the researchers to ask questions, and request a summary of the results. The PIS also outlined available cultural support and contact details. Participants were advised that participation is entirely voluntary, and if they chose to participate, consent would be assumed upon submission of the questionnaire. If participants did not wish to submit the questionnaire, they could exit the webpage.

Key measures were used to ensure confidentiality and anonymity in this project. After participants completed the questionnaire, they were given a choice to submit their email addresses to enter the prize draw to win an iPad. Participants who did not enter their email address remained anonymous as identifiable information was not collected, and participants who chose to enter the prize draw were redirected to a separate link to enter their email address. Email addresses and questionnaire responses were stored separately. Participants were informed that all data would be stored on the University of Auckland server for 10 years and securely destroyed after this time.

5.4 Participants

The inclusion criteria for the study were that participants 1) needed to be registered psychologists (under any scope of practice, including interns), 2) held an annual practicing

certificate, 3) worked within any setting in Aotearoa, and 4) who spoke English fluently. Psychologists who were not currently registered and/or did not hold an annual practicing certificate were excluded from the study.

5.5 Procedure

Convenience sampling methods such as professional mailing lists, snowballing sampling techniques, professional social media groups, and word of mouth were used to recruit prospective participants.

A stepped recruitment approach was employed for the questionnaire. Once final amendments were made, the questionnaire was piloted with the broader research team and immediate colleagues to test usability and technical functionality. Preliminary analyses checked that the questionnaire flow was working as planned and that Qualtrics captured data accurately. Following this process, the questionnaire was distributed via the New Zealand Psychological Society newsletter, the College of Clinical Psychologists mailing list, the Auckland Branch of the New Zealand Psychological Society Facebook page, the University of Auckland Health Psychology Practitioner Training programme Facebook page and posted on the University of Auckland research website. Psychology practices across Aotearoa were also emailed using publicly available details.

Online study advertising and emails contained the link for the open questionnaire hosted by the online platform Qualtrics **(Appendix E**). When participants clicked on the link, they were redirected to the PIS. The PIS included further details about the study and its importance, data storage details, and contact details of the researchers. Given the anonymity of responses, the PIS also stated that consent was assumed upon the submission of the questionnaire. If participants chose to continue after reading the PIS, they were redirected to the first stage of the questionnaire.

The questionnaire began with screening questions to ensure participant eligibility. Participants who did not meet the inclusion criteria were redirected to exit the questionnaire. The first series of questions asked about demographic characteristics such as ethnicity, age group, gender, and training details. Next, questions about digital health literacy were asked, followed by questions relating to digital practice and digital technology use. The following section incorporated questions about compassion and a measure of burnout. The questionnaire concluded with open-ended questions requesting participants to add any final comments and a question requesting details on how participants heard about the study.

After participants completed the questionnaire, they were asked if they wanted to enter the anonymized prize draw to win an iPad. This draw was included to incentivize participation. Participants who chose to enter the prize draw were redirected to a separate link to enter their email addresses. Below, the measures used in the questionnaire are covered in more detail.

5.6. Measures

The questionnaire was separated into five distinct parts, including questions about 1) demographic characteristics, 2) digital health literacy, 3) digital practice, 4) psychological measures of compassion and burnout, and 5) final comments **(Appendix F).** The questionnaire had 18 questions across 15 pages to reduce complexity, with a maximum of four questions per page. Participants had the ability to review and change their answers through a back button on Qualtrics before submission.

5.6.1 Demographic Factors

Key demographic information such as ethnicity, age group, gender and training programme details were collected. The questions were framed according to the Statistics New Zealand identity statistical standards (Statistics New Zealand, 2020).

To provide insight into the demographic characteristics of the research sample, this section included the following questions:

a) *Which ethnic group do you belong to?*
b) *Which of the following age groups do you fall into?*
c) *What is your gender?*
d) *What training programme did you complete to become a registered psychologist?*
e) *Which setting do you primarily work in?*
f) *How many years have you been practising as a psychologist?*
g) *What kinds of clients do you have in your professional practice?*

As standardized measures had not been previously developed to assess the digital health literacy of psychologists, each of the measures below were adapted to suit the needs of this research project.

5.6.2 Digital Health Literacy

Existing digital health literacy measures lacked comprehensiveness, were not tailored for psychologists in Aotearoa and did not meet the required criteria for examining the aim of the current study. Thus, a series of questions were explicitly developed to assess the study's research objectives. In the absence of established digital competencies for psychologists in Aotearoa, this process began by referring to the digital competencies list developed by the British Psychological Society in conjunction with the National Health Service in the United Kingdom (NHS, 2020).

A group of clinical and academic psychologists with a range of experience in training psychologists on core competencies, digital skills, developing psychometric measures, and working with Māori revised items from the list of psychologists' digital competencies (NHS,

2020) to generate tasks that specifically met the research objectives of this project. Initial items were developed and piloted, and the list was pruned based on feedback. The final 41-item Digital Health Literacy Scale was used to explore the digital health literacy of psychologists for this project (refer to **Appendix F).** These items assessed whether psychologists felt competent in carrying out tasks that involved seeking, understanding, and appraising health information to solve health problems. Items included selecting appropriate psychological assessments, working ethically and safely in digital practice, conducting group and individual therapy, and adapting digital interventions and tools to clients. Psychologists were asked to rate their ability to conduct each of the tasks. Response options were coded such that 1 (‘*Not competent’*), 2 (‘*Only slightly competent’*), 3 (‘*Somewhat competent’*), 4 (‘*Moderately competent’*) and 5 (‘*Very competent’*). To ensure relevance to psychologists working in Aotearoa, where competency in working with Māori is a requirement (New Zealand Psychologists Board, 2011), culturally relevant items and te Reo Māori (e.g. ‘whānau’) were included in the list. The questions in this section are relevant to the main aim of the study, which was to explore the digital health literacy of psychologists in Aotearoa.

5.6.3 Factors Influencing the Use of Digital Technologies

This set of questions is related to obtaining information regarding the factors which influence the use of digital technologies. They included open-ended and multi-choice questions regarding psychologists’ current use of digital technologies within their practice. The purpose of this section was to a) obtain data on the factors which influence the use of digital technologies and b) gain insights into the motivations and barriers to using digital technologies. This section also provided the opportunity for psychologists to voice their opinions on whether they would prefer further training on using digital technologies.

The following multi-choice questions were included within this section:

a) '*How much do the following types of factors influence your use of digital technologies in your practice as a psychologist?*' This question asked psychologists to rate client characteristics, clinical psychopathology, workplace factors, technology factors and personal factors from 1 ('*No influence'*) to 5 ('*Major influence'*).
b) '*Would you like further training on using digital technologies?*' This question included three options which were coded 1 ('*No'*), 2 ('*Don't know'*), and 3 ('*Yes'*).

The following open-ended questions were included within this section:

a) Can you please describe what motivates you to use digital technologies in your practice?
b) Can you please describe the barriers you experience using digital technologies in your practice?
c) Do you have any other comments about your use of digital technologies in your practice as a psychologist?

5.6.4 Psychological Measures

The following measures were used to identify whether underlying factors such as compassion and burnout predicted the digital health literacy of psychologists working in Aotearoa.

Burnout. *The single-item Maslach Burnout Inventory - Emotional Exhaustion (MBI-EE) (Dolan et al., 2015).* To assess burnout, the single-item Maslach Burnout Inventory Emotional Exhaustion (MBI-EE) was employed, which was derived from the Maslach Burnout Inventory (MBI) emotional exhaustion subscale (West et al., 2009). Burnout is commonly measured by the 22-item MBI scale (Worley et al., 2008). Compared to the full item scale, the MBI-EE single-item scale was psychometrically validated as a standalone

burnout assessment and exhibited reliable associations with outcomes such as suicidality and significant medical errors (West et al., 2009; West et al., 2012). For the purposes of this research, the single item MBI-EE was chosen to minimise participant burden. The inventory includes a single item, "*I feel burned out from my work*" and asks participants to choose between seven possible responses, which range from 1 ('*Never'*), 2 ('*A few times a year or less'*), 3 ('*Once a month or less'*), 4 ('*A few times a month'*), 5 ('*Once a week'*), 6 ('*A few times a week'*) to 7 ('*Every day'*). While the single item measure has not been employed previously for psychologists, it has been successfully used to measure burnout with various healthcare providers such as registered nurses, administrative clerks, and medical technicians in the United States (West et al., 2009).

Compassion for Others. *The Compassion Scale* (Pommier, 2011). The original Compassion Scale is underpinned by Neff's theoretical model of self-compassion (Neff, 2003a; Neff, 2003b). The Compassion Scale (Pommier, 2011) was employed to assess compassion for others. The scale was adapted for use with health providers and modified from 24 to 25 items (Baguley, 2020). For the purposes of this study, items with the word 'patient' were replaced with 'people/person' as some participants may not engage with 'patients' in their practice. This 25-item scale asks healthcare providers to rate items based on the context of their practice as a psychologist. Examples of items include '*I realise when people are upset, even if they don't say anything'*, '*I like to be there for people in times of difficulty'*, and '*My heart goes out to people who are unhappy'*. Each item is scored on a 7-point Likert scale from 1 ('*Not true of me'*) to 7 ('*Very true of me'*). Items indexing lack of compassion for others (3, 7, 11, 15, 17, 18, 19, 20, 21, 22, 23, 24) were reversed to obtain total scores. The measure was also found to have construct validity, divergent, discriminant, and convergent validity. In a recent study, the scale demonstrated high internal consistency (α = 0.81) (Baguley, 2020). These analyses indicated that the scale was able to differentiate

from constructs that may seem similar to compassion but are essentially distinct (Pommier et al., 2020).

5.6.5 Final Comments

The questionnaire ended with some final questions asking if participants had any comments to add about anything mentioned within the questionnaire, a question about how they had heard about this study, and whether they would like to enter the prize draw to win an iPad.

5.7 Analytic Approach

Analyses were conducted with the Statistical Package for the Social Sciences (IBM SPSS Statistics V.28) software. The significance level was set at $p \leq 0.05$ for all the analyses. Frequencies, means and standard deviations of demographic characteristics, psychological factors and clinical factors were obtained for preliminary analyses. Reliability tests were also conducted to establish the internal reliabilities of the Digital Health Literacy Scale and the Compassion Scale.

To assess the digital health literacy of participants, frequencies of digital health literacy and mean scores were obtained. A combination of principal component analysis and exploratory factor analysis was employed to ascertain the underlying factor structure of the Digital Health Literacy Scale. Once the underlying factor structure was analysed, subscales were computed, and additional reliability tests were conducted to establish the internal reliabilities of the subscales.

Pearson’s and Spearman’s correlations and regression tests were run to examine which demographic and psychological factors may be associated with digital health literacy. For these analyses, demographic factors (e.g. age, gender, practicing years) and psychological factors (e.g. compassion scores and burnout scores) were chosen to investigate their possible

association with digital health literacy.

Thematic analysis of the qualitative data was conducted to explore the barriers and enablers of using digital health within psychological practice. Thematic analysis was chosen as the preferred method to examine data regarding the barriers and enablers of using digital technologies within psychological practice due to its theoretical flexibility and ability to capture rich data (Braun & Clarke, 2006). In line with the six phases of thematic analysis, once participants' responses were examined in-depth, each response was coded under overarching themes in response to both questions (Braun & Clarke, 2006).

No timeframe was imposed on participants to complete the questionnaire, and internet protocol (IP) address information was not recorded. Completeness checks of responses were completed after submission. In line with the primary aim of this study, responses on the Digital Health Literacy Scale were mandatory for analyses. However, as adaptive questioning was not used within the questionnaire, some measures (e.g. The Compassion Scale) did not have forced responses, and participants could choose not to answer. Other questions had 'don't know' or 'maybe' as options (see **Appendix F**). Since cookies were not used, unique identification numbers from 1-195 were manually assigned to each participant. View and participation rates of the questionnaire were not recorded. Multiple submissions were prevented on Qualtrics, and further manual checks for multiple entries were also performed.

Chapter 6: Results

6.1 Introduction

The current study aimed to explore the digital health literacy of psychologists in Aotearoa. Secondary objectives were focused on discovering possible associations between digital health literacy and psychological factors, such as compassion and burnout. Finally, the study intended to identify the motivations and barriers that influence the utilisation of digital technologies. This chapter presents the findings of the cross-sectional survey. First, the demographic characterisation of the sample is presented. Subsequent psychometric analyses performed on the Digital Health Literacy Scale are described. Next, descriptive analyses conducted on psychological factors (i.e. burnout and compassion) are reported, followed by findings from analyses examining possible associations with digital health literacy. The final section of this chapter presents critical quantitative and qualitative findings which are relevant to digital psychological practice.

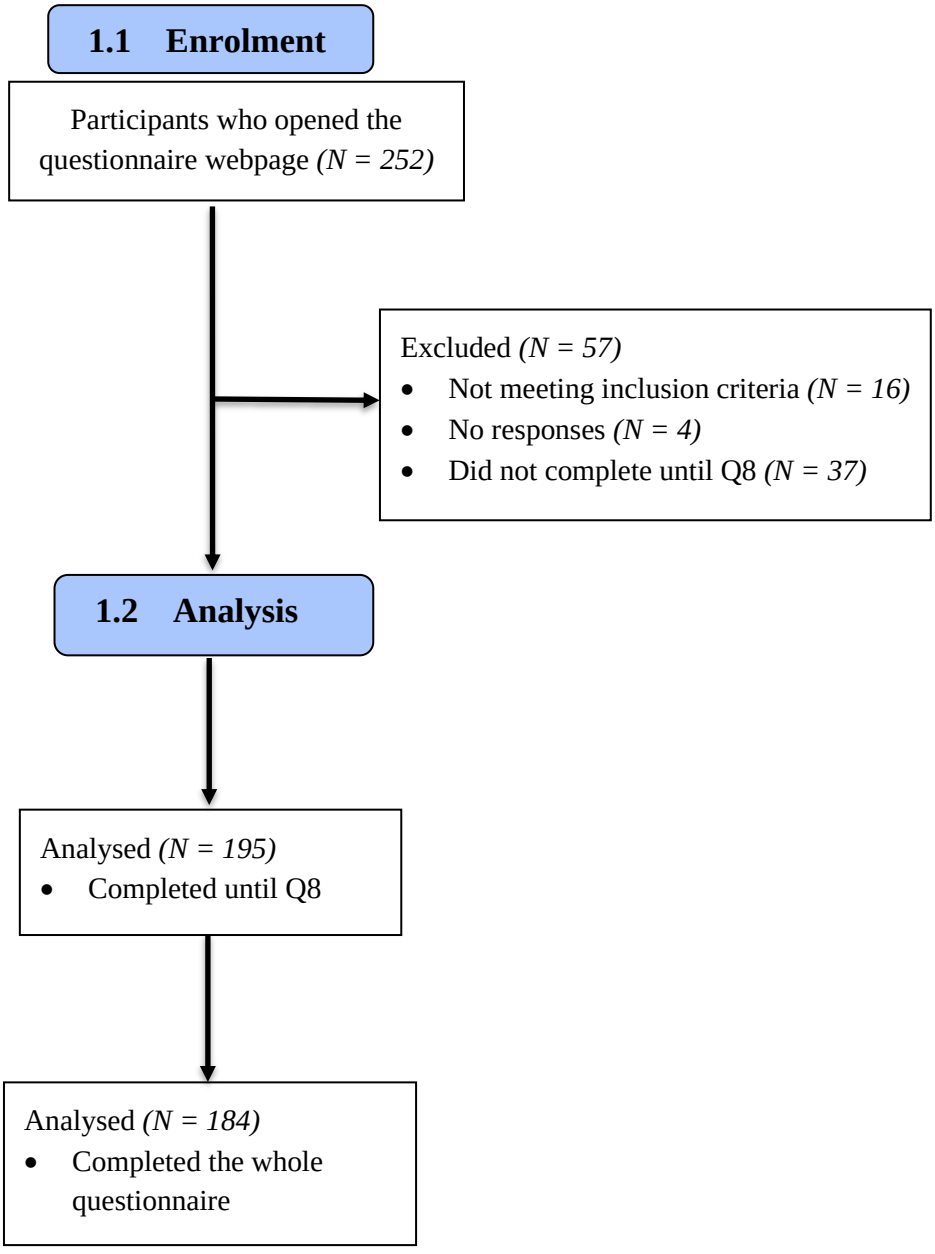
6.2. Recruited Sample

A total of 195 psychologists participated in the questionnaire between 20/07/2021 and 12/11/2021. The sample represents approximately 6% of the total psychologist workforce (*N=3627)* in Aotearoa. As the study was predominantly designed to explore the digital health literacy of psychologists in Aotearoa, completion of the Digital Health Literacy measure (discussed below) was necessary. Considering the questionnaire included 18 questions, participants who at least completed question eight (i.e. the Digital Health Literacy Scale) had their responses included within the analyses. Comparatively, 184 participants completed the entire questionnaire, and correlation and regression analyses were performed on those

responses. The completion rate of the questionnaire was 74% (refer to the CHERRIES Checklist for further details). A visual illustration of sample attrition is seen in Figure 3.

Figure 3

Flow Diagram Representing Sample Attrition; Adapted from The CONSORT (2010) Guidelines



6.3 Demographic Characterisation of the Sample

A summary of demographic characteristics of the final sample is presented in **Table 1.**

Table 1

Demographic Characteristics of the Psychologist Sample (N = 195)

Characteristic	N	%
Ethnicity[1]		
NZ European	129	66%
Māori	17	9%
Pacific Peoples	0	0%
Asian	15	8%
MELAA[2]	5	3%
Other Ethnicity[3]	3	1%
Other European[4]	26	14%
Age group		
24-35	72	37%
36-45	59	30%
46-55	33	17%
56-65	20	10%
Over 65 years	11	6%
Gender		
Male	24	12%
Female	171	88%
Scopes of practice		
Psychologist	78	40%
Intern psychologist	25	13%
Clinical psychologist	75	39%
Counselling psychologist	7	4%
Educational psychologist	7	4%
Neuropsychologist	3	2%
Primary work setting		
District health board (DHB)	54	28%
Primary health organisation (PHO)	8	4%
Non-governmental organisation (NGO)	10	5%
Private practice	61	31%
Rehabilitation facility	3	2%
Forensic setting (e.g. prison)	17	9%
Community mental health centres	2	1%
Other (e.g. University)	40	21%

Years of practice		
<5	84	43%
6-10	29	15%
11-20	44	23%
21-29	19	10%
30-30+	19	10%

N = number of participants within that category; % = percentage of participants within that category
[1]Prioritised ethnicity, ethnicity was coded as per the Ministry of Health protocols for the reporting of ethnicity data (Ministry of Health, 2017).
[2]MELAA (Middle Eastern/Latin American/African)
[3]Other Ethnicity (South African)
[4]Other European (including Irish, British, Canadian, German)

As illustrated in **Table 1**, the sample was relatively diverse in some respects but not in others. The sample was predominantly New Zealand European (*N = 129, 66%),* and a high portion were aged between 24 and 45 years (67%) and female (88%). There was high representation of psychologists registered under the general (*N = 78, 40%)* and clinical scopes of practice (*N = 75, 39%).* In terms of training, 83 psychologists (*43%)* had completed clinical psychology training programmes. Other training programmes included the Postgraduate Diploma in Health Psychology training programme (*N = 35, 18%),* the Postgraduate Diploma in Psychological Practice *(N = 25, 13%),* the Postgraduate Diploma in Child and Family Psychology (*N = 43, 22%)* and others had completed their training overseas *(N = 9, 5%).* Psychologists were mostly employed within private practice *(N = 61, 31%)* and District Health Boards *(N = 54, 28%).* Common types of clients seen by psychologists included patients, community mental health patients, supervisees, people with intellectual disabilities, students, children, and whānau (families).

6.4 Digital Health Literacy

6.4.1 An Overview of the Digital Health Literacy of the Sample

In order to assess the primary objective of exploring the digital health literacy of psychologists in Aotearoa, responses from a total of 195 participants on the 41-item Digital

Health Literacy (DHL) scale were analysed. On a scale from 1 ‘not competent’ to 5 ‘very competent’, the mean score across all items was 3.45 (*SD = 0.72).* This finding indicates that psychologists within this sample feel ‘*somewhat competent’* in their digital abilities, indicating some digital health literacy within this group. The mean scores on the DHL scale ranged from 1.97 to 4.40 demonstrating a wide range of competency across items. The ability with the highest mean score where psychologists felt ‘moderately competent’ was *‘Engage in remote supervision via digital means’ (M = 4.40, SD = 0.910).* Additional examples of abilities where psychologists reported feeling ‘moderately competent’ included ‘*Obtain the client’s informed consent for digital work’* (M = 4.17, SD = 0.92) and ‘*Reflect on one’s own attitudes, skills and values regarding digital practice’ (*M = 4.07, SD = 0.89). Conversely, the ability with the lowest mean score (*M = 1.97, SD = 1.15*), where psychologists reported the feeling ‘only slightly competent’ was ‘*Work with interpreters remotely, e.g. having an interpreter join a call to translate for a client’.* ‘*Conduct group therapy using digital technologies’ (M = 2.26, SD = 1.31) and ‘Evaluate the effectiveness and security of smartphone apps’ (M = 2.56, SD = 1.14)* are some other abilities where psychologists reported feeling ‘only slightly competent’ *(*please refer to **Appendix G** for the complete list of items and associated scores).

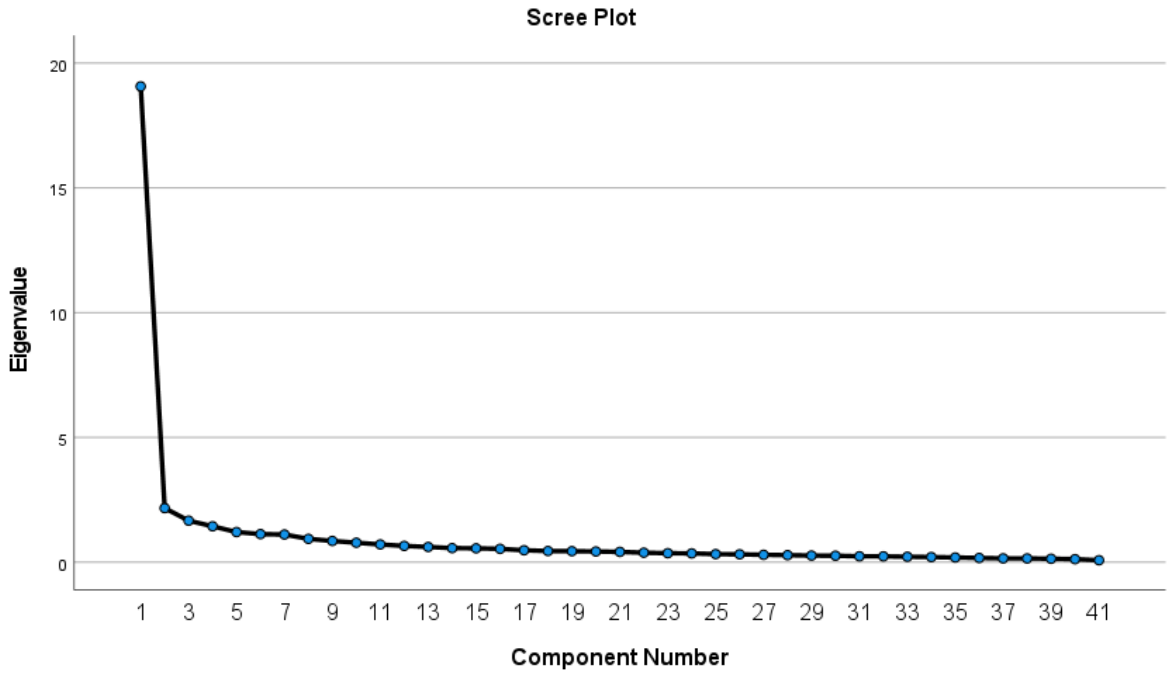
6.4.2 Principal Component Analysis

Principal component analyses (PCA) with oblimin rotation and Kaiser normalization were employed to produce a factor solution. Based on a combination of a scree-plot analysis and item loadings of 0.60 or higher, a seven-factor solution was preliminarily pursued with eigenvalues which were greater than 1. This model explained 61% of the variance. However, a review of the face validity of the constructs and re-examination of the scree plot (**Figure 4**) (Cattell, 1966), suggested that item loadings of 0.70 or higher provided a theoretically meaningful five-factor solution. Thus, 15 items were removed due to not loading on any of

the factors at 0.70 or above, and the five-factor solution with 14 items is presented below in Table 2.

Figure 4

Scree Plot Following Principal Component Analyses on the 41-item Digital Health Literacy Scale



Using the psychometric criterion and based on face validity, the five-factor solution is described. Only the items with component loadings of 0.70 or higher are included in **Table 2.**

Table 2

Competent Loadings for 14 Items in a Five-component Analysis of the 41-item Digital Health Literacy Scale in a Sample of 195 psychologists

Item	Component				
	1	2	3	4	5
Select online psychological assessments that are suitable for remote administration	0.889				
Administer online psychological assessment tools via remote means	0.998				
Reflect on one's own attitudes, skills and values regarding digital practice		0.855			

Recognise and reflect on the limits of one's own competence when translating in-person training to online work	0.764			
Assess a client's suitability for online interviews		-0.716		
Conduct individual therapy using digital technologies		-0.788		
Adapt evidence-based interventions to online therapy		-0.715		
Work collaboratively with a client remotely e.g. using screen sharing			0.712	
Integrate visual digital tools to complement online interventions e.g. using shared documents			0.764	
Deliver e-learning through digital methods (e.g. ebooks, vlogs, live webinars)			0.712	
Manage professional and clinical boundaries related to online practice				0.700
Obtain the client's informed consent for digital work				0.729
Follow organisational policies and procedures related to digital work				0.815
Work ethically and safely in digital practice				0.716

Each of the following five factors relate to different aspects of psychologists' abilities of conducting practice using digital technologies.

1. Skills in conducting online psychological assessments (DC Assess). This factor incorporated two items, item 9 (0.889) and item 10 (0.988). The factor had excellent internal reliability (α = 0.94). Item 9 involved the ability to '*select online psychological assessments that are suitable for remote administration'*. Similarly, item 10 involved the ability to *'administer online psychological assessment tools via remote means'*. Both items reflect the ability to conduct online psychological assessments.

2. Abilities to critically reflect on digital competency (DC Reflect). This factor also comprised two items, item 40 (0.855) and item 41 (0.764) and demonstrated good internal reliability (α = 0.84). Both items echoed the theme of critical self-reflection; as item 40 involved the ability to '*reflect to one's own attitudes, skills and values regarding digital practice'* and item 41 asked the extent to which participants '*recognise and reflect on the limits of one's own competence when translating in-person training to online work'*.

3. Skills in conducting therapy online (DC Therapy). This factor encompassed three items, item 13 (-0.716), item 18 (-0.788) and item 28 (-0.715) with a good internal reliability (α = 0.86*).* Each of the items reflected the common theme of conducting psychological therapy online with item 13 asking participants about their ability to '*assess a client's suitability for online interventions'*, item 18 asking about '*individual therapy using digital technologies'* and item 28 asking about the ability to '*adapt evidence-based interventions to online delivery'*.

4. Technical confidence with digital tools (DC Tools). This factor also consisted of three items, item 17 (0.712), item 27 (0.764) and item 35 (0.712) and was reliable (α = 0.83). This component included items which drew upon the technical abilities of participants when using digital technologies. Item 17 included '*work collaboratively with a client remotely'*, item 27 was the ability to '*integrate visual digital tools to complement online interventions'* and item 35 to '*deliver e-learning through digital methods'*. These technical skills grouped together to reflect an important aspect of digital health literacy.

5. Abilities in managing ethical obligations with digital practice (DC Ethics). This factor comprised of four items, DC6 (0.700), DC7 (0.729), DC8 (0.815) and DC14 (0.716) with α = 0.86. This component highlighted the ethical obligations of using digital tools; an important part of professional psychological practice. Items loaded onto this component

include item 6 '*manage professional and clinical boundaries related to online practice'*, item 7 '*obtain the client's informed consent for digital work'*, item 8 '*follow organisational policies and procedures related to digital work'* and item 14 '*work ethically and safely in digital practice'.*

As described above, reliability analyses conducted on these five subscales confirmed good to excellent internal reliability, ranging from $\alpha = 0.83$ to 0.94 for each subscale. In summary, the principal component analyses and reliabilities for each subscale indicated a valid and reliable assessment tool of digital health literacy. The means and standard deviations of each of the subscales are described in **Table 3**.

Table 3

Means and Standard Deviations for Each Component

Component	**Mean (SD)**
DC Assess	2.96 (1.20)
DC Reflect	3.89 (0.91)
DC Therapy	3.55 (0.97)
DC Tools	3.12 (1.10)
DC Ethics	4.07 (0.79)

Table 3 illustrates that participants felt '*moderately component'* in their abilities in managing ethical obligations within digital practice (*M = 4.07, SD = 0.79*). Whereas participants reported only feeling '*somewhat competent'* in their abilities to conduct online psychological assessments (such as selecting and administering suitable assessments remotely) *(M = 2.96, SD = 1.20).* Mean scores for each of the factors ranged from 2.96 to 4.07, indicating psychologists within this sample held '*some'* to '*moderate'* competency in their abilities to conduct psychological practice using digital technologies.

In summary, the final Digital Health Literacy Scale comprised of a total of 14 items and five theoretically meaningful subscales (DC Assess, DC Reflect, DC Therapy, DC Tools and DC Ethics).

6.5. Psychological Factors

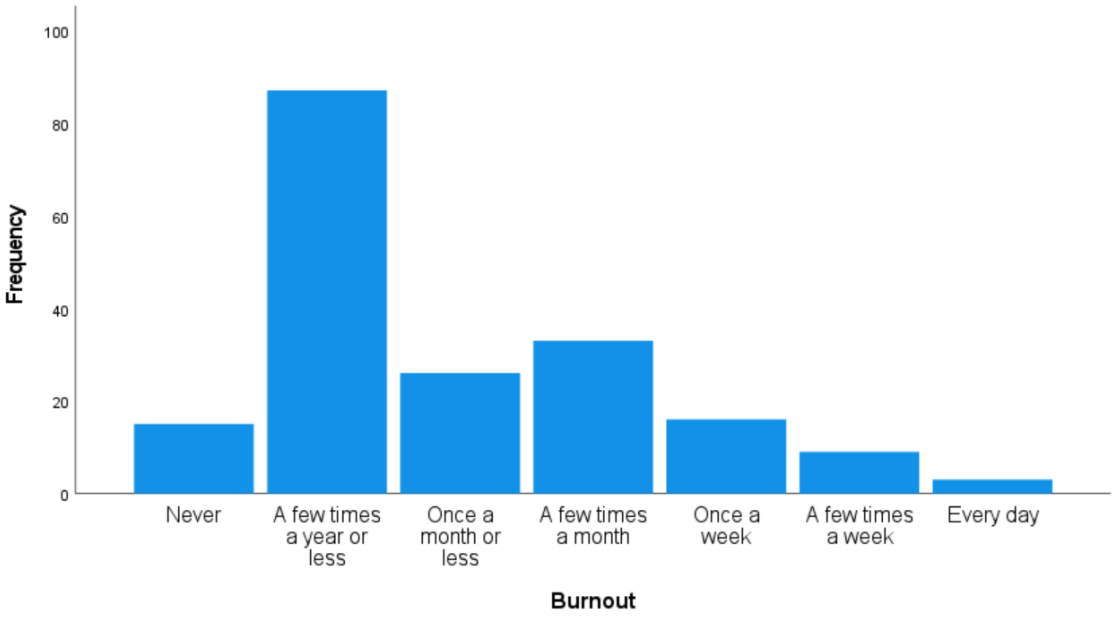
This section presents the results relative to the second objective of the study, which sought to explore whether psychological factors such as burnout and compassion, are associated with digital health literacy.

6.5.1 Burnout

A total of 189 participants completed the single-item MBI:EE measure (Dolan et al., 2015)**.** As illustrated in **Figure 5**, the largest number of participants (*N = 87, 46%)* experienced burnout *'a few times a year or less'*, while only three participants (1.6%) reported that they experience burnout '*every day'*. The mean burnout score was 2.93 (*SD = 1.41*). For the MBI:EE single item, burnout is classified as a frequency of '*once a week'* or more (i.e. burnout ≥4) (Dolan et al., 2015; West et al., 2012). This criterion concludes that approximately 28 out of a total of 189 participants (only 14.8% of the sample) experienced burnout within their psychological practice. This finding is interesting considering the current climate of the COVID-19 pandemic, where it might be expected that a higher portion of psychologists would have reported higher burnout scores (Franza et al., 2020).

Figure 5

Bar graph Illustrating the Frequency of Burnout (N = 189)



6.5.2 Compassion for Others

A total of 184 participants completed the Compassion Scale (Baguley, 2020; Pommier, 2011). The mean scores and standard deviations are reported in **Appendix H.** On a scale of 1 '*Not true of me'* to 7 '*Very true of me'*, the overall mean score was 6.10 and the standard deviation was 0.43, signifying high compassion for others within this sample. Participants reported the highest compassion for others on item 1 '*I pay careful attention when people talk to me about their suffering'* (*M = 6.57, SD = .632*) and item 2 '*If I see a person going through a difficult time, I try to be caring toward that person'* (*M = 6.57, SD = .606*) relative to the other 23 items. The item with the lowest compassion score by participants was item 14 '*When people feel sadness, I try to comfort them'* (*M = 5.21, SD = 1.11*).

6.6 Associations and Predictors of Digital Health Literacy

To explore possible factors which influence digital health literacy in line with the study's second objective, structural analyses were carried out. Correlation and regression analyses were conducted to identify significant correlations within this group. A total of 184

participants completed all the measures, and their responses have been included in the following analyses.

6.6.1 Correlation Analyses

Pearson and Spearman's correlations were used to identify whether any factors were correlated with digital health literacy as described in ***Table 4.***

Table 4

Correlation Analyses Between Demographic Factors, Psychological factors and Digital Health Literacy (N = 184)

	Component	Compassion	Burnout	Years of Practice	Age[S]	Gender[S]
1.	DC Assess	0.016	0.026	0.063	0.052	-0.084
2.	DC Reflect	0.215*	0.101	0.005	-0.033	-0.008
3.	DC Therapy	0.257**	0.014	0.174*	0.058	-0.080
4.	DC Tools	0.110	0.051	-0.104	-0.139	-0.075
5.	DC Ethics	0.210*	0.017	0.210*	0.191*	-0.057

Note: [s] = Spearman's correlation was performed for the categorical variables, Pearson's correlation was used for the other variables
*p < .05, ** p < .001

As labelled above, no significant associations were found for the **DC Assess** and **DC Tools** subscales. Interestingly, analyses revealed a weak positive correlation between compassion for others and abilities to critically reflect on digital competency (**DC Reflect)** (*p < .05*). Two significantly positive associations were found, where compassion for others (*p < .001*) and years of practice (*p < 0.05)* were also correlated with skills in conducting therapy online (**DC Therapy**). For the **DC Ethics** subscale, analyses revealed that managing ethical obligations with digital practice was correlated with compassion for others *(p = .002)*, years of practice *(p = .002*) and age (*p = .007*). Collectively, these findings suggest that compassion for others, years of practice and age are significantly associated with some abilities of digital health literacy.

6.6.2 Regression Analyses

To further assess the second study objective, multiple regression analyses were performed to explore whether demographic (e.g. age and gender) and psychological factors (i.e. compassion and burnout) would predict digital health literacy within this sample. The dependent variables included the five digital health literacy subscales which were pursued following the principal component analysis illustrated below.

First, the predictors of skills in **conducting online psychological assessments (DC Assess)** were evaluated. This model was insignificant, and none of the variables were predictors *(R^2 = .017, F (5,178) = .632, p = .676)* as highlighted in **Table 5**.

Table 5

Regression Analyses Between DC Assess and Other Factors (N = 184)

Predictor	B	SE	β
Age	-0.080	0.123	-0.080
Gender	-0.370	0.274	-0.104
Years of Practice	0.014	0.015	0.116
Compassion	0.025	0.210	0.009
Burnout	0.047	0.066	0.055

Note: *p < .05, **p < .001 dependent variable = DCAssess

Next, the model relating to predictors of **critical reflection abilities (DC Reflect)** was significant *(R^2 = 0.074, F (5,178) = 2.833, p = .017)* (Table 6). Compassion was a significant predictor (*p = .007*), suggesting that participants with greater compassion for others reported higher abilities to critically reflect on their digital competency. It is worth noting that age came to the threshold (*p = .055*), indicating a possible effect where younger participants had greater self-reflection abilities, relating to greater digital health literacy.

Table 6

Regression Analyses Between DC Reflect and Other Factors (N = 184)

Predictor	B	SE	β
Age	-0.177	0.091	-0.234
Gender	-0.114	0.202	-0.042
Years of Practice	0.017	0.011	0.181
Compassion	0.422	0.155	0.199*
Burnout	0.058	0.048	0.089

Note: *p < .05, **p < .001 dependent variable = DCReflect

This model assessing the predictor of **skills in conducting therapy online (DC Therapy)** was also significant *(R^2 = 0.099, F (5,178) = 3.918, p = .002)*. Compassion for others *(p = .001)* and years of practice *(p = .029)* were revealed to have a significantly positive effect on conducting therapy online. The results are shown in **Table 7**.

Table 7

Regression Analyses Between DC Therapy and Other Factors (N = 184)

Predictor	B	SE	β
Age	-0.119	0.095	-0.148
Gender	-0.153	0.212	-0.053
Years of Practice	0.026	0.012	0.264*
Compassion	0.533	0.162	0.238*
Burnout	0.019	0.051	0.027

Note: *p < .05, **p < .001 dependent variable = DCTherapy

The following model assessing **technical confidence with digital tools (DC Tools)** was not significant, and no predictors were found (R^2 = 0.040, F (5,178) = 1.487, p = .196, see **Table 8**).

Table 8

Regression Analyses Between DC Tools and Other Factors (N = 184)

Predictor	B	SE	β
Age	-0.119	0.111	-0.131
Gender	-0.314	0.247	-0.097
Years of Practice	-0.003	0.014	-0.022
Compassion	0.302	0.189	0.119
Burnout	0.029	0.059	0.037

Note: *p < .05, **p < .001 dependent variable = DCTools

Lastly, the predictors of abilities in **managing ethical obligations with digital practice (DC Ethics)** was assessed. This model was significant *(R^2 = 0.082, F (5,178) = 3.188, p = .009)* and compassion for others was reported to be a significant predictor of managing ethical obligations with digital practice in psychologists (*p = .011).* This suggests that participants with greater compassion for others had greater abilities to manage ethical obligations with digital practice.

Table 9

Regression Analyses Between DC Ethics and Other factors (N = 184)

Predictor	B	SE	β
Age	-0.018	0.079	-0.028
Gender	-0.015	0.175	-0.006
Years of Practice	-0.018	0.010	0.220
Compassion	0.019	0.042	0.035*
Burnout	0.345	0.134	0.187

Note: *p < .05, **p < .001 dependent variable = DCEthics

6.7 Digital Psychological Practice

In line with the third objective of the study, this section presents a combination of qualitative and quantitative findings which identify the barriers and enablers influencing the utilisation of digital technologies within psychological practice.

6.7.1 Factors Influencing the Use of Digital Technologies

Of the total sample of 195 participants, 191 completed this question which asked them to rate how certain factors influence their use of digital technologies in their psychological practice on a scale of 1 'No influence' to 5 'Major influence' (see **Table 10**).

Table 10

Factors Influencing the Use of Digital Technologies in Psychological Practice (N =191)

Factors	**Mean (SD)**
Client's characteristics (e.g. client's access to technology, client confidence with technology, client preference)	4.59 (0.79)
Clinical psychopathology (e.g. client diagnosis)	3.60 (1.21)
Workplace factors (e.g. access to digital tools in the workplace, workplace guidelines, workplace support)	3.81 (1.21)
Technology factors (e.g. security concerns, costs, technical support)	3.60 (1.07)
Personal factors (e.g. individual preferences, personal comfort with technology)	3.64 (1.13)

Table 10 illustrates that client's characteristics such as client's access to technology, client confidence with technology and client preference were reported to almost have a major influence *(M = 4.59, SD = 0.79)* on the use of digital technologies. Comparatively, clinical psychopathology *(M = 3.60, SD = 1.21)* and technology factors *(M = 3.60, SD = 1.07)* seem to have some influence on the use of digital technologies. Overall, means ranged from 3.60 to

4.59, illustrating that each of these factors influence the use of digital technologies by psychologists within practice.

6.7.2 Motivations and Barriers which Influence the Use of Digital Technologies

To obtain further insights relative to the third study objective, thematic analysis was also performed to classify key themes of motivations and barriers which influence the use of digital technologies within psychological practice. This section details questionnaire responses from two of the questions including, 1) *Can you please describe what motivates you to use digital technologies in your practice*, and 2) *Can you please describe the barriers you experience using digital technologies in your practice.*

Motivations to use digital technologies. Three overarching themes related to motivations were identified. These include 1) meeting client preferences and needs, 2) necessity for continuity of care and 3) the benefits of increased accessibility and reach.

1) **Client preferences and needs** encompasses factors such as client convenience and flexibility, and their preferences to use digital technologies. This theme further encompasses the need to provide psychological services when clients may be unwell or have mobility issues.

> *"If patients are unable to attend clinic (eg barriers such as work, transport, illness, COVID lockdowns) then it is a good way to still provide therapy and gives the patient more flexibility. With COVID lockdowns, some patients became quite anxious about coming into clinic and we were able to use digital technology to get around this."*

> *"Client requests, distance, ease of meeting in person, health (I offer Zoom sessions if I or the client have cold/flu symptoms)"*

"Convenience and ease and also sometimes preference of client (as long as it's not maladaptive e.g., avoidance of leaving the house"

"Some of my clients live remotely. Some prefer not to commute to my office. Since Covid some choose to interact digitally if they or I have sick children at home from school. Continuing to offer support throughout lockdowns is also a motivation."

2) Another overarching theme identified was that of **necessity for continuity of care**. This is related to the COVID-19 pandemic and the necessity to continue the provision of psychological assessment and treatments within this climate. This theme of providing continuity of care was commonly identified as nationwide lockdowns and restrictions were put in place. Many psychologists indicated that they were motivated due to the inability to see clients in a face-to-face setting.

"It is a necessary medium for current psychological practice and it can remove barriers to access."

"Essential when unable to meet face to face. Responding to the different ways people engage support."

"The covid lockdown in 2020 prompted me to offer virtual sessions and I have incorporated this as an offering going forward. I am now able to continue therapy with clients if they move cities."

"COVID has really changed my way of working. In addition, I travel for work to see clients and so it is wise in terms of resources for me to alternate travel with digital technology use."

3) The last key theme included **the benefits of increased accessibility and reach** of digital technologies which act as motivations to use digital technologies. The potential of overcoming barriers of access such as cost, time and location indicate that accessibility is a significant factor which motivates the use of digital technologies for psychologists. This theme highlights an equity approach where access to psychological services was commonly reported by psychologists. Another aspect of this theme alongside accessibility is the wider geographic reach of psychological services using digital technologies. This theme further reinforces the notion of equitable access as the ability to provide psychological services to clients across Aotearoa and especially within rural areas has been reported.

"Increasing access to people who can't access conventional services."

"Increased accessibility for clients/reduces barriers, helps service increase offerings to clients in community, can do webinars/e-groups targeting larger proportion of community at once (vs 1:1 therapy)"

"Covering a wide geographical area it makes sense to complete some of my clinical work remotely to reduce travel. I also find it helpful to link in with colleagues around our (large) DHB and also across the South Island and nationally"

"I relocated from Auckland to a small rural centre and clients from Auckland wanted to continue working with me, this meant learning how to operate a private practice almost exclusively online."

"Access to service – I provide a therapy that is not able to be accessed widely across the country."

Barriers to using digital technologies. Common themes of barriers which influence psychologists to use digital technologies were identified. Main themes included, 1) client's digital competencies, preferences, and access, 2) technical concerns, 3) clinical/situational concerns, 4) clinician preferences and skills, and 5) limited organisational resources.

1) **The digital competencies of clients** have been highlighted as one main barrier to the use of digital technologies. Additional factors encapsulated within this theme include client access to technology (especially for those in low socioeconomic areas), client preference and reluctance or unwillingness to use digital technologies.

> *"I work with people with an ID, some also ASD, who are less likely to have digital access and/or competency. My answers to above questions reflect my work with this population."*

> *"Older patients do not always have the technology or skills to use the technology. Some patients do not have access to technology/wifi and are not financially able to use these technologies. If patients are at work or home, sometimes they are unable to find a private space to do a session. Sometimes getting the patient to come into clinic can be an intervention in itself and using digital technologies can become a barrier as patients may use this as an avoidance strategy. Other barriers include lack of funding/not having access to technology or private spaces to conduct digital therapies.*"

2) **Technical concerns** have also been determined as significant barriers for psychologists to use digital technologies. This theme incorporates factors such as connectivity issues/speed, security concerns, effectiveness and reliability concerns of digital tools, privacy concerns and a lack of appropriate digital tools for the New Zealand context.

"Internet connection and telephone reception quality"

"Safety or confidentiality concerns if there are other people close by during the session."

"Security of DHB network, risk acuity of clients, privacy concerns."

3) The theme of **clinical/situational concerns** includes safety concerns for patients at risk or for those who have disabilities, being unsuitable for certain patients (i.e. those who have intellectual disabilities) and cultural issues which include difficulty transferring cultural practices into the digital marae.

"Accessibility, difficulty transferring the cultural practices into the digital marae eg. through zui."

"Not suitable for patients at risk, patients with limited privacy - unable to attend digital sessions if there is not a space for them to utilise - i.e. have had patients go out to their car to gain privacy"

"I won't do in depth trauma work with someone at this stage of my development due to risk issues and the need to be present in the room with them."

4) **Clinician preferences and skills** encompasses factors such as limited knowledge of digital resources, clinician preferences and willingness, limited exposure, burnout, fatigue and clinicians' digital skills.

"*No organisational barriers. I just need to learn more about potential tools to use online. The actual therapy and relational work is fine."*

"Access to resources and a lack knowledge on how to utilise them in the most

effective way such as delivering therapy"

"No barriers other than my preference to see face to face for a better interpretation of client's body language."

"My own knowledge and lack of time and interest in learning more."

"My knowledge of all the available digital resources for supporting clients is limited but I am building some resources."

5) Lastly, **limited organisational resources** also acts as a barrier for psychologists to use digital technologies as participants reported limited desktops, rooms/spaces available, limited opportunities for effective and immediate information technology support and security.

"The DHBs current set - up (space issues, technology issues)"

"Limited opportunity and limited technology support"

"Limited training - have had to learn on the run, didn't have right equipment for a long time"

6.7.3 Digital Training

To corroborate findings relative to the third study objective, when asked whether participants would like further training on using digital technologies, out of 190 participants, 101 participants (53.2%) reported '*yes*', while 17 participants (8.9%) chose '*no*' and 72 participants stated '*maybe'* (37.9%).

Chapter 7: Discussion

7.1 Introduction

The overarching purpose of this exploratory study was to develop an understanding of the digital health literacy of psychologists in Aotearoa and obtain insights into the factors which predict this competency within the workforce. As discussed in previous chapters, psychologists add considerable value within healthcare settings by delivering psychological support to improve health and wellbeing, alleviate distress and help manage the factors which influence illness (Stewart, 2008). Digital health offers tremendous benefits, such as the ability to widely disseminate health information and increase accessibility to psychological care (Bruce et al., 2020; Kemp et al., 2021). While prior research has signified the importance of digital health (Conard, 2019), it was the COVID-19 pandemic that catapulted the utilisation of such approaches in psychological practice. Digital health offers the ability to maintain the provision of psychological services in the context of environmental risks that would otherwise preclude continuity of service (Smith et al., 2020). Health providers such as psychologists are obligated to effectively deliver psychological services online (Andersson, 2016). However, despite the rapidly changing context of psychological practice, research has yet to illustrate whether psychologists hold the necessary digital health literacy to practice ethically and safely. The current study aimed to bridge this gap between theory and practice and contribute findings to a scarce evidence base. This final chapter discusses vital findings relative to the study's research objectives and presents implications, limitations, and opportunities for future research.

7.2 Summary of Key Findings

The first objective of the current study involved measuring the digital health literacy of the psychologist workforce. We found that on average, psychologists reported some

competence in their digital abilities, signifying some digital health literacy within this group (mean score = 3.45, on a scale of 1 to 5). Thus, psychologists feel ‘somewhat competent’ in their digital capabilities. Principal component analyses (PCA) conducted on the Digital Health Literacy Scale revealed five theoretically meaningful subscales: 1) skills in conducting online psychological assessments (DC Assess), abilities to critically reflect on digital competencies (DC Reflect), skills in conducting therapy online (DC Therapy), technical confidence with digital tools (DC Tools) and abilities in managing ethical obligations with digital practice (DC Ethics). In brief, psychologists reported high competence in their ability to manage ethical obligations with digital practice (mean score = 4.07) and low competence in conducting online psychological assessments (mean score = 2.96).

The second objective of this study was to identify the factors associated with digital health literacy in psychological practice. The sample reported high compassion for others (mean score = 6.57, out of a possible score of 7). Univariate analyses found significantly positive associations between compassion for others and three subscales (the ability to critically reflect on digital competencies, conduct therapy online and manage ethical obligations with digital practice). Multivariate regression analyses where compassion was pitched against age, gender, years of practice, and burnout revealed that only compassion for others predicted the ability to critically reflect on digital competency and the ability to manage ethical obligations with digital practice. Skills in conducting therapy online were only predicted by years of practice and compassion for others. Within this sample, a low incidence of burnout was found (mean score = 2.93, out of a possible score of 7). Contrary to expectations, multivariate analyses found no associations between burnout and digital health literacy.

The final objective of this work was to identify the factors which influence the use of

digital technologies within psychological practice. Client characteristics reportedly play a crucial role in influencing the utilisation of digital technologies. Clinical psychopathology, workplace factors, technology factors, and personal factors had similar mean scores, indicating some influence on the utilisation of digital technologies within psychological practice. When investigating the barriers and motivators of digital technology use within psychological practice, central themes such as client preferences and needs, necessity, and increased accessibility acted as motivators. In contrast, technical concerns, clinician preferences and skills, and limited organisational resources were reported as some subsequent barriers.

7.3 Integration of Key Findings into Digital Health Research

7.3.1 Digital Health Literacy

Despite the classification of digital health literacy as an "essential skill" across the literature (Norman & Skinner, 2006), psychologists' competencies in this area remain largely unknown. Hence, the current study offered useful insights. The ongoing effects of the COVID-19 pandemic and associated restrictions have prompted a 'new normal', with an increased uptake of digital health (Smith et al., 2020) and the need for psychologists to hold digital health literacy to manage their clients' care effectively. A preliminary examination of individual scale items demonstrated that, on average, psychologists reported feeling 'somewhat competent' (i.e. a mean score of 3.45) in their abilities to conduct tasks related to digital health, suggesting some digital health literacy within the workforce. Although this finding suggests that psychologists believe they have moderate digital skills in the rapidly changing context of delivering psychological practice, it is evident that improvements are required. While we did not track digital health literacy over time, it seems likely that this skill may have improved through necessity since March 2020, when Aotearoa had to go into lockdown and a majority of psychological services were swiftly altered to delivery via

telehealth modalities (e.g. videoconference and/or telephone appointments).

We were interested to see whether specific tasks on the Digital Health Literacy Scale clustered together in a meaningful way and which factors may predict skills in these areas. Principal component analyses revealed five factors clustered together (as described above). Our sample reported high competence in their abilities to manage ethical obligations within digital practice, such as '*managing professional and clinical boundaries'* and '*working ethically and safely within digital practice'*. Some recent research indicates that psychologists and trainees may be experiencing new challenges in managing ethical obligations due to the COVID-19 pandemic (Chenneville et al., 2020; Desai et al., 2020). The current study is the first to measure competence within these areas and suggests that this is an important area of focus for psychologists in Aotearoa. In comparison, our sample reported low competence in conducting online psychological assessments, such as '*selecting and administering online psychological assessments remotely'* and '*administering online psychological assessment tools via remote means'*. This data indicates that psychologists may require additional support to enhance their competence in tasks that are related to conducting online psychological assessments. As psychologists' ability to conduct psychological assessments also remains unexamined within the literature, this finding suggests that this is central to psychological practice. Overall, as psychologists are expected to be competent within these areas of psychological practice, it is vital to measure these competencies.

7.3.2 Factors which Influence Digital Health Literacy

Exploratory analyses were performed to obtain data on the predictors which influence digital health literacy in psychological practice. The study's preliminary findings illustrate the multifaceted nature of digital health literacy, and the construct appears to be associated with specific demographic and psychological factors.

In the current work, multivariate analyses revealed that greater 'years of practice' was

the sole demographic factor to significantly predict greater skills in conducting therapy online (DC Therapy subscale). This finding is consistent with the literature, where 'years of experience' is acknowledged as a predictor of digital competency (Shiferaw et al., 2020). In contrast, other research has identified an inverse relationship, where greater 'years of experience' were associated with lower digital competency (Alwan et al., 2015; Shiferaw et al., 2020). Our finding aligns with the former study and conflicts with the latter studies. Other work has suggested that the process of acquiring digital skills and knowledge requires time and effort (Hames et al., 2020), and it seems plausible that greater 'years of practice' would relate to the development of these skills. It is also proposed that greater years of experience provide better opportunities for exposure, and the frequent utilisation of technology necessitates digital skills (Kuek & Hakkennes, 2020). Interestingly, we found that age did not predict digital health literacy. Although some conflicting research found that age was a significant predictor of digital competencies (Ajami & Bagheri-Tadi, 2013; Huryk, 2010).

Compassion for others and burnout were also expected to predict digital health literacy in psychologists. The mean score for participants on the Compassion Scale was 6.10 out of a total possible score of 7, signifying high compassion for others. Compassion for others was also revealed to be significantly associated with digital health literacy, where psychologists reported high scores on both the Digital Health Literacy Scale and the Compassion Scale. Compassion for others significantly predicted psychologists' critical reflection abilities, their skills in conducting therapy online, and their abilities to manage ethical obligations with digital practice. While the mechanisms which explain this association remain unidentified, perhaps psychologists who report greater compassion for others may prioritise the development of digital health literacy to maintain their ability to deliver humanistic and high-quality care. However, it is also possible that the relationship between compassion and digital health literacy may be explained by a confounding 'third variable'

that was not measured. For instance, it is possible that compassion and digital health literacy are influenced by social desirability (e.g. the tendency of participants to present themselves in a favourable fashion). It seems likely that psychologists may want to present themselves as highly compassionate as this is a socially desirable attribute in people who work in a helping profession (Blount & Lambie, 2017; Burks et al., 2012). Therefore, participants high in the need to conform to social and societal expectations may have reported higher scores in both constructs.

Similarly, previous research has suggested that burnout was a common experience for healthcare providers during the pandemic (Dwyer et al., 2021). Yet, our results indicated that only a small proportion of the sample (28 out of 189 psychologists, 15% of the total sample) reported burnout within their professional practice. Contrary to expectations, burnout was not correlated with digital health literacy. Although the demand for psychologists has been stretched in the current context of COVID-19 (Rokach & Boulazreg, 2020), our findings suggest a minimal impact on psychologist burnout and that burnout did not predict digital health literacy. These findings are reassuring, as burnout can cause substantial health issues, poor psychological wellbeing and largely impact the delivery of safe and compassionate care (Lown et al., 2019; Rahdar et al., 2020). However, the timing of conducting this work must be noted. If we had conducted this research in March 2022, when burnout amongst healthcare providers in Aotearoa has been extremely high due to the Omicron surge and pressure on the healthcare system (Ministry of Health, 2022; RNZ, 2022), we might expect different results.

Findings from the current study regarding the predictors of digital health literacy can be integrated into current literature to develop a basic understanding of how digital health literacy can be developed and maintained. Previous work indicates that as digital technologies become increasingly prevalent, healthcare providers will be mandated to demonstrate compassion when using digital health within their clinical practice (Ali et al.,

2021). Recognising the association between digital health literacy and compassion for others is beneficial for clients and whānau, as compassion is a fundamental component of any healthcare system and needs to be delivered through digital health modalities (Kinsella, 2020). The reciprocal relationship between digital health literacy and compassion for others can inform future clinical training curriculums and promotes the need to implement training on digital health that maintains an underlying focus on compassion.

Certain aspects of digital health literacy are still unknown and require assessment. For example, our questionnaire did not measure the type of digital technologies psychologists used or how often people utilised these technologies. There may also be differences across scopes of practice and work settings. For example, some psychologists may work primarily within in-patient versus outpatient settings. As discussed above, differences may be attributed to psychologists' routine exposure to digital technologies. Nevertheless, our findings have reinforced the multidimensional nature of digital health literacy and provided a starting point for future investigations. In terms of extending our current understanding, examining multiple likely predictors is critical to informing the implementation of strategies and initiatives to advance digital health literacy within this workforce (Nazeha et al., 2020). For example, creating strategies that cultivate compassion and build digital health literacy simultaneously may be beneficial if included within training curriculums.

Building the digital health literacy of the psychologist workforce through such strategies may help minimise health disparities across communities and increase access to psychological services (Dunn & Hazard, 2019; Kemp et al., 2021). For any digital health solutions to be implemented, the digital health literacy of healthcare providers must be addressed (Norman & Skinner, 2006; Kayser et al., 2015). Thus, if psychologists have high digital health literacy, they can help deliver equitable services and encourage the uptake of digital health to clients. This can, in turn, support improvements in health outcomes by

reducing barriers to access, providing a cost-effective method of service delivery, and offering clients exposure to a wide range of digital tools and resources. Such strategies may be considered by health organisations, which prioritise the need to improve the digital health literacy of the community (Ministry of Health, 2020a; NHS, 2017).

Overall, these findings can be integrated into existing literature and advance our understanding of the digital health literacy of the psychologist workforce.

7.4 'A New Era' of Digital health

To date, little has been known about the factors that influence the use of digital technologies in psychological practice in Aotearoa. The current work investigated the factors which influence the use of digital technologies. This section discusses how these findings might relate to the context of psychological practice.

7.4.1 Factors which Influence the Use of Digital Technologies

The present study found that client characteristics such as access to technology and client preference were rated as important aspects influencing the use of digital technologies in psychological practice. These findings align with client and whanau-centred psychological practice, which implies that the client's needs are acknowledged and prioritised (Pierce et al., 2020). As expected, the results propose that psychologists deliberate whether their utilisation of digital technologies is suitable for their clients and whether their clients prefer using the technology. The mean scores of the other factors (e.g. workplace factors, clinical psychopathology, technology factors, and personal factors) were similar, suggesting that each of these aspects also plays a role in influencing the use of digital technologies within psychological practice.

7.4.2. Motivations and Barriers which Influence the Use of Digital Technologies

The following section discusses the qualitative component of the current work. Feedback was sought on what factors act as motivations or barriers to influence the use of digital technologies within psychological practice in Aotearoa.

Motivations. The current work identified three core themes of motivations that influence the use of digital technologies including 1) client preferences and needs, 2) necessity, and 3) increased accessibility and reach.

Consistent with the current literature, our findings indicate that psychologists strongly consider the client's best interests and the suitability of technology for their client when appraising the use of digital technologies within psychological practice (Pierce et al., 2020). These findings advance our understanding, as it is promising that clients' preferences and needs motivate psychologists' utilisation of digital technologies, especially within the changing context of psychological practice in Aotearoa. As psychologists tend to deliver services to a diverse clientele, the prioritisation of clients' preferences emphasizes the client-centred nature of psychological practice. Due to the uncertainties of lockdowns and restrictions, necessity was identified as a key motivator to use digital technologies due to its ability to maintain the delivery of psychological services (Smith et al., 2020) and offer support for illnesses remotely (Mahmood et al., 2020). Thus, for psychologists in Aotearoa, the capacity to provide routine psychological services when adhering to restrictions and social distancing policies (Bruce et al., 2020) seems to be an important motivation. These results align with existing evidence that suggests that a key motivator influencing the utilisation of digital technologies is where the benefits of digital technologies are highlighted, such as increased accessibility and reach (Munoz et al., 2018). In the current work, participants referred to the possibility of digital technologies overcoming barriers to accessing psychological services such as cost, time, and location, while promoting greater reach. From an equity perspective, the ability of digital technologies to disseminate

information to hard-to-reach audiences (i.e. rural communities) and provide the flexibility to improve access to services (Pote et al., 2021) is essential for psychologists in Aotearoa. Evidently, findings suggest that psychologists hold the awareness and can leverage the benefits of utilising digital technologies to suit their clients within professional practice.

Barriers. Understanding the barriers that influence the utilisation of digital technologies is fundamental to making progress within the digital health domain (Ross et al., 2016). Five main barriers which influence psychologists' usage of digital technologies were identified, 1) client's digital competencies, preferences, and access, 2) technical concerns, 3) clinical/situational concerns, 4) clinician preferences and skills, and 5) limited organisational resources.

Clients' digital competencies are highlighted as a barrier as clients must also hold the necessary digital competencies to use digital technologies effectively (Silsand et al., 2021). A common pattern of technical factors is also described within the literature (Bruce et al., 2020; Pierce et al., 2020). Participants identified that factors such as connectivity/speed issues, security, and privacy concerns, along with effectiveness and reliability concerns of existing digital health tools as barriers. Findings may be related to the Code of Ethics for psychologists working in Aotearoa, which emphasises that psychologists must uphold and maintain privacy and confidentiality within interactions (New Zealand Board of Psychologists, 2003). Psychologists 'buy-in' or cooperation in encouraging the uptake of digital technologies is a crucial element that influences clients' uptake and attitudes towards digital technologies (Hasanain et al., 2015; Lieneck et al., 2020). Therefore, our findings indicate that if psychologists feel unwilling or do not have the adequate digital skills to use digital technologies ethically and safely, this may translate into a poor experience of psychological care for the client.

Although these results provide a brief snapshot of the overall motivations and barriers

that influence the use of digital technologies, it is still unknown whether motivations or barriers vary across different types of technologies. Measurable impacts of such factors within practice also remain unexplored, e.g., whether necessity influences a tangible increase in the use of computers and applications or whether privacy concerns reduce the utilisation of software such as zoom.

7.5 Digital Training

As might be expected, our sample of psychologists said they would like further training on using digital technologies. Most participants (*N = 101, 53.2%)* reported they would like further training. This finding indicates that most psychologists are aware of their existing (lack of) skills. This is indicative of the current uncertainties surrounding the COVID-19 pandemic, where it appears that although psychologists in Aotearoa may hold some digital health literacy skills, improvements are certainly required. To build psychologists' digital health literacy, offering more education, digital training, organisational resources and introducing policies that promote the utilisation of digital health would be beneficial for this population and likely translate into a higher uptake of digital technologies by clients. In conclusion, digital training should be provided to psychologists in Aotearoa to improve their digital health literacy so that they feel well-equipped to deliver psychological services effectively.

7.6 Implications from the Current Study

Enhancing the delivery of psychological practice is important in Aotearoa. Gaining an understanding of digital health literacy offers substantial value across individual, societal, and national levels. This is imperative because all psychologists must keep up with the rapid pace of technological change and hold the knowledge and skills necessary to provide the highest

quality of care (NHS, 2018). The current study highlights two important theoretical and clinical implications which are applicable to professional psychological practice, theory, policy, and future research.

Firstly, this study is the first of its kind, to our knowledge, to measure the digital health literacy of psychologists in Aotearoa. Findings from the current study provided a baseline of the current digital health literacy of the psychologist workforce, which was previously unexplored. By gaining preliminary insights into the predictors of digital health literacy and the factors which influence the use of digital technologies, findings can help identify strategies to mitigate barriers and strengthen enablers (Variava et al., 2021). For example, limited organisational resources and technical concerns such as privacy and security were identified as key barriers to using technologies. To overcome these barriers, lobbying for increased organisational resources (such as software and digital devices) and resource allocation may be crucial to building digital health engagement and strengthening digital psychological practice. Furthermore, introducing organisational policies that include enhanced technical support and offer information to assess privacy and security may help promote the utilisation of digital health and promote the development of digital health literacy (Hill, 2016).

Secondly, if psychologists are expected to be digitally competent and deliver psychological practice using digital technologies, it is vital to have the capability to measure these skills. As noted in earlier chapters, the construct of digital health literacy and relevant abilities is considered a necessary digital competency in psychological practice (NHS, 2020). The research team used this operationalisation as a foundation to develop the Digital Health Literacy Scale, which was culturally adapted to psychological practice in Aotearoa. The final scale included 14 items with five theoretically meaningful subscales. The Digital Health Literacy Scale can be viewed as a tailored framework that seeks to quantify and measure the

digital health literacy of psychologists working in Aotearoa. The scale is different from pre-existing measures and was useful in the initial assessment of factors, and offers a parameter for future investigations in Aotearoa.

Additionally, despite compassion being a substantial component of psychological practice, little is known about the delivering compassionate care in digital health contexts. This indicates a need to identify which competencies are vital for compassionate practice (Wiljer et al., 2019). Our findings revealed a significant association between compassion and digital health literacy, where psychologists who scored high on compassion also had high scores of digital health literacy. Presumably, this may be related to the need to be competent and proactive in developing the skills to provide effective psychological care via digital means. It is important to acknowledge that social desirability bias may have also played a key role in these results, as psychologists may have felt obliged to report higher digital health literacy and compassion scores. Future work is advised to explore this possibility further. Nonetheless, the current findings may clinically translate into a better experience of psychological care as psychologists who are highly compassionate may enact compassion when using digital health modalities. Theoretically, these results can potentially inform future clinical training curriculums and promote the need to implement digital health literacy training with an underlying focus on compassion in digital health. It is also likely that perhaps digital health literacy may be incorporated within the category of competencies required for compassionate practice in digital health.

7.7 Study Limitations

Previous sections have presented potential explanations and the implications of the findings. Although this study provides significant findings and contributes to the evidence base, certain limitations should be acknowledged when interpreting the findings and considering directions for future research.

A strength of the study was the representation from almost all scopes of psychological practice (except trainee psychologists). Therefore, while future research should tailor survey questions according to the unique characteristics of each scope of practice, for the purposes of this study, our investigation provided perspectives that were reflective of most scopes of practice. However, as numbers across these scopes were too small to assess whether there were differences in digital health literacy across these groups, future research should investigate potential differences across scopes. As psychologists work with diverse clientele across various settings, obtaining data that is relevant to each scope of practice will prove beneficial for service provision. Our sample size only represents 6% of the current total psychologist workforce in Aotearoa. Therefore, the generalisability to the broader population of psychologists is limited, and further, these findings may not translate to overseas contexts or across time.

The study may also have been limited by social desirability and methodological biases. Primarily, the study included self-reported data to measure digital health literacy, compassion, and burnout. For the purposes of our study, self-report was the most appropriate and cost-effective method. However, self-reported responses are potentially influenced by social desirability, acquiescence bias, and other methodological limitations (Kuncel & Tellegen, 2009; Podsakoff et al., 2003; Podsakoff et al., 2012). Considering the Code of Ethics illustrates the duty to provide ethical and safe practice across modalities, delivering compassionate care is an implicit attribute of psychological practice (New Zealand Psychologists Board, 2003). It has already been discussed that in responding to this questionnaire, psychologists may have felt compelled to respond in a socially desirable manner e.g. reporting higher scores for digital health literacy and compassion for others and lower scores for the burnout measure. Lastly, it must be recognised that participants may have experienced cognitive fatigue while completing the questionnaire due to the inclusion of

18 questions in total (including two scales with 66 items) which could have influenced responses as items were not alternated or randomized. Likert scales used in this study are also susceptible to acquiescent responses, where respondents prefer the positive end of the scale, irrespective of item content (Weijters et al., 2013).

However, it is worth noting that the study was designed to minimise the biases above. For example, participants were advised that their responses were anonymous in a bid to minimise socially desirable responses. To minimise method bias and reduce ambiguity, items on the Digital Health Literacy Scale were carefully constructed and developed with focused and concise wording (Podsakoff et al., 2012). This study was primarily developed to obtain data on the digital health literacy of the workforce. Hence, completing the Digital Health Literacy Scale was compulsory for each participant (41 items). As a strategy to minimise method bias and ensure the validity of results (Kreitchmann et al., 2019), participants were given forced-choice options (e.g. non-response options such as 'I don't know' were not included). For the Compassion Scale, items were reverse-coded (Pommier, 2011; Baguley, 2020) and responses were optional. This decision was taken to reduce cognitive fatigue for participants completing the questionnaire.

While the limitations noted above might raise questions about study design, this was an exploratory study, and using subjective data was an appropriate approach for preliminary investigation. To establish findings from this study, objective measures coupled with subjective measures would yield further confidence and strengthen findings. Examples of objective measures include asking psychologists to complete digital tasks or tests which assess digital health literacy. Integrating objective measures may also promote method variance and build a consolidated understanding of the digital health literacy of the psychologist workforce. These tests can also be combined within clinical curriculums as a fundamental part of training.

It is also important to acknowledge the timing of the current study. During recruitment, regions in Aotearoa had been placed under different lockdown restrictions due to the COVID-19 pandemic. The impacts of these lockdown restrictions, heightened workloads, and increased pressures may have influenced findings and perspectives of digital health, as psychologists may have faced additional demands and stressors in coping with the swiftly changing context of psychological practice. It is also plausible that increased caseloads, time constraints, and heightened work demands could have created a barrier that prevented the recruitment of a larger sample.

7.8 Future Research

In addition to the future research suggestions noted above, there is an opportunity to assess the digital health literacy of psychologists in Aotearoa in an ongoing way. The prior absence of literature on this topic represents a limited focus on this competency and has potentially acted as an obstacle to further progress in this area. The development of the Digital Health Literacy Scale offers a tool for measuring this important skill set of the psychologist workforce and can provide a benchmark to compare how competencies might change over time. To evaluate the usefulness of digital training strategies, experimental studies can also be designed to assess whether improvements in the digital competencies of psychologists are reported after digital training interventions. Along similar lines, additional work could be conducted to identify potential strategies employed by psychologists to maintain their digital health literacy over this timeframe. As the current study reported significant findings, the need for longitudinal research is warranted. It may also prove beneficial to broaden the investigation to include additional factors which could deepen our understanding of digital health literacy and consider socially desirable responses. For example, variables such as innovativeness (Hurt et al., 1997), an orientation towards change and willingness to use new technologies (Aldahdouh et al., 2019; Aldahdouh et al., 2020)

may be relevant in the context of digital health literacy. Practical factors such as access to software and IT support could also be a valuable avenue for further investigation.

This work can also inform the development of a competency framework by the New Zealand Psychologists Board so that psychologists are mandated to develop their digital skills in the same way that they are mandated to develop and maintain their competencies in other areas (e.g. cultural competencies when working with Māori, New Zealand Psychologists Board, 2018).

As illustrated, due to the rapid innovation within this field, many questions remain for future investigation. It is imperative to build on these preliminary findings to improve our understanding and measurement of digital health literacy.

7.9 General Conclusions

The absence of international literature on the digital competencies of psychologists prompted our investigation into this field. Although psychologists are expected to competently deliver psychological care across any modality, there are currently no specified standards by the New Zealand Psychologists Board pertaining to digital practice. This lack of guidelines may influence the uptake of digital health and the delivery of psychological practice. Digital health literacy has been identified as a core digital competency within healthcare, yet it remains unexplored within the psychologist workforce. Therefore, this study was designed to explore the digital health literacy and factors which influence the use of digital technologies for the psychologist workforce in Aotearoa. Our findings revealed that psychologists have some digital health literacy and seem somewhat equipped to deliver psychological practice using digital technologies. However, improvements in digital health literacy are required. The current study also highlighted the need for further investigations to ascertain how to increase digital health literacy within this group. Exploratory analyses

revealed that compassion for others was a predictor of digital health literacy, whereas no association was found between burnout and digital health literacy. Considering the current context of the COVID-19 pandemic, an implication of the current study involves establishing the importance of designing culturally appropriate standards of digital health literacy. These standards can be developed according to a New Zealand context that recognises the role of digital health literacy as a foundational component of digital psychological practice. As the discourse surrounding digital health literacy is reaching new heights, this study paves a way forward for future research to examine additional avenues of digital health literacy, which can help consolidate findings. Overall, the current study contributes to a growing evidence base by providing preliminary findings that exemplify the role of digital health literacy as a fundamental digital competency required to deliver digital psychological practice in Aotearoa.

References

Ajami, S., & Bagheri-Tadi, T. (2013). Barriers for adopting electronic health records (EHRs) by physicians. *Acta Informatica Medica*, 21(2), 129. http://dx.doi.org/10.5455/aim.2013.21.129-134

Aldahdouh, T. Z., Korhonen, V., Nokelainen, P. (2019). What contributes to individual innovativeness? A multilevel perspective. *International Journal of Innovation Studies, 3(2),* 23–39. https://doi.org/10.1016/j.ijis.2019.06.001

Aldahdouh, T. Z., Nokelainen, P., & Korhonen, V. (2020). Technology and social media usage in higher education: The influence of individual innovativeness. *SAGE Open*, *10*(1), 2158244019899441. https://doi.org/10.1177/2158244019899441

Algunmeeyn, A., El-Dahiyat, F., Altakhineh, M. M., Azab, M., & Babar, Z. U. D. (2020). Understanding the factors influencing healthcare providers' burnout during the outbreak of COVID-19 in Jordanian hospitals. *Journal of Pharmaceutical Policy and Practice*, *13*(1), 1-8. https://doi.org/10.1186/s40545-020-00262-y

Ali, S., Kleib, M., Paul, P., Petrovskaya, O., & Kennedy, M. (2021). Compassionate nursing care and the use of digital health technologies: A scoping review. *International Journal of Nursing Studies*, 104161. https://doi.org/10.1016/j.ijnurstu.2021.104161

Alwan, K., Ayele, T. A., & Tilahun, B. (2015). Knowledge and utilization of computers among health professionals in a developing country: a cross-sectional study. *JMIR Human Factors, 2(1),* e4184. http://dx.doi.org/10.2196/humanfactors.4184

American Psychological Association. (2021). Telehealth and Telepsychology. https://www.apa.org/pi/disability/resources/publications/telepsychology

AMS. (2018). Compassion in a technological world. Advancing AMS' Strategic Aims. http://www.ams-inc.on.ca/wp-content/uploads/2019/01/Compassion-in-a-Tech-World.pdf

Andersson, G. (2016). Internet-delivered psychological treatments. *Annual Review of Clinical Psychology*, *12*, 157-179. http://dx.doi.org/10.1146/annurev-clinpsy-021815-093006

Andrews, G., Basu, A., Cuijpers, P., Craske, M. G., McEvoy, P., English, C. L., & Newby, J. M. (2018). Computer therapy for the anxiety and depression disorders is effective, acceptable and practical health care: an updated meta-analysis. *Journal of Anxiety Disorders, 55*, 70-78. https://doi.org/10.1016/j.janxdis.2018.01.001

ASMS. (2019). Hospitals on the Edge. *A report by the Association of Salaried Medical Specialists on the precarious state of New Zealand's public hospital services and recommended actions.* https://www.asms.org.nz/wp-content/uploads/2019/11/12671-Hospitals-on-the-Edge-WEB.pdf

Baguley, S. (2020). *To Care and to feel cared for: A study of compassion in Patients and their doctors* [Master's thesis, The University of Auckland]. The University of Auckland Research Repositories, ResearchSpace. https://researchspace.auckland.ac.nz/handle/2292/56293

Bauer-Wu, S., & Fontaine, D. (2015). Prioritizing clinician wellbeing: University of Virginia's compassionate care initiative. *Global Advances in Health and Medicine. 4(5),* 16–22. http://dx.doi.org/10.7453/gahmj.2015.042

Blount, A. J., & Lambie, G. W. (2018). Development and factor structure of the helping professional wellness discrepancy scale. *Measurement and Evaluation in Counselling and Development*, *51*(2), 92-110. https://doi.org/10.1080/07481756.2017.1358060

Bodie, G. D., & Dutta, M. J. (2008). Understanding health literacy for strategic health marketing: eHealth literacy, health disparities, and the digital divide. *Health Marketing Quarterly*, 25(1-2), 175-203. http://dx.doi.org/10.1080/07359680802126301

Boonstra, A., & Broekhuis, M. (2010). Barriers to the acceptance of electronic medical records by physicians from systematic review to taxonomy and interventions. *BMC Health Services Research*, *10*(1), 1-17. https://doi.org/10.1186/1472-6963-10-231

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

Bruce, E., Davies, A., Drabble, A., de Gouw, B., Hensley, A., Jouart, M., Lee, E., McQuiag, R., Paddison, J., Simanu, B., & Wang, D. (2020). The impact of COVID-19 on District Health Board Diabetes Secondary Care Services in New Zealand. *New Zealand Society for the Study of Diabetes.* https://www.nzssd.org.nz/news/news-item/8/index.html

Bucci, S., Schwannauer, M., & Berry, N. (2019). The digital revolution and its impact on mental health care. *Psychology and Psychotherapy: Theory, Research and Practice*, *92*(2), 277-297. http://dx.doi.org/10.1111/papt.12222

Bunker, B. (2010). A summary of international reports, research and case studies of digital literacy. *Wellington: New Zealand Computer Society.* https://itp.nz/files/201001%20Digital%20Literacy%20Research%20Report.pdf

Burks, D. J., Youll, L. K., & Durtschi, J. P. (2012). The empathy-altruism association and its relevance to health care professions. *Social Behaviour and Personality: An International Journal*, *40*(3), 395-400. http://dx.doi.org.ezproxy.auckland.ac.nz/10.2224/sbp.2012.40.3.395

Canadas-De la Fuente, G., Ortega, E., Ramirez-Baena, L., De la Fuente-Solana, E., Vargas, C., & Gómez-Urquiza, J. (2018). Gender, marital status, and children as risk factors for burnout in nurses: A meta-analytic study. *International Journal of Environmental Research and Public Health*, 15(10), 2102. https://doi-org.ezproxy.auckland.ac.nz/10.3390/ijerph15102102

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245-276. https://doi.org/10.1207/s15327906mbr0102_10

Chau, P. Y. (2001). Influence of computer attitude and self-efficacy on IT usage behavior. *Journal of Organizational and End User Computing (JOEUC)*, *13*(1), 26-33. http://dx.doi.org/10.4018/joeuc.2001010103

Chenneville, T., & Schwartz-Mette, R. (2020). Ethical considerations for psychologists in the time of COVID-19. *American Psychologist, 75*(5), 644–654. https://doi.org/10.1037/amp0000661

Conard, S. (2019). Best practices in digital health literacy. *International Journal of Cardiology*, 292, 277-279. https://doi.org/10.1016/j.ijcard.2019.05.070

CONSORT. (2010). The CONSORT Flow Diagram. http://www.consort-statement.org/consort-statement/flow-diagram

Curtis, E., Jones, R., Tipene-Leach, D., Walker, C., Loring, B., Paine, S. J., & Reid, P. (2019). Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. *International Journal for Equity in Health*, *18*(1), 1-17. https://doi.org/10.1186/s12939-019-1082-3

De Hert, S. (2020). Burnout in healthcare workers: prevalence, impact and preventative strategies. *Local and Regional Anesthesia*, *13*, 171. http://dx.doi.org/10.2147/LRA.S240564

Dehlin, M., & Lundh, L. G. (2018). Compassion fatigue and compassion satisfaction among psychologists: Can supervision and a reflective stance be of help?. *Journal for Person-Oriented Research*, *4*(2), 95. http://dx.doi.org/10.17505/jpor.2018.09

Desai, A., Lankford, C., & Schwartz, J. (2020). With crisis comes opportunity: Building ethical competencies in light of COVID-19. *Ethics & Behaviour*, *30*(6), 401-413. https://doi.org/10.1080/10508422.2020.1762603

DHP. (2012). *The Division of Health Psychology*. http://www.health-psychology.org.uk/about-the-dhp/about-the-dhp_home.cfm

Dobson, R., Whittaker, R., Bartley, H., Connor, A., Chen, R., Ross, M., & McCool, J. (2017). Development of a culturally tailored text message maternal health program: TextMATCH. *JMIR mHealth and uHealth*, *5*(4), e7205. http://dx.doi.org/ 10.2196/mhealth.7205

Dolan, E. D., Mohr, D., Lempa, M., Joos, S., Fihn, S. D., Nelson, K. M., & Helfrich, C. D. (2015). Using a Single Item to Measure Burnout in Primary Care Staff: A Psychometric Evaluation. *Journal of General Internal Medicine*, *30*(5), 582–587. https://doi.org/10.1007/s11606-014-3112-6

Duarte, J., & Pinto-Gouveia, J. (2017). The role of psychological factors in oncology nurses' burnout and compassion fatigue symptoms. *European Journal of Oncology Nursing*, 28, 114– 121. https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.ejon.2017.04.002

Dunn, P., & Hazzard, E. (2019). Technology approaches to digital health literacy. *International Journal of Cardiology, 293, 294-296.* http://dx.doi.org/10.1016/j.ijcard.2019.06.039

Dwyer, M. L., Alt, M., Brooks, J. V., Katz, H., & Poje, A. B. (2021). Burnout and Compassion Satisfaction: Survey Findings of Healthcare Employee Wellness During COVID-19 Pandemic using ProQOL. *Kansas Journal of Medicine, 14*, 121. http://dx.doi.org/10.17161/kjm.vol1415171

Ebert, D. D., Van Daele, T., Nordgreen, T., Karekla, M., Compare, A., Zarbo, C., Brugnera, A., Overland, S., Trebbi, G., Jensen, K. L., Kaehlke, F (on behalf of the EFPA E-Health Taskforce), & Baumeister, H. (2018). Internet- and mobile-based psychological interventions: Applications, efficacy and potential for improving mental health. A report of the EFPA E-Health Taskforce. *European Psychologist, 23*(2), 167-187. http://doi.org/10.1027/1016-9040/a000318

Ellaway, R. H., Coral, J., Topps, D., & Topps, M. (2015). Exploring digital professionalism. *Medical Teacher, 37*(9), 844-849. http://dx.doi.org/10.3109/0142159X.2015.1044956

Ellison-Loschmann, L., & Pearce, N. (2006). Improving access to health care among New Zealand's Māori population. *American Journal of Public Health*, *96*(4), 612-617. https://doi.org/10.2105/AJPH.2005.070680

Engelen, E. M., & Rottger-Rossler, B. (2012). Current disciplinary and interdisciplinary debates on empathy. *Emotion Review*, *4*(1), *3-8.* https://doi.org/10.1177/1754073911422287

European Health Parliament. (2016). Digital Skills for Health Professionals. Committee on Digital Skills for Health Professionals. https://www.healthparliament.eu/wp-content/uploads/2017/09/Digital-skills-for-health-professionals.pdf

Every-Palmer, S., Jenkins, M., Gendall, P., Hoek, J., Beaglehole, B., Bell, C., Williman, J., Rapsey, C., & Stanley, J. (2020). Psychological distress, anxiety, family violence, suicidality, and

wellbeing in New Zealand during the COVID-19 lockdown: A cross-sectional study. *PLoS One*, *15*(11), e0241658. https://doi.org/10.1371/journal.pone.0241658

Eysenbach, G. (2004). Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *Journal of Medical Internet Research*, 6(3):e34. http://dx.doi.org/10.2196/jmir.6.3.e34

Fairburn, C. G., & Patel, V. (2017). The impact of digital technology on psychological treatments and their dissemination. *Behaviour Research and Therapy*, *88*, 19-25. https://doi.org/10.1016/j.brat.2016.08.012

Fernando III, A. T., & Consedine, N. S. (2014). Beyond compassion fatigue: the transactional model of physician compassion. *Journal of Pain and Symptom Management*, *48(2), 289-298.* http://dx.doi.org/10.1016/j.jpainsymman.2013.09.014

Ferrari, A., Punie, Y., & Redecker, C. (2012). Understanding digital competence in the 21st century: An analysis of current frameworks. In *European Conference on Technology Enhanced Learning*, 79-92. https://link.springer.com/content/pdf/10.1007%2F978-3-642-33263-0.pdf

Figley, C. R. (2002). Compassion fatigue: Psychotherapists' chronic lack of self care. *Journal of Clinical Psychology*, *58*(11), 1433-1441. https://doi.org/10.1002/jclp.10090

Fleming, T., Lucassen, M., Stasiak, K., Sutcliffe, K., & Merry, S. (2021). Technology Matters: SPARX–computerised cognitive behavioural therapy for adolescent depression in a game format. *Child and Adolescent Mental Health*, *26*(1), 92-94. http://dx.doi.org/10.1111/camh.12444

Franza, F., Basta, R., Pellegrino, F., Solomita, B., & Fasano, V. (2020). The role of fatigue of compassion, burnout and hopelessness in healthcare: Experience in the time of COVID-19 outbreak. *Psychiatria Danubina*, *32*(1), 10-14. https://hrcak.srce.hr/file/381534

Gagnon, M. P., Desmartis, M., Labrecque, M., Car, J., Pagliari, C., Pluye, P., Fremont, P., Gagnon, J., Tremblay, N., & Légaré, F. (2012). Systematic review of factors influencing the adoption of information and communication technologies by healthcare professionals. *Journal of Medical*

Systems, *36*(1), 241-277
https://doi.org/10.1007/s10916-010-9473-4

Gatchel, R. J., & Oordt, M. S. (2003). Clinical health psychology and primary care: Practical advice and clinical guidance for successful collaboration. *American Psychological Association.* https://doi.org/10.1037/10592-000

Goldschmidt, L., Langa, M., Masilela, B., Ndhlovu, L. M., Mncina, B., Maubane, B., & Bujela, K. (2021). Telepsychology and the COVID-19 pandemic: the experiences of psychologists in South Africa. *South African Journal of Psychology, 51(2), 314-324.* https://doi.org/10.1177/0081246321993281

Goldstein, D. H., Phelan, R., Wilson, R., Ross-White, A., VanDenKerkhof, E. G., Penning, J. P., & Jaeger, M. (2014). Brief review: Adoption of electronic medical records to enhance acute pain management. *Canadian Journal of Anesthesia*, *61*(2), 164-179. https://doi.org/10.1007/s12630-013-0069-6

Gour, N., & Srivastava, D. (2010). Knowledge of computer among healthcare professionals of India: a key toward e-health. *Telemedicine and e-Health, 16*(9), 957-962. https://doi.org/10.1089/tmj.2010.0049

Gray, D. M., Joseph, J. J., & Olayiwola, J. N. (2020). Strategies for digital care of vulnerable patients in a COVID-19 world - keeping in touch. *JAMA Health Forum, 1(6), e200734-e200734.* http://dx.doi.org/10.1001/jamahealthforum.2020.0734

Gu, J., Cavanagh, K., Baer, R., & Strauss, C. (2017). An empirical examination of the factor structure of compassion. *PloS One*, *12(2), e0172471.* https://doi.org/10.1371/journal.pone.0172471

Gubman, G. D., & Tessler, R. C. (1987). The impact of mental illness on families: Concepts and priorities. *Journal of Family Issues*, *8*(2), 226-245. https://doi.org/10.1177/019251387008002005

Hames, J. L., Bell, D. J., Perez-Lima, L. M., Holm-Denoma, J. M., Rooney, T., Charles, N. E., Thompson, S. M., Mehlenbeck, R. S., Tawfik, S. H., Fondacaro, K. M., Simmons, K. T., & Hoersting, R. C. (2020). Navigating uncharted waters: Considerations for training clinics in the rapid transition to telepsychology and telesupervision during COVID-19. *Journal of Psychotherapy Integration*, *30*(2), 348. http://dx.doi.org/10.1037/int0000224

Harris, K., Jacobs, G., & Reeder, J. (2019). Health systems and adult basic education: A critical partnership in supporting digital health literacy. *Health Literacy Research and Practice*, 3(3), S33-S36. https://doi.org/10.3928/24748307-20190325-02

Hasanain, R. A., Vallmuur, K., & Clark, M. (2015). Electronic Medical Record Systems in Saudi Arabia: Knowledge and Preferences of Healthcare Professionals. *Journal of Health Informatics in Developing Countries*, *9*(1). https://www.jhidc.org/index.php/jhidc/article/view/135

Health Informatics New Zealand (HiNZ). (2020). Exclusive: Massive rise in telehealth at DHBs revealed. https://www.hinz.org.nz/news/528449/EXCLUSIVE-Massive-rise-in-telehealth-at-DHBs-revealed.htm

Hill, L. (2016). Digital Literacy Instruction for eHealth and Beyond. *ORTESOL Journal, 33, 34-40.* https://files.eric.ed.gov/fulltext/EJ1152403.pdf

Hilty, D. M., Crawford, A., Teshima, J., Chan, S., Sunderji, N., Yellowlees, P. M., Kramer, G., O'Neill, P., Fore, C., Luo, J., & Li, S. T. (2015). A framework for telepsychiatric training and e-health: competency-based education, evaluation and implications. *International Review of Psychiatry*, *27*(6), 569-592. http://dx.doi.org/10.3109/09540261.2015.1091292

Hofmeyer, A., Taylor, R., & Kennedy, K. (2020). Fostering compassion and reducing burnout: How can health system leaders respond in the Covid-19 pandemic and beyond?. *Nurse Education Today*, *94*, 104502. http://dx.doi.org/10.1016/j.nedt.2020.104502

Hollis, C., Morriss, R., Martin, J., Amani, S., Cotton, R., Denis, M., & Lewis, S. (2015). Technological innovations in mental healthcare: harnessing the digital revolution. *The British Journal of Psychiatry*, *206*(4), 263-265. https://doi.org/10.1192/bjp.bp.113.142612

Hollis, C., Sampson, S., Simons, L., Davies, E. B., Churchill, R., Betton, V., Butler, D., Chapman, K., Easton, K., Gronlund, T. A., Kabir, T., Rawsthorne, M., Rye, E. & Tomlin, A. (2018). Identifying research priorities for digital technology in mental health care: results of the James Lind Alliance Priority Setting Partnership. *The Lancet Psychiatry*, *5*(10), 845-854. https://doi.org/10.1016/S2215-0366(18)30296-7

Holt, K. A., Overgaard, D., Engel, L. V., & Kayser, L. (2020). Health literacy, digital literacy and eHealth literacy in Danish nursing students at entry and graduate level: a cross sectional study. *BMC Nursing*, 19, 1-12. https://doi.org/10.1186/s12912-020-00418-w

Houtsma, C., Boffa, J. W., Raines, A. M., Constans, J. I., Martin-Klinger, C., Konur, B. B., Franklin, C. L., & Jones, K. R. (2021). Coping in crisis: The role of psychologists in response to a pandemic. *Psychological Services*. http://dx.doi.org/10.1037/ser0000527

Hurt, H. T., Joseph, K., & Cook, C. D. (1977). Scales for the measurement of innovativeness. *Human Communication Research, 4(1),* 58–65. https://doi.org/10.1111/j.1468-2958.1977.tb00597.x

Huryk, L. A. (2010). Factors influencing nurses' attitudes towards healthcare information technology. *Journal of Nursing Management, 18*(5), 606-612. http://dx.doi.org/10.1111/j.1365-2834.2010.01084.x

Jain, R., Dupare, R., Bhanushali, N., & Kumar, V. (2020). Knowledge and utilization of computer among health-care professionals in Mumbai. *Journal of Indian Association of Public Health Dentistry*, *18*(1), 97. http://dx.doi.org/10.4103/jiaphd.jiaphd_225_18

Jansen, P., Bacal, K., & Crengle, S. (2008). He Ritenga Whakaaro: Māori experiences of health services. *Hospital*, *200*, 30-7. https://www.moh.govt.nz/notebook/nbbooks.nsf/0/2A6CAF401ABBEFB9CC2575F4000B6D0C/$file/He-Ritenga-Whakaaro.pdf

Jarva, E., Oikarinen, A., Andersson, J., Tuomikoski, A. M., Kääriäinen, M., Meriläinen, M., & Mikkonen, K. (2022). Healthcare professionals' perceptions of digital health competence: A qualitative descriptive study. *Nursing Open*, *9*(2), 1379-1393. https://doi.org/10.1002/nop2.1184

Jimenez, G., Spinazze, P., Matchar, D., Huat, G. K. C., van der Kleij, R. M., Chavannes, N. H., & Car, J. (2020). Digital health competencies for primary healthcare professionals: A scoping review. *International Journal of Medical Informatics*, 104260. https://doi.org/10.1016/j.ijmedinf.2020.104260

Kase, S. M., Waldman, E. D., & Weintraub, A. S. (2019). A cross-sectional pilot study of compassion fatigue, burnout, and compassion satisfaction in pediatric palliative care providers in the United States. *Palliative & Supportive Care, 17*(3), 269-275. https://doi.org/10.1017/S1478951517001237

Kasl-Godley, J. E., King, D. A., & Quill, T. E. (2014). Opportunities for psychologists in palliative care: Working with patients and families across the disease continuum. *American Psychologist*, *69*(4), 364. http://dx.doi.org/10.1037/a0036735

Kayser, L., Kushniruk, A., Osborne, R. H., Norgaard, O., & Turner, P. (2015). Enhancing the effectiveness of consumer-focused health information technology systems through eHealth literacy: a framework for understanding users' needs. *JMIR Human Factors*, *2*(1), e3696. http://dx.doi.org/10.2196/humanfactors.3696

Kazdin, A. E. (2017). Addressing the treatment gap: A key challenge for extending evidence-based psychosocial interventions. *Behaviour Research and Therapy*, *88*, 7-18. http://dx.doi.org/10.1016/j.brat.2016.06.004

Kazdin, A. E., & Blase, S. L. (2011). Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science, 6*(1), 21–37. http://dx.doi.org/10.1177/1745691610393527

Kemp, E., Trigg, J., Beatty, L., Christensen, C., Dhillon, H. M., Maeder, A., Williams, P. A. H., & Koczwara, B. (2021). Health literacy, digital health literacy and the implementation of digital health technologies in cancer care: the need for a strategic approach. *Health Promotion Journal of Australia,* 32, 104-114. https://doi.org/10.1002/hpja.387

Kinsella, E. (2020). Compassion in digital healthcare. *Future Healthcare Journal*, *7*(3), 193-193. https://doi.org/10.7861/fhj.dig-2020-comp

Klecun, E. (2010). Digital Literacy for Health: The Promise of Health 2.0. *International Journal of Digital Literacy and Digital Competence (IJDLDC), 1*(3), 48-57. http://doi.org/10.4018/jdldc.2010070105

Kreitchmann, R. S., Abad, F. J., Ponsoda, V., Nieto, M. D., & Morillo, D. (2019). Controlling response biases in self-report scales: Forced choice vs. psychometric modeling of Likert items. *Frontiers in Psychology*, 2309.

http://dx.doi.org/10.3389/fpsyg.2019.02309

Kuek, A., & Hakkennes, S. (2020). Healthcare staff digital literacy levels and their attitudes towards information systems. *Health Informatics Journal, 26*(1), 592-612. https://doi.org/10.1177/1460458219839613

Kuncel, N. R., & Tellegen, A. (2009). A conceptual and empirical reexamination of the measurement of the social desirability of items: Implications for detecting desirable response style and scale development. *Personnel Psychology*, *62*(2), 201-228. https://doi.org/10.1111/j.1744-6570.2009.01136.x

Lahana, E., Papadopoulou, K., Roumeliotou, O., Tsounis, A., Sarafis, P., & Niakas, D. (2017). Burnout among nurses working in social welfare centers for the disabled. *BMC Nursing*, *16(*1), 15. https://doi-org.ezproxy.auckland.ac.nz/10.1186/s12912-017-0209-3

Lee, C. H., Duck, I. M., & Sibley, C. G. (2017). Ethnic inequality in diagnosis with depression and anxiety disorders. *NZ Medical Journal*, *130*(1454), 10-20. https://journal.nzma.org.nz/journal-articles/ethnic-inequality-in-diagnosis-with-depression-and-anxiety-disorders

Legislation, N. Z. (2003). Health Practitioners' Competence Assurance Act 2003. *http://www. legislation. govt. nz/act/public/2003/0048/latest/DLM203312.*

Lelorain, S., Brédart, A., Dolbeault, S., & Sultan, S. (2012). A systematic review of the associations between empathy measures and patient outcomes in cancer care. *Psycho-Oncology*, *21(12),* 1255-1264. http://dx.doi.org/10.1002/pon.2115

Lieneck, C., Garvey, J., Collins, C., Graham, D., Loving, C., & Pearson, R. (2020, December). Rapid telehealth implementation during the COVID-19 global pandemic: a rapid review. *Healthcare*, *8*(4), 517. https://doi.org/10.3390/healthcare8040517

Little, S. G., Akin-Little, A., & Johansen, A. (2013). Bi-cultural Aotearoa/New Zealand: Provision of psychological services to the Māori population of rural New Zealand: Combining best practice with cultural considerations. *School psychology international*, *34*(4), 428-438. https://doi.org/10.1177/0143034312446891

Lown, B. A., Shin, A., & Jones, R. N. (2019). Can organizational leaders sustain compassionate, patient-centered care and mitigate burnout?. *Journal of Healthcare Management*, *64*(*6),* 398-412.
http://dx.doi.org/10.1097/JHM-D-18-00023

Lyles, C. R., & Sarkar, U. (2015). Health literacy, vulnerable patients, and health information technology use: where do we go from here?. *Journal of General Internal Medicine*, *30*(3), 271-272.
http://dx.doi.org/10.1007/s11606-014-3166-5

MacLure, K., & Stewart, D. (2018). A qualitative case study of ehealth and digital literacy experiences of pharmacy staff. *Research in Social and Administrative Pharmacy, 14(6),* 555-563.
http://dx.doi.org/10.1016/j.sapharm.2017.07.001

Mahmood, S., Hasan, K., Carras, M. C., & Labrique, A. (2020). Global preparedness against COVID-19: We must leverage the power of digital health. *JMIR Public Health and Surveillance, 6(2), e18980.*
http://dx.doi.org/10.2196/18980

Mahoney, A. E., Elders, A., Li, I., David, C., Haskelberg, H., Guiney, H., & Millard, M. (2021). A tale of two countries: Increased uptake of digital mental health services during the COVID-19 pandemic in Australia and New Zealand. *Internet Interventions, 25*, 100439.
https://doi.org/10.1016/j.invent.2021.100439

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52(1),* 397-422.
https://doi.org/10.1146/annurev.psych.52.1.397

Merry, S. N., Stasiak, K., Shepherd, M., Frampton, C., Fleming, T., & Lucassen, M. F. (2012). The effectiveness of SPARX, a computerised self-help intervention for adolescents seeking help for depression: randomised controlled non-inferiority trial. *British Medical Journal, 344.*
https://doi.org/10.1136/bmj.e2598

Mesko, B., & Gyorffy, Z. (2019). The rise of the empowered physician in the digital health era. *Journal of Medical Internet Research*, *21*(3), e12490.
http://dx.doi.org/10.2196/12490

Mikolasek, M., Berg, J., Witt, C. M., & Barth, J. (2018). Effectiveness of mindfulness-and relaxation-based eHealth interventions for patients with medical conditions: a systematic review and

synthesis. I*nternational Journal of Behavioral Medicine, 25(1), 1-16.* http://dx.doi.org/ 10.1007/s12529-017-9679-7

Milgrom, J., Walter, P., & Green, S. (1994). Cost savings following psychological intervention in a hospital setting: The need for Australian-based research. *Australian Psychologist, 29*(3), 194–200. https://doi.org/10.1080/00050069408257351

Ministry of Health. (2017). Ethnicity Data Protocols. https://www.health.govt.nz/system/files/documents/publications/hiso_10001-2017_ethnicity_data_protocols_may-21.pdf

Ministry of Health. (2020a). Digital Health Strategic Framework. https://www.health.govt.nz/our-work/digital-health/digital-health-strategic-framework

Ministry of Health (2020b). Digital Health 2020. https://www.health.govt.nz/our-work/digital-health/monthly-reports-digital-health-initiatives

Ministry of Health. (2020c). Annual update of key results 2019/20: New Zealand Health Survey. https://www.health.govt.nz/publication/annual-update-key-results-2019-20-new-zealand-health-survey

Ministry of Health. (2021). Digital Health. https://www.health.govt.nz/our-work/digital-health

Ministry of Health. (2022). Guidance for critical health services during an Omicron outbreak. https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-information-health-professionals/guidance-critical-health-services-during-omicron-outbreak

Mobray, D. (1989). MAS review of clinical psychology services (For the National Health Services/ Department of Health Manpower Planning Advisory Group). New Zealand College of Clinical Psychologists. https://www.nzccp.co.nz/assets/Uploads/MAS-Review-1989.pdf

Mohammed, E., Andargie, G., Meseret, S., & Girma, E. (2013). Knowledge and utilization of computer among health workers in Addis Ababa hospitals, Ethiopia: computer literacy in the health sector. *BMC Research Notes*, *6*(1), 1-8. https://doi.org/10.1186/1756-0500-6-106

Mohr, D. C., Burns, M. N., Schueller, S. M., Clarke, G., & Klinkman, M. (2013). Behavioral intervention technologies: evidence review and recommendations for future research in

mental health. *General Hospital Psychiatry*, *35*(4), 332-338. http://dx.doi.org/10.1016/j.genhosppsych.2013.03.008

Molina-Praena, J., Ramirez-Baena, L., Gómez-Urquiza, J. L., Cañadas, G. R., & De la Fuente, E. I. (2018). Levels of burnout and risk factors in medical area nurses: A meta-analytic study. *International Journal of Environmental Research and Public Health*, *15(*12), 2800. http://dx.doi.org/10.3390/ijerph15122800

Morris, M. E., & Aguilera, A. (2012). Mobile, social, and wearable computing and the evolution of psychological practice. *Professional Psychology: Research and Practice*, *43*(6), 622. http://dx.doi.org/10.1037/a0029041

Munoz, R. F., Chavira, D. A., Himle, J. A., Koerner, K., Muroff, J., Reynolds, J., Rose, R.D., Ruzek, J. I., Teachman, B.A., & Schueller, S. M. (2018). Digital apothecaries: a vision for making health care interventions accessible worldwide. *mHealth, 4*. http://dx.doi.org/10.21037/mhealth.2018.05.04

Naughton, C. A. (2018). Patient-centered communication. *Pharmacy*, *6*(1), 18. https://doi.org/10.3390/pharmacy6010018

Nazeha, N., Pavagadhi, D., Kyaw, B. M., Car, J., Jimenez, G., & Car, L. T. (2020). A digitally competent health workforce: scoping review of educational frameworks. *Journal of Medical Internet Research*, *22*(11), e22706. http://dx.doi.org/10.2196/22706

Neff, K. D. (2003a). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2,* 85-101. http://dx.doi.org/10.1080/15298860390129863

Neff, K. D. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*, 223-250. http://dx.doi.org/10.1080/15298860390209035

New Zealand Psychologists Board. (2002). Code of Ethics. https://www.psychology.org.nz/journal-archive/code-of-ethics.pdf

New Zealand Psychologists Board. (2011). Cultural Competencies. For psychologists registered under the Health Practitioners Competence Assurance Act (2003) and those seeking to get

registered. https://psychologistsboard.org.nz/wp-content/uploads/2021/06/NZPB-Cultural-Competencies-CURRENT-NL-310111.pdf

New Zealand Psychologists Board. (2012). The Practice of Telepsychology. https://psychologistsboard.org.nz/wp-content/uploads/2021/06/BPG_The_Practice_of_Telepsychology_FINAL_131212.pdf

New Zealand Psychologists Board. (2017). Guidelines on Informed Consent. https://psychologistsboard.org.nz/wp-content/uploads/2021/06/BPG_InformedConsent_CURRENT_ADOPTED_230217.pdf

New Zealand Psychologists Board. (2018). Core Competencies. For the Practice of Psychology in Aotearoa New Zealand. https://psychologistsboard.org.nz/wp-content/uploads/2021/06/Core_Competencies.pdf

New Zealand Psychologists Board. (2021). Search the Register. https://psychologistsboard.org.nz/search-the-register/

New Zealand Psychologists Board. (2022). About Psychologists. https://psychologistsboard.org.nz/for-the-public/about-psychologists/

NHS. (2017). Improving Digital Literacy. https://www.hee.nhs.uk/sites/default/files/documents/Improving%20Digital%20Literacy%20-%20HEE%20and%20RCN%20report.pdf

NHS. (2018). A Health and Care Digital Capabilities Framework. https://www.hee.nhs.uk/sites/default/files/documents/Digital%20Literacy%20Capability%20Framework%202018.pdf

NHS. (2020).Digital Competencies. https://www.digitalhealthskills.com/digitalcompetencies

Nickelson, D. W. (1998). Telehealth and the evolving health care system: Strategic opportunities for professional psychology. *Professional Psychology: Research and Practice, 29*(6), 527. https://doi.org/10.1037/0735-7028.29.6.527

Nolte, A. G., Downing, C., Temane, A., & Hastings-Tolsma, M. (2017). Compassion fatigue in nurses: A metasynthesis. *Journal of Clinical Nursing*, *26*, 4364– 4378. https://doi-org.ezproxy.auckland.ac.nz/10.1111/jocn.13766

Norman, C. D., & Skinner, H. A. (2006). eHealth literacy: Essential skills for consumer health in a networked world. *Journal of Medical Internet Research, 8(2),* e9. http://dx.doi.org/10.2196/jmir.8.2.e9

Ohrnberger, J., Fichera, E., & Sutton, M. (2017). The relationship between physical and mental health: A mediation analysis. *Social Science & Medicine, 195*, 42-49. http://dx.doi.org/10.1016/j.socscimed.2017.11.008

Oranga Tāngata, Oranga Whānau. (2019). A Kaupapa Māori Analysis of Consultation with Māori for the Government Inquiry into Mental Health and Addiction. Department of Internal Affairs: Wellington. https://www.mentalhealth.inquiry.govt.nz/assets/Uploads/Summary-of-submissions-featuring-Maori-voice.pdf

Pace, T., Tenzin Negi, L., Adame, D., Cole, S., Sivilli, T., Brown, T., Issa, M., & Raison, C. (2009). Effect of compassion meditation on neuroendocrine, innate immune and behavioral responses to psychosocial stress. *Psychoneuroendocrinology, 34*(1), 87-98. http://dx.doi.org/10.1016/j.psyneuen.2008.08.011

Palmer, S. C., Gray, H., Huria, T., Lacey, C., Beckert, L., & Pitama, S. G. (2019). Reported Māori consumer experiences of health systems and programs in qualitative research: a systematic review with meta-synthesis. *International Journal for Equity in Health, 18*(1), 1-12. https://doi.org/10.1186/s12939-019-1057-4

Papp-Zipernovszky, O., Horváth, M. D., Schulz, P. J., & Csabai, M. (2021). Generation Gaps in Digital Health Literacy and Their Impact on Health Information Seeking Behavior and Health Empowerment in Hungary. *Frontiers in Public Health, 9*, 523. https://doi.org/10.3389/fpubh.2021.635943

Penwell-Waines, L., Ward, W., Kirkpatrick, H., Smith, P., & Abouljoud, M. (2018). Perspectives on healthcare provider well-being: looking back, moving forward. *Journal of Clinical Psychology in Medical Settings, 25*(3), 295-304. http://dx.doi.org/10.1007/s10880-018-9541-3

Perez-Chacon, M., Chacon, A., Borda-Mas, M., & Avargues-Navarro, M. L. (2021). Sensory Processing Sensitivity and Compassion Satisfaction as Risk/Protective Factors from Burnout and Compassion Fatigue in Healthcare and Education Professionals. *International Journal of Environmental Research and Public Health, 18*(2), 611. http://dx.doi.org/10.3390/ijerph18020611

Perrin, P. B., Rybarczyk, B. D., Pierce, B. S., Jones, H. A., Shaffer, C., & Islam, L. (2020). Rapid telepsychology deployment during the COVID-19 pandemic: A special issue commentary and lessons from primary care psychology training. *Journal of Clinical Psychology, 76(6), 1173-1185.*
http://dx.doi.org/10.1002/jclp.22969

Peters, D., & Calvo, R. (2014). Compassion vs. empathy: designing for resilience. *Interactions*, *21*(5), 48-53.
https://doi.org/10.1145/2647087

Pierce, B. S., Perrin, P. B., & McDonald, S. D. (2020). Demographic, organizational, and clinical practice predictors of U.S. psychologists' use of telepsychology. *Professional Psychology: Research and Practice, 51*(2), 184–193.
https://doi.org/10.1037/pro0000267

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879.
http://dx.doi.org/10.1037/0021-9010.88.5.879

Podsakoff, P. M., Mackenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63,* 539-569.
https://doi.org/10.1146/annurev-psych-120710-100452

Pommier, E. A. (2011). The compassion Scale. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, *72*, 1174.
https://doi.org/10.1037/t10177-000

Pommier, E., Neff, K. D., & Tóth-Király, I. (2020). The Development and Validation of the Compassion Scale. *Assessment*, *27*(1), 21–39.
https://doi.org/10.1177/1073191119874108

Post, S. G., Ng, L. E., Fischel, J. E., Bennett, M., Bily, L., Chandran, L., Joyce, J., Locicero, B., McGovern, K., McKeefrey, R. L., Rodriguez, J. V., & Roess, M. W. (2014). Routine, empathic and compassionate patient care: definitions, development, obstacles, education and

beneficiaries. *Journal of Evaluation in Clinical Practice, 20*(6*), 872-880.* http://dx.doi.org/10.1111/jep.12243

Pote, H., Rees, A., Holloway-Biddle, C., & Griffith, E. (2021). Workforce challenges in digital health implementation: How are clinical psychology training programmes developing digital competencies?. *Digital Health, 7,* 2055207620985396. https://doi.org/10.1177/2055207620985396

Proctor, R. W., & Vu, K. P. L. (2019). How psychologists help solve real-world problems in multidisciplinary research teams: Introduction to the special issue. *American Psychologist, 74*(3), 271-277. http://dx.doi.org/10.1037/amp0000458

Rahdar, S., Khajouei, R., & Mirzaee, M. (2020). Determining the effect of electronic health literacy on job burnout in the staff of health information management. *Journal of Advanced Pharmacy Education & Research, 10*(S1), 93.

Richards, D. (2013). Developments in technology-delivered Psychological interventions. *Universitas Psychologica*, *12*(2), 571-579. https://doi.org/10.11144/Javeriana.UPSY12-2.dtdp

Richtering, S. S., Hyun, K., Neubeck, L., Coorey, G., Chalmers, J., Usherwood, T., Peiris, D., Chow, C. K. & Redfern, J. (2017). eHealth literacy: predictors in a population with moderate-to-high cardiovascular risk. *JMIR Human Factors*, *4*(1), e6217. http://dx.doi.org/10.2196/humanfactors.6217

RNZ. (2021a). Psychologists unable to take new clients fear 'tsunami' of mental health problems. https://www.rnz.co.nz/news/national/446766/psychologists-unable-to-take-new-clients-fear-tsunami-of-mental-health-problems

RNZ. (2021b). Shortage of psychologists leaving patients on waitlist for 9 to 12 months. https://www.rnz.co.nz/news/political/451062/shortage-of-psychologists-leaving-patients-on-waitlist-for-9-to-12-months

RNZ. (2022). COVID-19: Doctors' union calls for remuneration over 'demanding' workload. https://www.rnz.co.nz/news/national/459351/covid-19-doctors-union-calls-for-remuneration-over-demanding-workload

Robbins, D., & Dunn, P. (2019). Digital health literacy in a person-centric world. *International Journal of Cardiology, 290, 154-155*. http://dx.doi.org/10.1016/j.ijcard.2019.05.033.

Rokach, A., & Boulazreg, S. (2020). The covid-19 era: How therapists can diminish burnout symptoms through self-care. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, 1-18. https://doi.org/10.1007/s12144-020-01149-6

Ronquillo, Y., Meyers, A., & Korvek, S. J. (2017). Digital health. https://europepmc.org/article/nbk/nbk470260

Ross, K., Malthus, S., Berrett, M., & Harvey, S. (2009). Providing clinical health psychology services in a primary health world. *New Zealand Journal of Psychology*, 38(1), 1-9.

Ross, J., Stevenson, F., Lau, R., & Murray, E. (2016). Factors that influence the implementation of e-health: a systematic review of systematic reviews (an update). *Implementation Science, 11(1), 1-12.* https://doi.org/10.1186/s13012-016-0510-7

Sammons, M. T., VandenBos, G. R., & Martin, J. N. (2020a). Psychological practice and the COVID-19 crisis: A rapid response survey. *Journal of Health Service Psychology*, *46*, 51-57. http://dx.doi.org/10.1007/s42843-020-00013-2

Sammons, M. T., VandenBos, G. R., Martin, J. N., & Elchert, D. M. (2020b). Psychological practice at six months of COVID-19: A follow-up to the first national survey of psychologists during the pandemic. *Journal of Health Service Psychology*, *46*(4), 145-154. http://dx.doi.org/10.1007/s42843-020-00024-z

Sampaio, M., Haro, M. V. N., De Sousa, B., Melo, W. V., & Hoffman, H. G. (2021). Therapists Make the Switch to Telepsychology to Safely Continue Treating Their Patients During the COVID-19 Pandemic. Virtual Reality Telepsychology May Be Next. *Frontiers in Virtual Reality*, *1*, 1-17. https://doi.org/10.3389/frvir.2020.576421

Scott, K. M., Oakley Browne, M. A., McGee, M. A., Elisabeth Wells, J., & New Zealand Mental Health Survey Research Team. (2006). Mental-physical comorbidity in Te Rau Hinengaro: the New Zealand mental health survey. *Australian & New Zealand Journal of Psychiatry*, *40*(10), 882-888. http://dx.doi.org/10.1080/j.1440-1614.2006.01907.x.

Serrao, C., Duarte, I., Castro, L., & Teixeira, A. (2021). Burnout and depression in Portuguese healthcare workers during the covid-19 pandemic—The mediating role of psychological resilience. *International Journal of Environmental Research and Public Health*, *18*(2), 636. http://dx.doi.org/10.3390/ijerph18020636

Shanafelt, T. D., Bradley, K. A., Wipf, J. E., & Back, A. L. (2002). Burnout and self-reported patient care in an internal medicine residency program. *Annals of Internal Medicine*, *136*(5), 358-367. http://dx.doi.org/10.7326/0003-4819-136-5-200203050-00008

Shepherd, M., Fleming, T., Lucassen, M., Stasiak, K., Lambie, I., & Merry, S. N. (2015). The design and relevance of a computerized gamified depression therapy program for indigenous Māori adolescents. *JMIR Serious Games*, *3*(1), e3804. http://dx.doi.org/10.2196/games.3804

Shepherd, M., Merry, S., Lambie, I., & Thompson, A. (2018). Indigenous adolescents' perception of an eMental Health Program (SPARX): exploratory qualitative assessment. *JMIR Serious Games*, *6*(3), e8752. http://dx.doi.org/10.2196/games.8752

Sheridan, N. F., Kenealy, T. W., Connolly, M. J., Mahony, F., Barber, P. A., Boyd, M. A., Carswell, P., Clinton, J., Devlin, G., Doughty, R., Dyall, L., Kerse, N., Kolbe, J., Lawrenson, R., & Moffitt, A. (2011). Health equity in the New Zealand health care system: a national survey. *International Journal for Equity in Health*, *10*(45), 1-14. https://doi.org/10.1186/1475-9276-10-45

Shiferaw, K. B., & Mehari, E. A. (2019). Modeling predictors of acceptance and use of electronic medical record system in a resource limited setting: Using modified UTAUT model. *Informatics in Medicine Unlocked, 17,* 100182. https://doi.org/10.1016/j.imu.2019.100182

Shiferaw, K. B., Mengiste, S. A., Gullslett, M. K., Zeleke, A. A., Tilahun, B., Tebeje, T., Wondimu, R., Desalegn, S., & Mehari, E. A. (2021). Healthcare providers' acceptance of telemedicine and preference of modalities during COVID-19 pandemics in a low-resource setting: An extended UTAUT model. *PloS One, 16(4), e0250220.* http://dx.doi.org/10.1371/journal.pone.0250220

Shiferaw, K. B., Tilahun, B. C., & Endehabtu, B. F. (2020). Healthcare providers' digital competency: a cross-sectional survey in a low-income country setting. *BMC Health Services Research, 20(1),* 1-7. https://doi.org/10.1186/s12913-020-05848-5

Silsand, L., Severinsen, G. H., & Berntsen, G. (2021). Preservation of Person-Centered care through videoconferencing for patient follow-up during the COVID-19 pandemic: case study of a multidisciplinary care team. *JMIR Formative Research, 5*(3), e25220. http://dx.doi.org/10.2196/25220

Simpson, S., Richardson, L., Pietrabissa, G., Castelnuovo, G., & Reid, C. (2021). Videotherapy and therapeutic alliance in the age of COVID-19. *Clinical Psychology & Psychotherapy*, *28*(2), 409-421. https://doi.org/10.1002/cpp.2521

Sinclair, S., Beamer, K., Hack, T. F., McClement, S., Raffin Bouchal, S., Chochinov, H. M., & Hagen, N. A. (2017). Sympathy, empathy, and compassion: A grounded theory study of palliative care patients' understandings, experiences, and preferences. *Palliative Medicine*, *31*(5), 437– 447. https://doi-org.ezproxy.auckland.ac.nz/10.1177/0269216316663499

Sinclair, S., McClement, S., Raffin-Bouchal, S., Hack, T. F., Hagen, N. A., McConnell, S., & Chochinov, H. M. (2016). Compassion in health care: an empirical model. *Journal of Pain and Symptom Management, 51(*2), 193-203. http://dx.doi.org/10.1016/j.jpainsymman.2015.10.009

Smith, A. C., Thomas, E., Snoswell, C. L., Haydon, H., Mehrotra, A., Clemensen, J., & Caffery, L. J. (2020). Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19). *Journal of Telemedicine and Telecare, 26*(5), 309-313. http://dx.doi.org/10.1177/1357633X20916567

Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships, 22*(5), 629-651. https://doi.org/10.1177/0265407505056439

Statistics New Zealand. (2020). Sex and gender identity statistical standards: Consultation. https://www.stats.govt.nz/consultations/sex-and-gender-identity-statistical-standards-consultation

Steen, L. & Mao, X. (2016). Digital skills for health professionals. https://www.researchgate.net/publication/311271370_Digital_skills_for_health_professionals

Stewart, M. (2008). Psychologists in Physical Health Services in New Zealand. *New Zealand Journal of Psychology,* 37(2), 50-55.

Stewart, M. W., Bushnell, J., Hauraki, J., & Roberts, M. (2014). Evidence and wisdom: The role and value of psychologists in healthcare. *Journal of the New Zealand College of Clinical Psychologists*, *24*(1), 3-14. https://www.nzccp.co.nz/assets/Uploads/Evidence-and-Wisdom.pdf

Strauss, C., Taylor, B. L., Gu, J., Kuyken, W., Baer, R., Jones, F., & Cavanagh, K. (2016). What is compassion and how can we measure it? A review of definitions and measures. *Clinical Psychology Review*, *47*, 15-27. http://dx.doi.org/10.1016/j.cpr.2016.05.004

Terry, C., & Cain, J. (2016). The emerging issue of digital empathy. *American Journal of Pharmaceutical Education, 80*(4), 58. http://dx.doi.org/10.5688/ajpe80458

Trumello, C., Bramanti, S. M., Ballarotto, G., Candelori, C., Cerniglia, L., Cimino, S., Crudele, M., Lombardi, L., Pignataro, S., Viceconti, M. L., & Babore, A. (2020). Psychological adjustment of healthcare workers in Italy during the COVID-19 pandemic: differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. *International Journal of Environmental Research and Public Health, 17(22),* 8358. http://dx.doi.org/10.3390/ijerph17228358

Tullio, V., Perrone, G., Bilotta, C., Lanzarone, A., & Argo, A. (2020). Psychological support and psychotherapy via digital devices in Covid-19 emergency time: Some critical issues. *Medico-Legal Journal, 88(2),* 73-76. https://doi.org/10.1177/0025817220926942

Van Der Vaart, R., & Drossaert, C. (2017). Development of the digital health literacy instrument: measuring a broad spectrum of health 1.0 and health 2.0 skills. *Journal of Medical Internet*

Research, 19(1), e27.
http://dx.doi.org/10.2196/jmir.6709

Variava, R., Dobson, R., Douglas, M. & Reynolds, L. (2021). Exploring the Digital Health Literacy of Psychologists in Aotearoa New Zealand. *New Zealand College of Clinical Psychologists Journal, 31(1),* 32-34.
https://www.nzccp.co.nz/assets/Journal-NZCCP-Vol-311-2021.pdf

Venville, A., O'Connor, S., Roeschlein, H., Ennals, P., McLoughlan, G., & Thomas, N. (2021). Mental Health Service User and Worker Experiences of Psychosocial Support Via Telehealth Through the COVID-19 Pandemic: Qualitative Study. *JMIR Mental Health*, *8*(8), e29671.
http://dx.doi.org/10.2196/29671

Vivino, B. L., Thompson, B. J., Hill, C. E., & Ladany, N. (2009). Compassion in psychotherapy: The perspective of therapists nominated as compassionate. *Psychotherapy Research*, *19*(2), *157-171.*
http://dx.doi.org/10.1080/10503300802430681

Wade, V. A., Eliott, J. A., & Hiller, J. E. (2014). Clinician acceptance is the key factor for sustainable telehealth services. *Qualitative Health Research, 24*(5), 682-694.
http://dx.doi.org/10.1177/1049732314528809

Wahass, S. H. (2005). The role of psychologists in health care delivery. *Journal of Family & Community Medicine, 12*(2), 63-70.

Wallace, L. M., Brown, K. E., & Hilton, S. (2014). Planning for, implementing and assessing the impact of health promotion and behaviour change interventions: a way forward for health psychologists. *Health Psychology Review, 8*(1), 8-33.
http://dx.doi.org/10.1080/17437199.2013.775629

Wan, J., Chua, E. Y. C., Soon, W. S. W., Xie, Y., & Tang, W. E. (2021). The impact of a mental health service on chronic disease management in primary care. *Singapore Medical Journal, 62*(5), 235-239.
https://doi.org/10.11622/smedj.2021063

Weightman, M. (2020). Digital psychotherapy as an effective and timely treatment option for depression and anxiety disorders: Implications for rural and remote practice. *Journal of International Medical Research, 48(6),* 0300060520928686.
http://dx.doi.org/10.1177/0300060520928686

Weijters, B., Baumgartner, H., & Schillewaert, N. (2013). Reversed item bias: An integrative model. *Psychological Methods, 18*(3), 320–334. https://doi.org/10.1037/a0032121

Wells, J. E., Oakley Browne, M. A., Scott, K. M., McGee, M. A., Baxter, J., Kokaua, J., & New Zealand Mental Health Survey Research Team. (2006). Te Rau Hinengaro: The New Zealand mental health survey: Overview of methods and findings. *Australian and New Zealand Journal of Psychiatry*, *40*(10), 835-844. http://dx.doi.org/10.1080/j.1440-1614.2006.01902.x

West, C. P., Dyrbye, L. N., Satele, D. V., Sloan, J. A., & Shanafelt, T. D. (2012). Concurrent validity of single-item measures of emotional exhaustion and depersonalization in burnout assessment. *Journal of General Internal Medicine, 27*(11), 1445-1452. http://dx.doi.org/10.1007/s11606-012-2015-7

West, C. P., Dyrbye, L. N., Sloan, J. A., & Shanafelt, T. D. (2009). Single item measures of emotional exhaustion and depersonalization are useful for assessing burnout in medical professionals. *Journal of General Internal Medicine, 24*(12), 1318-1321. http://dx.doi.org/10.1007/s11606-009-1129-z

WHO. (2006). Constitution of the World Health Organisation. https://www.who.int/about/governance/constitution#:~:text=Health%20is%20a%20state%20of,belief%2C%20economic%20or%20social%20condition.

WHO. (2021). Digital Health. https://www.who.int/health-topics/digital-health#tab=tab_1

Wiljer, D., Charow, R., Costin, H., Sequeira, L., Anderson, M., Strudwick, G., Tripp, T., & Crawford, A. (2019). Defining compassion in the digital health age: protocol for a scoping review. *BMJ Open*, *9*(2), e026338. http://dx.doi.org/10.1136/bmjopen-2018-026338

Willcox, J. C., Dobson, R., & Whittaker, R. (2019). Old-fashioned technology in the era of "bling": is there a future for text messaging in health care?. *Journal of Medical Internet Research*, *21*(12), e16630. http://dx.doi.org/10.2196/16630

Williams, M. G., Stott, R., Bromwich, N., Oblak, S. K., Espie, C. A., & Rose, J. B. (2020). Determinants of and barriers to adoption of digital therapeutics for mental health at scale in

the NHS. *BMJ Innovations*, *6*(3). http://dx.doi.org/10.1136/bmjinnov-2019-000384

Wisegroup. (2021). Just a Thought. https://www.justathought.co.nz/covid19

Worley, J. A., Vassar, M., Wheeler, D. L., & Barnes, L. L. (2008). Factor structure of scores from the Maslach Burnout Inventory: A review and meta-analysis of 45 exploratory and confirmatory factor-analytic studies. *Educational and Psychological Measurement*, *68*(5), 797-823. https://doi.org/10.1177/0013164408315268

Wyatt, J. C., & Sullivan, F. (2005). eHealth and the future: promise or peril?. *BMJ*, *331*(7529), 1391-1393. http://dx.doi.org/10.1136/bmj.331.7529.1391

Yardley, L., Morrison, L., Bradbury, K., & Muller, I. (2015). The person-based approach to intervention development: application to digital health-related behavior change interventions. *Journal of Medical Internet Research, 17(1), e30.* http://dx.doi.org/10.2196/jmir.4055

Zur, O. (2012). TelePsychology or TeleMentalHealth in the digital age: The future is here. California Psychologist, 45(1), 13-15. https://www.researchgate.net/publication/267394837_TelePsychology_or_TeleMentalHealth_in_the_Digital_Age_The_Future_Is_Here

Zur, O. & Zur, A. (2011). On digital immigrants and digital natives: How the digital divide affects families, educational institutions, and the workplace. Zur Institute. http://www.zurinstitute.com/digital_ divide.html

Appendices

Appendix A. Digital Competencies for Psychological Practitioners (NHS, 2020).

	Knowledge	Ability
Meta competencies	Knowledge of ethical practice, opportunities and limitations of digital practice related to access and efficacy	Ability to practice digitally, including establishing and maintaining a positive therapeutic alliance in online work
	Knowledge of the legal and security requirements for conducting digital psychological assessments, interventions and supervision	Ability to appraise the advantages and drawbacks of digital tools with reference to the evidence base and recommend these to clients and services in line with one's clinical judgement
	Knowledge of professional and clinical boundary issues specific to online practice	Ability to reflect on one's own digital psychological practice
	Knowledge of psychological frameworks specific to the online therapeutic relationship such as the online disinhibition effect and screen presence	An ability to recognise one's own competences, training and supervision needs in relation to the particular context of digital practice
	Knowledge of the evidence base for digital practice (process and outcome) and how these compare to in-person approaches	Ability to recognise culture-specific requirements of clients and provide culturally appropriate psychological materials and interventions
	Knowledge of profession specific guidance regarding digital practice from one's professional/accrediting body and how these interface with broader clinical competences	Ability to work ethically, safely and effectively – attending to professional and clinical boundary issues specific to online practice
	Knowledge of how diversity and cultural differences may interact with the online environment	
Clinical Information Governance	Knowledge of clinical governance and professional context in relation to digital practice, including the legal frameworks for practice, clinical risk management and clinical safety online	Ability to obtain the client's informed consent to digital work throughout the course of their contact
	Knowledge of information governance and legal context of information storage and sharing	Ability to follow organisational policies and procedures regarding information governance, including

	-including the Data Protection Act.	completing mandatory digital training (as required by NHS or other organisational/professional body)
	Knowledge of specific patient information and other digital record systems used within one's organisation and professional guidance regarding this	
Assessment and Formulation	Knowledge of clinical safety issues (risk) associated with digital/remote therapeutic work	Ability to select online psychological assessments that are suitable for remote administration
	Knowledge of opportunities and limitations of these technologies related to client factors	Ability to administer online psychological assessment tools via remote means
	Knowledge of opportunities and limitations of these technologies related to clinical engagement/ therapeutic relationship	Ability to conduct accurate risk and clinical safety assessments given limitations of digital technologies
	Knowledge of clinical engagement issues when conducting online screening and psychological testing	Ability to assess and match client needs/interests/abilities to suitable digital modalities
	Knowledge of psychological assessment tools available for online administration in one's own scope of practice	Ability to assess a client's suitability for online interventions, revising this as necessary on an ongoing basis
	Knowledge of inclusion and exclusion criteria for online psychological assessment and outcome monitoring	Ability to create and share a collaborative formulation with a client remotely e.g. using screen sharing of documents or white board function to draw out a formulation
	Knowledge of the factors involved in choosing online platforms, ensuring their clinical safety	
Psychological Intervention	Knowledge of contemporary digital technologies used in the direct and indirect delivery of psychological interventions	Ability to conduct therapy in individual and group format using digital technologies
	Knowledge of levels of intervention and how digital technologies may be integrated at different points in a stepped care model	Ability to adapt digitally informed interventions to the needs of clients from a range of ages and abilities
	Knowledge of group versus individual interventions delivered via digital technologies	Ability to recognise how employing digital technologies may influence how agreements are made with clients and/or supervisees about confidentiality and its limits e.g. safe recording

		and transfer of client sessions using secure cloud technology
	Knowledge of the role of apps in psychological assessments and interventions and awareness of app quality assessment processes	Ability to manage outcome data collected digitally and integrate this into treatment planning
	Knowledge of electronic self-help materials and platforms available to support the delivery of psychological interventions	Ability to evaluate the effectiveness and security of an app
	Knowledge of different digital tools for managing between-session therapeutic contact e.g. communicating via an online psychoeducational platform or by email about home-based tasks	Ability to reflect in supervision on the client's response to different digital modalities and the impact on the therapeutic relationship
		Ability to introduce and support the use of self-help and/or blended complementary online materials to clients
		Ability to integrate and use creative non-verbal visual digital tools to complement online psychological interventions e.g. using drawings with the whiteboard, shared written documents, assisting the client to select images from the internet to illustrate their feelings
		Ability to adapt evidence-based protocols to online delivery e.g. assisting memory processing work in PTSD by facilitating a remote site visit using Google Street View
Evaluation and research	Knowledge of the evidence base for digital practice (process and outcome) and how these compare to in-person approaches	Ability to critically appraise digital tools and interventions and use the evidence base to inform selection of these for clinical and research purposes
	Knowledge of digital tools for recording therapy process, evaluating client experiences and client outcomes (e.g. COREnet, etc.)	Ability to monitor patient experience and patient-reported outcomes using digital methods

		Ability to manage outcome data collected digitally and integrate this into treatment planning
Communication and teaching	Knowledge of the pros and cons of online teaching methods and awareness of online teaching programmes	Ability to discuss the pros and cons of the digital modality with the client
	Knowledge of communication processes which may affect digital practice across individual, system and group work (e.g. turn taking and use of non-verbal information)	Ability to adapt communication style and employ different functionalities of the technology concerned to promote the formation of a therapeutic relationship (e.g. adapting communication style for older people or those with learning difficulties)
	Knowledge of professional and communication factors which require consideration when working with interpreters remotely.	Ability to work with interpreters remotely e.g. on a video call having a British Sign Language signer or foreign language interpreter joining a call to translate for a client
		Ability to manage boundaries if working remotely e.g. conducting a therapy session via video chat from home
		Ability to deliver e-learning related to clinical practice and psycho-education through synchronous and asynchronous methods (e.g. ebooks, vlogs, live webinars) to clients and professionals
Leadership, supervision and consultation	Knowledge of digital supervision models and ways to adapt in-person supervision to online delivery	Ability to engage in remote supervision
	Knowledge of leadership and consultation as it relates to digital interventions	Ability to integrate digital communications into supervision discussions (e.g. text/chat bot

		information, video or skype chats)
		Ability to follow organisational policies and procedures in the making, storing and sharing of recordings of sensitive clinical material for supervision or clinical purposes
		Ability to engage in leadership and consultation to promote an open and curious approach amongst others to digital practice Ability to work in remote digital teams and participate in remote digital meetings
Personal and professional skills and values	Knowledge of one's own attitudes, skills and values regarding digital practice	An ability to reflect on one's own attitudes, skills and values regarding digital practice
		An ability to recognise and reflect on the limits of one's own competence when translating original in-person professional training to online work

Appendix B. CHERRIES Checklist (Eysenbach, 2004)

Checklist Item	*Explanation*	*Page Number*
Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	54
IRB approval	Mention whether the study has been approved by an IRB.	54, 134
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	54
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access.	54
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.	55
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey).	55
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.)	55
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.	55, 137
Web/E-mail	State the type of e-survey (eg, one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	55

Context	Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on a anti-immunization Web site will have different results from a Web survey conducted on a government Web site	55
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey?	54
Incentives	Were any incentives offered (eg, monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	56
Time/Date	In what timeframe were the data collected?	63
Randomization of items or questionnaires	To prevent biases items can be randomized or alternated.	99
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions.	62, 64
Number of Items	What was the number of questionnaire items per page? The number of items is an important factor for the completion rate.	56
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate.	56
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if “yes”, how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as “not applicable” or “rather not say”, and selection of one response option should be enforced.	62

Review step	State whether respondents were able to review and change their answers (eg, through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	56
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	62
View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	N/A
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called “recruitment” rate.	N/A
Completion rate (Ratio of users who finished the survey/users who agreed to participate)	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate “informed consent” page or if the survey goes over several pages. This is a measure for attrition. Note that “completion” can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word “completeness rate”.)	64
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)?	62

IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	62
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	62
Registration	In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	62
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	64
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	64
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	N/A

Appendix C. Ethics Committee Approval

AUCKLAND HEALTH RESEARCH ETHICS COMMITTEE (AHREC)

09/03/2021

Dr Lisa Reynolds

Re: Application for Ethics Approval (Our Ref. AH22139): Approved

The Committee considered your application for ethics approval for the study entitled "**Exploring the digital health literacy of psychologists in Aotearoa New Zealand**".

We are pleased to inform you that ethics approval has been granted.

The expiry date for this approval is **09/03/2024**.

Amendments to the approved project: Should you need to make any changes to the approved project, please follow the steps below:

- Send a request to the AHREC Administrators to unlock the application form (using the Notification tab in the Ethics RM form).
- Make all changes to the relevant sections of the application form and attach revised documents (as appropriate).
- Change the Application Type to "Amendment request" in Section L.
- Add a summary of the changes requested in the text box.
- Submit the amendment request (PI/Supervisors only to submit the form).

If the project changes significantly, you are required to submit a new application.

Funded projects: If you received funding for this project, please provide this approval letter to your local Faculty Research Project Coordinator (RPC) or Research Project Manager (RPM) so that the approval can be notified via a Service Request to the Research Operations Centre (ROC) for activation of the grant.

The Chair and the members of AHREC would be happy to discuss general matters relating to ethics approvals. If you wish to do so, please contact the AHREC Ethics Administrators at ahrec@auckland.ac.nz in the first instance.

Additional information:

- Do not forget to fill in the 'approval wording' on the PISs, CFs and/or advertisements, using the date of this approval and the reference number, before you use the documents or send them out to your participants.

All communications with the AHREC regarding this application should indicate this reference number: **AH22139**.

AHREC Administrators

Auckland Health Research Ethics Committee

Appendix D. Participant Information Sheet

Exploring the Digital Health Literacy of Psychologists Working in Aotearoa New Zealand

Investigators: Dr Lisa Reynolds (Health Psychologist/Senior Lecturer), Dr. Rosie Dobson (Post-Doctoral Fellow, Health Psychologist), Meihana Douglas (Health Psychologist) and Rushaina Variava (Master of Health Psychology student)

Kia ora,

My name is Rushaina Variava and I am a master's student in the Department of Psychological Medicine at The University of Auckland. If you are a registered psychologist with a current annual practicing certificate who is working in New Zealand, you are invited to participate in this research project. Please read the following information which outlines the details of the study and let me know if you have any further questions about the project.

The purpose of this study

The overall aim of this research is to explore the digital health literacy of psychologists working in New Zealand. We want to gain an understanding of the digital health literacy of psychologists and the factors which influence the use of digital technologies within the workforce. By participating in this study, your valuable input will help identify ways in which we can leverage the use of digital health. This study also has the potential to benefit the profession and improve healthcare service delivery.

How can you help?

We are interested in exploring the digital health literacy of psychologists and motivations to engage with digital technologies. Participation is entirely voluntary. Participation is entirely voluntary. If you agree to participate, you will complete an anonymous online survey which will take approximately 10-15 minutes. The survey includes questions about you and about your professional practice. You can withdraw from the survey at any time by not submitting the survey. However, please note: once you submit the survey, consent will be assumed, and you will be unable to retract your responses. As the survey is anonymous, your responses are unidentifiable. The survey data will be stored securely on the University of Auckland server for 10 years from completion of the research and then destroyed according to the University of Auckland research code of conduct guidelines. You can also choose to enter a prize draw to win an iPad. If you choose to enter the prize draw, you will be redirected to a separate link to submit your personal details. These details will be stored separately to your responses. The final report will be disseminated via journal publications and presented at national and international conferences.

Please feel free to contact us if you have any questions and/or would like to request a summary of the results:

Rushaina Variava, Master of Health Psychology student
Department of Psychological Medicine

The University of Auckland
Email: rvar018@aucklanduni.ac.nz

Dr. Lisa Reynolds, Health Psychologist/Senior Lecturer
Department of Psychological Medicine
The University of Auckland
ph: +64 9 923 4938
Email: l.reynolds@auckland.ac.nz

Professor Sally Merry, Head of Department
Department of Psychological Medicine
The University of Auckland
Ph: +64 9 923 6981
Email: s.merry@auckland.ac.nz

If you require Māori cultural support, talk to your whānau in the first instance. You may also contact the administrator for He Kamaka Waiora (Māori Health Team) by telephoning 09 486 8324 ext 2324 or contact the Auckland and Waitematā District Health Boards Māori Research Committee or Māori Research Advisor by phoning 09 4868920 ext 3204 to discuss any questions or complaints about the study.

For concerns of an ethical nature, you can contact the Chair of the Auckland Health Research Ethics Committee at ahrec@auckland.ac.nz or at 373 7599 ext 83711, or at Auckland Health Research Ethics Committee, The University of Auckland, Private Bag 92019, Auckland 1142.

Approved by the Auckland Health Research Ethics Committee on 09/03/2021 for three years. Reference number AH22139.

Thank you for taking the time to participate in this study. Your contribution is greatly appreciated.

Appendix E. Recruitment Email

Kia ora koutou,

We are writing to invite Māori and non-Māori psychologists who practice in Aotearoa New Zealand to participate in our online anonymous survey.

This survey explores the digital health literacy of psychologists and takes about 10-15 minutes to complete. It includes questions about your experience with digital technologies. Your support with this research will help us to better understand the digital health literacy of psychologists and will help to inform how we might leverage the use of digital health to minimise health inequities and improve health outcomes for Māori in Aotearoa New Zealand.

If you are interested, please click on the attached link which will take you to the Participant Information Sheet which includes more details about the research: [survey link]. If you complete the survey, you can also choose to enter the prize draw for an iPad.

Thank you for your time.

Ngā mihi nui,
Rushaina Variava

Master of Health Psychology student
Department of Psychological Medicine
School of Medicine
The University of Auckland
Email: rvar018@aucklanduni.ac.nz

Approved by the Auckland Health Research Ethics Committee on 09/03/2021 for three years. Reference number AH22139.

Appendix F. Participant Questionnaire

Screening questions

SQa. Which scope of practice are you currently registered under?

- Not currently registered
- Psychologist
- Intern psychologist
- Trainee psychologist
- Clinical psychologist
- Counselling psychologist
- Educational psychologist
- Neuropsychologist

If they choose not currently registered, takes them out of the survey

SQb. Do you have an annual practicing certificate?

- o Yes
- o No

If they say no, takes them out of the survey

Section 1. Demographic questions

1. Which ethnic group do you belong to? Please choose all that apply.

- o New Zealand European
- o Māori
- o Samoan
- o Cook Islands Māori
- o Tongan
- o Niuean
- o Chinese
- o Indian
- o Other (eg. Dutch, Japanese, Tokelauan) Please state:
  _____

2. Which of the following age groups do you fall into?

- o Less than 24 years
- o 24-35
- o 36-45
- o 46-55
- o 56-65
- o Over 65 years

3. What is your gender?
- o Male
- o Female
- o Another gender

4. What training programme did you complete to become a registered psychologist (e.g. Postgraduate Diploma in Health Psychology, Doctorate of Clinical Psychology)?
_____

5. Which setting do you primarily work in?
- o District health board
- o Primary health organisation
- o Non-governmental organisation
- o Private practice
- o Rehabilitation facilities
- o Forensic settings such as prisons or detention centres
- o Community mental health centres
- o other, please specify:

6. How many years have you been practising as a psychologist (including time spent as an intern)? Please select '30' if you have been practising for over 30 years.
0 to 30 years – *slider*

7. What kinds of clients do you have in your professional practice? (e.g. patients, supervisees)?
_____

Section 2. Digital Health Literacy Scale

8. The next series of questions are related to your practice as a psychologist.

Please consider your ability to conduct each of the following tasks from 1 'Not competent' to 5 'Very competent'.

	1 'Not competent'	**2 'Only slightly competent'**	**3 'Somewhat competent'**	**4 'moderately competent'**	**5 'Very competent'**
Establish and maintain a positive therapeutic relationship online and with telephone work					

Consider the advantages and drawbacks of digital tools with reference to the evidence base

Reflect on your own digital psychological practice

Recognise your competencies, training and supervision needs in relation to digital practice

Provide culturally appropriate materials and interventions using digital resources

Manage professional and clinical boundaries related to online practice

Obtain the client's informed consent for digital work

Follow organisational policies and procedures related to digital work

Select online psychological assessments that are suitable for remote administration

Administer online psychological assessment tools via remote means

Conduct accurate risk and clinical safety assessments using digital technologies

Assess and match client needs, interests and abilities to suitable digital modalities

Assess a client's suitability for online interventions

Work ethically and safely in digital practice

Recommend appropriate online resources to my clients

Use a wide range of digital technologies to help my learning (e.g. e-learning modules)

Work collaboratively with a client remotely e.g. using screen sharing

Conduct individual therapy using digital technologies

Conduct group therapy using digital technologies

Adapt digital interventions to the needs of clients

Involve whānau in online and telephone work

Recognise how digital technologies may influence confidentiality and its limits e.g. security of recordings

Manage data collected digitally and integrate this into treatment planning

Evaluate the effectiveness and security of smartphone apps

Reflect in supervision on the client's response to different digital modalities

Introduce and support the use of self-help digital tools for clients to use

Integrate visual digital tools to complement online interventions e.g. using shared documents

Adapt evidence-based interventions to online delivery

Critically appraise digital resources for selection for use in clinical and research work

Monitor client experience and client-reported outcomes using digital methods
Discuss the pros and cons of the digital modality with the client

Adapt your communication style depending on the technology used to promote the therapeutic relationship

Work with interpreters remotely e.g. having an interpreter join a call to translate for a client

Manage boundaries if working remotely e.g. conducting a therapy session via video conference from home

Deliver e-learning through digital methods (e.g. ebooks, vlogs, live webinars)

Engage in remote supervision via digital means
Follow organisational policies and procedures in the making, storing and sharing of recordings of sensitive clinical material
Engage in leadership and consultation to promote digital practice amongst others
Work in remote digital teams and participate in remote digital meetings
Reflect on one's own attitudes, skills and values regarding digital practice
Recognise and reflect on the limits of one's own competence when translating in-person training to online work

---

Section 3. Digital Practice

9. How much do the following types of factors influence your use of digital technologies in your practice as a psychologist? Please rate each type of factor from 1 'No influence' to 5 'Major influence'.

- Client characteristics (e.g. client's access to technology, client confidence with technology, client preference)
- Clinical psychopathology (e.g. client diagnosis)
- Workplace factors (e.g. access to digital tools in the workplace, workplace guidelines, workplace support)
- Technology factors (e.g. security concerns, costs, technical support)
- Personal factors (e.g. individual preferences, personal comfort with technology)

10. Can you please describe what motivates you to use digital technologies in your practice:

_____

11. Can you please describe the barriers you experience using digital technologies in your practice:

_____

12. Would you like further training on using digital technologies?

- o No
- o Maybe
- o Yes

13. Do you have any other comments about your use of digital technologies in your practice as a psychologist?

_____

Section 4. Burnout and Compassion

14. Please answer the frequency to which you feel the following statement explains you: "I feel burned out from my work"

- o Never
- o A few times a year or less
- o Once a month or less
- o A few times a month
- o Once a week
- o A few times a week
- o Every day

15. The following questions ask about how you relate to others. When you're answering them, think about these questions in the context of your practice as a psychologist.

	1 Not true of me	2	3	4	5	6	7 Very true of me
I pay careful attention when people talk to me about their suffering.							
If I see a person going through a difficult time, I							

try to be caring toward that person.

I don’t concern myself with peoples’ problems.

I realise everyone feels down sometimes, it is part of being human.

I notice when people are upset, even if they don’t say anything.

I like to be there for people in times of difficulty.

I don’t think much about the concerns of people.

I feel it’s important to recognize that all people have weaknesses and no one’s perfect.

I tend to listen patiently when people tell me their problems.

My heart goes out to people who are unhappy

I try to avoid people who are experiencing a lot of pain.

I feel that suffering is just a part of the common human experience.

When people tell me about their problems, I try to keep a balanced perspective on the situation.

When people feel sadness, I try to comfort them.

I can’t really connect with people when they’re suffering

Despite my differences with people, I know that everyone feels pain just like me.

When people cry in front of

me, I often
don't feel
anything at all.

Sometimes
when people
talk about their
problems, I
feel like I
don't care.

I often tune out
when people
tell me about
their troubles.

When I see
someone
feeling down, I
feel like I can't
relate to them.

Sometimes I
am cold to
people when
they are down
and out.

When people
are feeling
troubled, I
usually let
someone else
attend to them.

I feel detached
from people
when they tell
me their tales
of woe.

I don't feel
emotionally
connected to
people in pain.

I actively try to alleviate peoples' suffering or distress.

Section 5. Final Comments

16. Do you have any final comments to add about anything mentioned in this survey?

_____

17. How did you hear about this study?

- o Word of mouth
- o Social media groups (e.g. facebook)
- o Email
- o The NZ Psychological Society newsletter
- o Other, please specify:

18. Would you like to enter the prize draw to win an iPad? Your details will be stored separately to your responses.

- o Yes
- o No

We thank you for your time spent taking this survey.

Your response has been recorded.

Appendix G. Psychologists' Responses on the Digital Health Literacy Scale (N= 195)

Tasks	Mean (SD)
Establish and maintain a positive therapeutic relationship online and with telephone work	3.97 (0.86)
Consider the advantages and drawbacks of digital tools with reference to the evidence base	3.39 (0.98)
Reflect on your own digital psychological practice	3.77 (0.92)
Recognise your competencies, training and supervision needs in relation to digital practice	3.66 (0.89)
Provide culturally appropriate materials and interventions using digital resources	2.75 (1.05)
Manage professional and clinical boundaries related to online practice	4.02 (0.91)
Obtain the client's informed consent for digital work	4.17 (0.92)
Follow organisational policies and procedures related to digital work	4.06 (0.99)
Select online psychological assessments that are suitable for remote administration	3.05 (1.20)
Administer online psychological assessment tools via remote means	2.90 (1.28)
Conduct accurate risk and clinical safety assessments using digital technologies	3.32 (1.17)
Assess and match client needs, interests and abilities to suitable digital modalities	3.26 (1.12)
Assess a client's suitability for online interventions	3.52 (1.06)
Work ethically and safely in digital practice	3.96 (1.01)
Recommend appropriate online resources to my clients	3.76 (0.96)
Use a wide range of digital technologies to help my learning (e.g. e-learning modules)	3.78 (1.09)
Work collaboratively with a client remotely e.g. using screen sharing	3.56 (1.25)

Conduct individual therapy using digital technologies	3.76 (1.06)
Conduct group therapy using digital technologies	2.26 (1.31)
Adapt digital interventions to the needs of clients	3.21 (1.14)
Involve whānau in online and telephone work	3.00 (1.14)
Recognise how digital technologies may influence confidentiality and its limits e.g. security of recordings	3.91 (0.94)
Manage data collected digitally and integrate this into treatment planning	3.32 (1.13)
Evaluate the effectiveness and security of smartphone apps	2.56 (1.14)
Reflect in supervision on the client's response to different digital modalities	3.59 (1.04)
Introduce and support the use of self-help digital tools for clients to use	3.36 (1.04)
Integrate visual digital tools to complement online interventions e.g. using shared documents	3.02 (1.20)
Adapt evidence-based interventions to online delivery	3.30 (1.13)
Critically appraise digital resources for selection for use in clinical and research work	3.09 (1.05)
Monitor client experience and client-reported outcomes using digital methods	3.18 (1.11)
Discuss the pros and cons of the digital modality with the client	3.61 (0.96)
Adapt your communication style depending on the technology used to promote the therapeutic relationship	3.82 (0.95)
Work with interpreters remotely e.g. having an interpreter join a call to translate for a client	1.97 (1.16)
Manage boundaries if working remotely e.g. conducting a therapy session via video conference from home	3.97 (1.03)
Deliver e-learning through digital methods (e.g. ebooks, vlogs, live webinars)	2.76 (1.32)
Engage in remote supervision via digital means	4.40 (0.91)

Follow organisational policies and procedures in the making, storing and sharing of recordings of sensitive clinical material	3.91 (1.06)
Engage in leadership and consultation to promote digital practice amongst others	2.70 (1.29)
Work in remote digital teams and participate in remote digital meetings	3.95 (1.11)
Reflect on one's own attitudes, skills and values regarding digital practice	4.07 (0.89)
Recognise and reflect on the limits of one's own competence when translating in-person training to online work	3.72 (1.04)

Appendix H: Psychologists' Responses on The Compassion Scale (N = 184) (Baguley, 2020; Pommier, 2011)

Item	Mean (SD)*
I pay careful attention when people talk to me about their suffering	6.57 (0.63)
If I see a person going through a difficult time, I try to be caring toward that person	6.57 (0.61)
I don't concern myself with peoples' problems**	6.13 (1.25)
I realise everyone feels down sometimes, it is part of being human	6.42 (0.92)
I notice when people are upset, even if they don't say anything	6.08 (0.86)
I like to be there for people in times of difficulty	5.93 (1.00)
I don't think much about the concerns of people**	6.19 (1.11)
I feel its important to recognise that all people have weaknesses and no one is perfect	6.39 (0.80)
I tend to listen patiently when people tell me their problems	6.21 (0.76)
My heart goes out to people who are unhappy	5.71 (1.09)
I try to avoid people who are experiencing a lot of pain**	5.98 (1.09)
I feel that suffering is just a part of the common human experience	5.48 (1.53)
When people tell me about their problems, I try to keep a balanced perspective on the situation	5.92 (1.03)
When people feel sadness, I try to comfort them	5.21 (1.11)
I can't really connect with people when they're suffering**	6.38 (0.97)
Despite my differences with people, I know that everyone feels pain just like me	5.63 (1.54)
When people cry in front of me, I often don't feel anything at all**	6.22 (1.16)
Sometimes when people talk about their problems, I feel like I don't care**	6.05 (1.03)
I often tune out when people tell me about their troubles**	6.32 (0.95)
When I see someone feeling down, I feel like I can't relate to them**	6.22 (1.10)
Sometimes I am cold to people when they are down and out**	6.48 (0.85)
When people are feeling troubled, I usually let someone else attend to them**	6.17 (0.99)

I feel detached from people when they tell me their tales of woe**	6.38 (0.86)
I don't feel emotionally connected to people in pain**	6.40 (0.82)
I actively try to alleviate peoples' suffering or distress	5.48 (1.27)

* Mean, SD = Standard deviation, **Reverse-coded item