Mental health service users' perceptions of their physical health

A mixed methods study

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Abstract

Background: Severe mental illness is linked to poor physical health and shorter life expectancy. Most research focuses on mental health professionals' views to improve physical health of those with mental illness. However, little is known about mental health service users' perspectives and their perceptions of their physical health.

Objectives: This research study aimed to examine mental health service users' perceptions of their physical health, including challenges to and enablers to health improving strategies. Moreover, the study investigated mental health service users' experiences, views on general practice care and preferences for suitable health care delivery.

Participants: The participants were mental health service users who were engaging with Mental Health and Addictions services of the Waikato district. Study participants consisted of survey participants (n = 167), and interviewees (n = 6). While three Māori and three non-Māori service users participated in the interview, Māori and Pacifica (n= 54) and non-Māori (n = 82) contributed to the survey.

Methods: The mixed method study involved two phases. Phase I gathered quantitative data from an online Qualtrics survey, measuring participants' quality of life using the 12-item Short Form (SF-12) survey, and determining their demographics and preferences relating their physical health. The primary outcome measures of the survey were the SF-12 (determining self-assessed physical and mental health), in correlation with questions relating physical health, and demographics. Statistically significant questions that arose from the survey, were explored in second phase. Phase II collected qualitative data using semi-structured interviews with mental health service users. The qualitative data analysis used an inductive approach.

Results: The quantitative data analysis involved a parsimonious modelling approach that included two general linear modelling analyses of covariance (ANCOVA). The analysis revealed statistical significance between the participants' SF-12 PCS and ethnicity ($p = 0.043$), time in mental health service ($p = 0.005$), contact with general practitioner ($p = 0.001$), and mental health and addiction medication ($p = 0.05$). In addition, participants SF-12 showed statistical significance between participants' physical component score (PCS) and between the combination of ethnicity, age, and gender ($p = 0.041$). Moreover, the analysis highlighted an additional link between

participants' mental component score (MCS) and their preference to improve their physical health ($p = 0.038$). The key findings of the free-text responses of the survey revealed four key themes including accessibility and availability, people want to be healthy, staff attitude, and medication. The results of the interviews revealed three main themes including physical health perception, the role of medication, and the importance of the relationship with the GP.

Conclusion: Mental health service users perceive their physical health as an interconnected construct of health. They have complex physical health experiences and require a collaborative approach from primary and secondary care services. In addition, they have a desire to improve their physical health, however, face barriers such as diagnostic overshadowing, side effects of psychotropic medication and poor accessibility. Staff in general practices and mental health professionals should be mindful of these barriers and are required to provide individualised holistic care tailored to the preferences and needs of people with severe mental illness.

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"Knowledge in the end is based on acknowledgement". –

Ludwig Wittgenstein, 1889 – 1951

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Contribution

I, the researcher undertook all aspects of this study under the direct guidance of my supervisors. This entailed selecting the appropriate research design, the data collection and analysis, and the publishing of the findings in this thesis.

Dedication

This research study is dedicated to my previous Operation Manager, Nicki Barlow. Nicki has approved my research study and funding. Thanks for your open-door policy, chocolate, and compassionate nature. She passed away peacefully on the 16th of July 2022. Rest in peace.

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Glossary of terms

Glossary term	Glossary definition
Aotearoa	Te Reo Māori name for New Zealand
Hapū	Kinship group, subtribe, or clan
Karakia	Incantations or prayers, generally used to make sure a positive outcome.
Māori	Indigenous people of New Zealand
Mihimihi	Introduction and greeting done at the start of a meeting or gathering
Pākehā	Māori name for foreign or European
Silos	In the context of health organisations, the term "silo" refers health care services that work independently of each other and don't consistently network or share information.
Tāngata whaiora	Māori name for people with mental health issues
Te Tirity O Waitangi	Māori name for Treaty of Waitangi
Whānau	Māori name for extended family

Chapter I: Introduction

"He who has health, has hope; and he who has hope has everything".

Thomas Carlyle, 1795 – 1881

1.1 Introduction

Mental well-being is one of the four fundamental cornerstones contributing to total well-being. Viewing health through a holistic lens illuminates the balance and interconnectivity between physical, mental, spiritual and family health. Health research has found that physical health directly impacts mental health and vice versa. However, there is limited research on how mental health service users, particularly minority mental health service users, perceive their physical health. Thus, this mixed methods study attempts to gain a deeper understanding of mental health service users' perceptions of their physical health, focusing on Aotearoa. This chapter introduces the study by examining relevant context and background, the physical health of mental health service users, access to primary and general practices consultation and the development of health service users' inclusive research. An outline of the thesis is provided at the conclusion of this chapter.

1.2 Researcher context related to the subject

My parents encouraged me to appreciate social justice; thus, my journey and passion for mental health recovery began early, when I was 16 years old. Personal experiences with close friends and family members with mental illness kindled a desire to learn more about supporting mental illness recovery. I embarked on my career in mental health in 2010 as a psychiatric nurse in a drug and alcohol detoxification, forensic and acute ward in the Psychiatric University Clinic of Zurich. During my practice in Switzerland, I observed increased physical health complications in patients prescribed second-generation antipsychotics.

When I met my Kiwi wife, I was introduced to the historical and modern social injustices that impact Aotearoa Māori culture. After I completed a paper on the Te Tiriti O Waitangi, I became increasingly conflicted about the inequity and social justice

issues experienced by Māori mental health service users (tāngata whaiora). While working in the inpatient and outpatient mental health divisions, I noticed many patients were also diagnosed with obesity, diabetes and hypertension. For example, in 2019, I met a young man in his thirties named Jimmy (pseudonym) in the inpatient ward. Jimmy reported that he had been "*locked up*" for five months and explained he was on the waiting list for a supported accommodation placement. Jimmy mentioned that he had gained 10 kg and constantly felt tired and sedated since the doctor prescribed him an antipsychotic. Jimmy asked the doctor to leave the inpatient facility for a few hours and go for a walk. The doctor refused his request due to the potential risks involved. I now work with mental health service users who require more consistent support due to their complex needs. Most of these service users' physical health is compromised as a result of their antipsychotics. Jimmy is one of them.

1.3 Disparities of mental health service users' physical health

It is well documented that a person with severe mental illness has a greater likelihood of mortality than the general population (De Mooij et al., 2019; Dickerson et al., 2018). Mental health, especially severe mental illness, is disproportionately linked to physical health diagnoses such as coronary heart disease (Cunningham et al., 2014) (Cunningham et al., 2014), hypertension (Šprah et al., 2017; Wells et al., 2018) and diabetes (Robinson et al., 2018), likely due to poor diet, avolition and substance use (Young et al., 2017). Individuals with mental illness face barriers like stigma and are less likely to receive adequate care and support from health services. For example, inequitable health care delivery between patients receiving mental health support compared to the general population appear in the recent COVID-19 vaccination rates (Figure 1.1).

Additionally, ethnic groups like the Māori are more likely to experience this disparity in health care delivery (Ministry of Health, 2020). In Aotearoa, the mortality rate is two times higher for individuals who use mental health services (Cunningham et al., 2014). These inequitable health outcomes affect individuals diagnosed with mental illness regardless of age; poor physical health affects even the youngest mental health service user in Aotearoa.

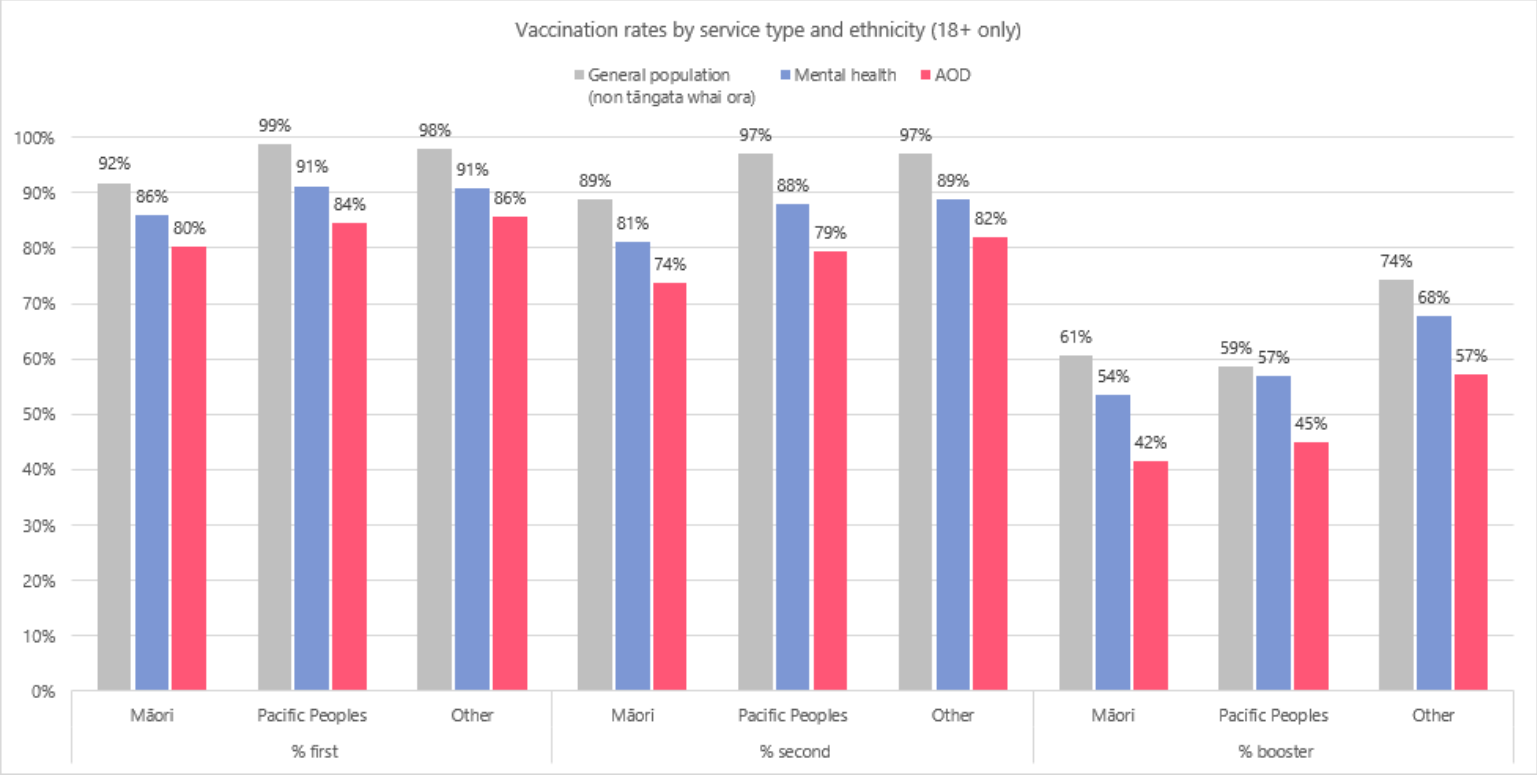


Figure 1.1 COVID 19 vaccine data (AOD – Alcohol other Drugs Services)

Note. Adapted from "COVID 19 data and statistics", by Ministry of Health, 2020.

1.4 Physical health

For this study, physical health is defined as normal body function at all levels, including normal biological function that guarantees survival and reproduction; the absence of physical illness and pain; an active equilibrium between the function of the body and its environment and involvement in collective activities and communal work (Koipysheva et al., 2018). Due to the interconnectivity of the four dimensions of health (Durie, 2001), a person's physical health directly impacts all aspects of their well-being. Individuals with severe mental illness are more likely to develop comorbidities (Lambert et al., 2017). Relatedly, researchers outlined the strong correlation between social inclusion, physical health and mental health (Ohrnberger et al., 2017). In other words, compromised physical health may lead to social isolation and mental illness or vice versa. Additionally, those diagnosed with schizophrenia receive antipsychotics with sedating side effects, which worsens their motivation to be physically active. Physical inactivity can instigate metabolic symptoms such as weight gain, diabetes and cardiovascular problems (Blackford et al., 2015). These risk factors often contribute to a vicious cycle, complicating mental illness recovery. As a result, studies observe inequitable health outcomes in people diagnosed with mental illness (Jury et al., 2018). Mental health and primary health professionals are responsible for detecting these metabolic risk factors in people with mental illness. Nonetheless, metabolic screening rates in Aotearoa remain low (Staveley et al., 2017).

1.5 Mental health nurse's role in physical health

Nursing includes collaborative care and treating patients of all ages and stages of wellness with principles of autonomy. Generally, nurses care for sick, incapacitated and dying service users and provide illness prevention and health promotion. The differentiating role of nurses is to assess patients' responses to their health conditions, aid recovery and help individuals gain partial or full independence (New Zealand Nurses Organisation, 2018). Nurses and other health professionals organise, implement and evaluate health promotions. The contemporary nurse graduate is comprehensively trained and works in a variety of specialities (Happell, 1998), such as mental and physical health. The nursing curriculum covers the principles of holism

(Povlsen & Borup, 2011), which describes health as the interconnectedness of biological, psychological and social factors (Wynne et al., 1997).

In Aotearoa, nurses are trained according to holistic care principles. In 2017, 73 % of New Zealand-trained nurses applied for vacancies in specialist areas (e.g. surgical, medical, or mental health hospital wards), and only a limited proportion received a job offer in primary health care settings such as general practices (Technical Advisory Services Limited, 2018). This statistic highlights a high interest in specialist fields. Notably, however, multiple comorbidities can be encountered in tāngata whaiora; therefore, training in holistic care is paramount (i.e., mental health specialised nurses must also be well-versed with concurrent physical health needs).

Mental health nurses play a key role in recognising and addressing the physical health needs of individuals with mental illness. Additionally, mental health service users perceive mental health nurses as general nurses who promote mental and physical well-being (Newman et al., 2015). Thus, interpersonal relationships shape the basis of mental health nursing (O'Brien, 2001). This therapeutic relationship establishes a foundation to deliver advice and information that encourages self-care and beneficial lifestyle choices and promotes long-term health improvement (Lerbæk, 2021). Suppose individuals with mental illness and physical comorbidities are insufficiently supported or encounter inadequate or limited contact with general practitioner services. In that case, direct contact with mental health services (e.g., an acute admission to mental health inpatient service) may present a chance to monitor and manage these physical comorbidities (Gedik et al., 2020). Nevertheless, metabolic screenings are poorly conducted by mental health nurses in Aotearoa (O'Brien & Abraham, 2020). This highlights a lack of expertise in assessing and managing physical comorbidities.

Literature examining the viewpoints of mental health nurses indicates inadequate skills in cardiometabolic health and pinpoints the management of mental illness as more important than physical health (Gray & Brown, 2016). Additionally, mental health nurses do not prioritise their obligation to provide physical health care, viewing it as another health professional's obligation (Çelik et al., 2019; Gray & Brown, 2016). Mental health care services vary in physical health care delivery and lack a clear

collective approach for individuals with mental and physical illness (Gray & Brown, 2016; Staveley et al., 2017). Qualitative literature highlights that mental health nurses' lack of skills, confidence and time are current barriers to providing comprehensive physical health care (Happell et al., 2012). In addition, there is no consensus on whether the care of physical health needs should be a component of the mental health nurse's role (Happell et al., 2012; Wynaden et al., 2016). These attitudes return the responsibility of managing a mental health service user's physical health to the service user (Walker & McAndrew, 2015). While restoring this accountability to those who experience poor physical health, mental health professionals advise service users to see their general practitioner (GP) in case of poor physical health.

1.6 Access to primary care and general practice consultation

General practices are significant in providing equitable access to mental health care delivery in New Zealand. Particularly for people in distress, these clinics are easily accessible without a referral and often implement mental health care during routine consultations. For example, Australians cite mental health concerns over any other issue to their general practitioner (The Royal Australian College of General Practitioners, 2019), illustrating why most mental health support is executed by general practices (Australian Institute of Health and Welfare, 2020).

The Royal New Zealand College of General Practitioners (RNZCGP) (2017) outlined the significant physical health disparity in people with mental illness and emphasised health inequity awareness, well-being-orientated prescribing, circumventing diagnostic overshadowing and empowering health service consumers. One of the RNZCGP core values is equitable healthcare for all citizens of Aotearoa. Moreover, to detect early physical health deterioration, the RNZCGP implements mental health-specific investigations like complete blood count (CBC), drug toxicology and electrocardiograph (ECG). The RNZCGP also focuses on non-pharmacological treatments (e.g., sleep hygiene and exercise) and education regarding modifiable lifestyle changes (e.g., diet and smoking cessation). Despite the RNZCGP (2012) emphasis on free GP access for low-income families, the government has not employed strategies to ensure improved primary care access for people in low socio-economic groups.

Compared with the general population, individuals with mental illness are at a greater financial disadvantage (Royal Australian and New Zealand College of Psychiatrists, 2015). Therefore, they are less likely to visit their general practitioner regularly. Moreover, primary and secondary health care providers work in silos, creating another barrier for mental health service users to receive appropriate physical health care (Henderson & Battams, 2011; Horvitz-Lennon et al., 2006). Reinforcing shared care with primary and secondary health care services could improve screening, management and treatment of mental health service users' physical health and effective communication between GPs and mental health services (Simpson et al., 2021).

1.7 Development of health service user inclusive research

Historically, psychiatrists have viewed the needs of mental health service users through a disease-centred model, wherein treating the illness only occurs through medications that either fully or partly reverse the biological abnormality believed to affect the brain (Moncrieff, 2018). In this era, psychiatrists had the exclusive right to research mental illness cures, resulting in a wide variety of global research studies, particularly on the pharmacological treatment of mental illness.

In 2005, the World Health Organisation (WHO) (2022a) developed a *Patients for Patients Safety* guideline. The aim was to engage, encourage, empower and facilitate service users and families to create and participate in a network that advocates for safer and individualised person-centred care (WHO, 2022a). Regardless of whether the focus is on advocacy, safety or health-related quality of life, measuring one's overall health is essential. Therefore, implementing these guidelines to explore service users' perspectives and experiences improves the user's overall well-being/hauora. Recent research applied quantitative standardised measures to evaluate significant outcomes. For example, the patient-reported outcome measure (PROM) is a questionnaire that explores and measures health service users' perspectives on health outcomes, supports health professionals in improving individualised care and evaluates the health professionals' performance (Wiering et al., 2017). Since this paradigm shift, research on health service users' perspectives on care delivery and treatment has supported hospital policy changes (Grocott & McSherry, 2018). Additionally, a remarkable

increase in articles about the inclusion of health service users in consensus expert panels has been published (van Draanen et al., 2013).

In recent years, mental health services have implemented the recovery-orientated approach by including service users' perspectives and expertise (Copeland, 2002; Gilburt et al., 2013; Jönsson et al., 2015). This significant paradigm shift contributed to greater development of recovery-focused mental health literature. Presently, recovery-focused mental health research has informed policies and influenced the mental health systems in Europe, America, Canada, Australia and New Zealand (Cleary et al., 2017; Kidd et al., 2015; Slade et al., 2014). Recent research pinpoints the paradigm shift of expert consensus panels by including service users and families in the stakeholder groups (Tyler et al., 2020). However, in Aotearoa, there is limited research investigating mental health service users' perspectives on physical health.

1.8 Research problem

Physical health is an essential aspect when considering how to improve a mental health service user's overall health. Numerous studies have explored approaches and strategies to manage and improve mental health service users' physical health. However, these studies have focused on strategies shaped by health professionals. This approach is insufficient for mental health service users with individualised needs and strengths and should be supplemented with research on service user perception. An existing Aotearoa study investigated how mental health service users perceived their physical well-being in inpatient units in Christchurch. The study, however, was limited to participants whose primary diagnosis was schizophrenia. Additionally, the current research is insufficient in the context of the wider population of New Zealand, as it only concentrates on a particular adult inpatient clientele. Additionally, this study did not include service users engaged with Aotearoa-wide community mental health services and inpatient service users from other demographics. As a result, the previous study results do not reflect the Waikato population.

1.9 Research aims, objectives and questions

Given the lack of research regarding the perception of mental health service users' physical health, this study aims to identify and evaluate the mental health service users' perception of physical health and identify strategies for improvement to primary and secondary health services. In specific, this research intends to gather a broad range of Aotearoa perspectives by including participants across the Waikato inpatient and community settings. Moreover, this study addresses the need for solution-orientated research emphasising self-advocacy and cultural empowerment (e.g., peer support and Kaupapa Māori approaches).

The following research objectives and questions aim to explore mental health services users' physical health:

- Objective #1: to identify and evaluate information from people with lived experiences
- Objective #2: to identify and evaluate mental health service users' perceptions of physical health
- Objective #3: to identify and evaluate Aotearoa demographics
- Objective #4: to identify and evaluate mental health service users' needs and strengths
- Objective #5: to identify health inequities of mental health service users
- Research Question #1: What are mental health service users' perceptions of their physical health?
- Research Question #2: What are these mental health service users' comorbidities?
- Research Question #3: What is the difference between Māori and non-Māori mental health service user's physical health?
- Research Question #4: What are mental health service users' enablers and barriers?

1.10 Research Significance

This study contributes to the current knowledge on mental health service users' perception of physical health and their accompanying needs to improve physical

health. This supplements existing research in this field and provides new recommendations for policies and practices.

1.11 Organisation of the thesis

The thesis is structured in six chapters: Introduction (Chapter 1), Literature review (Chapter 2), Methodology (Chapter 3), Methods (Chapter 4), Results (Chapter 5) and Discussion and Conclusion (Chapter 6).

Chapter 1 Introduction

Chapter 1 introduces the study, provides an background to, and overview of the study. Following, research problem, aim, objectives and questions are described.

Chapter 2 Literature review

Chapter 2 reviews current literature covering mental health service users' perception of physical health. General health perspectives on physical health, as well as barriers and enablers to physical health are considered. Furthermore, the chapter explores mental health service users' views on the health system and peer support. Although most of the available literature is either from America or Australia, one literature from New Zealand is also considered. The literature review highlights the need of mental health service user inclusive research in this area.

Chapter 3 Methodology

Chapter 3 describes the research methodology. Paradigms are explored, in particular, the nature of pragmatic approach in research utilized in this study is summarized. In addition, this chapter also outlines quantitative, qualitative, and mixed method research in regards to this study. Reflexivity is described and I reflected on the interconnected aspects of collaboration, trustworthiness, and trust during the study. The Te Tirity O Waitangi and it's cultural responsiveness are considered in regards to the research. Lastly, the chapter comprises triangulation and it's use within this study.

Chapter 4 Methods

This chapter provides details of the methods undertaken in the study. The study population and inclusion and exclusion criteria of the study population are explored.

The process of the study sampling, the instruments used to collect the quantitative and qualitative data, and the process of data analysis are described.

Chapter 5 Results

Chapter 5 highlights the results of the data collection and data analysis. Quantitative findings of the online questionnaire are presented and qualitative findings of the interview are structured into themes.

Chapter 6 Discussion and conclusion

In this chapter of the thesis the research findings and themes are taken into account in relation to mental health literature. Significant aspects of the results are explored, and the contribution of the research to the knowledge of mental health service users' perception is considered. This chapter also reflects on the research through pragmatic lens and reviews the implication for future mental health practices and education.

1.12 Summary

In Aotearoa and worldwide, physical health inequities are a significant problem for mental health service users. As physical health is a component of one's overall health, understanding mental health service users' perceptions of physical health is important in addressing these inequities. This chapter outlines the nature of the issue, the role of mental health nursing, access to primary care and general practice consultations and the development of health service users' inclusive research. Furthermore, the research problem, aim, objectives, and questions has been identified. Additionally, an outline of the thesis has been provided.

Chapter II: Literature review

"Literature is the art of discovering something extraordinary about ordinary people, and saying with ordinary words something extraordinary."

Boris Pasternak, 1890 – 1960

2.1 Introduction

This chapter presents an integrative review of the literature on mental health service users' perspectives on physical health. The purpose of a literature review is to gain a deeper understanding of the current research in a specific area of study (Leite et al., 2019). In general, a literature review focuses on cumulative knowledge and emphasises the expansion of this collective understanding (Aveyard & Bradbury-Jones, 2019). Furthermore, it systematically explores, analyses and evaluates research articles to synthesise relevant findings (Efron & Ravid, 2019; Justus, 2009). In reviewing the literature, the researcher compares the applicable literature, presents gaps in the literature and provides recommendations to fill these gaps. Consequently, the researcher receives a critical and accurate understanding of a current field of study, such as nursing.

Literature reviews are conducted as stand-alone research or a preliminary part of a study. The stand-alone review primarily outlines a broad overview of the studies about a specific subject and is not followed by primary research (Stratton, 2019). The embedded review, however, is an integral segment of a research study. It explores the gaps in previous literature and informs the following research (Efron & Ravid, 2019). This type of literature review is used in theses and research projects such as the current research.

There are various approaches to a literature review: traditional-narrative review, hermeneutic-phenomenological review and systematic review (Snyder, 2019). First, the traditional-narrative review examines current knowledge in a particular topic and provides a comprehensive background to summarise the specific subject area. The

researcher of a traditional-narrative review includes a broad range of literature, identifies and debates the focal issue (Jesson et al., 2011), highlights gaps or recommends possible applications for nursing practice (Aveyard & Bradbury-Jones, 2019). Second, the hermeneutic-phenomenological review is used to investigate and infer the meaning of scholarly articles (Boell & Cecez-Kecmanovic, 2014). The interpretation underpins the hermeneutic-phenomenological literature review approach (Santiago et al., 2020); the purpose is the writer's individual experience and interpretation (Boell & Cecez-Kecmanovic, 2014). Third, a systematic review is a structured approach to reviewing literature (Hunt, 2013) and is, therefore, replicable and rigorous. The review of the literature includes a comprehensive and protocol-driven search to identify relevant studies on the subject. Importantly, an objective and neutral standpoint reduces errors and biases.

This chapter includes an integrative review method to summarise, evaluate and synthesise the literature findings and outline research gaps on mental health service users' perspectives on physical health. The integrative review method enabled studies with diverse methodologies to be incorporated into the literature review (Whittemore & Knafl, 2005). With simultaneous evaluation of diverse methods, a comprehensive understanding of health perceptions can be established, which is of significance for developing evidence-based care delivery (Karlsson et al., 2020). The chapter reviews the literature on mental health service users' physical health perception. The review primarily focused on service users' perspectives and expertise, concentrating on major themes that repeatedly emerged across the reviewed sources. These themes were physical health perception of mental health service users, the impact of barriers to improving physical health and future-focused perspectives.

2.2 Method of the literature review

The integrative review method is progressively accepted as suitable to inform evidence-based practice (Newman et al., 2015) and has been used to explore issues of poor research quality (Wilson et al., 2021). Previous studies used the integrative review method to include research focusing on stakeholders' voices (Cusack et al., 2018; Newman et al., 2015; Schmidt & Uman, 2020). This literature review was performed using an integrative method. Integrative literature reviews are employed to review,

critique and synthesise articles pertinent to the topic (Ham-Baloyi & Jordan, 2016; Snyder, 2019). Furthermore, integrative literature is applied in an integrative way to generate new perspectives on the topic (Torraco, 2016). Specifically, integrative literature reviews are characterised by systematically tracing topical articles to their origins (Callahan, 2010). The integrative review is often used in nursing and helps to examine theories, describe concepts and pinpoint literature gaps (Whittemore & Knafl, 2005). A strength of a comprehensive integrative literature review is the clear outline of its methodology:

1. Where articles were located (e.g., online libraries or databases)
2. When literature was found (due to frequent changes in the databases' contents)
3. Who ran the search (e.g., researcher or librarian)
4. How the articles were discovered (e.g., keywords used)
5. What and how many articles were found
6. Why studies were selected (e.g., inclusion and exclusion criteria)

The integrative reviews include experimental and non-experimental studies such as quantitative and qualitative data (Russell, 2005). This study collected qualitative and quantitative data, therefore justifying the use of the integrative review. The integrative approach in this literature review reflects on the key elements of Whittemore and Knalf's (2005) publication and employs the PRISMA (Page et al., 2021) diagram to illustrate the search screening results.

2.3 Definitions of terms

This literature review's main goal was to investigate mental health service users' perspectives and perceptions of their physical health. For the review, the following key terms were defined: *perception, perspective, mental, mental health, mental illness, psychiatric and physical health*.

Perception

Perception indicates a belief, image or idea frequently held by a person and how it is understood (Oxford University Press, 2022). In the context of this literature review,

perception refers to how mental health service users view physical health. A person's perception of this topic is subjective and unique to they thoughts, feelings, views and ideas.

Perspective

Cambridge University Press (2022b) defines perspective as the specific way an individual considers something or wisely and reasonably contemplates a problem or situation.

Mental Health

Mental health is the well-being of one's mind (Cambridge University Press, 2022a): a state relating to a person's emotional and psychological well-being (Cambridge University Press, 2022a). The WHO (WHO, 2022b) defines mental health as a condition in which a person notices their ability to handle ordinary life stressors, can work effectively and successfully and can contribute beneficially to their community.

Mental Illness

Mental illness is a state of a person's mind that leads to a significant disorder in their thinking or behaviour (Merriam-Webster, 2022). The presence of mental pathology distinguishes mental illnesses as disturbances of mental function, similar to the disturbances of physical function.

Psychiatry

Psychiatry is "the branch of medicine focused on diagnosis, treatment and prevention for mental, emotional and behavioural disorders" (American Psychiatric Association, 2022). The word psychiatry originates from the Greek *psukhē iatreia* and translates to soul or mind healing (Goodwin, 2017). In the context of the literature search, it is a useful term to expand search results.

Physical health

Physical health is the body's well-being and the correct function of the individual's organism (Haverkamp et al., 2018). Traditionally, physical health is defined as the absence of disability or disease (WHO, 2022c). The more contemporary meaning of

physical health refers to the ability to carry out daily tasks and live comfortably (Bickenbach, 2014).

2.4 Search strategy description

A research librarian at the University of Waikato assisted in developing the search strategy. I utilised the Pubmed, APA Psychnet, Proquest, Academic Search Complete, CINAHL and Scopus databases to identify studies on physical health perspectives using the search terms "TITLE ("physical") AND TITLE ("perspectives" OR "perspective" OR "perceptions" OR "perception") AND TITLE ("mental" OR "mental health" OR "mental illness" OR "psychiatric") AND (LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015)) AND (LIMIT-TO (LANGUAGE , "English"))". The title, abstract and main text of the research articles were reviewed to determine their relevance to this literature review. Articles were examined and selected based on the following inclusion criteria:

1) Written in English;
2) Conducted worldwide;
3) Published between 2015 and 2021;
4) Followed participants that were psychiatric or mental health service users, consumers, patients or clients;
5) Included participants aged 16 and older;
6) Investigated perception and perspectives on physical activity or health, barriers to physical health improvement, interventions to improve physical health or a combination
7) Peer-reviewed systematic reviews or research studies.

Exclusion criteria were as follows:

1) Newspaper articles;
2) Unpublished research;
3) Case studies;
4) Articles with only an abstract
5) Research on health service users without mental illness.

The reference lists of collected articles were explored for additional literature.

2.5 Search results

The search yielded 267 articles: 47 from Pubmed, 51 from APA Psychnet, 18 from Proquest, 46 from Academic Search Complete, 30 from CINAHL Complete and 75 from Scopus (Figure 2.1). First, research titles were evaluated for relevance or duplication; 165 duplicates and 81 other articles were excluded. Second, the article's abstracts were examined according to the inclusion and exclusion criteria, and seven articles were excluded. Figure 2.1 displays the final 12 articles.

Figure 2.1 Prisma diagram

Note: Adapted from "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews", by Page, M., et al., 2021, *BMJ, 372*, p. 71. https://doi: 10.1136/bmj.n71

The articles were thematically analysed using NVivo, and the following themes developed: general perspectives on physical health, barriers and enablers, health systems and peer support. Through a pragmatic lens, I categorised the literature search results into themes to explore the issues of mental health service users in improving their physical health. To explore ideal options for improving physical health in mental health service users, the literature review examines perspectives and preferences on ways to promote physical health.

Part 1: General perspectives on physical health

2.6 Introduction

Participants of the selected studies addressed different perspectives on physical health. In particular, they explored views on balanced physical health, ways to maintain and improve physical health and holistic views of physical health.

2.7 Views on a balanced physical health

In a study by McCloughen et al., the concept of balanced physical health was defined as having good fitness and physique. Ideals could be achieved by numerous factors that affect physical health, such as consistent sleep, exercise, a balanced diet and socialising with family and friends. Young adult participants of two inpatient mental health wards cited being slim, generally fit and happy as having balanced physical health (McCloughen et al., 2016). Participants addressed the interconnectivity of physical and mental health. They reported that appearance included more than weight and shape and encompassed facial appearance, posture, mood and attitude towards life. However, none of the study participants believed they were fulfilling this standard. McCloughen et al.'s (2016) study only focused on English-speaking participants from one Australian inpatient facility and included primarily first-time admissions. Therefore, the generalizability of these views on physical health standards of young adult inpatient service users with mental illness is limited.

2.8 Ways to maintain and improve physical health

Poor physical health appears to strongly affect one's mental health, supporting a strong mind-body relationship. Physical health and activity behaviours were influenced by elements generally understood as environmental (e.g., mental health inpatient facility policies), social (e.g., family) and personal (e.g., psychological or biological attributes). Body movement is vital to improve one's physical health: exercise can aid people's physical well-being and help them live healthier lives. Mental health service users have linked good physical health with mobility and the ability to be physically fit. Participants in several studies adopted this view in terms of wanting to improve or maintain their physical health through physical fitness.

Happell et al.'s (2016a) study contributes to understanding community mental service users' perceptions of physical health. Participants identified exercise and physical fitness as significant when outlining physical health. Once overcoming barriers, they described exercise as a mood enhancer and an enjoyable activity they chose to repeat regularly. This article revealed that exercise can be used as a strategy to improve one's mental health. However, the generalizability of this study was limited due to the small number of participants and geographical isolation to one area in Australia. Thus, it is unreasonable to conclude that these viewpoints reflect other mental health service users' views.

In most cases, mental health service users choose activities easily done themselves, such as dancing, cycling, running, walking or yoga (Romain et al., 2020). A majority viewed exercise as important. However, those who showed little interest did not report any preferences on how to improve their physical health. Mental health service users who were disinterested in physical activity were likelier to reject study participation. In general, people with a bigger focus on physical health are more likely to participate in a study focusing on physical health and exercise. However, the cross-sectional design did not allow for gathering any interconnective relationships in the data findings, which was a limitation of the study design.

In Rogers et al.'s (2021) study, participants of secure inpatient mental health settings described a variety of exercise benefits, though they also reported possible negative

effects. In addition to relief from mental illness symptoms, participants reported that being physically active decreased their auditory hallucinations. Consequently, this relieved their negative thoughts and positively shifted their mood. One participant who had access to a swimming pool reported increased self-awareness when swimming. Others identified how exercise positively affected their motivation to adhere to therapeutic sessions. Some also suggested being active helped minimise risk behaviours due to the stress relieving and relaxing effect of an exercise session. However, exercise was also reported as detrimental. A minority of participants expressed that exercise made them hyperactive and aggressive, leading to more restrictions and limited exercise options. They addressed that exercise increased their auditory hallucinations, and the fall from the hormonal high resulted in a low mood.

2.9 Holistic views

In various studies, participants referred to health as a holistic, interconnected structure wherein physical and mental health complement one another. In terms of illness, this interlinked relationship can have a damaging effect on the individual. In Happell et al.'s (2016a) study, participants referred to this holistic standpoint and described the close link between body, mind and spirit. Attempting to separate the mental from the physical illness symptoms was confusing.

Participants have managed their physical and mental health differently (Rollins et al., 2017). Some participants identify that they require medication for their mental health and manage their physical health with general strategies such as a nutritious diet and exercise. Others explained that they rely on their social support for their mental health. However, a minority identified no difference in how they coped with their physical and mental health problems, using health-promoting strategies and medication for both.

Part 2: Barriers and enablers

2.10 Introduction

Individuals with mental illnesses, such as depression, bipolar disorder or schizophrenia, have worse physical health than the general population (Bernstein et al., 2015). One's journey to recover mental and physical well-being can be challenging. For some, it is difficult to see this road to mental and physical health recovery. Managing physical health problems in mental health services calls for greater knowledge about the enablers and barriers to improving physical health. The following section explores mental health service users' perceptions of barriers and enablers to physical well-being.

The analysis revealed barriers and enablers to physical health as a major theme. Probing these subthemes elucidates the barriers faced by users of mental health services. To better understand people's perceived barriers to physical health, subthemes were initially categorised as intrinsic and extrinsic barriers. Intrinsic barriers refer to personal cognition, emotions and behaviours. Extrinsic barriers are often social in nature and include accessibility, affordability and availability. However, many of the emerging barriers have merged intrinsic and extrinsic components.

2.11 Link between mental and physical health

The dynamic link between mental and physical health is evident. Much of the literature on mental health service users' perspectives on physical health has focused on intrinsic barriers. Most studies identified that people with mental illness experience emotional (e.g., low mood and lack of motivation and energy) and behavioural (e.g., physical inactivity and drug and alcohol use) barriers in the context of their physical health. Poor physical health arose with mental health and psychosocial changes. For the majority, the burden of mental illness, illness relapse, psychiatric medications and hospitalisation is a key aspect of people's physical health. These physical health changes negatively impact patients' life balance and self-image.

Mental illness is a key barrier to physical health. Low moods, avolition, anhedonia, social isolation, poor diet and sleep are some symptoms of mental illness. These signs

and symptoms can hinder the person from physical activity. Most of these signs and symptoms decrease the person's energy, thus, increasing the physical burden of weight gain and cardiovascular disease. However, some symptoms, such as mania, trigger increased physical activity and decreased food intake. This can similarly impact one's energy and physical well-being (Bernstein et al., 2016). In various studies, mental illness was perceived as the foundation of change (Bernstein et al., 2016; Happell et al., 2016a; McCloughen et al., 2016; Romain et al., 2020) and overruled other aspects of health (Blanner Kristiansen et al., 2015).

In one study, 64 % of community mental health service users identified physical or mental illness as restricting their normal daily activities (Janney et al., 2017). Mental illness was a catalyst for aspects impacting the physical state. Experiencing depression and psychosis interfered with motivation and energy levels (Happell et al., 2016a; McCloughen et al., 2016). In Happell et al.'s (2016a) study, participants linked mental health relapses to reduced physical mobility and weight gain. This inactivity hindered them from accessing health services. Anxiety and social isolation are additional barriers to leaving the house for regular walks. In addition, mental illness affects the ability to eat a healthy diet.

In a quantitative study investigating outpatient mental health service users' activity practices, preferences and perspectives, 52 % identified mood as a major barrier to being physically active (Janney et al., 2017). Although most of these participants admitted that physical activity would improve their mood, they found it challenging to overcome feelings of depression and anxiety. These overwhelming feelings limited their motivation to exercise. Mental health service users identified several barriers to exercise, including symptoms linked to depression, such as a lack of motivation.

Research has highlighted the interconnectivity of physical and mental health (Bernstein et al., 2016). In an American study, community mental health service users acknowledged that mental health and physical health bidirectionally impact each other (Rollins et al., 2017). Participants with a more negative perspective on their physical health experienced more severe mood symptoms. The dynamic link between mental and physical health as a barrier is evident. In some cases, people were unable to leave

the house to exercise due to increased fear, thus, leading to depressive feelings (Happell et al., 2016a). Moreover, feelings of loneliness have resulted in physical inactivity (Rollins et al., 2017).

Comments from inpatient mental health service users indicated that the inability to move freely in an inpatient mental health setting felt disempowering and, consequently, led to low mood, motivation and self-efficacy (Every-Palmer et al., 2018). Some mental health service users ate more food to control their feelings and seek comfort (Every-Palmer et al., 2018; Happell et al., 2016a), whereas others ate less when feeling low in mood (Rogers et al., 2021). These behaviours resulted in physical changes, such as weight gain. Participants also experienced a sense of loss and poor self-image (McCloughen et al., 2016). Mental health service users described their mental health problems as hindering them from rising in the morning due to feeling depressed and lethargic or experiencing negative symptoms of schizophrenia, such as avolition (McCloughen et al., 2016). Consequently, a mental disorder can catalyse other elements worsening physical health. Most study participants were concerned about their physical health; however, they did not have the energy to actively address their physical health problems (McCloughen et al., 2016). For some people, physical exercise and a healthy diet were not priorities (Sayer et al., 2019). Additionally, Sayer et al. (2019) found that a lack of time is a barrier to cooking healthy food and exercising.

2.12 Lack of motivation, sleep, and low energy

Lack of motivation and consistent low energy levels hinder physical activity and have been cited as major inhibitors to prioritising one's health, being physically active and eating healthy (Janney et al., 2017; McCloughen et al., 2016; Rogers et al., 2021; Romain et al., 2020; Sayer et al., 2019). An NVivo text search of the extracted literature revealed five studies that included the phrase "lack of motivation" and one study with the word "demotivating" in the context of perceived barriers to improving health. In one qualitative study, "lack of motivation" was the most cited phrase in the results (Romain et al., 2020). Participants described fluctuating energy and poor sleep as contributors to their poor motivation (McCloughen et al., 2016). Sleep is vital and ensures increased energy; minimal sleep can trigger an unwillingness to exercise and cause a cycle of inactivity (Rogers et al., 2021). Some participants identified their mental illness and

medication as the reasons for their low motivation (Janney et al., 2017; McCloughen et al., 2016), whereas others described screaming patients and a lack of space in the inpatient mental health unit as contributors (Rogers et al., 2021). Particularly, negative symptoms of schizophrenia influence people's motivation (Rogers et al., 2021). Moreover, mental health service users reported that procrastination, laziness and resistance to change limited their ability to develop healthy habits (Sayer et al., 2019). In McCloughen et al.'s (2016) study, participants acknowledged they needed to change their lifestyle to improve their physical health; however, their motivation was problematic.

2.13 Inpatient facilities

In Every-Palmer et al.'s (2018) study, 78 % of the participants had been more physically active in the community than in the inpatient facility. They described the ward restrictions as a hindrance to their autonomy. These restrictions also contributed to inactivity and less motivation. Some responses identified systemic matters as restricting autonomy. For example, limited leaves from the inpatient ward were identified as obstacles to leading an active life. Other responses mentioned a lack of access to basic sports equipment. Forensic participants, in particular, frequently referred to decreased physical activity and weight gain after relocating from prison to the forensic mental health facility.

Various studies have highlighted environmental barriers (Every-Palmer et al., 2018; Rogers et al., 2021). In a British study examining service users' perspectives on physical activity in a secure mental health setting, service users discussed a variety of institutional barriers (Rogers et al., 2021). Statements from these study participants indicated how the restrictive environment promoted sedentary behaviour. Participants also noted how strict structure and policies hindered spontaneous physical activity. Some participants described the inpatient wards as a "*prison*" and suggested the ward leave policies affected their opportunities to exercise: participants from more acute mental health wards are not granted leave, and forensic inpatient wards have legal restraints averting unescorted ward leave. In one incident, an inpatient service user reported self-harm that led to restricted access to recreational sessions. Consequently, participants felt frustrated and noted weight gain. Participants described how their

mental health was linked with access to exercise opportunities. To improve service users' interconnected mental and physical well-being, mental health services could offer exercise opportunities regardless of legal status and risk.

In Rogers et al.'s (2021) study, participants recognised that staff play a key part in physical activity. Participants described two conflicting and inconsistent views about the staff in two medium inpatient secure wards in England: education and access. On the one hand, various participants identified staff as supportive and encouraging. Other participants reported staff as less encouraging and suppressing exercise. Although staff can restrict patient autonomy in the context of potential risks, this restriction can hinder therapeutic strategies. This inconsistent approach to physical activities in the inpatient wards may reflect the need to educate staff regarding the interconnected nature of mental and physical health. However, there are notable limitations. The study only included service users who were mentally well enough to join the interviews. The perspectives of unwell service users were not captured. This study demonstrated inconsistent approaches by staff. Therefore, findings are not transferable to other inpatient wards.

Participants reported staff availability as crucial for accessing the inpatient gym. Some described the inpatient wards as short-staffed or lacking staff trained to escort patients to the gym. This made service users feel frustrated regarding the lack of gym access and increased periods of sedentary behaviour. Rogers et al. (2021) suggested that a gradual transition from a sedentary environment to engagement in light exercise may benefit mental health service users' physical health. Decreasing sedentary behaviour by promoting light exercise may be a more pragmatic, temporary approach for inpatient staff if they are unavailable to support service users in the gym.

2.14 Physical health problems

2.14.1 Weight

The following subthemes emerged when exploring poor physical well-being: weight gain, physical conditions and dental health. Weight gain was the most reported physical health condition. Various studies highlight weight gain as a major barrier to physical

health. Several studies emphasise weight gain in relation to living in a restricted place, taking medication for their mental health and having unhealthy eating habits in response to their mood or their culture's traditional diet. Participants in several studies expressed that weight was the reason for their various physical health problems (Sayer et al., 2019). People described losing focus of their weight gain as a result of mental illness (Blanner Kristiansen et al., 2015). Moreover, participants from other studies referred to the effect of weight gain from mental health medications as significant for mental and physical health (Happell et al., 2016a). Stigma and "*fat shame*" have a damaging effect on one's quality of life, creating a vicious cycle that contributes to low mood and motivation (Happell et al., 2016a). Some people reported over-eating in context of emotional factors such as loneliness and sadness (Every-Palmer et al., 2018).

In an Aotearoa study investigating physical health in inpatient mental health service users, participants were significantly heavier than the general population: 75% were obese, with an average body-mass index of 35.3 (Every-Palmer et al., 2018). Most people indicated medication as the main reason for their weight gain, followed by food volume, diet and insufficient exercise due to institutional restrictions. These participants also asserted that environmental and psychological causes trigger weight gain. Most mental health service users were unhappy with their weight and felt apprehensive about their appearance and body shape. Some people reported overeating in emotional contexts, such as loneliness and sadness. However, a minority of participants expressed being comfortable with weighing more. These participants correlated weight with muscles, and another participant stated weight was advantageous in terms of power and personal protection. The study by Every-Palmer et al. (2018) focused on mental health forensic and rehabilitation inpatient service users from only two hospitals. Because perceptions of weight can differ between inpatient mental health service users and community mental health service users as a result of the restrictive inpatient environment, the findings are less generalisable.

2.14.2 Physical conditions

The literature search emphasised the relationship between physical and mental health as interconnected. The absence of physical injury, illness or pain was reported as an essential part of health. Physical illness is another predominant factor that hinders

one's ability to exercise. Most literature highlighted physical conditions such as diabetes, heart disease, hypertension and chronic obstructive pulmonary disease. A few participants reported a history of heart attacks, respiratory problems and diabetes (Sayer et al., 2019). They believed these comorbidities were caused by their weight gain and asserted they were unable to reduce their weight due to physical injury. This cycle affected their mood and, consequently, led to seeking comfort in food.

In a study investigating American mental health service users' comorbidities, 94 % of participants reported at least one chronic physical health condition (Rollins et al., 2017). Hypertension, chronic obstructive pulmonary disease, heart disease and diabetes were the most reported chronic conditions. Participants viewed their physical health as having a unidirectional, generally negative impact on their mental health. A small number of participants mentioned physical conditions or injuries as causes for the deterioration of their mental well-being (Rollins et al., 2017). They were unable to be physically active or return to work following a physical injury. This negatively affected their income and, thus, their mood.

Additionally, in a study by Romain et al. (2020), participants with obesity reported their health condition as a major obstacle to physical activity. In Happell et al.'s (2016a) study findings, participants frequently identified a bi-directional correlation between physical and mental health. Mental health could either positively or negatively impact physical health and the other way around. Most of the study participants shared poor health experiences in one area, triggering complications in the other. Participants discussed the impact of heart conditions, dental problems, physical pain and asthma. These health physical health conditions had been longstanding and affected their life significantly. A limitation of Happell et al.'s (2016a) study is the effects of pain on physical and mental health were neglected. Specifically, the effect of pain on physical activity.

In a longitudinal study, 46 % of participants with a mental disorder reported comorbidities and compromised physical health due to worsened physical function and pain (Bernstein et al., 2016). This study found that individuals' general perceptions of their physical health and bodily sensation, such as pain, were linked with their quality

of life. However, these findings were subject to a least two limitations. One of these limitations was that none of the participants explored how pain impacted their life and ability to complete certain tasks (e.g., climbing stairs, washing the dishes or getting dressed) in relation to their co-existing mental illness. In addition, participants' self-reported quality of life and perception of physical health potentially had a negative bias, especially when experiencing a depressive episode. This study only explored people with bipolar symptoms; therefore, the study is specialised and cannot be generalised to other mental health service users. Regardless, there should be more emphasis on quality of life measures for people with mental illness as they are more suitable for exploring mental health service users' perspectives on physical health than biomedical measures.

2.14.3 Dental health

High-sugar diets can cause tooth decay and long-term oral health complications. Dental problems a common subtheme throughout the literature review studies. Research findings have highlighted dental problems in mental health service users (Blanner Kristiansen et al., 2015; Çelik et al., 2019; Happell et al., 2016a; McCloughen et al., 2016). Adolescents with mental illness acknowledged that insufficient brushing and smoking cigarettes affected their dental health (McCloughen et al., 2016). In a Turkish study, most mental health service users emphasised the importance of good oral health; however, some did not know how often to see the dentist for regular check-ups, whereas others were unable to see the dentist due to insufficient finances or motivation (Çelik et al., 2019). Studies did not define whether participants had dental problems due to a lack of finances. Therefore, it is paramount to investigate participants' financial support in regard to dental care.

2.15 Poor finances

Socioeconomic factors such as finances determine our health: people with more income can afford health care services, a healthy diet and gym memberships. Those with poor finances are at greater risk of poor health. In an Australian study, participants described poverty as an enormous problem hindering them from buying healthy fresh food (Happell et al., 2016a). This financial pressure resulted in frustration and less

motivation to cook. Participants often struggled with the effects of mental or physical health problems in conjunction with social isolation and the lack of money. Poor finances affect the ability to consume a variety of foods as well as overall appetite; one participant described having to cook large pots of soup and experienced reduced appetite due to repetitive food intake. Scholars investigating African Americans' perspectives on diet and physical activity have highlighted prices for healthy food as a deterrent to eating healthy (Sayer et al., 2019). Participants cited their low government benefit income as a barrier to consuming healthy foods or joining the gym. Due to proximity and convenience, some people purchase low-cost food in local gas stations and fast-food restaurants. Poor finances hinder access to gyms, thus being a barrier to physical activity. A Canadian survey revealed the lack of financial resources as one of the five most mentioned barriers to physical activity (Romain et al., 2020).

2.16 Diet

While malnutrition can be due to financial issues, some malnutrition is caused by reduced social support or mental health issues. Several young participants explained that their activity and appetite changes were associated with their moods (McCloughen et al., 2016). In one study, a female adolescent identified two extremes: depression reduced her appetite, while mania increased her physical activity. Moreover, people with mental illness have difficulty substituting their habits for healthy alternatives. Studies have identified a misconception about healthy eating and changing eating habits (Çelik et al., 2019; McCloughen et al., 2016; Sayer et al., 2019). One participant cited not having the energy to stop the habit of buying chocolate every day (Blanner Kristiansen et al., 2015). Others had difficulty controlling their sugar cravings (Çelik et al., 2019). Moreover, many people admitted to having an unhealthy diet filled with high-fat foods like red meat, burgers, fries and fried chicken (McCloughen et al., 2016). Others omitted important sources of nutrients, such as fruits (McCloughen et al., 2016). In Every-Palmer et al.'s (2018) Aotearoa inpatient mental health study, 35 out of 51 participants from forensic and rehab inpatient mental health services suggested that the hospital menu be improved to include more variety and vegetarian options. However, participants from other studies did not highlight the benefits or disadvantages of hospital food.

Participants cited cultural traditions as obstacles to making healthy food choices (Sayer et al., 2019). For example, African American participants reported difficulty ending unhealthy traditions and habits. Because pork was inexpensive when the participants were growing up, it remains a staple in their diets. Cultural gatherings primarily include ribs and fried chicken. Despite understanding the significance of healthy food, the influence of other African Americans, temptation, the feeling of comfort and the enjoyment of high-sugar and high-fat foods were barriers to healthy food intake. Sayer et al.'s study (2019) highlights the cultural aspects of malnutrition. A qualitative Aotearoa study included 65 % Māori, 26 % Pacifica and 29 % New Zealand European participants. However, it did not explore culturally-valued diets and their effect on health. While some studies explored the participants' ethnicities, others did not explore cultural values and beliefs in regard to diet.

2.18 Medication

Medication was one of the main barriers that emerged during the thematic analysis. The known effects of psychiatric medications such as antipsychotics and sedatives interfere with people's physical activity and health. These medications trigger inactivity, leading to weight gain and cardiovascular disease. Most participants perceived that medication side effects caused reduced physical mobility (Every-Palmer et al., 2018; Happell et al., 2016a; McCloughen et al., 2016; Rogers et al., 2021; Rollins et al., 2017; Sayer et al., 2019), particularly those studies including participants diagnosed with schizophrenia. Specifically for those with severe mental illness, antipsychotics prompted decreased physical activity, thus, causing weight gain (Happell et al., 2016a). Some studies failed to identify the impact of psychotropic medication on physical health and activity (Romain et al., 2020).

Furthermore, studies highlighted that the combination of psychotropic medications' sedative effect and the inpatient ward's environmental restrictions creates a heavy burden for people (Every-Palmer et al., 2018; McCloughen et al., 2016; Rogers et al., 2021). For many participants, the psychiatric medications' side effects influence their motivation to join the inpatient exercise sessions (Rogers et al., 2021). One participant identified that service users in the inpatient mental health wards are taking more medications than in the community, therefore, experiencing increased exhaustion

(Rogers et al., 2021). Participants of various studies described feeling tired (Rollins et al., 2017), fatigued (Rogers et al., 2021; Sayer et al., 2019) and an increased appetite in response to their prescribed psychiatric medications (Happell et al., 2016a; McCloughen et al., 2016). For 60 % of inpatient mental health service users diagnosed with severe mental illness, medication was the primary reason for gaining weight (Every-Palmer et al., 2018). In fact, 78 % of participants were diagnosed with schizophrenia, 49 % were taking second-generation antipsychotic clozapine, 74 % were obese, 65 % identified as Māori and 26 % as Pacifica (Every-Palmer et al., 2018). This data suggests the link between obesity, ethnicity, schizophrenia and the treatment with second-generation antipsychotics such as clozapine. Other studies neglected to determine the correlation between psychotropic medication and weight gain.

It is evident that medications are perceived as a barrier; however, for others, medications are identified as enablers to a healthier life. In Rollins et al.'s (2017) study, participants managed their physical health conditions such as diabetes, hypertension and chronic obstructive pulmonary disease by regularly taking their prescribed medications, monitoring their vital signs, quitting smoking, being abstinent from drugs and alcohol, exercising and eating a healthy diet.

2.19 Drug and alcohol

Behavioural changes that worsen individuals' physical health include cigarette smoking and alcohol and illicit drug use. A significant number of studies demonstrate cigarette and alcohol's damaging effects. McCloughen et al. (2016) identified adolescents interested in smoking and alcohol cessation as the drugs interfere with their physical health. However, several mental health service users struggle to quit smoking (Rollins et al., 2017). In Blanner Kristiansen et al.'s (2015) study, individuals with a substance use disorder, in addition to other mental health disorders, reported increased accidents linked to substance use. Participants also identified the connection between cigarette smoking and lung cancer, therefore, prompting a desire to quit cigarette smoking (Çelik Ince et al., 2019). Substance use, cigarette smoking and alcohol use were not mentioned (Happell et al., 2016a) or were periphery in most of the studies (Every-Palmer et al., 2018). The majority of Romain et al.'s (2020) study participants considered the change in cigarette smoking, alcohol and illicit drug use as equally crucial as their mental health

recovery, improvement of their housing and employment status and development of their social support.

2.20 Psychosocial

People who experience depression or negative symptoms of schizophrenia are more likely to self-isolate. After a lack of motivation and fatigue, an absence of friends was the most reported barrier deterring people with mental illness from exercising (Romain et al., 2020). Results from the Every-Palmer et al. (2018) study revealed that participants in mental health inpatient facilities, lacking hedonic activities, such as socialising with friends, decided to be physically inactive. Comments from mental health inpatient service users indicated the importance of social interaction factors in exercise. Participants described feeling lonely or isolated. They also cited how the lack of mental health inpatient staff contributed to not exercising. The dependence on staff and social isolation may cause disempowerment and a loss of autonomy.

Though some people enjoy exercising alone, peers, such as friends and family, generally enhance physical activity (Staal et al., 2015). Mental health service users reported that having a family member, friend or professional keyworker may motivate them to engaging in exercise (Blanner Kristiansen et al., 2015). In addition, offering social support and socialisation could improve users' motivation to be physically active and be more cost-effective in terms of professional human resources. Additionally, being part of a community such as a football team, where people rely on each other, was reported as vital.

2.21 Health system and peer support

People with mental illness encounter significant health inequities and numerous barriers to engaging in healthy behaviour changes. Overcoming barriers and health inequities to improve physical health is, therefore, challenging. To diminish these health inequalities, it is essential to understand people's experiences and barriers. Subsequently, these experiences and barriers must be addressed to support mental health service users through an alliance of healthcare services. This section examines

mental health service users' perceptions of their physical health regarding physical health care delivery, lack of access and resources.

Various studies identified organisational issues in the health care system as barriers for mental health service users to improve their physical health. The lack of cooperation and communication between physical health and mental health care services was described as an obstacle to good physical health care for mental health service users (Blanner Kristiansen et al., 2015; Happell et al., 2016a). In addition, people often face a lack of understanding about the experience of living with a mental illness (Blanner Kristiansen et al., 2015). While the study attempted to gather diverse perspectives, the transferability of the study findings is limited to service users with severe mental illness in community settings.

Some mental health service users stated their mental health professionals never or seldom discussed physical activity as a strategy to better their mental health (Janney et al., 2017). In their study, Janney et al. (2017) justify that this may be due to a shortage of mental health professionals and a lack of time. In Romain et al.'s (2020) study, participants viewed counselling by a variety of mental health professionals as beneficial for exercise, diet and tobacco cessation. Outdoor activities, particularly for young mental health service users experiencing first episode psychosis, should be focused on combining group and individual sessions.

One study focused on African American mental health service users' perspectives on diet and physical activity (Sayer et al., 2019). The study participants suggested that a person delivering healthy diet education material to the community grocery stores would be beneficial, particularly for African American communities. Çelik et al.'s (2019) study emphasises the importance of health education provided by mental health nurses. The study was undertaken in a psychiatric inpatient facility in Western Turkey and only included Turkish-speaking service users. Limitations of the study are that cultural aspects and community mental health services were not included. Both studies focused on people from one specific culture and are, therefore, not generalisable to people of other ethnic backgrounds.

2.22 Specialised physical health nurse in mental health services

Literature included in this review identified barriers to physical health. However, research focusing on solution-focused approaches to improve the physical health of those with mental illness is limited. The findings of Happell et al.'s study (2016b) focused on mental health services users' perception of physical health in regards to embedding a physical health nurse consultant within mental health services. A specialised physical health nurse in mental health services may improve access to physical health care (Happell et al., 2016b). Mental health service users' feedback in regards to the physical health nurse position in mental health was generally encouraging. In this study, participants reported that psychiatrists and mental health nurses have often overlooked physical health problems, which are interconnected with their mental health. Therefore, a specialised physical health nurse was perceived as specifically beneficial in crossing professional silos and offering cardiometabolic screening. Some suggested the implementation of a specialised medical ward, particularly for mental health service users. They viewed the specialised nursing position as overall valuable and saw advantages in providing health education and holistic care within the mental health services. Furthermore, integrating this specialised nursing discipline enables closer communication among health professionals.

However, some mental health service users mentioned that an additional health professional exacerbates the problem and forces them to repeat themselves. Others suggested that they could see their psychiatrist while getting their metabolic screening done. Although the benefits of the specialised physical health positions were generally favoured, these positions were suitable for community mental health services and not inpatient services. Multidisciplinary community mental health teams were seen as a barrier to physical health; therefore, community mental health services require more nurses.

Nevertheless, participants preferred health professionals to engage with them in a way that demonstrates health-promotion, psychosocial and recovery-focused principles. They also identified the need to be actively involved in the development of new changes to health care services. Considering structural and cultural changes to the public health system and continuous service user input must inform the development

of this physical health nurse role. Service user perspectives in physical health research are lacking and problematic. This lack must be addressed in future health research. Moreover, increased involvement of service users is fundamental to expanding the understanding of current barriers to equitable health outcomes and improving health strategies. Health services are slowly addressing and implementing strategies to improve physical health inequalities of mental health service users.

2.23 Summary

This integrative literature review explored mental health service users' perceptions of their physical health, involving general perspectives on physical health, such as the holistic view of health, difficulties and influences on their physical health and the impact on mental health and comorbidities. Physical health support from the health system and peers was also explored with a focus on solution-focused approaches to improve mental health service users' physical health. The review has highlighted several possible interventions to better health experiences and outcomes. However, none of these interventions was specific to the cultural context of Aotearoa. Overall, service users favour health-promoting, person-centred and recovery-focused approaches that consider their psychosocial factors on multiple levels. The review clearly outlines the need for service users to be actively involved in developing structural and cultural changes for health care providers. Combining both service users' experiences to form service user-inclusive interventions formed the foundation of this mixed methods research. The literature review content shaped the general ideas of the mixed methods study's components: survey questions including quality of life measures, demographic and general physical health questions and interview questions including in-depth physical health questions. Regarding the physical health perceptions and experiences of mental health services, the review identified a gap in knowledge in Aotearoa.

Chapter III: Methodology

"Basic research is like shooting an arrow in the air and, where it lands, painting a target."

Homer Burton Adkins, 1892 – 1949

3.1 Introduction

This chapter defines the methodology, explores methodological approaches, and describes the methods. Moreover, it discusses the conceptual principles used to address the research questions. In addition, the researcher defines paradigms, elucidates the components of paradigms and the principal paradigms, and highlights the paradigms applied in this research study. Quantitative and qualitative evaluation principles have directed the study methods to address the research aims. The aims of the research are to investigate mental health service users' perceptions of their physical health. More precisely, the research intends to improve the health and well-being of people with mental illness.

Creating studies to establish a comprehensive understanding of the evidence on mental health service users' perceptions of physical health necessitates fundamental knowledge of methodological approaches and methods utilised in this process. Therefore, exploring the methodological issues before selecting the methods is paramount.

In some views, methodology refers to the science of method and its theories and principles that form the basis of the research process (MacCallum et al., 2019). In contrast to the word "method", "methodology" has no other connotation outside of the research world (MacCallum et al., 2019). Kara (2015) defines methodology as the contextual framework of the research that is constructed on values, beliefs, and views. Methodology is seen as the spectrum from a primarily qualitative approach to a primarily quantitative approach (Jensen, 2021). Traditionally, methodology focuses on one of these approaches; however, contemporary research combines both approaches

to answer the research questions and so has methodologies that are multimethodological (Andiappan & Wan, 2020; Brookshier, 2018).

3.2 Paradigm

A paradigm is a perspective or worldview held by a research community and is built on a set of shared assumptions, values, concepts, and practices (Biddle & Schafft, 2015). It is described as the philosophical way of thinking (Kuhn & Hacking, 2012). In academic research, the paradigm outlines the researcher's worldview underlying the methodology and theories of the specified subject (Mackenzie & Knipe, 2006). The researcher's worldview is the set of shared beliefs or perspectives that characterise the interpretation and meaning of the research data. A paradigm is the lens through which the researcher conceptualises the research.

Qualitative researchers define paradigm as a human construction in which the researcher constructs embedded in qualitative data (Denzin, 2010). Therefore, paradigms are paramount as they allow beliefs and viewpoints, which, for researchers in certain specialities, impact what and how should be examined; and how the outcome should be viewed (Kivunja & Kuyini, 2017).

Paradigms consist of four components, epistemology, ontology, methodology and axiology (Lincoln & Guba, 1985). Firstly, epistemology concerns the nature of human knowledge and understanding that can be gained to deepen and extend current understanding of the subject. In other words, it defines the basis of knowledge and justification (Schwandt, 1997). Secondly, ontology is the discipline of philosophy referring to the assumptions the researcher makes intending to believe something makes sense (Scotland, 2012). It concerns the researcher's underlying belief system regarding the nature of reality and existence (Kivunja & Kuyini, 2017). Ontology aims to determine the fundamental concept, which comprises themes analysed to understand the meaning embedded in the collected data (Kivunja & Kuyini, 2017). Thirdly, methodology is the system of methods, such as the research method and design and the flow and logic of these methodical procedures. Considering the methodology of this research, I asked myself: How should collect data which will allow me to answer my research question? Lastly, axiology derives from the Greek word

"ἀξία" - value, "λόγος" meaning "word" (Kryukov et al., 2021), and links to the ethical problems which need to be taken into consideration, particularly when outlining research methodology (Biedenbach & Jacobsson, 2016). Axiology addresses questions: What values will inform the research? What will the researcher do to uphold the participant's rights? What are the moral obstacles that need to be examined? How will the researcher address these moral issues? How can the researcher minimise risk? (Biedenbach & Jacobsson, 2016).

Various principal paradigms have their own distinctive epistemological and ontological perspectives (Lincoln & Guba, 1985). The four most common paradigms are positivism, constructivism, critical theory, and pragmatism.

3.2.1 Positivism

Positivism is based on the principles of separated impartiality and objectivity (Comte, 1856). Comte (1856) describes that this framework focuses on the assumption that society should be examined scientifically and empirically. The positivistic researcher assumes that there is only one reality and aims to discard their values and biases (Davies & Fisher, 2018). To establish this one reality, researchers generally use thorough quantitative methods, including a large sample size (Schneider et al., 2016).

3.2.2 Constructivism

It can be argued that positivism searches for the truth, while constructivism hypothesises that truth changes. The truth differs depending on whom you ask or at what time you ask, as their understanding of truth can vary considering their interactions with other peers (Adom et al., 2016). Through a constructivist lens, reality is created through conversations and our interpretations of these conversations (Perkins, 2013). To comprehend the idea of social constructionism and relativity, compare how hand gestures indicate different meanings worldwide. While raising the little finger may be perceived as an offensive gesture in Indonesia, this meaning is not represented in other cultures. What is the truth of the little finger? This depends on the meaning of the gesture and the interpretation and social context.

3.2.3 Critical Theory

Critical theory is the third paradigm in social science. On the one hand, traditional paradigms such as positivism seek and confirm the status quo. On the other hand, critical theory questions the status quo and competes for equality and equity (Asghar, 2013). Furthermore, its fundamental principles focus on power imbalance, inequity and inequality and strive for social, political, and economic change (Kekeya, 2019; Kivunja & Kuyini, 2017). Critical theorists argue that social science cannot be genuinely value-free or objective (Fraser, 2017). Researchers viewing reality through a critical paradigm lens posit that systems are biased against marginalised groups (Horkheimer, 1972), such as mental health service users.

3.2.4 Pragmatism

This fourth paradigm encompasses elements from positivism, constructivism, and critical theory (Tashakkori & Teddlie, 2003). For pragmatic theorists, mono-paradigmatic research is insufficient, and they, therefore, argue that research methods must be suited to the phenomenon. Additionally, these pragmatic philosophers seek approaches which are more pluralistic and practical in approach and that enable a combination of methods which could elucidate the participant's behaviour, beliefs behind these behaviours and outcomes that are potentially linked to these various behaviours (Alise & Teddlie, 2010; Patton, 1990; Tashakkori & Teddlie, 2003). Pragmatists describe the three forms of the pragmatic paradigm to illustrate the relationship between action and knowledge through a pragmatic lens (Goldkuhl, 2012). Firstly, functional pragmatism refers to the "knowledge for action". Functional pragmatism aims to improve action and make a difference in practice. Secondly, referential pragmatism links to the "knowledge about the action", suggesting that this paradigm explains a phenomenon in an action-orientated way. Thirdly, methodological pragmatism refers to knowledge through action.

Pragmatism is a suitable paradigm for mixed research studies (Anthony & Johnson, 2006; Creswell et al., 2011; Denscombe, 2008; Mitchell, 2018; Onwuegbuzie & Johnson, 2006). Research begins with an idea or a research question and an objective to answer this question to add relevant knowledge to the research topic (Greener,

2008). To answer the research questions, pragmatism suggests that research must be conducted and designed ideally, regardless of the primary philosophy (Biddle & Schafft, 2015; Johnson & Christensen, 2012). Therefore, this research considers the use of a mixed methods study combined with the pragmatism paradigm approach.

To answer the research questions, the researcher must choose the most suitable study designs. That said, the study design is a function of pairing the research question to present the most unbiased answer possible (Aslam et al., 2012). Considering the research questions of this study, which focus on the individual's perceptions and perspective, the researcher must choose the most suitable study design. More specifically, the research questions aim to explore people's perceptions of physical health, their comorbidities, strengths and needs to improve their physical health. To answer these questions and comprehensively understand the participants' demographics, the researcher used quantitative and qualitative research design as part of the mixed method study.

3.3 Quantitative research

Quantitative research methods emphasise objective measures and analysis of numerical data or statistics collected via surveys, questionnaires, or polls. The focal point of quantitative research is numerical information and comparisons across groups of people. Quantitative study results involve greater sample sizes represented within (e.g.) a community (Babbie, 2017). Additionally, quantitative research can also be utilised to elucidate a specific phenomenon. In quantitative research, the researcher aims to determine links between one variable and another variable within a population. Characteristically, a quantitative study can be repeated or replicated, making the study more reliable. The quantitative research designs are either descriptive, correlational, quasi-experimental or experimental (Ingham-Broomfield, 2014). These designs determine how the researcher collects, analyses, and interprets the study results. In an experimental research study, subjects are assessed before and after a specific intervention (Sepers et al., 2019). The researcher aims to establish causality, and subjects are usually collected only once (Sepers et al., 2019). In a descriptive study, data are usually collected once the researcher can establish links between variables (Pellicani et al., 2018). In this study, the researcher employs the quantitative research method via

survey. Particularly, this form of quantitative data collection can be utilised to collect demographics and to get insight into the intangible characteristics of an individual's health perceptions (Kelley-Quon, 2018).

3.4 Qualitative research

Qualitative research primarily focuses on what was said rather than numbers; however, that being said, this does not mean that it lacks credibility or cannot describe a social phenomenon (Pope & Mays, 2020). Nursing research considers qualitative research as having the ability to include multiple dimensions to understand the phenomena (Morse & Chung, 2003). The qualitative approach's main objective is to examine situations as the participants conceptualised and described them. Qualitative descriptive research can support nurses in answering questions about the health user's experience of health, illness, recovery or the improvement of effective, supportive care environments and delivery. The ability to explore the participants' experiences, perspectives and attitudes is extensive and, therefore, a strength of qualitative research. Regarding this research, the issue is the notion and experience of physical health. In a qualitative descriptive design, the researcher becomes the research instrument (Yilmaz, 2013). This means data is elicited by asking questions about physical health in interviews and recording these responses. As the data-gathering instrument, the researcher collects the data in this research. The researcher gathers the project's data via audio-recorder and transcribe recorded data for analysis.

Often the most personalised method for qualitative data collection is a face-to-face interview (Adhabi & Anozie, 2017) such as those conducted in this research process. The in-person interview method motivates collaboration between interviewer and interviewee and, therefore, may result in an increased response rate and greater data quality. Participants were approached to comment on a pre-developed questionnaire relating to physical health.

3.5 Combining quantitative and qualitative method study – Mixed method study

Considering the intricacy and complexity of the research questions, exploring individuals' perspectives of physical health and presenting participants' demographics and comorbidities, this research includes quantitative and qualitative methods. In combination, both can deliver rich data but may also result in insufficiency. Only including qualitative methods may lead to insufficient population-level summaries, preventing generalisability to the wider population. Thus, the researcher chose qualitative and quantitative methods as part of a mixed method study. Mixed method studies are described as the "third paradigm" (Denscombe, 2008) or "third methodology" (Tashakkori & Teddie, 2010) and include qualitative and qualitative methods (Morse, 2016). This third methodological approach does not limit to certain paradigms used in traditional studies (Creswell, 2011). Utilising mixed methodology and combining qualitative and quantitative approaches enables the researcher to explore different aspects of the research problem (Johnson & Onwuegbuzie, 2004). This helps to address research questions in an extensive, explanatory, or exploratory approach (Pluye, 2015).

The explanatory mixed methodology involves a two-staged phase in which (example given) quantitative data is collected first, followed by qualitative data collection (Pluye, 2015). Following this, these phases can individually be triangulated into an additional third phase (Newby, 2014). In this third phase, quantitative data can highlight width and common patterns, and qualitative data analyses depth and experiences (Newby, 2014). In this regard, qualitative data results can also complement and contextualise the findings (Draucker et al., 2020), increase validity (Seaman et al., 2019) and create an additional in-depth understanding of the subject (Roslan & Halim, 2021). However, the process of mixed methodology can be time-consuming (Creswell et al., 2011).

In this study, the data collection sequence was a relevant aspect in choosing a mixed methods design. Initially, I planned to use the parallel mixed method study to collect quantitative and qualitative data at the same time. However, the mixed methodology in this paper utilises the sequential explanatory approach to evaluate physical health

perspectives and perceptions in mental service users. Using a sequential explanatory mixed method study, I hoped to increase the validity and depth of understanding of the fieldwork.

3.6 Reflexivity

Reflexivity refers to examining one's own feelings, beliefs, practices, and judgements (Cambridge University Press, 2022c) during the research. Additionally, reflexivity concerns how these feelings, beliefs, practices, and judgements may affect the research. In other words, reflexivity is about how the researcher's identity and social history impact the research process and analysis (Berger, 2015). It is a conventional element of qualitative research (Attia & Edge, 2017). In qualitative research, positionality is about the researcher's beliefs and knowledge, whereas reflexivity refers to what the researcher does with this knowledge (Mavin & Corlett, 2018). This reflection is beneficial for providing insight into phenomena through lived experience and personal connections or examining social conflicts, such as ethical dilemmas (Sparkes, 2020). Reflexivity encompasses questioning one's own impact on the research.

Reflexivity consists of two interconnected components: prospective and retrospective reflexivity (Holz, 2018). Prospective reflexivity refers to the effect of the researcher's gender, status, ethnicity, knowledge and beliefs on the research (Attia & Edge, 2017). Its aim focuses on the researcher's ability to expand their ability to understand the importance of values, feeling, and knowledge that they contributed to the research questions and the analytical view they made use of (Attia & Edge, 2017). Vice versa, retrospective reflexivity refers to the effect of the research study on the researcher (Trevor, 1996). Consequently, reflexivity is based on one's observation, reflection, and interaction with the research. In addition, it reflects on the interaction with the interview participant and how the researcher steps up again to the next interview. The development of the "whole-person-who-researches" aims to identify and acknowledge the phases of retrospective and prospective reflexivity (Attia & Edge, 2017). Reflexivity is the emphasis of one's self-awareness that contributes reflexivity its characteristic (Mann, 2016). Creating academic rigour when exploring the researcher's field of expertise creates challenges and opportunities (Ridder, 2014). For instance, the

"insider" role is a vigorous reflexive standpoint employed to better understand the partakers' insight into the lived experience (Cooper & Rogers, 2015).

Firstly, I examine the inspiration and motivation for choosing the study design. Considering the prospective reflexivity, matters during my upbringing, emotions, professional experience, relationships, and ambition for improving social inequity and justice inspired my choice of research subjects, research questions, research design and data collection method. Secondly, I concentrate on the study subject and its processes accordingly to the reflexive cycle of "trying" and "undergoing" based on Dewey (1997). Subsequently, I explore the effect on myself of being involved in this research. I present how I reflected during the process and how I considered these reflections on adjusting and developing the processes. Through ongoing "trying" and "undergoing", I gained a deeper understanding and meaning of my fieldwork. This retrospective reflexivity helped me to understand the research's impact on me. Therefore, I reflect on the following interconnected aspects of collaboration, trustworthiness, and trust in the following paragraphs.

Collaboration

I spoke with my colleagues, service users and cultural advisor, nursing director, supervisor and whānau about my study objectives. I explored with them approaches for data collection and ways of maintaining validity. This collaboration led to the research's survey, interview, consent form and e-text message wording. Over time, the study progressively progressed to a project built on collaboration. Nonetheless, I recognised that collaborative work could also be a methodological challenge. For instance, colleagues suggested distributing survey letters to clinicians so they can approach mental health service users in the community or the inpatient setting. Through my experience in mental health, I experienced that mental health service users answer questions to satisfy the clinician. I realised that the approach of distributing survey letters via mental health clinicians would pose a threat to the study's validity. My colleagues reflected on my judgement. Consequently, my colleagues approved and validated my decision. Another undoubtedly ethical challenge is linked to the audio recording during my interviews. The participants know I am audio recording the

interview. However, as a matter of principle, I am not prioritising data collection over the relationship with the participant. I consider this as a retrospective reflexivity effect.

Trustworthiness

While gaining informed consent, I explained that names would be replaced with, e.g., participant one and any identifying markers would be replaced to maintain confidentiality. The researcher gives the participants the right to withdraw from the research at any time. Participants have the right to refuse questions and are reminded throughout the interview process. At the beginning of the interview, I started building a fundamental base of trust by sharing basic information about myself. Together with the participant, I aimed to build connections and trust that enabled motivation to talk about their physical health experience. A trustworthy relationship between researcher and participant encourages the participant to engage more actively in the interview (Wilkins, 2018). After the interview, I noted the importance of the data. Participants entrusted me with valuable data about their life. (Reference). Most of the data was an individual experience of their physical health. Therefore, to personalise their data, they were given a pseudonym.

Trust

Trust is key to qualitative research. Without trust research can become very challenging (Råheim et al., 2016). A strong bond of trust is likely to generate valuable data (Stahl & King, 2020). Prior to my research I ensured that participants could rely on me, and that I was accountable for my words and actions. During the recruitment phase, I called participants to evaluate how many would participate in the first place. I gained the participants' interest throughout the phone calls and most of them agreed to participant. However, I was not able to interview participants within the next two weeks due to the COVID-19 protocols. Therefore, I called participants who were willing to participate back and informed them the interview needed to be rescheduled. Participants were approached a third time to schedule their interview. However, most participants declined to participate on the third try. I reflected on my nursing principles of accountability and realised building trust begins with the first phone call. To build trust I needed to maintain contact and ensure interviews were done on the scheduled date.

3.7 Te Tiriti O Waitangi and cultural responsiveness

Research investigating health perceptions based on ethnicities requires an exploration of the cultural context. To examine significant concerns of indigenous people, such as Māori, it is paramount that "we learn to place ourselves as visitors in someone else's cultural space" (Glynn & Berryman, 2015, p. 69). This includes our partnership in the Te Tiriti O Waitangi and our role as co-constructors of knowledge and research methodology (Berryman et al., 2013). Frameworks of traditional Western research have given insufficient attention to instigating, contributing, reviewing or appraising the cultural responsiveness in research (Berryman et al., 2013). Conventionally, the researched community could not contribute to how the study was conducted and was only sustained by research groups of outsiders who have held the right to research. Critiquing Western ways and worldviews encompasses investigating the effects of colonisation and social inequalities and challenging Western beliefs that signify knowledge (Berryman et al., 2013). Culturally responsive methodologies challenge conventional research paradigms that dehumanise or devalue the research participants. These culturally responsive methodologies promote a research attitude based on a respectful relationship with the participants and, therefore, are key to maintaining the person's dignity. This stance necessitates the researcher to establish relationships built on key cultural principles of "partnership, participation, protection" embedded in the Te Tiriti O Waitangi (1840). Moreover, Bishop (1998) established a model that empowers and evaluates research in the context of the Te Tiriti O Waitangi; additionally, it focuses on the Māori needs for Tino rangatiratanga. Bishop's (2011) model outlines five themes to address matters of control and power. The first and second component focuses on how the research *initiates* and to whom it *benefits*. The third component is concerned with *representation,* and the fourth with *legitimation*. The fourth component concentrates on the question of *accountability* (Bishop, 2011). Table 3.1 shows how Bishop's (2011) model was utilised in my research collaboration with Māori. Polarities of culturally responsive methodology reflect the researcher's constant attempt to be humble, inclusive, respectful and sensitive (Berryman et al., 2013). These attributes embody commitment and hope for more libertarian methodologies. Therefore, to be a responsive researcher, I must promote the participants' rituals of

cultural practice. Keeping in mind that English is the language of the coloniser (Berryman et al., 2013), exploring Māori perceptions of physical health in English can hinder the performance of Māori culture. Hence, I work in partnership with the cultural advisor. Together we encourage the use of Te Reo, Pepeha and Karakia. In most recent years, non-indigenous researchers learning how to critique and decolonise traditional approaches to doing research, discovering that research is, at all times, political and moral (Denzin et al., 2008).

	Component	Considerations to reflect upon
I	*Initiation*	• Who will initiate the research? • How will Māori be involved in initiating the research? • How will initiation happen?
B	*Benefits*	• Who will benefit from the research? • Will there be any benefits for Māori? • What are the benefits that will accrue for Māori?
R	*Representation*	• Whose perspectives and aspirations are represented in and driving the research? • How will Māori perspectives and aspirations be represented in the research? • Who will attest to this — and how?
L	*Legitimation*	• How will Māori perspectives and aspirations be legitimated? • Who will determine this — and how? • How will Māori be involved in this process?
A	*Accountability*	• How will we ensure accountability to Māori? • How will the research data be stored and shared? • How will we ensure that our original vision and aspirations remain on track?

Figure 3.1 The IBRLA framework

Note. Adapted from "Toitū te Mātauranga: Valuing culturally inclusive research in contemporary times", by Marcfarlane, A., and Macfarlane, S., 2018, *Psychol Aotearoa*, *10*, p. 71-76.

Furthermore, in order to implement cultural responsiveness in this research, I aim to avoid beliefs that participants will be welcoming or forthcoming; as an alternative I recognise preparative planning is required. Therefore, I outlined following requirements:

- The survey and interview questions are revised with service users, service user and cultural advisor
- Methods are deliberately shaped according to values, beliefs, and worldviews of the cultural minority.

3.8 Triangulation

Triangulation can be utilised in both qualitative and quantitative research studies (Noble & Heale, 2019). Triangulation is often used as another term for mixed methods study (Flick, 2020). Furthermore, triangulation refers to using various methods or data sources in qualitative research to develop a comprehensive understanding of the phenomena. Triangulation is useful when the researcher aims to collect a richer and fuller data set. It also supports verifying research results, increases validity, and enhances the quality of the study. However, Shih (1998) defines triangulation as a strategy for heightening the data analysis rather than guaranteeing research validity.

Denzin (2012) identifies four types of triangulation. First, data triangulation uses multiple data sources and data collections at different times. Second, investigator triangulation includes more than one researcher in the data collection and analysis. Investigator triangulation focuses on the systematic comparison of various influences of researchers on the subject and the research result (Moon, 2019). Third, theory triangulation approaches data with multiple perspectives and theories to expand the options for constructing knowledge (Moon, 2019). Fourth, methods triangulation involves various data collection methods about the same phenomenon (Moon, 2019). This means method triangulation uses different types of data collection, such as interviews, observation, and surveys.

Triangulation is aimed at the researcher and combines issues with each data collection method rather than eradicating the problems (Fielding & Fielding, 1986). The

researcher is the crucial arbiter of the quality and thoroughness of the qualitative research (Williamson, 2005). In triangulation, it is vital that researchers put themselves in a state of mind to test, analyse and evaluate the data collection critically (Fielding & Fielding, 1986).

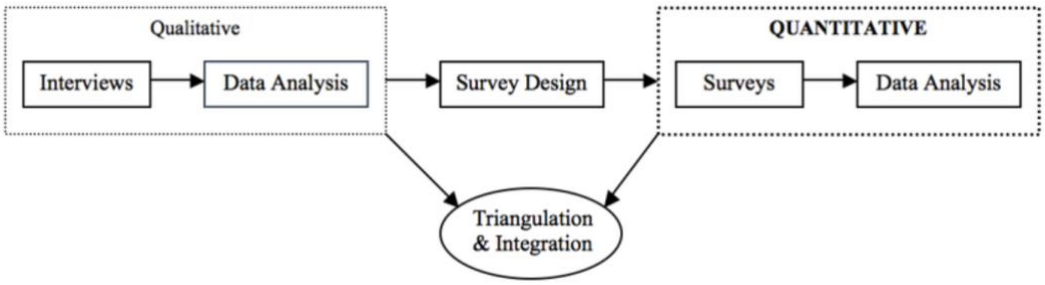


Figure 3.2 Triangulation in sequential mixed methods study

Note. Adapted from "A mixed methods approach to technology acceptance research," by Wu, p., 2011, *Journal of the Association for Information Systems, 13*, p. 181 https://10.17705/1jais.00287.

The sequence, significance and combination of the two research phases are demonstrated in Figure 3.2. The sequential study design is adjusted from Creswell's (2003) 'sequential exploratory design'. Creswell's (2003) study design initially focuses on the qualitative data collection and is distinguished by first qualitative data collection and analysis followed by quantitative data collection and analysis. In this study, significance is given to both quantitative and qualitative data, whereas quantitative data analysis is to assist in forming the survey questions for the qualitative data collection. The data analysis from both phases are combined at the result interpretation and discussion stage. Without the interview data, the survey could lead to an unclear and vague understanding of mental health service users' perception of their physical health. In spite of this, triangulating the qualitative data analysis of the interview with the quantitative data analysis of the survey, I am able to resolve paradoxes and present new interpretations of mental health service users' perception.

Particularly, the survey data triangulates with the interview data in various ways. Firstly, the confirmatory factor analysis verifies if the physical component score (PCS) of the 12-item Short Form Survey (SF-12) retained the SF-12 items linked to bodily pain, physical functions and restrictions. Additionally, the mental component score (MCS) of the SF-12 indicates social functioning, mental health and emotional issues. Secondly, further survey questions refer to mental health service users' physical health barriers and indicate mental health service users' needs. Thirdly, the interview data supports to explain peoples' physical health barriers, needs and possible interventions more in depth.

3.9 Researcher's background

The researcher is an Aotearoa-trained registered nurse, currently working in the assertive community treatment team of the Adult Mental Health and Addictions services at Waikato DHB. The researcher is in the process of completing his Bachelor of Nursing with Honours degree.

3.10 Summary

The research study aims to investigate mental health service users' perception of their physical health. More specifically, it seeks to explore barriers and enablers and factors associated with poor physical health in people with mental illness. This study has outlined the mixed methods study design that will be used for this study. Adopting the sequential mixed methods design, the study utilises the explanatory approach to investigate physical health perception of mental health service users in the Waikato. Both quantitative and qualitative methods have been explored and outlined. Research paradigms such as pragmatism as a paradigm has been described and rationalised. Chapter IV will explore the individual methods utilised to answer the research questions.

Chapter IV: Methods

"Let your intensions create your methods and not the other way around".

Peter McWilliams, 1949-2000

4.1 Introduction

The study investigated mental health service users' perceptions of physical health, the correlation between physical and mental well-being and particularly physical and mental health-related quality of life. By exploring the participants' needs regarding their physical health, the aim was to find ways to better support the physical well-being of people engaging with mental health services. Sequential mixed methods design allowed the researcher to gain a quantitative understanding of service users' perceptions, with aspects identified as significant through the quantitative data analysis being investigated in more depth in the following qualitative data collection. The study used a survey instrument incorporating the 12-item Short Form Survey (SF12) followed by semi-structured interviews. This chapter describes the steps of the research process applied in this mixed method study. The methods were influenced by the methodological outline in chapter 3. This chapter outlines the study population, inclusion and exclusion criteria, sampling, data collection, data display and analysis of the study.

4.2 Study population

The study population is the sub-population of the target population from which the study sample is selected (Etikan & Bala, 2017). In this case, the study population were people currently engaged with adult mental health and addiction service in the Waikato DHB. People accessing mental health services in New Zealand are a heterogenous population and differ in diagnosis, age, gender, and ethnicity (Table 4.1) (Waikato DHB, 2021). In general, 1.7 % of the Waikato population is seeking help from mental health services (Waikato DHB, 2021). Māori are more represented in mental health services (34.4 %) than in the Waikato population (24 %). Table 4.1 shows the characteristic of the study population.

It is well known that people with serious mental illness are more likely to develop physical health complications (Baxter et al., 2016; Galletly et al., 2016; Te Pou o Te Whakaaro Nui, 2017). Therefore, this study focuses on mental health service users' perceptions of their physical health. The investigation of physical health perceptions may reveal potential barriers and strategies to improve the physical health of this population.

Table 4.1: Study population Waikato DHB

Variable	n	%
Gender		
Female	2783	43.8
Male	3566	56.1
Age		
18 – 24	893	14.1
24 – 45	2659	41.8
45 – 65	1984	31.2
65+	814	12.8
Ethnicity		
Māori	2186	34.4
Non-Māori	4055	63.8
Housing		
Independent	3693	58.1
Independent – living alone	395	6.2
Supported	848	13.3
Temporary accommodation	376	5.9
Uninhabitable housing	6	0.1
Without shelter	72	1.1
Time in MH services		
<6 months	1985	31.2
6 months – 1 year	1119	17.6
1 year – 2 years	1088	17.1
2 years – 3 years	561	8.8
More than 3 years	1597	25.1
Legal status		
Informal	4964	78.1
Formal	1386	21.8

Note. From "Study population Waikato DHB" by Waikato DHB, 2021, [Unpublished raw data].

4.3 Inclusion and exclusion criteria

The criteria that directed the study sampling and recruitment are shown in Table 4.2. The aim was to recruit more than 100 participants for the survey and four non- Māori

and four Māori participants for the interviews. Participants would be recent or current mental health service users. The inclusion criteria were people receiving specialised mental health services above the age of 18, excluding acute or forensic inpatients or service users awaiting triage with mental health services. Forensic inpatient service users were excluded due to no access to mobile phones, and acute inpatient service users were not included due to potential distress.

Table 4.2: Participant inclusion and exclusion criteria

Inclusion	Exclusion
- **Age 18 or over** - **Mobile phone number recorded on file** - **Currently with community Adult Mental Health and Addiction Services**	- Age 17 and below - Forensic inpatient service users - Acute inpatient service users - Awaiting triaging with Adult Mental Health Services - Home-line only recorded on file

4.4 Study Sampling

Sampling refers to the process by which the researcher identifies the study participants (Etikan & Bala, 2017). The sample was collected by having a mental health administrator send an e-text to Waikato DHB mental health service users' mobile numbers (Appendix IV). The mobile numbers were provided to the administrator by the Waikato DHB's data analyst according to the exclusion and inclusion criteria. Two thousand eighty-one e-texts were distributed via the Waikato DHB's e-text system. Mental health service users interested in participating were asked to open the Qualtrics hyperlink and participate in the survey (Appendix V). In the final Qualtrics survey question, participants interested in participating in the second part of the study were asked to leave their mobile number or email address. These contact details were separately extracted from the gathered data on Qualtrics. Subsequently, I contacted these participants via telephone. I sought their verbal consent to participate in the interview. The conduct and the nature of the research study, anonymity, and the right to withdraw were explained. Additional information, such as the interview timeframe, was provided before the initial interview. Participants were also encouraged to bring a

support person to the interview. The participants' details were checked to confirm that they met the study's inclusion criteria. The first four non- Māori and the first four Māori who consented to participate were chosen for the semi-structured interview.

4.5 Survey

The survey questionnaire method allowed the gathered data to be analysed in its original form in the later stages (Mertens, 2017). Understanding can emerge from gathering survey data and subsequently collecting interview data to describe the survey results in greater detail (Menold et al., 2018). The professional survey web-based platform Qualtrics offered a streamlined and intuitive interface (Carter & Del Ponte, 2022; Molnar, 2019). I used the licensed Qualtrics web-based version of the University of Waikato. The survey was conducted using a survey instrument incorporating the SF12 and general and demographic questions developed by the researcher following a literature review.

4.5.1 12-item Short Form Survey – SF-12

The SF-12 version 2 includes 12 questions from a 36-item Short Form Survey (Gobbens & Remmen, 2019). The SF-12 was utilised in this mixed methods study to determine participants' physical health score (PCS) and mental health score (MCS). The SF12 is a self-reported outcome measure (Ruotolo et al., 2021). It is a widely used instrument which adds to its credibility. Various studies highlight the reliability and validity of the SF12 and its implication for health studies (Dissing et al., 2013; Edwards et al., 2012; Huo et al., 2018; Ohrnberger et al., 2017). Therefore, the SF-12 made it an appropriate instrument of measure for this research study. It consists of 12 questions that assess physical and mental health using eight SF-12 scales (Figure 4.1): physical function (PF), role-physical (RP), bodily pain (BP) and general health (GH), which are captured in the physical health component summary (PCS), vitality (VT), social functioning (SF), role-emotional (RE), mental health (MH) and mental health component summary (MCS) (Ware et al., 1998).

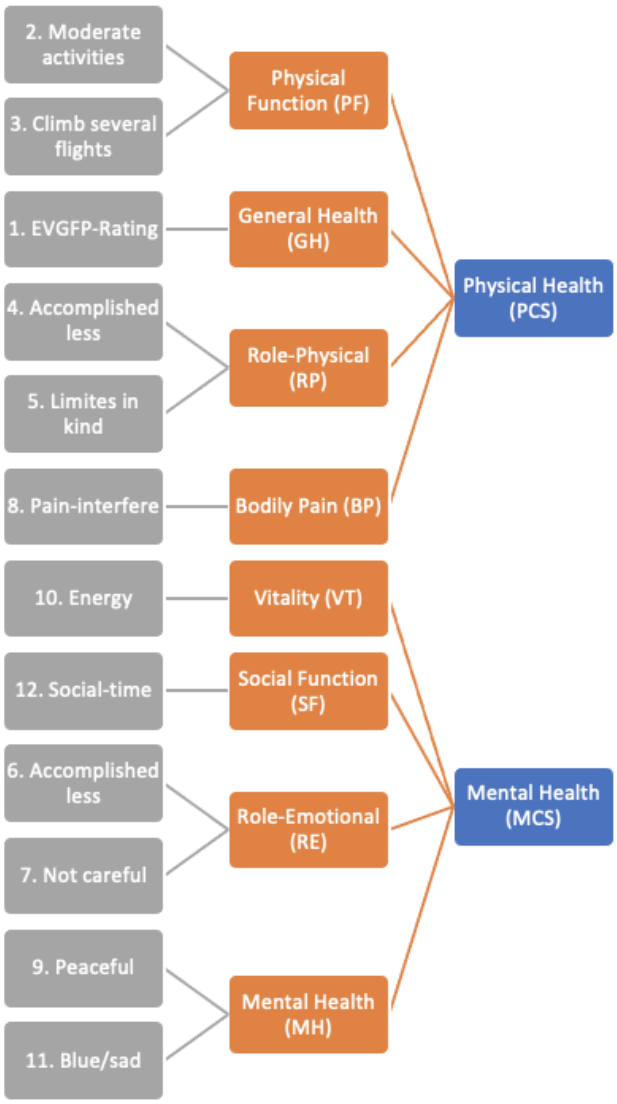


Figure 4.1 SF-12 measurement model

Note. Adapted from "SF-12: How to Score the SF-12 Physical and Mental Health Summary Scales", by J. Ware, M., et al., 1995, p.19.

Each response for each questionnaire item has a different scoring weight. The MCS and PCS scores are computed and transformed to a 0 – 100 range (Ware et al., 1998; Ware, 2002). The SF-12 mean score for the US population was 50, with a standard deviation of 10 (Hagell et al., 2017). A score above 50 indicates better health, and a score below 50 worse health. For this study, the norm for the SF-12 version 2 of the

2008 New Zealand General Social Survey data was used (Table 4.3). However, Table 4.3 only displays the score of SF12 subscales and does not include the SF-12 summary measures MCS and PCS scores.

Table 4.3 SF-12 subscales

	Subscales[a]							
	PF	RP	BP	GH	VT	SF	RE	MH
New Zealand – 2008 New Zealand General Social Survey (n = 8,655)								
Number of items	2	2	1	1	1	1	2	2
Mean	88.6	84.9	81.7	74.0	64.0	88.5	89.3	76.1
95% CI Mean	88.0-89.2	84.3-85.5	80.9-82.5	73.4-74.6	63.4-64.6	87.9-89.1	88.7-89.9	75.5-76.7
Range	0-100	0-100	0-100	0-100	0-100	0-100	0-100	0-100
Standard Deviation (SD)	25.0	24.4	28.3	25.1	23.5	22.7	18.6	18.1
% Floor	3.8	1.4	4.7	2.5	3.4	1.7	0.4	0.2
% Ceiling	77.7	63.4	60.5	23.7	11.8	74.2	66.9	11.5
95% CI Ceiling	76.6-78.7	62.1-64.7	59.1-61.9	22.4-24.9	10.8-12.8	73.0-75.3	65.5-68.2	10.5-12.4
% Missing data	0.0	0.1	0.1	0.0	0.2	0.3	0.2	0.2

- *Note*. Adapted from "New Zealand norms for the SF-12v2 subscales, including subscale mean and standard deviations", by Frieling, M., et al.,, 2013, *Australian and New Zealand Journal of Public Health, 37*, p. 29, https://10.1111/1753-6405.12006

New Zealand norms for the SF-12v2 subscales, including subscale mean and standard deviations, in comparison with US subscale means and standard deviations.

4.5.2 General and demographic questions

I included additional general and demographic questions to gain further data on mental health service users' perceptions of their physical health, barriers to physical health, and potential interventions. I drafted a survey questionnaire and consulted with the mental health nursing director, community mental professionals (n = 12), and cultural and service user advisor on these questions' clarity, validity, and reliability. Additionally, the survey draft was discussed with my supervisor. Furthermore, an upcoming survey, "Tupuānuku – Nourishing the physical health of tāngata whaiora", inspired the wording of some of the questions (University of Otago, 2021) inspired the wording of some of the questions. The final draft was reviewed by mental health service users (n = 7). Following this review, less medical language was used.

General questions

I added general questions to gain further data on mental health service users' perceptions of their physical health, barriers to physical health and potential interventions. The general survey questions in this study assessed participants' readiness for change (Question (Q)14), preference regarding physical activities (Q13, Q15 and Q16) and need for Kaupapa Māori support groups (Q17), knowledge about potential psychiatric medication side effects (Q24) and broad healthy lifestyle choices (Q15). Questions 13 to 17 were included due to a perceived lack of peer support groups by me and mental health service users before the research study.

Demographic questions

Participants' demographic characteristics compiled for the study were selected to allow comparison between the sample and the Waikato DHB profile, such as ethnicity (Q27), age (Q28), gender (Q29), district (Q30) and housing situation (Q32). Additionally, questions relating to rural or urban living (Q31), general practice visits and frequency (Q19 and Q20), physical health diagnosis (Q21), mental health or

addiction medication (Q24), smoking status (Q25), and time with mental health and addiction services (Q26) were also included in the demographic questions of the study. Demographic questions were presented last in the survey because positioning such questions at the beginning of the survey may appear too invasive, and the participant may decide to discontinue the survey (Teclaw et al., 2012). Having demographic questions at the start may divert attention from the primary survey section (Teclaw et al., 2012). It can also be argued that demographic questions are typically off-topic, less substantive, perceived as intrusive, and easier to answer in the end (Jackson, 2020).

4.5.3 Quantitative analysis

The quantitative data of the survey were analysed using IBM SPSS statistics version 28.0.1.0, focusing on understanding how mental health service users view their physical health and gathering their demographics. Before the Qualtrics data extraction and importing this data into SPSS, mobile numbers and email addresses were excluded. Once imported into SPSS, the data was then analysed descriptively to gain an overall understanding of patterns or trends (Eisenstadt et al., 2021; Seng Beng et al., 2021). Parsimonious modelling was applied to examine how patterns and trends can be described more effectively by a few parameters.

Parsimonious modelling

The principle of parsimony involves using no more multifarious model or representation of reality than needed (Lark, 2001); the rudimentary explanation is most likely the accurate one (Van Den Berg, 2018). Regarding the interpretation of the quantitative data, the parsimonious model has a small number of parameters but attains an adequate explanation. The parsimonious modelling in this study is performed in two sequential stages. The first stage includes a sequence of General Linear Models (GLM) univariate analysis using the SF-12 PCS as the dependent variable and items within the survey (e.g., age, gender, ethnicity) as the independent variables. In the second stage, all individual items that were statistically significant ($p < 0.05$) are added to a subsequent univariate model using PCS as the dependent variable. The same process was repeated using the SF-12 MCS as the dependent variable. The advantage of testing in two sequential stages was identifying the significant differences

for the individual items (Pourahmadi, 2011). Simultaneous testing does not necessarily determine the significant change for the individual item (Sommet & Morselli, 2021).

SF-12 scoring

Prior to scoring and analysing the SF-12 questionnaire responses, I wrote the SPSS syntax for the SF-12 scoring, using Ware's (1998) manual (Appendix VI). Scoring the SF-12 can become very complex and can create many challenges. QualityMetric are currently holding the licence for the SF-12 scoring software. The QualityMetric software is costly and often used by larger research projects such as the current New Zealand Health Survey (Appendix VIII). Simon Brown, principal analyst of the Ministry of Health provided mean scores for the 2019 and 2020 year of the New Zealand Health Survey using my SPSS syntax. Subsequently, SF-12 data was compared with mean of latest New Zealand Health Survey.

4.5.4 Qualitative Analysis of the free text data

The qualitative analysis included the free-text data response from Qualtrics. There were two open ended questions (Q18 and Q24) for which participants entered free-text responses. Open-ended questions can provide unconstrained and rich responses to broad questions (Swart, 2019). Given that the survey was primarily designed and implemented to analyse quantitative data, it was impractical to conduct a statistical analysis of the qualitative data, such as the free-text data. Therefore, the free-text data were included in the qualitative data analysis of this sequential explanatory mixed method study. The collected free-text data was subjected to a thematic analysis on NVivo version 1.6.2. Similar emerging codes were grouped into categories. Subsequently, categories were examined to see whether different categories had similarities or were interrelated across categories. The categorised themes were then interpreted according to existing literature concerning the subject of interest.

4.6 Semi-structured interview

4.6.1 Interview guide

Interviews are the most frequently used data collection methods in qualitative research (McIntosh & Morse, 2015) and are commonly used in healthcare settings (Kallio et al.,

2016). The semi-structured interview method has been verified to be both adaptable and flexible (Aleandri & Russo, 2015) and therefore be conducted variously, such as in-depth or brief; group or individual; via telephone or in-person (DeJonckheere & Vaughn, 2019). For this research, I used the in-depth individual face-to-face semi-structured interview method. The overall goal of utilising the semi-structured interview was to collect information from participants who have perspectives, beliefs, and experiences relevant to the subject of interest. Table 4.4 shows the interview structure I used for each interview. The timeline roughly indicates how much time was assigned to each task.

Table 4.4 Interview guide

Duration in minutes	Task
15	Establishing a relationship Mihimihi - Pepeha (Who are you?) and opening karakia Offer a drink Thank the participant for their time
8	Participant's rights & consent Talk about the participant's rights and explain the interview process using the "Information sheet for participants"
2	Sign consent form
1	Start recording
45	Interview questions
2	Closing the interview Thank the participant for their time Closing karakia

The interview structure consisted of a mihimihi in either Māori or English, participant rights and consent, the interview itself and the closing of the interview. The mihimihi is a less formal introduction to establishing a therapeutic relationship with the participant. The participant rights were provided via verbal and written explanation using the "Information sheet for participants" (Appendix VI), which outlined the aim

of the project, the participant's role, the handling of the participant's information, the researcher's and supervisor's contact details, Waikato Human Ethics Committee approval number and the consent form.

The interview itself included open-ended and closed-ended questions. I used this interview method to gather exploratory data linked to the subject of interest and validate or triangulate the collected data (Salema et al., 2019). A key advantage was that this method has been proven useful in allowing reciprocity between the participant and the interviewer (Osborne & Grant-Smith, 2021). This allowed the interviewer to improvise exploratory follow-up questions based on participants' previous answers (Mojtahed, 2014). I utilised pre-determined interview questions, including possible follow-up questions that guided the interviewer through a smoother and fluent interview (McGrath, 2019). I used a semi-structured questionnaire guide (Table 4.5 and Table 4.6), including possible follow-up questions to eventually explore further information. The questionnaire guide was used to act mainly as a prompt to communication about mental health service users' perceptions of physical health. The guide also tried to assess how regularly mental health service users access their GP and how they viewed their GP care. The interview consisted of questions about physical health (n = 5) and GP care (n = 15). The physical health questions are presented in Table 4.5 below. The interview process was the instrument through which mental health service users were able to explore their physical health in relation to needs, enablers and barriers.

Table 4.5 Physical health questions

Physical Health Questions	Prompts
What does physical health mean to you?	How do you see physical health in general? How is your physical health?
What do you do to improve or maintain your physical health?	Do you exercise? Do you have a special diet? Do you visit a health practitioner?
How do you feel your physical health could be improved?	What did you do to improve your physical health in the past?
Thinking about mental health services, do you feel health professional are responsive to your physical health?	

The second part of the interview questions was informed by the quantitative analysis, which demonstrated the interview focused on GP care. These questionnaire items explored barriers and enablers to physical health in relation to GP care delivery. Table 4.6 displays the 15 questions focusing on GP care.

Table 4.6 GP questions

GP Questions	Prompts
Do you have a GP?	If 'no' – Why not? When did you last see your GP?
Do you always see the same GP?	Do you sometimes see different GPs?
Who do you see when you visit your GP?	Do you see a nurse or a doctor or someone else?
Tell me about your experience with your GP	Do you have a good relationship with your GP?
What physical health concerns do you see your GP for?	
Does your GP explain health conditions to you in a way you can understand them?	Can you give an example?
Do you feel your GP takes these concerns seriously?	If 'yes' – What are these concerns?
Do you ever avoid seeing your GP because you feel your concerns won't be taken seriously?	Can you give an example when you avoided seeing your GP?
Is your GP aware of your mental health needs?	Does he ask you about your mental health?
Can you tell me about an experience you had at your GP that could have been better?	
Can you tell me about a good experience you had at your GP?	
How can the GP best support you?	
Does your GP provide you with health information?	Does he provide education about healthy eating and healthy choices? Does your GP mention the need for screenings, in example, cervical or prostate screening? Is this helpful
How does good GP practice look like?	
Are there any other issues you would like to discuss?	

To allow issues raised by participants to be pursued, the interview guide was not pursued rigorously. The semi-structured interview allowed for flexibility in the conversation and ensured all questions were asked. I expected that the semi-structured nature of the questionnaire guide would provoke a narrative response from the mental health service users about how they perceive physical health and GP care. As a result, I emphasised the style and nature of the language used by the participant during the interview. The interview concluded with a closing karakia in either Te Reo or English.

4.6.2 Interview process

The interviews were conducted between the 24th of March and the 7th of April 2022. All participants were encouraged to bring a whānau member or another support person to the interview; however, all the participants attended alone. Prior to entering the interview room, participants completed the COVID-19 screening assessment in the reception area. All participants were interviewed in a large interview room in the Community Mental Health facility of the Waikato DHB. The large interview room allowed social distancing during the interview.

Each interview started with an informal welcome, including a mihimihi in either Te Reo Māori or English. Depending on the participant's choice, I included the Waikato District Health Board opening karakia (Appendix IX) and subsequently thanked the participant for their attendance and for sharing their views and beliefs about physical health. At the commencement of the interview, I tried to connect with the participant by asking them about their day, current well-being and whether they wanted a coffee, tea, or some water before starting the interview. All participants were informed of the anonymity and confidentiality process of the study. Once informed consent was provided, participants signed the consent form and left their email addresses to later receive a copy of the transcript. After the participant's agreement, I started recording with the software Otter.ai. The interviews took between 45 minutes to 1.1 hours.

4.6.3 Safety Measures

All participants who have a mental health diagnosis, therefore, are considered a vulnerable group. They are vulnerable because, as a group, they are subjected to high levels of stigma, discrimination and physical and sexual abuse. In addition, mental health service users face inherent power imbalances (Cleary et al., 2018; United Nations General Assembly, 2017). These power imbalances encompass the fact that psychiatrists can make decisions around one's legal status, care and treatment (Mental Health Act 1992).

In conducting the interviews, I was conscious of my own and the service user's safety. Participants may feel uncomfortable during the interview and may perceive the experience as challenging. Therefore, I offered the participant the opportunity to invite a support person. Furthermore, participants' mental state is an additional safety consideration. Prior to the interview, I phoned the participant to see whether they were still willing to attend and to assess their level of distress. Once the participant arrived, I greeted them in the reception area and gathered further indicators of their level of distress, ability and willingness to participate in the interview. During the interview, I continuously assessed the participant's mental state, level of comfort and distress. I planned the interview considering safety concerns.

With safety in mind, participants were interviewed in the Waikato District Health community mental health facilities. The rooms are all equipped with a duress system which I could have activated in case of safety concerns. Furthermore, the cultural advisor was an experienced mental health professional with the crisis team, and I am an experienced mental health nurse. Therefore, if a participant became distressed, I was equipped with the skills to support them appropriately. I worked with the cultural advisor so that interviews were conducted in a manner that decreased the likelihood of distress. Sensitive topics were not pursued, and the interview was stopped if participants became distressed. Six participants participated in the interviews, and two participants did not share due to feeling pain (n = 1) or emotional distress (n = 1).

4.6.4 Confidentiality

The research process protected the anonymity and confidentiality of the participants. The cultural advisor and I informed the participants of their right to withdraw from the research at any time. The participant was able to withdraw from the interview by informing the interviewer during the interview or by informing the researcher via email up to three weeks after the interview. The participant did not need to include a reason for withdrawing from the interview. Participants had the right to refuse questions and were reminded of this throughout the interview process. Prior to the interview, each interviewee was asked to sign a written consent form. I provided an initial page before the Qualtrics survey, which contained a brief summary, the ethics application number, and the supervisor's contact details (Appendix V). The information page provided

survey participants with the legally required data protection information in a way that they could retain (Buchanan & Hvizdak, 2009). (Woods et al., 2015).

The participants' identities were kept confidential. No identifying information was included in the research report or other outputs. Reporting of ethnicity data referred to groups only, not individuals. The electronic files were password protected and were stored on a Waikato DHB Universal Serial Bus (USB) flash drive. The USB flash drive was password protected for security and underwent regular virus protection. The research supervisor stored the research data securely for a minimum of 5 years after the completion of the research project. The USB flash drive and consent forms are stored in a locked filing cabinet at the University of Waikato.

4.6.5 Qualitative Analysis

The qualitative data were collected using the Otter application for iPhones. I used additional security measures and activated the "Face-ID lock" for the Otter application and my mobile phone. During post-interviews, I listened through the audio recording and compared it against the transcription text. The qualitative data were analysed using NVivo version 1.6.2 using thematic analysis (Braun & Clarke, 2019) to understand participants' views and perceptions of their physical health and GP care. Thematic analysis is a useful method for exploring different participants' views, emphasising differences and similarities, and developing understanding (Clarke & Braun, 2017; Braun and Clarke, 2006, as cited in Nowell et al., 2017). During the inductive approach of the thematic analysis, I created themes which arose while examining the qualitative data of the interviews. I used the following steps to analyse the qualitative data. The data was scanned, and line-by-line coding and labels were developed. I grouped the labels into larger conceptual categories. The codes and labels were constantly adapted to identify new emerging codes. Axial coding was used to find categories which resulted from the link between the codes emerging in the open coding (Scott & Medaugh, 2017). I often asked myself the question, "What sense am I making out of the code?". For instance, I may explore the factors that shaped participants to have specific views and perceptions about their physical health. Additionally, my supervisor and I independently read all transcripts and coded two transcripts in parallel. Subsequently, we met to examine and review themes and discussed which themes

could be merged or could be reported as subthemes. In conclusion, the analysis structured the participants' data according to the key themes resulting from the semi-structured interview and the open-ended question in the survey. The result was an evaluation that included meaningful themes from the qualitative data.

4.7 Ethics application

Research ethics approval within the Waikato DHB has its own process. This necessitated consultation with Te Puna Oranga (DHB's Māori Health Service) (Appendix II) and required approval from the Operational Directors linked with the research area. After this process started and the researcher was approved by the University of Waikato Human Research Ethics Committee and the Waikato District Health Board, Ethics approval: HREC(Health)2021#35 – 16/08/2021 (Appendix III) and approval letter from the Waikato District Health Board (Appendix I).

4.8 Summary

An explanatory mixed methods design has been selected for the purpose of answering the research questions. Phase I includes a Qualtrics survey incorporating the Quality-of-Life measure SF-12, and additional 32 general physical health and demographic questions. The online survey will be distributed via e-text to Mental health service users of the Waikato DHB according to the inclusion criteria. The study results will be extracted into the analysis software SPSS. The quantitative analysis involved a descriptive and parsimonious modelling approach that included two general linear modelling analyses of covariance. Statistically significant findings will inform questions of the semi-structured interview in Phase II. Four Māori and non-Māori mental health service users will be recruited to participate in a semi-structured interview. With permission, the interviews will be recorded, transcribed, and analysed using the inductive of approach of the thematic analysis. The findings will be explored in the next chapter. Together, the quantitative and qualitative results offer information on mental health service users' perception of their physical health that will be explored in the next chapter.

Chapter V: Findings

"Research is to see what everybody else has seen, and to think what nobody else has thought".

Albert Szent-Gyorgyi, 1893 – 1986

5.1 Introduction

This chapter outlines the findings from the quantitative and qualitative data analysis. The findings will be reported according to the sequential research process and the research questions. These questions are:

1. What are mental health service users' perception of their physical health?
2. What are these mental health service users' comorbidities?
3. What are the factors associated with poor physical health?
4. What is the difference between Māori and non-Māori mental health service user's physical health?
5. What are mental health service users' enabler and barriers?

5.2 Quantitative findings

5.2.1 Response rate and demographics

Out of 2081 invitations to participate in the survey, 167 (8 %) responded and completed the survey (Table 5.1). Although the overall response rate is small in comparison to the sample population, the sample size is satisfactory. This response rate of mental health service users is rather significant. The following Table 5.1 displays the demographics of the respondents.

Table 5.1 Gender, age, and ethnicity

Demographics	Count (%)
Descriptors	167 (100)
Sex	
Female	90 (53.9)
Male	40 (24.0)
Gender diverse	6 (3.6)
Age	
18 – 24 years old	28 (16.8)
25 – 34 years old	36 (21.6)
35 – 44 years old	24 (14.4)
45 – 54 years old	29 (17.4)
55 – 65 years old	13 (7.8)
65 + years old	6 (3.6)
Mean age	
Mean years (SD)	38.26 (13.67)
Ethnicity	
Māori	50 (29.9)
Pacifica	4 (2.4)
Non-Māori	82 (49.1)

The gender distribution of the sample in Table 5.1 shows female participants (n = 90) outweighed male participants (n = 40), and gender diverse participants (n = 6). Out of those who respond to the demographic questions (n = 134), 60.4 % (n = 81) identified as non-Māori and 39.6 % (n = 53) as Māori and or Pacifica. Ages ranged from 18 to 65 + years old, with an average of 38.31 years (SD = 1.441) (Table 5.1). There was a minimal difference in the mean age of the two ethnic groups, Māori/Pacifica and non-Māori. Non-Māori were marginally older (mean age 39.9 years, SD = 13.7) than Māori/Pacifica participants (mean of age 36.5 years, SD = 13.2). The following Figure 5.1 shows the demographic data of the participants sorted by districts.

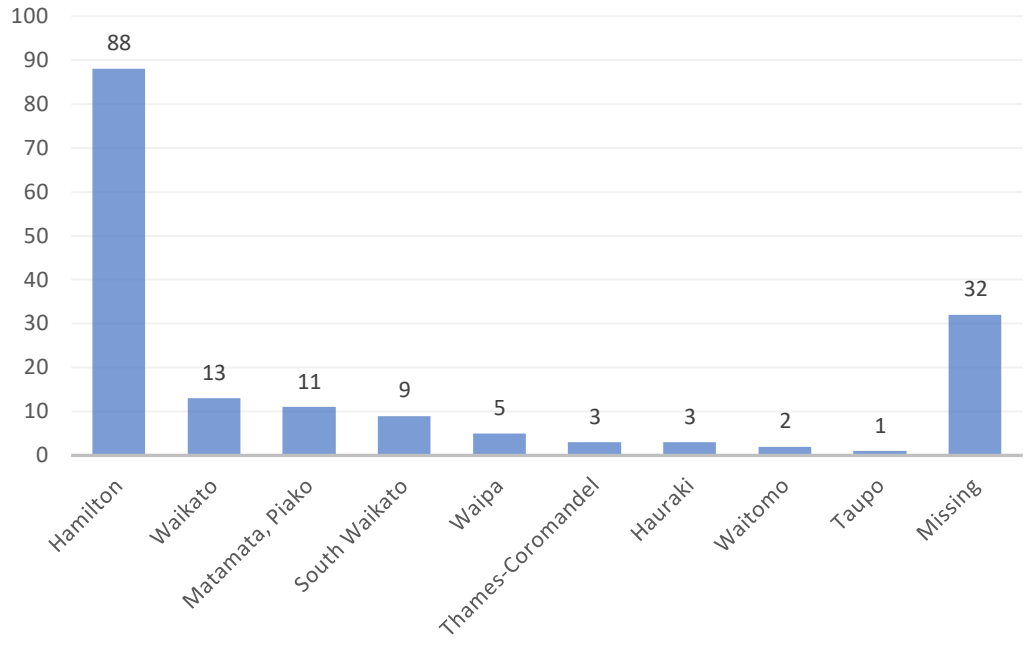


Figure 5.1 Regions

Most respondents reported living in Hamilton (52.7 %), 7.8 % from Waikato, 6.6 % from Matamata-Piako, 5.4 % from South Waikato, 3% from Waipa, 1.8% from Hauraki and Thames-Coromandel, 1.2 % from Waitomo, and 0.6 % from Taupo. 32 (19.2 %) survey participants did not respond to this question.

5.2.2 Living status

Figure 5.2 presents the difference between urban and rural living. More participants are from urban areas (n = 104, 78.2 %) than from rural areas (n = 17, 12.8 %). The accommodation status of the respondents is indicated in Figure 5.3. Many participants are living either in independent living (29.9 %) or share their accommodation with whānau members (29.3 %).

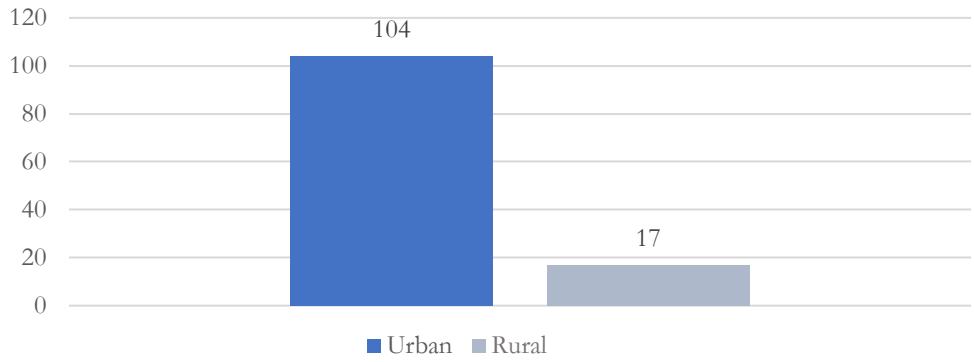


Figure 5.2 Urban versus rural living

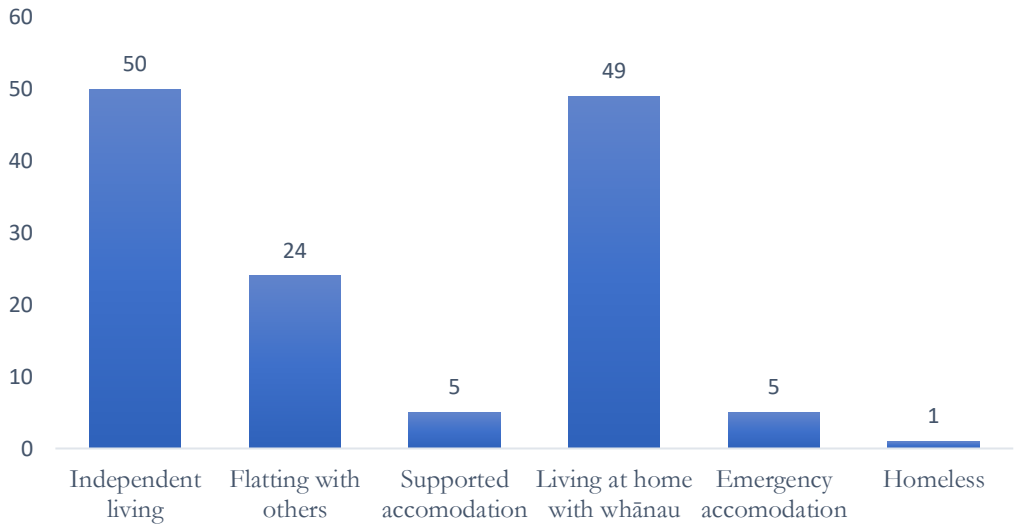


Figure 5.3 Accommodation status

5.2.3 GP contact and health status

Table 5.2 shows the number of participants who have a GP and who don't have a GP. In addition, Table 5.2 also indicates the frequency of participants' GP visits.

Table 5.2 GP contact and frequency of GP visits

GP contact	Count (%)
Regular GP	
Regular GP	122 (73.1)
No GP	16 (9.6)
Frequency of GP visits	
At least once a month	29 (17.4)
Once in a couple of months	35 (21.0)
Once every three months	34 (20.4)
Once every six months	15 (9)
Once every year	14 (8.4)
Less than a year	6 (3.6)
Unsure	5 (3.0)

Most of the participants have a regular GP (n = 122, 73 %) and see their GP between at least once a month (n = 29, 17.4 %), once in a couple of months (n = 35, 21 %), once every three months (n = 34, 20.4 %), once every six months (n = 15, 9 %), once every year (n = 14, 8.4 %), and less than a year (n = 5, 3 %) (Table 5.2). Participants were also asked if they had a physical health condition or disability that limits them and that has lasted six months or more. The data is presented in Figure 5.4.

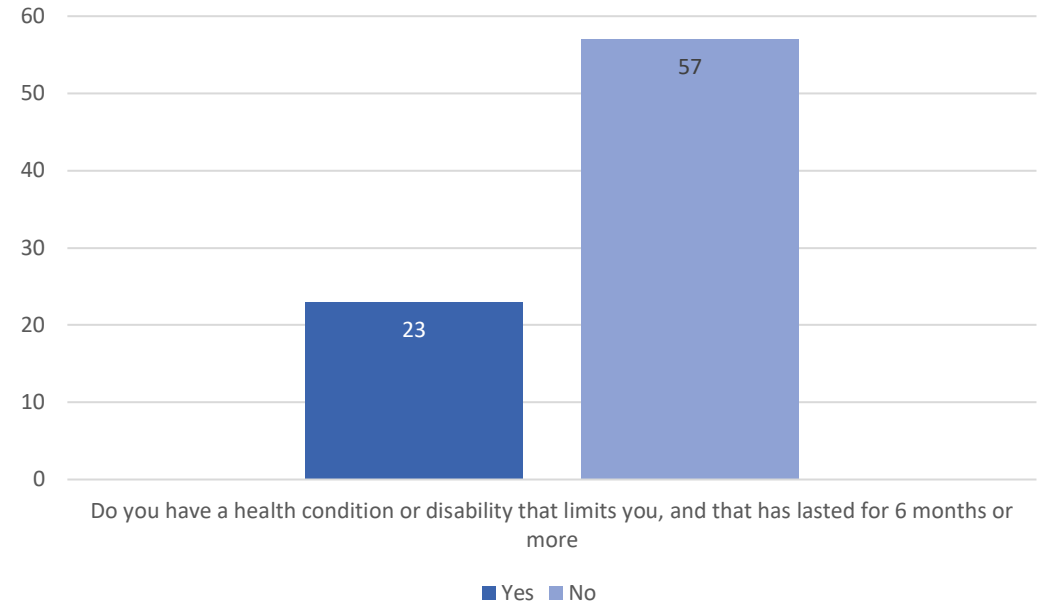


Figure 5.4 Health condition six months or more

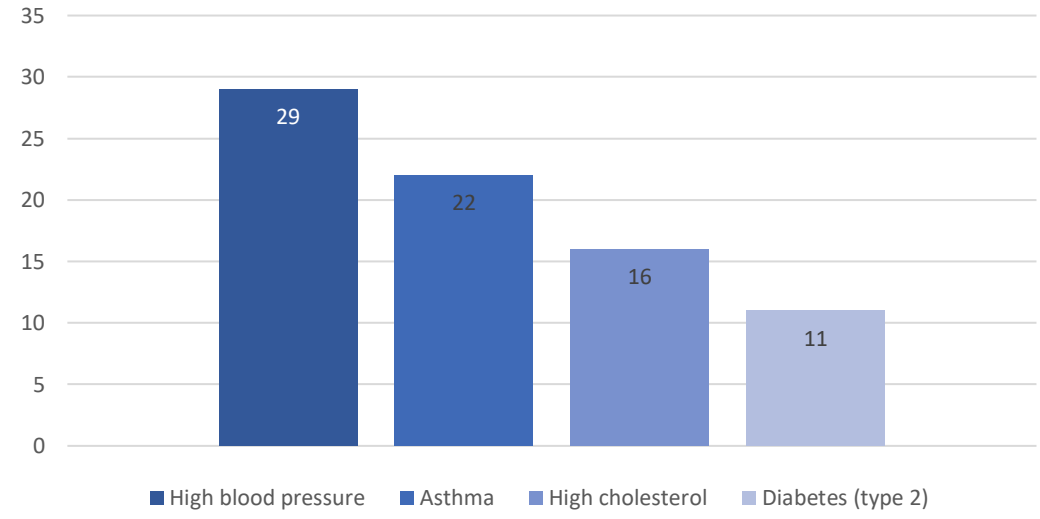


Figure 5.5 Physical health diagnoses

High blood pressure (n = 29, 17.4 %), asthma (n = 22, 13.2 %), high cholesterol (n = 16, 9.2 %), and Type 2 diabetes (n = 11, 6.6 %) were the most identified physical health

diagnosis (Figure 5.5). A total of 13.7 % reported physical health conditions that limited their life within the last six months or more. This outlines that every sixth participant faces physical health conditions that limit their quality of life. In addition, 24 % (n = 40) reported smoking tobacco (Figure 5.6).

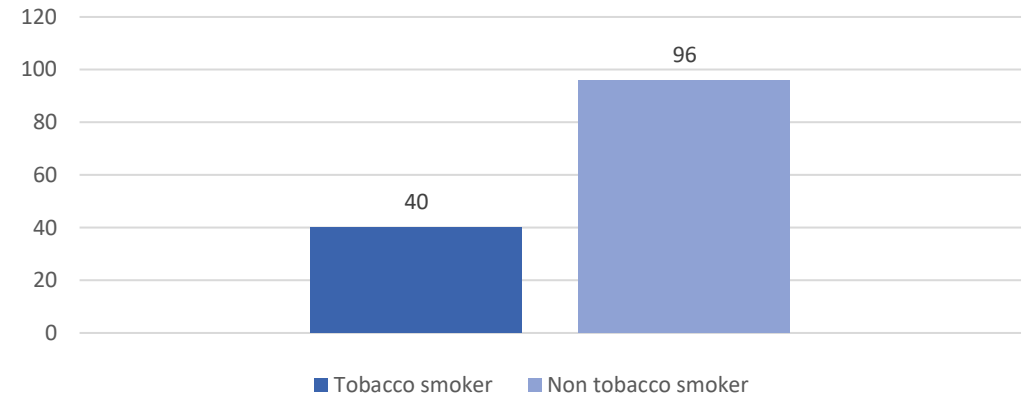


Figure 5.6 Smoke tobacco

5.2.4 Mental health service contact & mental health medication

A high number of participants received support from Mental Health and Addiction Services between less than a year (21.6 %), one to five years (24 %), six to ten years (12 %), eleven to twenty years (16.2 %), and more than twenty years (5.4 %). This response most likely indicates that most of the participants who responded to the survey were younger mental health service users (mean age = 38.3) who haven't been with mental health services for too long. Table 5.3 also showed that most participants were taking regular medication for their mental health or addiction. To the question regarding whether the participant received information about potential physical side effects, answered 27.5 % with "yes" and 21.6 % with "no". A large number of participants did not know of the harmful effects of mental health medication.

Table 5.3 Mental health service contact, medication, side effects

Mental health service contact and mental health medication	Count (%)
Time with mental health services	
< 1 year	36 (21.6)
1–5 years	40 (24.0)
6–10 years	20 (12.0)
11–20 years	27 (16.2)
> 20 years	9 (5.4)
Take regular mental health or addiction medication	
Yes	116 (69.5)
No	20 (12.0)
Received information about potential physical side effects	
Yes	46 (27.5)
No	36 (21.6)

5.2.5 Physical health improvements and preferences

The following graphs focus on participants' views in regard to physical health improvements and preferences. Figure 5.7 presents a Likert scale in relation to people's thoughts towards physical health improvement.

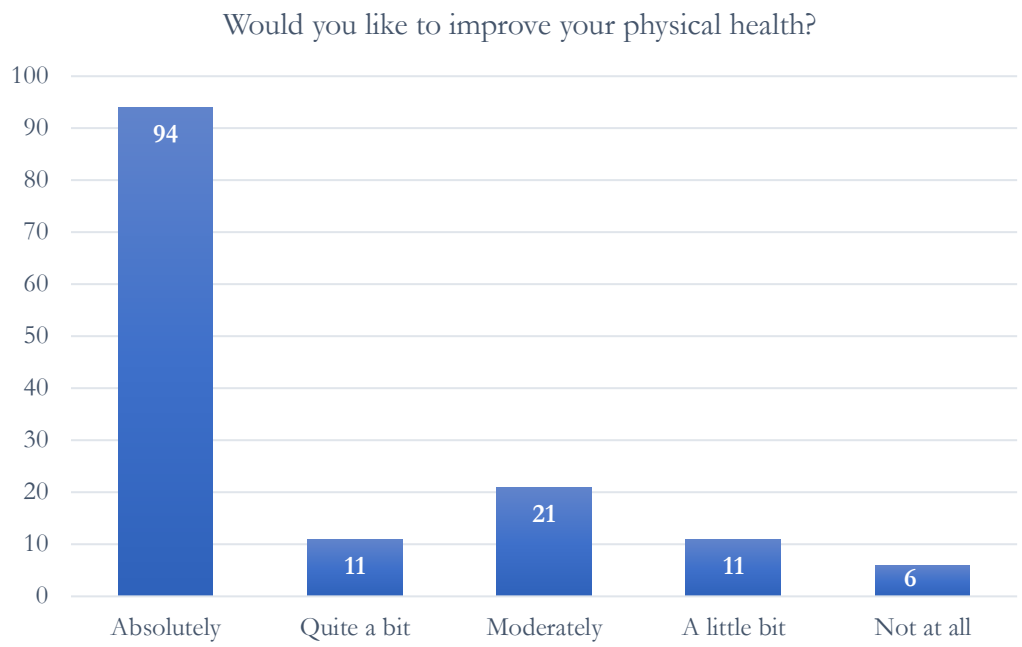


Figure 5.7 Physical health improvement

Most participants (56.3 %) were absolutely wanting to improve their physical health. Only a small number of participants did not want to change their physical health at all (Figure 5.6). Regarding strategies on how to improve their physical health, 65.3 % preferred physical activity, and 60.5 % preferred healthy eating. Other strategies such as smoking cessation (19.2 %), reducing alcohol (15.6 %) and substance use (13.8 %) were the least favoured physical health strategies (Figure 5.8).

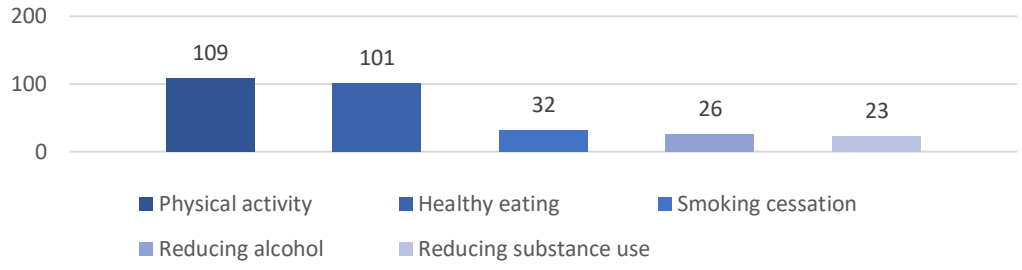


Figure 5.8 Physical health strategies

The participant's preferences for the different physical activities are illustrated in Figure 5.9. Many participants favoured physical activity which did not involve expensive equipment, such as walking (53.9 %), yoga (35.3 %), and swimming (34.7 %). In addition, 45 % of the participants entered their own preference in the free-text option of the question "What physical activities would you like to try?". Pilates (1.8 %), CrossFit (1.2 %) and dancing (2.4 %) were the most common free-text responses of the free-text response.

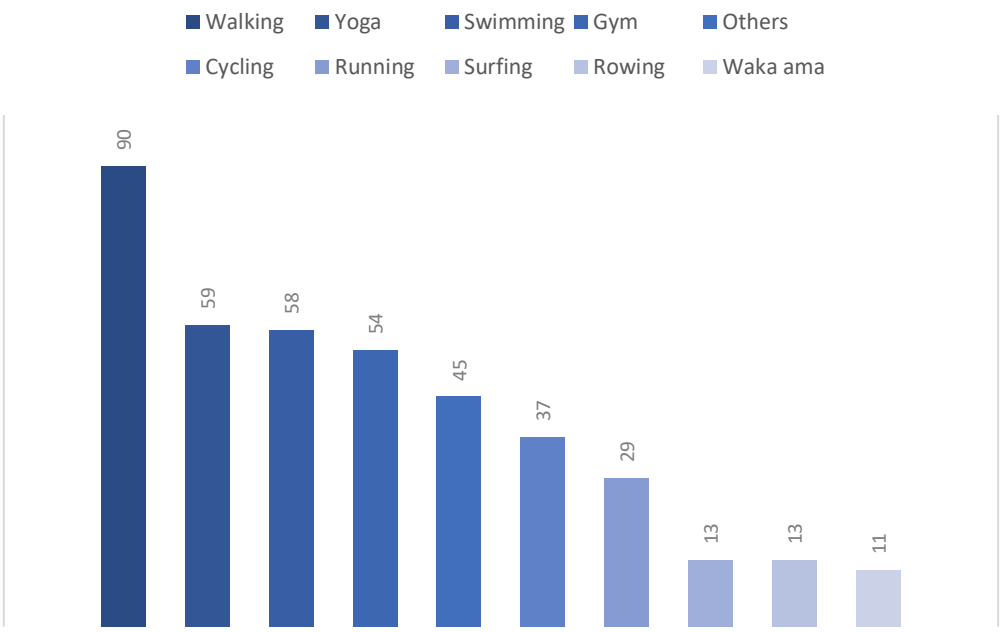


Figure 5.9 Physical activity preferences

Table 5.4 presents preferences for exercise and social support and preferences of Kaupapa Māori support groups. It is evident that most participants liked to exercise on their own (69.5 %) and wished for more Kaupapa Māori support services (Table 5.6). In particular, 26 % feel that there is a high need and 37 % identify that there is a need for these cultural support services.

Table 5.4 Exercise and social support and Kaupapa Māori support groups

Preferences of social support and Kaupapa Māori support groups	Count (%)
Do you like to do things on your own or to be part of a group-based activity?	
Exercising alone	116 (69.5)
Exercise with a training buddy	20 (12.0)
Team sports and/or group physical activity programs	3 (1.8)
I enjoy all of these, and would like a mixture of them	36 (21.6)
How do you feel about Kaupapa Māori support groups	
There is a high need	41 (24.6)
There is a need	37 (22.2)
There is no need	17 (10.2)

5.2.6 SF-12

The SF-12 was used to assess participants' functional well-being. Scores on each scale (i.e., social functioning, mental health, role functioning, vitality, bodily pain, role functioning physical functioning and general) were merged into mental and physical component scores. The higher the MCS and PCS, the better the respondent's mental health and physical health. Scores are normed to the New Zealand general population standard of an average of 50 MCS and PCS by Frieling et al. (2013). The main results for the SF-12 questionnaire are summarised in Table 5.5. The Table 5.5 displays the mean score PCS 42.6723 and the MCS 33.1973 for participants (n = 141) who completed the SF-12 questionnaire.

Table 5.5 PCS and MCS

Mean scores	
PCS	42.6724
MCS	33.1973

Parsimonious modelling

The following data analysis involved parsimonious modelling. In parsimonious modelling the data undergoes two stages of analysis in order to identify which factors require the most attention (Pourahmadi, 2011). In this case, the aim was a subset selection of significant variables that impacted the outcome. A general linear model (GLM) of univariate analysis was used to perform an analysis of covariance (ANCOVA) and to identify the most significant predictors of physical health utilizing PCS and MCS of the SF-12.

The first stage of the parsimonious modelling included GLM univariate analysis using SF-12 PCS as the dependent variable and items within the survey as the independent variables. In the second stage, independent variables that were identified as statistically significant ($p < 0.05$) were added to another univariate model using the PCS as the dependent variable. To measure which survey items were statistically significant in relation to participants' MCS, a subsequent parsimonious modelling was performed using the MCS as the dependent variable.

Analysis of covariance

The general linear model (GLM) of the univariate analysis was used to perform an analysis of covariance (ANCOVA) and to identify the most significant predictors of physical health utilizing PCS and MCS of the SF-12, using the SPSS version 28.0.1.0. Prior to analysis data, some of the questions were excluded because of their nominal nature or their interrelationship with the SF-12. As a result, questions 1 – 12 were dismissed due to their direct connection with the PCS and MCS. Question 15, 16 and 21 were excluded due to the small number of responses. Findings of questions 27 were recoded into Māori/Pacifica and non-Māori, because of their small number of responses. Following, the ANCOVA included dependent variables PCS and MCS; the independent variables ethnicity (Māori/Pacifica and non-Māori) (Q27), age (Q28)and gender (Q29), and the covariates question 13 and 14, 17 – 20, 30 – 32 and 22 – 26. The following results (Table 5.6) show statistical significance.

5.2.6.1 PCS

Table 5.6 presents the result of the ANCOVA.

Table 5.6 ANCOVA PCS

Source	F-value	P-value
Covariate		
Q19: Do you have a regular GP?	18.279	< 0.001*
Q23: Do you take regular medication for mental health or addiction?	3.934	0.050*
Q:26 How long have you been with Mental Health and Addictions services?	8.068	0.005*
Independent variable		
Māori/Pacifica – non-Māori	4.193	0.043*
Q29: What gender do you identify as?	1.116	0.332
Q28: How old are you?	2.282	0.052
Māori/Pacifica – non-Māori * Q29	2.342	0.101
Māori/Pacifica – non-Māori * Q28	1.650	0.168
Q29 * Q28	1.4.04	0.220
Māori/Pacifica – non-Māori * Q29 * Q28	2.594	0.041*

Note. * = significant at the 5% level

The results in Table 5.6 indicate statistical significance between the PCS and the question 'Do you have a regular GP?' ($p = < 0.001$), 'Do you take regular mental health or addiction medication?' ($p = 0.05$), 'How long have you been with mental health services?' ($p = 0.005$), and ethnicity ($p = 0.043$). In addition, the analysis also found statistical significance between the PCS and the combination of ethnicity, age, and gender ($p = 0.041$). This pinpointing that the null hypothesis for these variables was rejected.

Physical health and GP

As shown in Table 5.6, the GP covariate is significant (p = 0.046) in relation to mental health service users' reported PCS. Figure 5.10 presents the participants' PCS according to the question 'Do you have a regular GP?'.

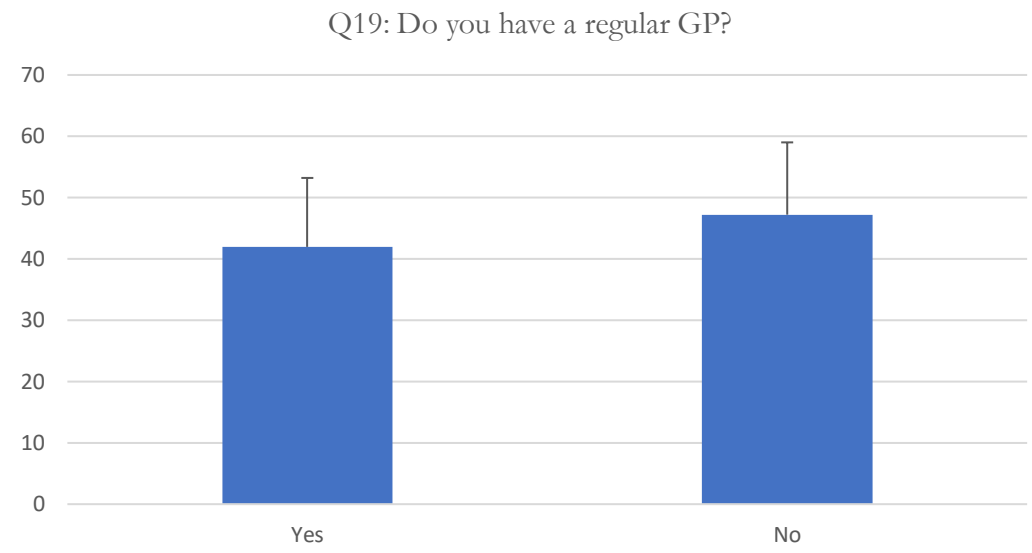


Figure 5.10 PCS – GP

Note. (error bar = 1SD)

The graph in Figure 5.10 suggests participants with a regular GP have poorer physical health (PCS = 47.21)than participants without a regular GP (PCS = 41.96).

Physical health and mental health and addiction medication

Reported PCS in relation to regular mental health and addiction medication intake, was found to be statistically significant, as shown in Table 5.6. The following Figure 5.11 shows participants' PCS respecting regular mental health and addition medication intake.

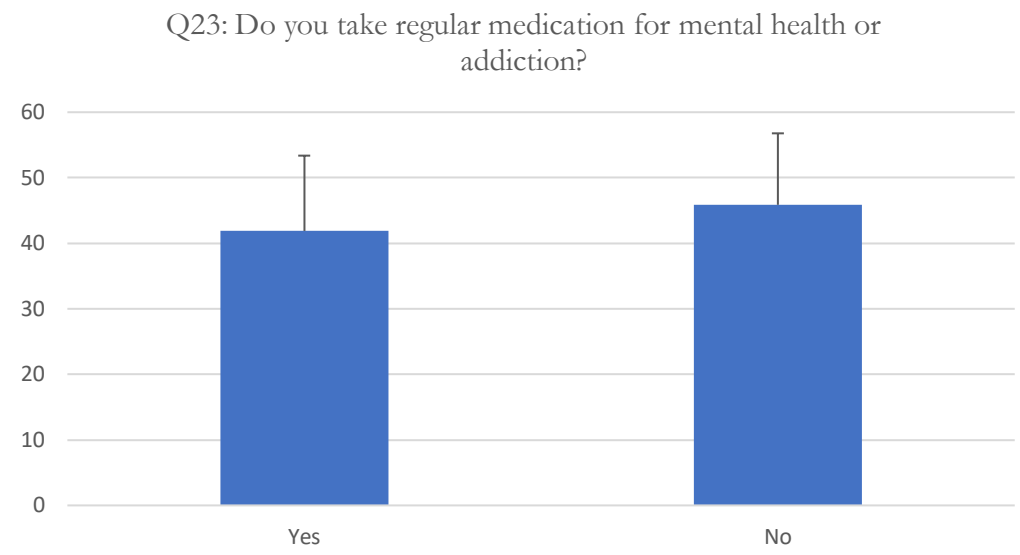


Figure 5.11 PCS – Medication

Note. (error bar = 1SD)

Figure 5.11 highlights participants taking regular mental health or addiction medication have a lower PCS (41.88) than those who don't (45.87). The finding indicates participants have poorer health if they take regular medication for mental health or addiction.

Physical health and time in mental health services

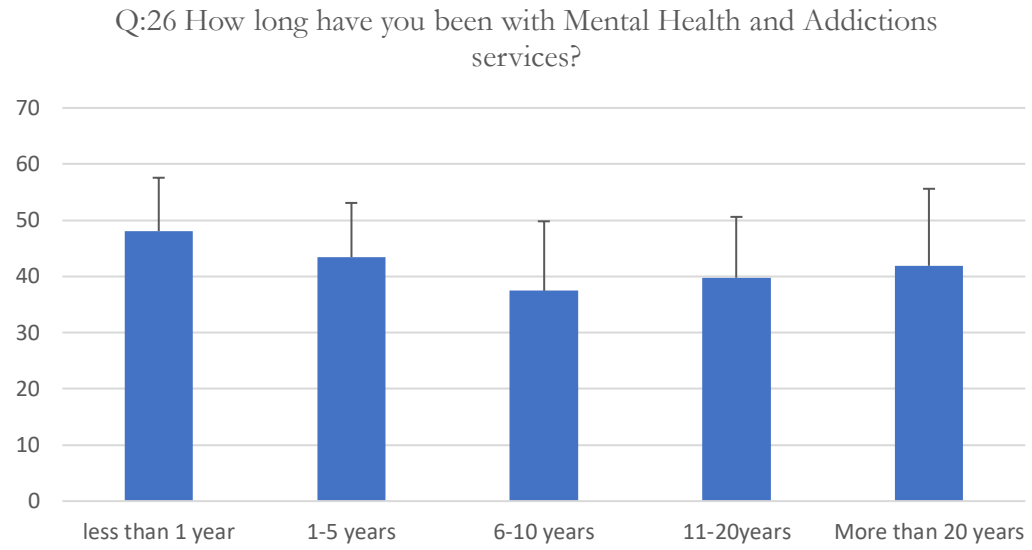


Figure 5.12 PCS - Time in mental health services

Note. (error bar = 1SD)

PCSs are presented in five categories: less than 5 years, 1 – 5 years, 6 – 10 years, 11 – 20 years, and more than 20 years in Mental health and Addictions services (Figure 5.12). The graph shows a decline in participants' PCS between less than 1 year and 6 – 10 years; however, illustrates a slow increase between 6 – 10 years and more than 20 years. Taking the results into account, participants engaging with Adult Mental Health services for 6 – 10 years, reported the worst physical health (PCS = 37.44).

Physical health and Māori/Pacifica and non-Māori

Figure 5.13 presents the differing PCS relating participants ethnicity. As shown in the graph, Māori/Pacifica have poorer physical health than non-Māori. The results reflect the inequalities in physical health inequity of Māori/Pacifica and non-Māori.

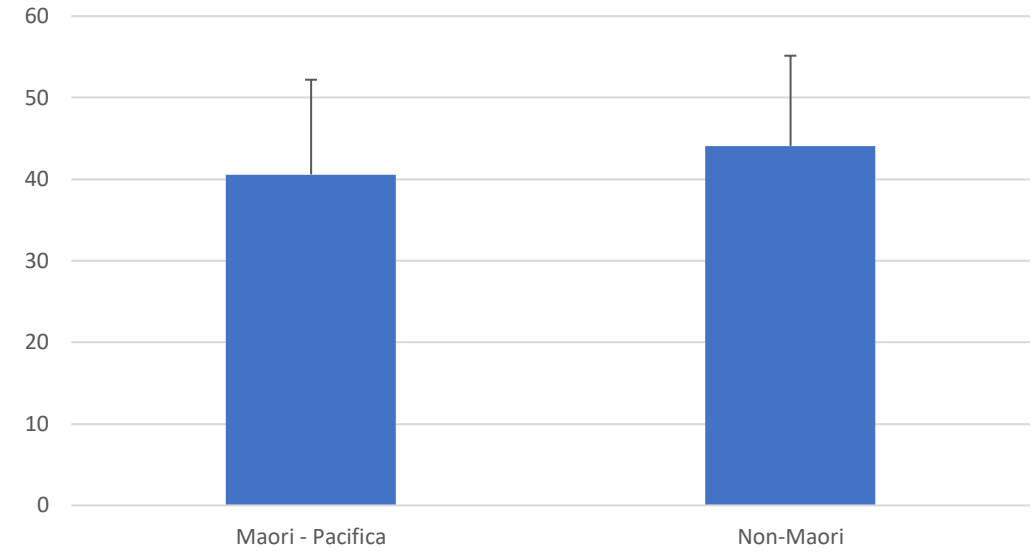


Figure 5.13 Māori/Pacifica and non-Māori

Note. (error bar = 1SD)

Physical health linked with ethnicity, gender and age

Figure 5.14 presents Māori participants' PCS by gender and age. Due to the small sample size, previous age groups were recoded into < 35 and > 35. The findings identify Māori male participants above the age of 35 years (PCS = 32.34) had worse physical health than those younger than 35 years of age (PCS = 42.36). In addition, Māori male participants (mean PCS = 35.42) reported generally poorer physical health than Māori female participants (mean PCS = 42.38). Gender diverse participants (n = 3) reported a PCS of 43.26 although the number of respondents in this case is very low.

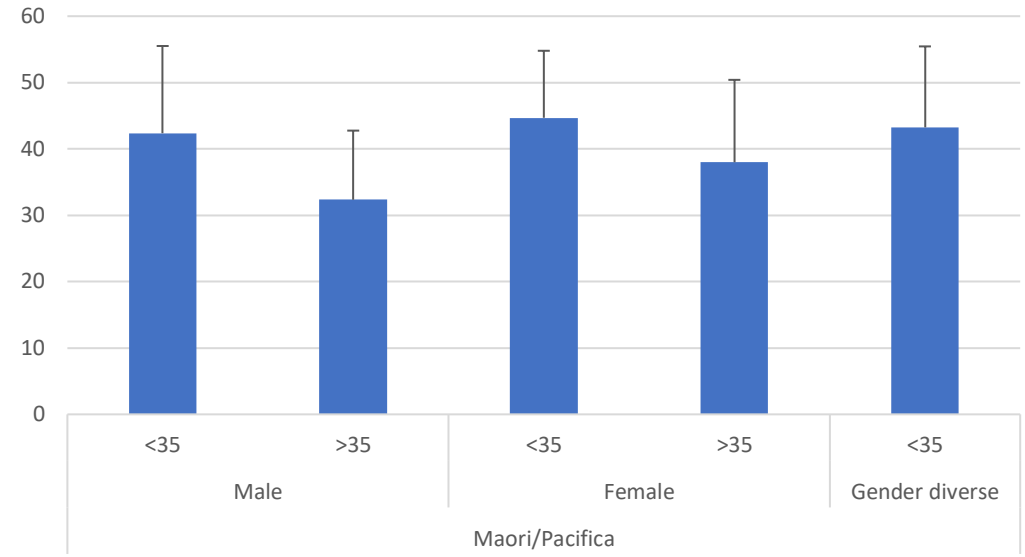


Figure 5.14 PCS - Māori, age, and gender

Note. (error bar = 1SD)

The following graph (Figure 5.15) shows the findings of non-Māori participants' PCS categorised in gender and age.

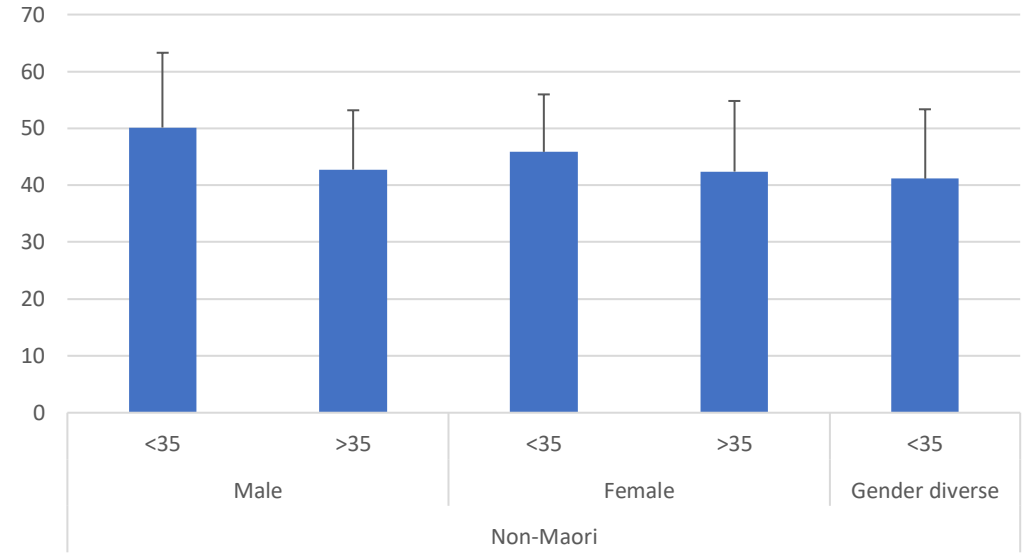


Figure 5.15 PCS - non-Māori, age, and gender

Note. (error bar = 1SD)

Non-Māori male participants above the age of 35 years (PCS = 42.75) had poorer physical health than those younger than 35 years of age (PCS = 50.14). Moreover, non-Māori female participants reported to some extent similar physical health (mean PCS = 44.00) than non-Māori male participants (mean PCS = 44.52). Comparing the disparities of both Māori and non-Māori participants' physical health, the differences of Māori female and male participants' physical health (PCS = 6.96) are more noticeable than those differences of non-Māori female and male participants' physical health (PCS = 0.52).

5.2.6.2 MCS

The results of the ANCOVA are displayed in Table 5.7. The findings show statistical significance between participants' MCS and participants' preference to improve their physical health. No other variables were found statistically significant.

Table 5.7 ANCOVA MCS

Source	F-value	P-value
Covariate		
Q13	0.066	0.799
Q14	4.586	0.038
Q17	0.080	0.778
Q19	0.035	0.851
Q20	0.728	0.398
Q22	0.112	0.740
Q23	2.629	0.112
Q24	0.124	0.726
Q25	0.119	0.731
Q26	0.692	0.410
Q30	0.207	0.651
Q31	0.441	0.510
Q32	0.042	0.838
Independent variables		
Māori/Pacifica – non-Māori	0.038	0.847
Q29: What gender do you identify as?	0.788	0.461
Q28: How old are you?	1.007	0.424
Māori/Pacifica – non-Māori * Q29	0.557	0.459
Māori/Pacifica – non-Māori * Q28	0.342	0.848
Q29 * Q28	1.573	0.187
Māori/Pacifica – non-Māori * Q29 * Q28	0.038	0.846

Note: * = significant at the 5% level

Figure 5.16 illustrates the Likert scale responses in relation to participants' MCS. Whereas the Likert scale responses appear to suggest participants with a worse mental health were either absolutely, quite a bit, moderately, or not at all wanting to improve

their physical health, participants with better mental health prefer to improve their physical health only a little bit.

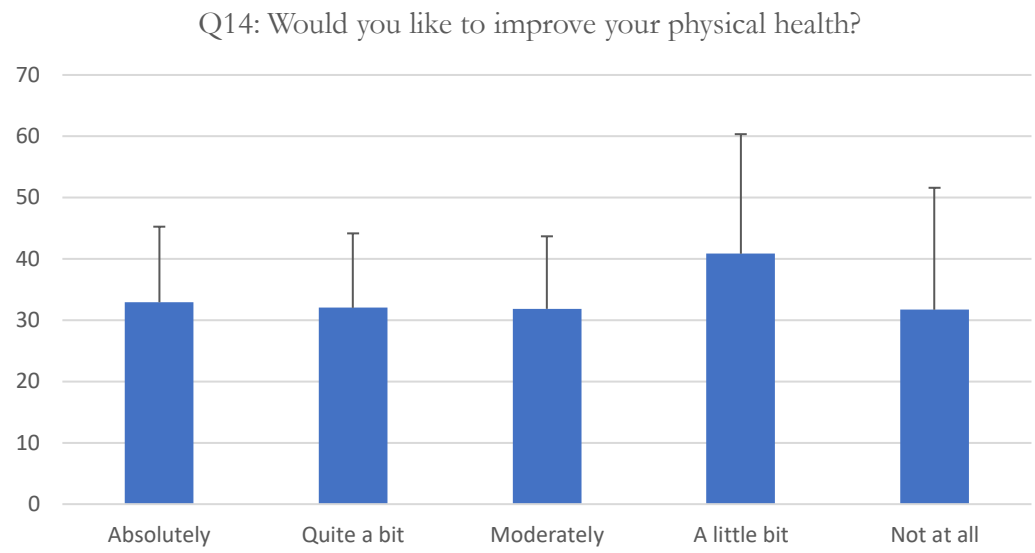


Figure 5.16 MCS - improve physical health

Note. (error bar = 1SD)

5.3 Qualitative findings

5.3.1 Free-text open-ended question closed questions.

The qualitative findings from the survey originated from two free-text entries. A total of 80 (43%) participants answered the free-text question: "*How do you think physical health care could be improved for people with mental illness or addiction issues?"* and a total of 30 (18%) participants responded to the closed question: "*Were you told about potential physical side effects of your mental health or addiction medication?*". The responses to the question were analysed separately using methods of thematic analysis. Four main categories arose from the analysis: Accessibility and availability, people wanting to be healthy, staff attitude, and medication.

Accessibility and availability

The analysis showed participants' concerns about the accessibility and availability of primary health services. These concerns were about the cost of health-promoting activities, cost of GP visits and availability of appropriate services. Many participants reported free or subsidised costs to access gym memberships, and tailored programmes would improve their physical health. Other respondents expressed that improved access to GP or mental health services would also help to better their health. Respondents reported numerous barriers in order to receive help. Concerns expressed by participants outlined barriers included GP costs and long waiting times for doctor appointments or rehabilitation centres. Participants expressed hopelessness when waiting to see the doctor and were recommended regular mental health follow-ups by the student health services at the university.

"*…it take 2–3 weeks to get an appointment which can make people feel like it's not worth it. And have the university check in with all student's mental health on a regular basis not just after something bad happens to someone*".

Regular GP appointments can ensure the person's overall health. One respondent identified the correlation between mental health and physical health when talking to a mental health professional. Having a mental health professional to talk to betters mental health. Subsequently, this enables motivation leading to greater physical health. Other responses suggested access to a support person or a role model to boost their willingness to be physically active. Some participants reported incentives could boost people's motivation to exercise. One respondent indicated the need for online access to mental health services and mental health support through a support person. Accessibility to specialised services appropriate to the person's needs, such as nutrition and physical exercise advice, was another suggestion by a participant. Furthermore, raised concerns indicated a need for specialised physical health care services for people with mental illness. However, the participant was declined access to physical health care due mental unwellness.

"*I guess to summarise, physical health care and assistance for the mentally ill isn't a thing and creating a space for it would be a good start*".

In addition, inequitable distribution of the available mental health care in primary care services creates further obstacles. While accessibility was a major concern of the respondents, there were some reports which highlighted the availability of appropriate services for people with mental illness.

With this in mind, availability implies an adequate supply of health care professionals and services who have the skills and training to address the needs of the service users they are serving. Mental health service users face difficulties in finding appropriate care if the availability of care providers does not meet their needs. The need for culturally appropriate service was expressed by two participants. One of these participants expressed concerns in terms of staffing. Most mental health services are understaffed and have a high percentage of non-Aotearoa-born staff with little experience of substance use. Concerns expressed by another respondent suggested more Kaupapa Māori services with Māori staff.

"*Māori services with Māori doctors, nurses, dieticians …etc. (all Māori)".*

People want to be healthy

Regardless of the organisational barriers the participants face, they are willing to live healthily. People have an innate desire to become gradually independent and experience more agency. They are willing to adopt healthy and sustainable behaviours and intrinsically gravitate towards good health. The analysis revealed participants' opinions about this intrinsic desire to move towards better health. Strong categories that emerged among participants were the benefits of a healthier lifestyle and strategies for living healthier, including exercise, healthy eating and a drug-free lifestyle. One response indicated that abstinence from illicit substances could also be helpful for one's health. Another lifestyle modification participants focused on was a physically active life; exercise was a focal element in improving mental health. Most respondents felt physical exercise had a positive impact on their mental health.

"*For myself personally exercising has done wonders for my mental health once I changed my view and started doing it to easy my symptoms*".

Responses drew attention to how exercise affects their thoughts. Participants reported they focused on the physical task while exercising. This response pinpoints self-awareness in relation to exercise. Another response suggested the need for yoga classes for people with mental illness.

"*Peer supported groups - walking or otherwise. Occupational health and self-compassion training. Yoga sessions run for people with these challenges*".

During exercise, some have the experience of not thinking at all, as if the brain and body's entire focus has shifted to the body's movements. The correlation between physical exercise and mental health is evident. However, regardless of knowing the effect of exercise on increased serotonin, one participant expressed having issues starting exercising. People have difficulties when trying to overcome a mental barrier to exercise. When attempting to overcome these mental barriers, people see exercise as a challenging task. To break the cycle, people can start with small tasks such as the participant who highlighted fishing or going for walks eased their depression and anxiety symptoms. Furthermore, another participant started at a slow pace and experienced exercise as something fun. Completing small tasks to achieve one's goal can create a motivational cycle for a person's lifestyle changes. Goals such as going for a 10-minute walk assist the person in focusing and sustaining efforts towards task accomplishment. An individual's self-evaluation of their progress is vital. The belief that mental health service users are making progress supports their sustained motivation and self-efficacy.

Motivation is the cognitive process that start and supports goal-orientated actions. Concerns expressed by participants emphasised their lack of motivation is a barrier to adapting to lifestyle changes. Sedating medication or symptoms of mental illness are part of this barrier and have an effect on one's motivation to exercise. One participant reported a lack of motivation due to feeling unwell.

"*Improved motivation. Hard to get out and doing anything when you are feeling awful*".

Self-efficacy is an important part of motivation and is a powerful belief that impacts the person to adapt and maintain health-promoting behaviours. Having support and encouragement can boost a person's motivation to exercise. Comments by participants suggest additional support was needed to overcome their lack of motivation.

"*It's extremely hard for people with mental health issues to get motivated so the support needs to be there to help support that motivation*".

While some responses indicated motivating and encouraging health care professionals could be beneficial, other responses suggested the need for support or special fitness groups specifically designed for people who struggle with motivation. A participant who reported having issues following an exercise programme explained that the biggest barrier to a physically active life is waking up, hung over and tired with no energy or drive to exercise. They suggested that support groups are at a time that interrupts drinking. Specialised fitness groups or one-on-one fitness activities can increase mental health service users' self-efficacy. In particular, if a support person or other participant can provide encouragement that they can perform a task. A support person with high self-efficacy can help the mental health service user build their self-efficacy. A role model can be an influential motivator, especially when they have a similar experience.

"*Role models and support they can access to. Relatable people who can inspire*".

Staff attitude

Participants identified numerous barriers that hinder them from improving their physical health. Participants reported that discrimination, stigmatisation, and negative attitudes toward people with mental illness are some of the barriers to delivering appropriate care. Stigma refers to a form of labelling and inflicts a power imbalance. In contrast, attitudes encompass cognitive, affective, and conative responses to, in this context, people with mental illness. The analysis revealed respondents' concerns in relation to staff attitudes. Reports indicate that participants don't feel heard, and doctors do not take their concerns seriously. There is a need for health professionals to take mental health service users' concerns seriously. For some respondents, staff

who listen to people's concerns is fundamental to mental health service users' care and recovery. In addition, listening to service users' concerns is vital to their health and a key element of comprehensive health care in primary and secondary health services. Not feeling heard or understood impacts the service user's care and can mislead the treatment and diagnosis. A respondent reported feeling stigmatised and misunderstood due to their mental illness.

"*Medical professionals need to stop ignoring physical health because of a patient's mental health. If a patient is suffering mentally, do not say their physical pain started from that*"

A consequence of a lack of understanding is stigma and racism. Concerns expressed by respondents stressed stigma and racism as barriers to improving physical health. Stigma and racism experienced by mental health service users can cause undesirable feelings about themselves. Mental health service users experience limitations of being considered high risk. One participant reported that due to being classed as high risk, he experienced restricted options which made him feel debilitated. Doctors should "*not be scared of giving them [mental health service users] the help they need*", revealed one response. However, one participant feels that mental health service users are getting categorised and segregated by mental health services. In addition, mental health service users should be treated with the basic right to live well.

"*Stop sorting them into boxes? and treat them like people who deserve to live well*".

While responses indicated how staff contributed to one's limitations, other responses pinpointed the importance of a positive focus, particularly something to concentrate on other than one's own limitations. The consequences of not being listened to created strong feelings about the mental health system. The mental health system was perceived as useless by one participant, explaining mental health service users should be treated with respect and dignity. Another participant's response showed concerns about professional commitment and asked for professionals to be more accountable. They report that the health professional's job is more than just for their income. Furthermore, staff require to take their time, listen to what people have to say, learn about them, and make them feel like they have someone who cares.

"*They need to care and learn about their patients. We need more key workers so they can bond with their clients to make us feel like we have someone who cares*".

During times of mental distress, sharing one's experience of physical and mental pain is paramount to feeling heard and understood. Free-text responses showed a need for staff to be more empathic. Participants suggested that mental health professionals should "*walk in our [mental health service users'] shoes*". Supporting people's physical health is far more than just listening to their needs and well-being. Responses show that a mental health professional who places oneself in another's position has the ability to understand and feel what they are experiencing.

"*Grasping states outside one's own*".

Taking an individualised and personalised approach to mental health service users' physical well-being can support the health professional in demonstrating empathy for the service user facing physical or mental pain. Responses revealed resourceful staff who provide one-on-one support with individualised plans could best support mental health service users' physical health. Especially, "*providing more options rather than one size fits all approach*" is beneficial. These individualised and personalised approaches also encompass engaging ways of providing information. Instead of providing health education via pamphlets, mental health professionals should have meaningful conversations about physical health improvement strategies. Furthermore, in-depth conversations and clear communication about reasons for tests and reasons for diagnoses diminish speculations. A response focused on individualised and achievable goals rather than following the expectation of a group. The participant also found gradual lifestyle changes are more helpful than sudden changes, which are more difficult to follow.

"*Also, if advice is something like increase physical activity, a simple to follow very quick routine would help heaps. Often have found others, and I try to jump into a routine too suddenly and end up not following it. In other words, focuses on gradual lifestyle changes rather than sudden*".

The response highlights the importance of a gradual change in one's habits. Gradually working towards change betters the likelihood of success. Fast and too many healthy modifications can become overwhelming and increase the chance of a return to one's unhealthy habits.

Medication

While the previous three categories resulted from the free-text response to the open-ended question "*Were you told about potential physical side effects of your mental health or addiction medication?*", the fourth theme resulted from the free-text response to the closed question "*Were you told about potential physical side effects of your mental health or addiction medication?"*. Most participants answered the question with "yes" or "no". Hence, only 18% (n = 30) of the participants entered a free-text response. The analysis disclosed participants' physical health perceptions and experiences in regard to physical side effects of mental health or addiction medication. The thematic analysis found three subthemes: 1) Negative experience, 2) Side effects and 3) Taking initiative.

1) Negative experience

Most participants received no or partial information from their psychiatrists about potential side effects. "*Typically, these details are often glanced over quickly*", reported one participant and reported they experienced lasting impacts on their development. Some participants received a medication pamphlet and were expected to read it in their own time. The information respondents received was mostly not in-depth and did not cover the negative impact on their physical health. Experienced side effects were often noticed months or years after the medication was commenced. One participant explained that they did not receive support for the side effects they experienced.

"*Some of the side effects I've experienced I was not told about and when I've mentioned it, not given much support to help*".

According to one response, mental health professionals are not monitoring or addressing the long-term side effects of antipsychotics. For example, a participant with heart problems and on a high dose of the antipsychotic quetiapine did not undergo an

echocardiograph or have his dose lowered. These negative experiences may have also contributed to one response.

"*If I knew this would happen, I would not have taken the pills*".

The response indicates that a negative impact on a person's physical health may contribute to possible non-adherence to mental health or addiction medication.

2) Side effects

The analysis revealed various concerns in relation to medication side effects. The most reported side effect was weight gain. Other respondents experienced less energy, tiredness, dry mouth, an increased urge to smoke cigarettes, sleep difficulties and heart palpitations. One participant mentioned that they experienced heart palpitations during medication use, which was initially attributed to anxiety attacks; however, the palpitations subsided when medication was stopped. They were not warned that palpitations could have occurred with this particular medication. Health professionals overshadowed their heart palpitation and suggested they experienced anxiety attacks.

"*Since stopping I've not had any more heart palpitations, at the time I was told it was just anxiety attacks when I had never had them before*".

3) Taking initiative

Diagnostic overshadowing can have detrimental outcomes on one's physical health. Therefore, taking an initiative to gain knowledge of one's prescribed medication is essential. Knowing the side effects of mental health and addiction medication can create awareness of possible physical health changes. Various reports indicated participants did their own research or approached their psychiatrist after only receiving partial or no education about their medication. One respondent furthered this. After researching possible side effects, the respondent made the connection to heart palpitation in regard to his prescribed medication. Following, they told their doctor what medication they wanted.

"*I have had to make all my medical decision and tell the doctor what I want, and I don't know what meds are good it wasn't until I did research, then I made the connections to heart palpitations and my medications*".

However, being proactive about one's medication and physical health may not be as easy as it appears. This is particularly the case, for people who experience low energy levels due to psychosis, depressive episodes, or sedating medications. Another response highlighted the clinicians' perceptions of non-compliance, psychosis and depressive episode as possible reasons for not taking initiative. Regardless, they believe mental health service users are expected to do their own research and instigate the conversation with the doctor. These reports indicate a lack of comprehensive education provided by mental health professionals. Concerns by a participant revealed the need for long in-depth conversations about possible side effects in combination with a holistic well-being check. The analysis of phase I resulted in the exploration of mental health service users' perceptions and experiences of health care delivery through primary health care providers such as GPs.

5.3.2 Semi-structured interview findings

The findings present and describe the participants' narratives in relation to the semi-structured interview questions. Initially, I planned to interview eight participants; however, the last two available participants did not attend due to unwellness. Three Māori and three non-Māori mental health service users participated in the interviews. The findings are structured into three themes: physical health perceptions, the role of medication, and the importance of the relationship with the GP. My intent is to personalise the participants' narratives. In doing so, I aim to highlight the diverse backgrounds of this heterogeneous group. Therefore, I decided to begin with a brief summary of each participant and assigned a pseudonym to each participant to personalise their experience.

Summary of each participant

Peter was a young non-Māori man. He faced multiple injuries over the years and had difficulties engaging with the world physically due to pain. In general, he had a

pessimistic view of his prognosis. He also had different experiences with different GPs.

Evelyn was a Māori woman with a long history in mental health services. She was in her 40s and experienced multiple health issues. She had mixed experiences with GPs. Regardless, she saw her GP on a regular basis. She felt her mental health medication contributed to her weight and was hoping to get gastric band surgery.

Angela was a young Māori woman in her 30s. In the past, she experienced trauma which led to depression and a schizoaffective disorder. Her psychiatrist prescribed her antipsychotics and antidepressants. She gained weight due to an unhealthy diet, antipsychotic medication, and no physical exercise. She had contrasting experiences with mental health services and GPs

Paul identified as a Māori man in his mid-40s. He grew up in a communal living, hence his unique views about life and health. He regularly saw mental health professionals but did not regularly engage with his GP. In the past, he had a good relationship with his family doctor, who concentrated on alternative medicine. He relocated to a larger city in the Waikato and felt he received impersonalised care from his new GP. Paul often did not answer direct questions.

Mandy was a woman in her 50s. She had significant medical problems that had not always been well addressed. Throughout the years, she was taking a lot of medication, and chronic pain was a constant issue. She had a mixed experience with health services, however, and values her GP, who goes above and beyond due to health adversities she experiences. Prior to finding her current GP, she dealt with judgemental doctors who did not take her health concerns seriously.

Beatrix was a young woman in her 20s. She identified as being overweight and is motivated to reduce her weight. Within the last couple of years, she had mixed experiences with GPs and mental health services. She finally found a proactive GP who regularly responds to her needs. Beatrix also works in mental health.

Although all participants were engaging with mental health services, the participant group were of heterogeneous nature. They differed in age, gender, ethnicity, and diagnosis and were using different mental and physical health services. All participants were well enough to participate in the interview. However, some of the participants had a different mental health baseline from other participants; hence, some responses were influenced by symptoms of their mental illness, such as preoccupation or eccentric views. For example, Paul did not answer direct questions, and his comments were contradicting at times.

5.3.2.1 Physical health perception

The concept of physical health

The analysis highlighted that participants had different views concerning the concept of physical health, their own physical perception and physical health strategies. However, this section not only pinpoints differences within physical health perceptions but also identifies similarities of the heterogeneous group. Regarding health, responses saw physical health as part of the biomedical, systemic, functional, or holistic health concept.

Participants had different views on what physical health meant to them. While Paul referred to physical health through a biomedical lens as "*healthy*" and with "*no major illnesses*", Mandy had a systematic view of health. In her opinion, physical health includes "*a lot of systems*" which are "*functioning*" together. Furthermore, she explained that "*when one system isn't functioning properly in your body, there's a chain reaction that sets off other problems*". In addition to the systems view of physical health, participants also spoke about physical health in the context of the function health concept.

Peter: "*The ability to do common tasks everyday things*".

Physical health was often described through a functional health lens. For example, responses emphasised physical health as wellness and functioning. In terms of physical health, "*harmony*" was used to define the equilibrium of one's functioning and wellness. Moreover, Beatrix explained that physical health is not only about establishing or maintaining equilibrium but also about flourishing one's physical and mental health.

In particular, Peter explained that while physical health includes the musculature, it can also include the neurological pathway, such as the brain. Additionally, the brain involves his emotions, hence being part of his mental health. Responses by participants highlighted physical health as one interconnected part of one's overall health. Although physical health was described as one's state of wellness in which the body functions in harmony, physical health was perceived as an element of an entire systemic construct which involves mental, social and spiritual health. Beatrix referred to physical health as one aspect of an interconnected construct and described it through the lens of Durie's (Durie, 2001) holistic health model Te Whare Tapa Whā.

Beatrix said, "*Te Whare Tapa Whā - like your four pillars. It's the Māori view of well-being. You have your mental health, and you have your physical health, and you have your whānau and social health and your spiritual health and that's all interconnected. If one pillar starts getting a little bit wobbly, or kind of collapses - the house can't be a house if one walls kind of gone*".

Physical and mental health connection

Regardless of the different views on physical health, the link between physical and mental health was evident. In all interviews, participants spoke about the significance of physical health in relation to their mental health. The following comments demonstrate this:

Mandy: "*Physical well-being can't function on its own. It can't function without mental well-being. Everything has to function holistically and in harmony. It can't function without mental well-being*".

Paul: "*I mean, the mind is directly related to physical health and vice versa*".

Physical and mental health were either seen as a linear or parallel construct. On the one hand, Paul exemplified the linear link between physical and mental health. He perceived physical health as the main element of health, which directly effects his mental health and, therefore, prioritises his physical health. His mental health improves if basic needs such as "*eating*" and "*shitting*" are met. In relation to nutrition, eating a healthy meal not only improves his physical health but also betters his mental health. He also described the rewarding effects of meal preparation on his mental health.

Paul: "*I make an effort out of cooking meals and spending the time doing it. That's sort of the rewarding thing. I think one of the best ways to combat my mental health is to eat healthy*".

However, there were times when his mental health impacted and "*overrode*" his physical health. He pointed out that addiction problems such as injecting methamphetamine caused an infection. On the other hand, other responses stressed that "*physical well-being can't function on its own*" (Beatrix), emphasising the parallel construct between physical and mental health. Although "*physical symptoms can be exacerbated by mental health issues*", "*physical issues can cause mental issues*" (Peter). For example, self-isolating behaviour due to physical pain contributes negatively to one person's mental health (Peter). Concerns by participants highlighted how mental illness contributes negatively to their physical health. Other responses demonstrated that signs and symptoms of schizophrenia and depression led to avolition and self-isolation, hence increasing weight. In other instances, "*stress*" was perceived as a crucial trigger for feeling "*on edge*", "*having a tight tummy*", heart palpitation and getting "*a bit shaky*".

Complexity of physical health experience

During the interviews, participants talked about the importance of physical health in terms of the absence of physical health problems. Responses by participants stressed their experience living with comorbidities. Many conditions such as obesity, addiction-related health problems and chronic pain were mentioned. Most physical health problems had been longstanding and significant to their recovery. For one participant, one physical health diagnosis triggered a chain reaction to other physical health issues. A neurological condition in the brain caused her to lose her balance and fracture a bone. Since then, she has experienced chronic pain on top of her neurological condition and mental illness.

Another participant had multiple spinal injuries as a result of alcohol-related falls. Physically engaging with the world became more "*painful*" (Peter). Opioid-based pain relief caused an additional addiction. Addiction issues and chronic pain often came in the way of doing his chores and his shopping. He described debilitating feelings that stopped him from trying new things.

Peter: "*It makes me unwilling to try new things. Because, you know, fear of pain, fear of getting hurt, fear of exacerbating the problems, fear of not being able to perform the tasks like if somebody asked me to go climb *** [mountain in the Waikato] or have a big long bushwalk. I'm just being worried I couldn't do it*".

It was evident that most participants' physical health was compromised by their weight. Regarding physical health perceptions, half of the participants described themselves as overweight at the start of the interview. While some increased weight due to compromised physical health, others gained weight due to their debilitating mental illness and the negative impacts of medications. For example, Evelyn had a long-term condition of obesity and eczema. Weight and gastric band surgery were re-occurring codes that emerged during Evelyn's interview analysis. Because of the debilitating weight, she presented to the GP various times hoping to get accepted for gastric band surgery. However, her referrals have been declined.

During all interviews, participants explained that improving their physical health was a huge problem, even though some participants were knowledgeable about the health strategies such as healthy foods, physical activity, and mindfulness. In most cases, motivation was described as a barrier to implementing these health strategies. In other words, motivation impacts one's health behaviour, especially when facing comorbidities. The following comments demonstrate this:

Mandy: "*Half the time, it's just getting the motivation to actually get up and do something*".

Respondents often dealt with the combined effects of mental and physical health problems in the context of decreased motivation. In some cases, this combined effect inflicted a loss of hope and a pessimistic outlook.

Peter: "*It's just going to be a lifelong thing*".

Other participants had similar experiences and felt resigned to their poor physical health. Evelyn explained her belly would "*get big again with the medication [antipsychotic], regardless of the gastric band surgery*".

Moreover, responses also demonstrated how the use of illicit substances impacted participants' motivation. In one example, a participant described regular cannabis use triggered self-isolation and paranoia. This self-isolating behaviour led to decreased motivation and neglected physical health.

Paul: "*I smoke pot [cannabis] and alternate between smoking pot and getting into an altered state. Until the point that I can't take care of my own needs because I'm too paranoid to go outside*".

Although people spoke about barriers which contributed to their complex physical health experience, they also described enablers which led to improved physical health. They identified that a combination of different health behaviours contributed to improved physical health, including good quality sleep, healthy diet, physical activity, abstinence from illicit substances, and time with family and friends.

Peter: "*Get exercise, eat well, try and stick to a proper sleeping time like sleep schedule*".

Angela: "*I guess physical health means getting regular exercise, being active and filling your body with nourishing foods like fruits and vegetables and drinking plenty of water. - I went on walks on couple occasions with my friend and her husband. They asked if I want to come for a walk. I walked maybe once or twice a week*".

Beatrix: "*Usually, it's exercising regularly, making sure that I am getting a lot of sleep. For me, that's a really big one. Also spending time with friends and seeing people and taking time for myself*".

A drug-free lifestyle was seen as an additional healthy adjustment to one's physical health. For example, one participant described the advantages of being abstinent from illicit substances such as cannabis. Peter described a combination of being "*straight*", self-aware, and physically active promoted his physical health.

Paul: "*I would go through a phase of getting stoned, sleeping all day and then it'll just get to the point where it's too much and then I straighten up and then I enjoy being straight. I can walk around and it's like a new buzz to be straight and feel kind of clarity. I get quite a kick out of going for a walk and experimenting with my different rhythm rates. I ride my scooter and go for bike rides that gives me is basically the fitness*".

As previously mentioned, participants saw a strong connection between their physical and mental health. In addition, one's brain activity was described as one's physical health; hence participants saw self-awareness as a fundamental aspect of their physical health. On the one hand, responses indicated that participants enjoyed physical activity with friends and family; on the other hand, they also saw the benefits of practising self-awareness by themselves. In some cases, participants used self-awareness in combination with walking. In other cases, participants practised self-awareness in combination with reading.

Stress management in combination with a balanced diet and physical activity was identified as another way to improve one's physical health. Participants emphasised stress management to aid their physical health. In relation to stress management, Beatrix set boundaries to improve her physical health. She reported her "*work phone goes off at five*" and also minimised her time on social media due to comparing herself with others physically.

Outwards appearance was another fundamental indicator of physical health. Especially for people who struggled to lose weight, their outward appearance became a focal aspect, leading them to implement healthy behaviours. For these participants, diet was a key to improving their appearance as part of their physical health. Responses indicated that they attempted to develop healthy eating habits by not eating too much unhealthy food. Food parcels benefited one participant's healthy diet.

Evelyn: "*I've been getting food parcels, and the food parcels got vegetables in it with like broccoli, cauliflower, apples, tomatoes, and potatoes. When I've got nothing to eat, I have to eat the broccoli. I cook it up like a meal. Boiled vegetables are good for me. I think, having these food parcels is really good for me actually. It's changing the way I eat*".

Participants accurately understood what they "*should*" do or look like. Despite responses indicating that they made an effort to maintain or improve their physical health, most participants perceived they were not meeting the ideal physical health standards.

5.3.2.2 Role of medications

The role of medication was a theme that emerged throughout the interview transcripts' analysis. Medication was one contribution to the participant's physical health. In most cases, participants experience the negative side effects of mental health medication. Increased appetite leading to weight gain was part of these side effects.

Evelyn noticed the weight gain after the commencement of the second-generation antipsychotic risperidone. She made the connection following conversations with other mental health service users. She noted people who took risperidone had a big belly. In one of her comments about antipsychotics, she concluded that all antipsychotics impact weight gain in general. She disagreed with a dose increase due to her weight gain.

Evelyn: "*I've been bigger since been taking medication*".

A similar experience was expressed by Angela, who also gained weight after taking a second-generation antipsychotic. Despite her health education and efforts to reduce her food intake, she continued eating. However, this was reversed once she discontinued the medication.

Angela: "*While I was on this medication I had quite an appetite with eating so much food, especially unhealthy foods. I noticed the changes to my body how I went from being skinny to gaining weight. - I was so hungry, and I felt so uncomfortable. - After I stopped the medication, I just went back to my normal eating habits with eating vegetable and salads. - I got hungry but I had to control, and I had to control it. My mom told me you got to try and control the food that you put in your mouth, but I was hungry for KFC, and I was hungry for pizza*".

Beatrix expressed comparable experiences. However, in addition to weight gain she felt an undesirable effect on her mood and also described an increase in water intake while taking a mood stabiliser. The mood stabiliser lithium altered her mood. Consequently, her mood appeared flat. She did not feel happy or sad. Furthermore, she was also concerned about the medication's impact on her fertility.

Beatrix: "*I was on 1600 milligrams, and it made me feel flat. I was just flat. It was almost like I wasn't very happy, but it wasn't very sad. It was almost like I was just going through life grey. I always had to drink water. I was always really, really thirsty. I would have to go to the toilet so many times in the night because I was just having to drink so much water. I think I would say that some weight gain came with it. I think that's a bit of both. A bit of medication and a bit of lifestyle stuff. I also know that there was stuff around having a baby or fertility that lithium could have affected which made me a bit sad to hear when I was placed on it*".

These undesirable side effects led to Paul's response of not needing any medication at all. However, under the community treatment order, he is required to take it.

Paul: "*I don't need any of the medications that the professionals subscribe to me*".

Bearing in mind the side effects which negatively impacted participants' physical health, responses emphasised responsible prescribing. While Paul stated that "just chucking on some medication is the norm", other participants had positive experiences with their prescribers. Beatrix and Angela mentioned that their prescriber was responsive to their weight gain and stopped the medication. The prescriber of Beatrix encouraged talk therapy as a substitute for the mood stabiliser.

Beatrix: "*He knew that it came with an array of side effects. He personally hadn't seen a manic or depressive episode in my time here. I was actively in therapy, and I am also on quetiapine. He said, "Look at this point, it seems like that's enough*" – "*look, if you have medical episode, we will cross that bridge when we come to it*" - "*I don't see the need to put you on a really heavy medication if you don't need to be on it*". I thought he was very big advocate for talk therapy. I thought was really good too. He didn't just chuck me on medication. - He wasn't discounting it, but he was also saying I'm don't really want to fit that diagnosis unless we actually see an

episode happen. In saying that, he said, "*Look, I'm not going to chuck you on medication if you don't need to be on it. This was quite nice, because he could have easily said, "Alright". That's what happened the first time. I was chucked on a very, very high dose of lithium, and I didn't need to be on it*".

According to Mandy, doctors refused to prescribe her opioids as a treatment for her pain due to the addictive properties of these drugs. She was expected to bear the pain with low potency pain relief until her GP prescribed cannabis oil. For Mandy, cannabis oil was the perfect pain relief for her. However, this alternative medication was not funded, and she needed to cover the costs.

Mandy: "*So you [pain clinic doctor] will give opioids to all these other people that have all these other conditions like MS [multiple sclerosis], and all this other stuff. Here I am, in so much pain, that I want to die - I'm prepared to end it - and you're refusing the help. - Even my GP saw me every four weeks and he's like "Oh, my God". He could see me suffering. Then he said, "Why don't we try cannabis oil?". It's $200 a month for me. He said: "I know it's a lot of money for you that you don't really have – but it could work. There's no guarantee. It's going to work. We should try it". Oh my god - after a couple of days the pain just started to go, and I've never looked back".*

Mandy trusted her GP and accepted alternative treatments for her pain. Like Beatrix's experience, her prescriber also offered talk therapy as an alternative to conventional treatment. The responses highlight the significance of the service user and provider relationship.

5.3.2.3 The importance of the relationship with the GP

A good relationship with their GP is vital to one's healthcare plan and recovery. The GP is the first point of call when people get unwell. People's experience of their general practice visits often forms their interpersonal relationships with their GP. The following section focuses on participants' GP experiences and communication skills.

GP Experiences

Participants reported different reasons for why they see their GP. While some respondents see their GP for regular physical check-ups and follow-ups, others see

their GP about their mental illness and repeat prescriptions for their mental health medication. Evelyn visited her general practice for specific physical health problems. Her GP did regular blood tests, cervical screening, ECG, and blood pressure checks. For her, GP continuity was not always possible. Due to long waiting lists for her assigned GP, she decided to see a different GP on every booked appointment. Although the waiting time was less, different GPs did not know her physical health history; consequently, they did not understand the presenting issues. She also received no explanation why her fourth referral to the general surgical ward was declined. Previously, her GP prescribed her psychotropic medications. However, one of the GPs she saw recently referred her to the psychiatrist after she requested a medication change due to weight gain. In relation to her Māori ethnicity, she prefers not to see Māori GPs. In the past, Māori GPs were not helpful, and she believed they were not educated enough. Therefore, she decided to see only Caucasian doctors.

Evelyn: *"I always went to GPs that didn't muck you around. I always go to Caucasian GPs. I don't go to Māori GPs – because Māori ones are mucking around. I don't know if they are educated. I think they are not educated enough. Sometimes I know more than the Māori GPs - maybe it's just me thinking 'I know it all'. *laughing*. I go to pākehā GPs. I have been to Māori ones, but I noticed the difference straight away. I always know the difference when I go to Māori ones".*

Paul had similar negative experiences. Despite having had a blood test, he has not heard whether his blood results were in normal or abnormal range. In addition, there was poor communication between GPs and community mental health services. Before moving to an urban area, he saw his rural family GP and appreciated his close relationship with his GP. He started taking methamphetamine. His previous rural GP did not understand his addiction and hoped he would receive more support in an urban area. After moving to the city, he stopped regularly seeing his new GP. At this point, his engagement with the urban GP was conditional, and he only saw his GP for serious physical health issues. Despite, moving to a city and hoping to receive more comprehensive care, he felt that the urban GP did not offer anything regarding his methamphetamine addiction. Thus, he reflected on and compared the different health care approaches of the urban and the rural GP.

Paul: "*I don't really have a need and they [urban GP] serve no need. There's no purpose of them [urban GP] unless I have something radically go wrong or something that I need to ring a doctor. Whereas in the smaller communities, they take you on more as an individual and give you health advice. Whereas in town they don't. You just don't see a doctor unless you have to".*

Angela also saw different GPs on every visit. Her GP regularly assessed her blood pressure and blood tests. In the past, she sought help for changes in her eating pattern, which were triggered by a prescribed antipsychotic. The support she received was inadequate, and her weight continued to increase. Responses indicated that she was unsure if the GP was aware of her mental illness. She described that her GP focused only on her physical health and did not ask about her mental health. Neither did she tell her GP about her mental illness. Time restraint could be part of this dilemma, as she mentioned that visits were always short. Taking her experiences into account, this resulted in limited contact with her GP.

Like Angela, Peter avoided contact with their GP due to negative experiences. Once again, time constraints led to Peter feeling not understood by his GP. Equally to participants 2, 3 and 4, Peter saw different GPs in the past. Concerns by Peter expressed feeling marginalised during one of his GP consultations.

Peter: "*This was before I got my current GP, but it was the same GP practice. It was someone I'd never seen before. She took a quick look over my notes and records, proceeded to tell me that it was all in my head, I didn't need medication. She said here's a book, read the book and you'll no longer be in pain. That doesn't feel good*".

Diagnostic overshadowing also contributed to this participant's negative relationship with his previous GP practice. Due to a substance use disorder diagnosis in his file, he perceived that his physical health was not being taken seriously. His previous GP just pushed his physical health concerns off. This made him aware of how doctors viewed their service users and believe that he was perceived as "*drug seeking*". If his GP could have spent more time reading his file, it would have improved their understanding of the presenting issue. In addition, primary care services were also seen by this participant as requiring better communication. In one example, he requested a script

via phone call and never heard back. Overall, the respondent reported feeling like the GPs are just ticking boxes. Irrespective of the past negative experiences, Peter decided to only see one assigned GP. His new GP responded to his physical needs and performed quick check-ins on his physical and mental health, which he perceives as satisfying.

Like Peter, Mandy found a new GP after having had negative experiences with previous GPs. She felt stigmatised and marginalised by her previous doctor due to her complex health needs. Diagnostic overshadowing led to her decision to change her GP. Her current GP saw her for regular physical and mental health assessments. Due to her complex health needs, her GP decided to book standing four weekly appointments. She has a good relationship with her GP and describes him as "*going over and beyond*". Another response illustrates that desperation to get help led to a good outcome. While secondary health care services were not perceived as helpful, her GP prescribed her cannabis oil for the chronic pain syndrome. Regardless of Mandy's quality relationship with her GP, primary and secondary health care services must liaise with each other.

Mandy: "*We're seeing real issues here because people need to communicate. It can't just be physical doctors here [participant holds up one hand] and psychologist, psychiatrist, mental health nurses here [participant holds other hand]. It can't just be two separate entities. It has to be together. They have to work together and communicate, because I'm a whole person. I'm not two separate entities*".

Comparable to the other respondents, a GP was also assigned to Beatrix. Apart from regular check-ins, the primary care provider followed up on regular lithium levels. In this regard, the GP practice kept in contact with community mental health services. Responses by Beatrix show that the GP was involved in fulfilling her mental health needs. Regarding her mental illness, the GP was sought as the first port of call. Subsequently, she was referred to secondary mental health services. Equally to other responses, Beatrix drew attention to the time constraint, which limits the GP's thoroughness.

Given the above GP experiences which formed respondents' relationship with their GP, most participants who had assigned GPs reported a good relationship with their GP. Other participants who saw a different GP every consultation had more negative experiences with their GP practice. All participants had negative experiences with GPs in the past. The respondents were mostly marginalised, stigmatised, or experienced diagnostic overshadowing. Whereas some participants decided to find a new GP to create a better alliance, others were still subject to negative experiences and engaged less with their GP. During all interviews, participants expressed what they value about their current GP or what the GP could do differently in the future.

Communication skills

To ensure physical and mental health needs are met, participants emphasised key attributes to a successful consultation. Key attributes which arose from the analysis were listening, understanding, trustworthiness, having interest, non-judgemental and taking time for explanations. Trust was described as a vital element of feeling taken seriously. All respondents underlined the importance of listening. A good GP who listens is more likely to take people's concerns more seriously. Specifically, one GP took their time listening and created a comprehensive plan for the respondent's presenting concerns.

Beatrix: "*I quite liked this GP because I found she was very thorough. I had presented with an issue that has been ongoing in my third year of university. The doctor there was a little bit stumped and she didn't know where else to go from there. Whereas this doctor, within two sessions, she'd written up this whole plan for what we're going to do and what she thought the issue was. And she also made an outward referral to a specialist. I remember leaving that session and going, wow! She was really thorough. She didn't let anything slip*".

On the other hand, participants who were not listened to often felt misunderstood and marginalised. Respondents who did not have an assigned GP explained that GPs had no time to familiarise themselves with their files, leading to dissatisfaction with care delivery. In particular, sedatives were prescribed as a result of one participant's needs not being heard. Another participant felt annoyed because her GP did not listen or failed to provide a comprehensive rationale for her actions.

Beatrix: "*It wasn't something that I was really pissed off about, but it did tick me off because I had to try and tell her a couple of times, but she still insisted. I mean, I get it in the sense that when you're going on birth control, they need to ask these questions. I said, "I don't have sex and there's no need to be taking a pregnancy test. Maybe she just wanted to be thorough, but she kept pushing me. So, I ended up doing the tests and it was fine*".

Other responses indicated they felt judged by their "*drug-seeking*" behaviour or stigmatised by their mental illness. In these cases, participants suggested that they appreciated non-judgemental approaches. Living with complex health needs made one respondent aware of the importance of an empathic approach when seeing his GP. Another participant described their GP as "*caring*" and an advocate for their service users. This highlights the significance of compassionate approaches during GP consultations. Participants appreciated that most GPs provide health advice and explanations. However, concerns indicated health advice should be delivered in an individualised and personalised manner. Reports revealed that GPs provided health education via email outside of the scheduled consultation time. Other responses indicated that one participant's GP often extends the consultation time to fulfil the person's needs. Good GPs were described as flexible doctors who were thinking "*beyond one narrative*". This comment recommends that GPs engage with the service user's view on health and consider alternative treatments. In particular, respondents appreciated the use of alternative treatments such as cannabis oil, vitamin supplements and talk therapy.

Paul: "*It's pretty cool if you can go in there [GP] and I just do a test and they tell you what you need. That makes it easy. The *** [rural GP] tells you "You need B12 [vitamin B12] and zinc*".

Participants stressed the importance of a wider skill set and to provide holistic care to its service users. As physical health needs were perceived as a strong link to mental health, responses pinpointed GP practices could provide more than just physical health. For example, one participant suggested GP practices could be equipped with resources about "*housing*" support and "*food insecurity*". Furthermore, the participant

explained that food and housing instability contribute to poor well-being, therefore, should be provided by a GP practice.

5.4 Summary

The quantitative data analysis of Phase I revealed statistical significance between the participants' SF-12 PCS and contact with general practitioner ($p = 0.001$), time in mental health service ($p = 0.005$), ethnicity ($p = 0.043$), and mental health and addiction medication ($p = 0.05$). Moreover, participants SF-12 PCS showed statistical significance in correlation with ethnicity, gender, and age ($p = 0.041$). In addition, the analysis pinpointed a further relationship between participants' MCS and their preference to improve their physical health ($p = 0.038$). The key results of the survey's free-text responses showed four key themes including medication, staff attitude, people want to be healthy, and accessibility and availability of health services. The findings of the interviews revealed three main themes including the role of medication, the importance of the relationship with the GP and physical health perceptions. The next chapter will discuss the key findings in relation to current literature.

Chapter VI: Discussion

"The aim of argument, or of discussion should not be victory, but progress"

Joseph Joubert, 1754 – 1824

6.1 Introduction

This research study explored mental health service users' perception of their physical health. The study offers narrative of mental health service users' perception of their physical and GP experience. The research supplements the existing literature focusing on the experiences and perceptions of mental health service users and provides awareness of barriers they face in health care. The study aimed to address the following research questions:

- What are mental health service users' perception of their physical health?
- What are these mental health service users' comorbidities?
- What is the difference between Māori and non-Māori mental health service user's physical health?
- What are the factors associated with those who reported high physical health versus low physical health.
- What are mental health service users' enabler and barriers?

This chapter discusses the research findings, in relation to current literature. It is required to note that some results could answer more than just one research question. The discussion in this chapter will also present the significance of the findings in relation to primary and secondary health care services in Aotearoa. In addition, the chapter will outline the limitations of this study, and conclude with a section about the recommendations for future research and implications for future health care practice.

6.2 Summary of findings

Previous studies indicated the need for self-reported Quality-of-Life measures for people with mental illness. Hence, the inclusion of the SF-12 in the quantitative phase. The quantitative phase, aimed to measure mental health service users Quality of Life via SF-12 and aimed to quantify service user preferences and routines in regard to their physical health. In addition, the survey aimed to collect mental health service users' demographics to measure the factors related to poor physical health.

The qualitative phase included semi-structured interviews with six mental health service users. The results revealed people's perceptions of physical and of their physical health. In addition, the findings also indicated the complexity of physical health and the importance of the relationship with their GP. The interview findings supported the low Quality-of-Life scores of the quantitative phase; and provided further understanding on barriers and enablers to physical health experienced by people with mental illness. Moreover, the following issues arising from the results will be discussed: desire to be healthy, comorbidities, accessibility and availability, medication and weight, diagnostic overshadowing, labelling, individualised and personalised care. The following section will also discuss the main findings of the research in relation to the relevant literature. In addition, to gain a greater understanding of physical health and physical health delivery, it will also explore findings of additional studies which were not included in the literature review and include valuable health strategies.

6.2.1 What are mental health service users' perceptions of their physical health?

The perception of mental health service users in this study suggest that physical and mental health are interrelated, confirming the results of some recent studies e.g., Happell et al.'s (2016a) study. While some mental health service users viewed physical health as a linear link to their mental health, most identified the link between physical and mental health as a parallel construct. Overall, all interview participants talked about the significant link between physical and mental health. Therefore, the interconnectivity of physical health, in the perception of the research participants, has emerged as a primary concept in health perception, which establishes the foundation

to the holistic view of health. Health is a dynamic concept. Depending on the context in which the word 'health' is used and the person who uses the term, health can have multiple meanings. Health encompasses the construct of physical health. In context to the research question 'How mental health service users perceive physical health' or more specifically 'how they perceive their own physical health', physical health perception varies from person to person individually.

Whichever way we look at physical health, the connection between mental and physical health is incontrovertible. One or the other impact on each other. In order to understand the interconnectivity of participant's physical and mental health, it is key to explore participants' perception of this interconnected construct. In relation to the study, most interview participants perceived that they were not meeting their own physical health standard due to weight gain and chronic pain. Considering their perception of health through a functional lens, they perceived their physical health as poor and debilitating to their everyday function. The quantitative findings showed this debilitating feeling was often described as an exacerbator for their mental health. However, participants also explained the impact of schizophrenia and depression on their energy levels and physical activity, hence being a contributing factor to their weight gain. Other studies also pinpointed the issue of lack of motivation and energy in people with mental illness (Bernstein et al., 2016; Happell et al., 2016; McCloughen et al., 2016; Romain et al., 2020).

The desire to improve health

Regardless of the complex physical health issues participants have experienced, most reported a desire to improve their health. Most participants reported the complexity of their physical health experience and spoke about their comorbidities and the complex construct of their mental health in relation to their physical health diagnoses. In fact, half of the interview participants had a longstanding history of a medical condition and a mental illness. These participants shared their experiences of living with chronic pain and obesity. Moreover, every sixth survey participant has experienced limiting health conditions and disabilities. Similar to Sayer et al.'s (2019) study, some participants were unable to lose weight due to physical injury and saw this as additional exacerbator for their mental illness.

People who are distressed and present to mental health services want to feel better. They seek security and happiness, however, the way to happiness is not always a path that feels safe. The quantitative and qualitative analysis highlighted that participants strive towards greater physical health. Results indicate that there is an innate desire to experience more agency, become gradually autonomous, and to establish safe and trustworthy relationships with their support person. In general, individuals intrinsically progress towards health (Dunn et al., 2014). This finding contrasts with literature that suggests that some health professionals believe mental health service users "resist" getting healthier (Berger et al., 2013). However, such assumptions are contradicted by the results of the current study. Individuals are consistently doing the best they can do, doing their best to be as happy as possible, however, they do so within the constraint that many people cannot understand or see. Research participants gave an understanding of how they see the concept of health in relation to their own health. Whilst for some physical health was explained in through a functional health lens, others saw health through a biomedical, systemic, or holistic lens.

In western medicine, the biomedical model has been the most dominant model used in health care to date (Stahnisch, 2020). The biomedical model focuses on signs and symptoms of illness. With growing evidence-based research focusing on a holistic approach to people's recovery, in Aotearoa, a paradigm shift appears evident. Today, some approaches in Aotearoa place more emphasis on holistic views that incorporate family and spiritual aspects (Aldersey et al., 2017). Most Kaupapa Māori health services have long been implementing holistic health models in their practice (Rolleston et al., 2020). The Te Whare Tapa Wha (Durie, 1985), a holistic Māori health model, recognises wider economic, cultural, and social aspects that emphasise on collaborative family-inclusive outcomes (Moore, 2014). However, some remnants of past health practices influenced by the biomedical model are still apparent. For example, some participants viewed health through a biomedical model and described health as the absence of illness or disease. It is evident mental health remains over-medicalized and the biomedical model, with support from the pharmaceutical companies and psychiatry dictates policies, clinical practice, and education around the world (United Nations General Assembly, 2017). Health practitioners are still practising according to

the biomedical model. Regardless of the international paradigm shift towards a holistic approach, health practitioners have a huge impact on how mental health service users perceive the concept of health and their own health.

6.2.2 What are these mental health service users' comorbidities?

Close to half of people with mental illness in the current study reported co-morbidities such as high blood pressure, asthma, high cholesterol and diabetes type 2. This is consistent with international literature that shows it is common for people to be diagnosed with more than one disorder or condition (Sartorious, 2013). One result of these comorbidities in people with mental illness is a situation where the individual gets a physical health diagnosis that is followed by a mental disorder or the other way around. The two diagnoses can also be interrelated and a result of the other. In fact, international studies showed 94% of mental health service users had at least one chronic physical health condition (Rollins et al., 2017). In this American study and the present study hypertension was the most reported chronic condition. The cause of these comorbidities are often related to unhealthy behaviours. Mental health service users reported loss of energy, sedentary behaviour, cigarette smoking, drug and alcohol use as some of these unhealthy habits (Lerbæk et al., 2021). In fact, 24% of this study's participants reported smoking tobacco. Cigarette smoking increases the risk of death in people with schizophrenia (Kelly, McMahon, et al., 2011) and bipolar disease, consequently widens the gap of disparity in health outcomes (Dickerson et al., 2017). Regardless of their lifestyle choices, physical health is dependent on more than just lifestyle choices. The following sections stresses the different factors associated with poor physical health.

6.2.3 What are the factors associated with poor physical health.

This study sought to provide valuable data, in regards to the factors associated with poor physical health. Findings indicate that age, ethnicity, mental health medication, physical and mental pain are related to poor physical health. People experiencing mental illness in Aotearoa have more than twice the overall mortality rate of the general population (Cunningham et al., 2014). To determine why people experience lower life expectancy, quality of life surveys have been established to measure people's health.

The WHO's generic 26-item quality of life measure is becoming a crucial element in the evaluation of therapeutic interventions in mental health service users (Berghöfer et al., 2020). Furthermore, the SF-12 and SF-36 are additional measures to assess one's quality of life by producing mental and physical health component scores. Only a small number of studies are available on mental health service users' PCS and MCS. In example, an international study highlighted participants with a serious mental illness had an average PCS of 46.8 and an average MCS of 39.7 (Salyers, 2000). In addition, the results of the New Zealand General Social Survey showed an average PCS of 48.3 and a MCS of 49.3 (Smith & Davies, 2020). These SF-12 scores are rather high when compared with the present study findings (PCS=42.7, MCS 33.2).

For comparison, the coefficients were calculated on the general New Zealand population. Figure 6.1 shows Ministry of Health's (2022) analysis of the average New Zealand SF-12 scores for physical and mental wellbeing components, with the trend from 2011 to 2020. There has been a downward trend for the mean mental wellbeing score (Ministry of Social Development, 2016), which is also reflected by an increasing trend in the Health Survey's psychological distress indicator (Te Hiringa Hauora, 2020).

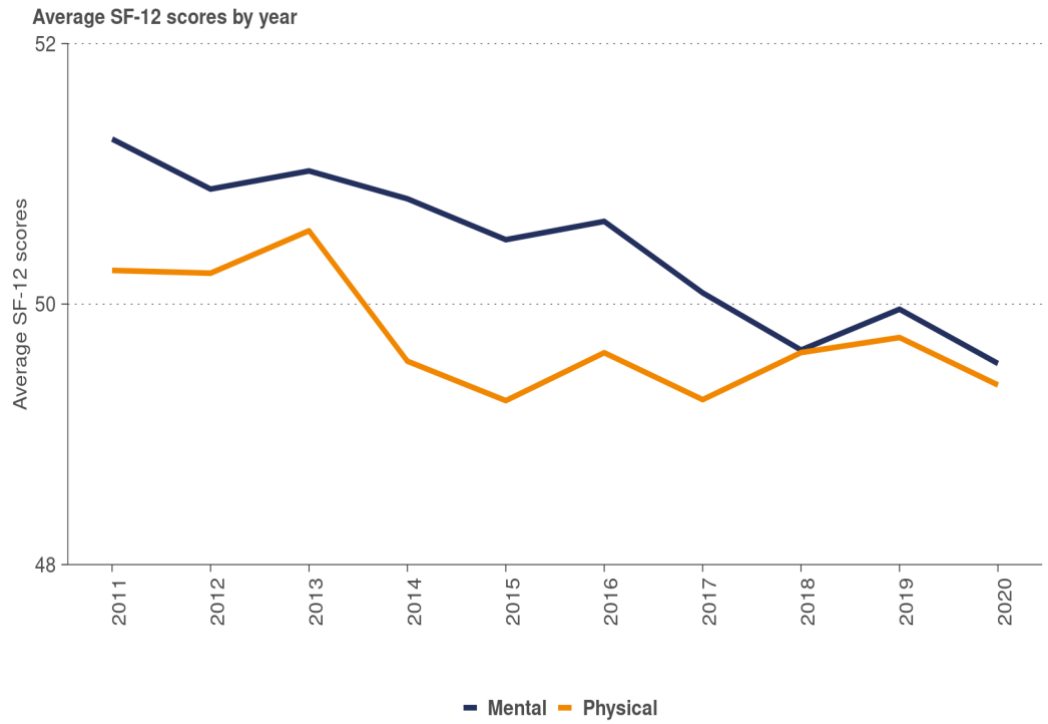


Figure 6.1 Average SF-12 scores by year

Note. From "Average New Zealand score for PCS and MCS from 2011 to 2020"[unpublished data], Ministry of Health, 2021.

Physical health conditions were one of the factors associated with poor physical health. The study findings underlined that participants with lower PCS score reported hindering physical health conditions. The qualitative findings showed that pain and impaired physical function was a major component of people's poor physical health. Previous studies showed similar responses (Bernstein et al., 2016), thus highlighting a strong link between pain and decreased quality of life. The quantitative findings revealed that age was correlated with participants' poor physical health. This is not a surprising result as physical health declines with age. However, it is well established that mental health service users have a lower life expectancy than the general population (Hayes et al., 2017; Lawrence et al., 2013). Table 6.1 compares SF-12 PCS

mean scores of various international countries with the PCS mean score of the current study.

Table 6.1 SF-12 International mean scores

Country	Age	n	PCS	MCS
Denmark	18-44	1945	53.0 (6.0)	52.3 (8.0)
	45-64	996	48.8 (9.4)	53.4 (8.7)
	65+	301	44.9 (10.4)	54.1 (8.8
France	18-44	1508	52.9 (6.0)	48.4 (9.5)
	45-64	763	49.4 (8.0)	48.6 (9.4)
	65+	472	45.7 (9.0)	48.3 (9.2)
Germany	18-44	1209	52.5 (6.3)	52.1 (7.8)
	45-64	876	47.7 (9.5)	52.2 (8.2)
	65+	368	43.5 (10.1)	53.4 (8.1)
United Kingdom	18-44	888	53.4 (7.0)	52.2 (7.7)
	45-64	588	49.1 (10.6)	51.4 (9.8)
	65+	275	45.3 (11.2)	53.2 (9.1)
United States	18-44	1123	52.9 (6.9)	49.5 (9.4)
	45-64	574	48.2 (10.2)	50.5 (9.7)
	65+	408	43.7 (11.0)	52.1 (9.5)
New Zealand current study	18-44	88	44.1 (10.6)	30.7 (12.6)
	45-65	42	39.9 (11.9)	36.4 (12.7)
	65+	6	40.3 (15.7)	47.8 (16.7)

Note: Adapted from "Cross-Validation of Item Selection and Scoring for the SF-12 Health Survey in Nine Countries: Results from the IQOLA Project", by Gandek, B., et al., 1998, *Journal of Clinical Epidemiology*, *51*, 1177. https://doi.org/10.1016/S0895-4356(98)00109-7.

Participants mean PCS score (44.1) age 18 – 44 indicates lower health than the mean PCS score to other countries. However, participants' mean PCS score for the age

group (45-65 years) of Gandek et al.'s (1998) study and the current study drop by 4 points when compared with the younger age group 18 – 44. This indicates that participants of the current decrease their physical health in the same way as the general population of other international studies. However, a limitation to Gandek et al.'s (1998) study is that the study explored this data in 1998. In addition, the current study is based on a smaller number of participants.

6.2.4 What are the differences between Māori and non-Māori mental health service user's physical health?

While the qualitative analysis highlighted no differences in Māori and non-Māori participants' physical health, the quantitative analysis indicated a difference in Māori and non-Māori physical health. The findings highlighted Māori participants had poorer physical health than the physical health of non-Māori participants. Māori male participants above the age of 35 years in particular indicated worse physical health than Māori female participants, whereas non-Māori male participants reported better physical health compared to non-Māori female participants. These study findings match with reports of previous studies, in which Māori with mental illness had a greater mortality rate than non-Māori with mental illness (Cunningham et al., 2014; Cunningham et al., 2020). Considering Māori in Aotearoa have higher levels of mortality compared with non-Māori (Ministry of Health - Manatū Hauora, 2022), these findings suggest that Māori mental health service users carry a double burden (Cunningham et al., 2014). In addition, Māori men (age 45 – 64) have higher mortality rates than non-Māori men of the general population (Ministry of Health - Manatū Hauora, 2002). Bearing in mind the current study findings of poorer physical health in Māori male participants' above the age of 35 years than that of non-Māori in the same age group, Māori male mental health service users have an additional third burden to bear.

6.2.5 What are mental health service users' enablers and barriers?

An additional key concept that this study aimed to explore was mental health service users' barriers and enablers to physical health. The quantitative and qualitative results of this study emphasized a number of barriers and enablers to physical health such as

accessibility and availability of health services, medication, weight, diagnostic overshadowing, labelling, individualised and personalised care, physical activity preferences.

Accessibility and availability

The accessibility and availability of health services is one of the most common barriers people with mental illness encounter. Especially, GP costs and gym memberships were key themes which emerged from the free-text responses on '*How do you think physical health care could be improved for people with mental illness or addiction issues?'*. The analysis indicated mental health service users face barriers to access physical health care. Some of the responses showed that participants asked for cheaper or government funded access to gym memberships and GP services. Considering the complexity of physical health experiences in relation with participants' mental illness, addressing equitable physical health care by providing free access to GP and gym memberships could be one way of improving their physical health. These results tie well with previous studies wherein participants identified socioeconomic factors such as low income as one of the key barriers to access GP services (Ross et al., 2015).

As an example, in the Waikato, community mental health professionals can refer service users with complex physical health needs to the Integrated Care-Coordination Team (ICCT). This pathway allows mental health service users six free GP and two free nurse consultations within 12 months. However, the ICCT only accepts mental health service users with complex physical health needs. People with mental illness who have minor physical health problems or who would like to see their GP for regular physical assessment, must pay the GP costs. Some of the study participants reported seeing their GP regardless of the costs. However, financially disadvantaged mental health service users sometimes don't see their GP at all. In the past, mental health service users could also obtain a Green Prescription (GRx). The GRx was issued by most GPs and enabled the mental health service user to get free access to a GRx provider such as Sports Waikato in Hamilton. Sports Waikato were able to issue free gym membership. However, this initiative in the Waikato collapsed and mental health service users have no longer access to free gym memberships. Consequently, they are now required to find other ways to improve their physical health and to lose weight.

Medication and weight

For half of the study participants weight was a central topic and major barrier to physical health. They described themselves as overweight at the start of the conversation. Participants spoke about their sedentary behaviours and poor physical function in combination with their weight. Most of these participants felt their weight was a burden to their overall health and was a result of taking psychotropic medications. This is consistent with other research in which mental health service users report that the sedating side effect of psychotropic medication induced sedentary behaviours, hence weight gain (Every-Palmer et al., 2018; Happell et al., 2016a, McCloughen et al., 2016; Rogers et al., 2021; Sayer et al., 2019). In addition, the quantitative findings highlighted that the majority of participants (69.5 %) were taking medication for their mental health or addiction. This shows a high percentage of mental health service users are taking medication. Participants highlighted that psychiatrists often reduced or switched participants' psychotropic medication to another medication with less sedating properties. However, most participants failed to reduce their weight even with a different psychotropic; hence, they suggested doctors to think 'outside the box' and consider alternative medicine. Alternative medicine such as cannabidiol (CBD) was preferred by some participants. One participant reported that their GP prescribed CBD for their pain and poor sleep. CBD has also been effective in lowering psychotic symptoms (McGuire et al., 2017), anxiety and depressive symptoms (Kelly, Gorelick, et al., 2011); had fewer prolactin levels, fewer extrapyramidal symptoms and less weight gain (Leweke et al., 2012).

Exercise and changing their diet aided participants' physical health for a short period, however, they returned back to their sedentary habits. Mental health service users in another study identified a combination of medication and health promoting strategies helped them to lower their weight (Rollins et al., 2017). The study analysis revealed participants were hoping for an in-depth conversation about possible side effects in combination with a holistic well-being check.

GP experience

The relationship and experience with their GP was also a key theme in this study. The findings describe participants' GP experience as both a barrier and enabler to receiving physical health care. The interview participants all spoke about the significance of a good relationship with their GP. In combination with receiving adequate physical health care, participants talked about their emotional needs being addressed through listening, reassuring, supporting, advising, advocating, and showing empathy. Most participants highlighted GPs should care and learn more about their service users by taking their time to establish meaningful relationships. Participants indicated, a basic need for empathy in receiving support from their GP. However, some participants pinpointed the lack of empathy they received when visiting their GP. This is consistent with previous research findings that, in primary care services, staff was less empathic and interested in people with mental illness (Staiger et al., 2017). Study findings suggest providing health care is far more than just listening to people's needs and well-being. In particular, a health professional who places oneself in their shoes, has the ability to understand what they are going through.

Diagnostic overshadowing

Considering the participants' complex physical health experiences, they all understood their physical health as multifactorial with their diagnoses inseparably connected. In this context, participants felt their needs were not often addressed in a holistic manner and were dismissed or ignored. Diagnostic overshadowing and labelling were the most common barriers to establishing a positive relationship with their GP. The study findings showed that mental health service users' physical health is often overshadowed by their mental health diagnosis and not taken seriously. Especially, people with mental illness encounter challenges when visiting primary health care services (Ross et al., 2015). This experience might explain why there is an inequitable physical health care delivery for people with mental illness. Stigmatic approaches, health professionals limited mental health skills and knowledge, and systematic healthcare problems are interconnected factors that are associated with diagnostic overshadowing (Molloy et al., 2021). Concerns about diagnostic overshadowing have led the Equally Well Collaborative to launch the campaign SEE US (Te Pou, 2022), a campaign created to combat diagnostic overshadowing in Aotearoa. SEE US provides

a platform for people with lived experience to share and voice their knowledge and experience with Equally Well partners. The campaign emphasises the principle of trust in care delivery and asks health professionals 'to look beyond the health history'.

Labelling

Study findings indicate that participants felt labelled and put into boxes in relation to their mental illness, a process they experienced as stigmatising. The impact of stigma and being labelled was described as debilitating, and triggered feelings of worthlessness, self-isolation leading to sedentary behaviours, hence weight gain. This is similar to results reported by (Happell et al., 2016a). To understand the cause of this chain reaction it is necessary to find the trigger of this onset of feelings. In particular, diagnostic tools can be contributing factors to the feeling of being labelled (Perkins et al., 2018; Rose & Thornicroft, 2010). Diagnostic mental health tools, such as Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Disease (ICD), are often used without a solid scientific basis (Simmons & Quinn, 2014). Putting mental health service users into boxes and labelling them, restricts the ability to see them as far more than a box or a label. Labelling limits people's ability to learn and grow as individuals themselves. In fact, the overexpansion of diagnostic classifications violates the human understanding of individualism and holism in a way that may cause a narrowing acceptance of the diversity of a human (Priebe et al., 2013). Taking mental health service users' diversity into account, establishing cultural appropriate diagnostic tools, mental health assessments which include the contribution of ties to whānau, hapū, and iwi to well-being, and respects culture and ethnicity appropriately, is key to best practice in providing health care, however a rarity in mental health.

Individualised and personalised

Having an individualised and personalised approach to mental health service users' physical and mental health, is key to primary and secondary health services. Individualised and personalised approaches such as the recovery-orientated approach are a well-known tool in mental health services in Aotearoa (Aldersey et al., 2017).

However, primary health care providers may be unfamiliar with this approach. Moreover, participants explained resourceful health professional who deliver one on one support with individualised plans are able to best support their physical health. The study findings suggest that health professional should have meaningful conversation about physical health enhancing strategies, rather than providing health education via pamphlets. In addition, findings show that clear communication about the rationale for assessments and diagnosis reduces room for speculation. Moreover, participants described health professional expected them to change suddenly and according to the beliefs of health professionals. However, participants found individualised approaches which include gradual lifestyle changes more helpful than a sudden adjustment which was more challenging to follow. This is supported by the, the literature review which suggested that gradual transition, particularly from a sedentary environment to engaging in light physical activities, may promote physical health of those with mental illness (Rogers et al., 2021). Besides, reducing sedentary behaviour by promoting gradual and light physical activities may be a more pragmatic approach.

Physical activity preferences

The study findings identified participants' preferences in context to physical health improving strategies. Most participants preferred activities they could easily do themselves such as walking, yoga and swimming. This result closely resemble those from a European study (Romain et al., 2020). Both results indicate mental health service users chose light physical activities such as walking and yoga over moderate or vigorous activities. In addition, while surfing, rowing, cycling, waka ama involve costs and are more difficult to access, walking and yoga are inexpensive activities. Besides, yoga improves people's fatigue, self-esteem, quality of life (Taspinar et al., 2014), anxiety, somatization of stress, quality of sleep and decreased discomfort due to over-breathing (Telles et al., 2012).

6.2.6 Who is responsible?

Mental health service users in this study wish to see holistic approaches to physical and mental health that is more personalised and less medicalised. Participants spoke about the communication breakdown between GP and mental health services and request a

collaborative and holistic approach to their needs. The need for GP service education in the subject of mental health and collaborative approaches of GP services for mental health service users are required (Ross et al., 2015). As part of the *He Ara Oranga* inquiry, the Mental Health and Addictions Directorate at the Ministry of Health held discussion with attendees from health and disability non-government organisations (NGOs), primary health organisations, and district health boards (Patterson et al., 2018). Holistic approaches to health care delivery was one key themes which emerged during this meeting. One focal point was a request for cross-agency contracts and a collaborative approach to break down silos.

Furthermore, participants in the current study indicated mental health professional are not always supportive of their physical health needs. Mental health nurses show a degree of ambivalence about their role in physical health and to what extend they support mental health service users' complex needs within a multidisciplinary mental health (Happell et al., 2012). Moreover, physical health care can also be addressed by implementing a specialised physical health nurse in mental health services (Happell et al., 2016b). The implementation of a specialised physical health nurse in mental health services has been recognized as possible solution focused approach to work across agencies.

6.3 Limitations

Every research has a variety of limitations (Simon & Goes, 2013). However, mixed methods research is said to join the strengths of quantitative and qualitative research and to dimmish limitations of the individual methods (Pluye & Hong, 2014), thus enabling researchers to explore the topic of interest from various angles. Considering the variety of data collection of mixed methods research, it must be noted that the analysis of both qualitative and quantity data requires more time (Turner et al., 2017). In particular, a sequential explanatory study requires extra time and resources to separate the data collection phases (Almeida, 2018). The researcher needs knowledge of both quantitative and qualitative research in addition to the mixed method approach.

In this research explanatory research study, the qualitative phase followed the quantitative phase. A limitation of this study design was that the qualitative data may have neglected some of the significant concerns which resulted from the quantitative data from the survey due to time constraints. A further limitation relates to the sampling strategy of this study. As outlined in the methods chapter, phase 1 excluded mental health service users of acute and forensic mental health wards. The information about acutely unwell mental health service users would have enriched the findings with their perception of physical health in inpatient facilities. Considering the number of e-texts which were send to mental health service users in the Waikato, the response rate was considerably low. However, low response rates are common in electronic survey research (Sax et al., 2003). The survey was only sent once via e-text. The response rate could have been increased by distributing the survey via printouts and a second e-text. The SF-12 is an effective Quality of Life measure to calculate mental health service users' mental and physical health component score. However, although it is simple as a data collection tool, the SF-12 is a complex measure and involved an in-depth understanding of the scoring. Although the SF-12 syntax was used to measure the New Zealand mean score, subscales scores were neglected due to the complexity of the scoring system (Ware et al., 1998). Moreover, the SF-12 reproduces the SF-36 scores but also includes its problems. The scoring algorithm of the SF-12 indicates that MCS score decrease while the PCS increase, and vice versa. Consequently, the scoring algorithm is based on assumption that mental and physical health are uncorrelated (Westergren & Hagell, 2014). However, qualitative findings of this chapter suggest that physical and mental health are strongly correlated, specifically in mental health service users. Nevertheless, the SF-12 is a noticeably short Quality of Life measure in comparison to the SF-36. Future research may consider the use of the World Health Organisation Quality of Life (WHOQOL) survey.

Prior to phase 2, the researcher contacted potential interviewees end of December. However, the data of the first phase was not analysed, hence interviews were delayed until February. During a follow-up with potential interviewees in January, it was noted that more than half of the potential interviews declined to participate. This showed that more than half of the survey participants who left their contact details to participate in the interview, changed their mind over the two months. While the first

two interview participants were accompanied by a cultural advisor, others did not have the opportunity. As a result, participants reports may differ between the two groups due to a change in setting. Although a trial-interview with colleagues was performed, the interview set-up changed from interview to interview due to the interviewer becoming more comfortable and familiar with the interview process and questions. This may have created more expansions of ideas and more understanding of mental health service users' perception of their physical health in later interviews. A potential future implication would consider peer interviewers as an alternative due to the power dynamics between service user and health professional.

In addition, participants could have been apprehensive to participate in face-to-face interviews due to the previous COVID-19 lockdown and the fear of a virus transmission. On the 16th of December 2021 was the first reported Omicron border case and on the 21st of December was the first attempt to recruit participants for the interview. Initially, participants agreed to participate in the interview, however, declined after Aotearoa moved into the Red setting of the COVID-19 Protection Framework (New Zealand Government, 2022). In fact, experiencing COVID-19-related anxiety and stress decreased health service users desire to participate in research (Cardel et al., 2020). Furthermore, the COVID-19 pandemic has resulted in a survey fatigue, decreased number of responses and poorer data quality (de Koning et al., 2021). Another limitation may have been perceived in having worked in a community team which supports predominantly high complex mental health services, therefore, may have developed a potential bias to the study. This limitation was mitigated by frequent supervision discussions over the period of the study.

6.4 Considerations for health policies

In 2018 the Ministry of Health implemented new strategies to provide equitable access to health care across Aotearoa. In regard to mental health services, people are now able to access mental health and addictions services through primary care providers. This initiative is working towards an inclusion of mental health support across a range of settings, such as general practices, pacific, Kaupapa Māori and community settings. In 2019, funding was approved for primary mental health and addiction support in various districts except the Waikato. With the new restructuring of Te Whatu Ora –

Health New Zealand, community and primary care will be more tailored to the requirements of communities and provide more opportunities for people's voices to be heard (Department of the Prime Minister and Cabinet, 2022). In addition to the implementation of mental health and addiction support in primary health care providers, hearing the voice of people with lived experience is essential to deliver best practice. With a wide range of research focusing on service users' experience, barriers and enablers can be identified and addressed. Therefore, providing a platform to the voice of people with lived experience in relation to their physical health, was key to this research. Service users' and providers' views on shared health care delivery in Aotearoa is subject to be further explored. Including non-clinical staff in collaboration with people with live experience to recruit participants and to conduct the interviews in a non-clinical location is recommended.

6.5 Implications for clinical practice

Mental health nurses' physical health care delivery is dependent on their understanding of the interconnected relationship of mental and physical health. Therefore, a greater emphasis on this interrelated health construct is imperative for nursing education. Regardless, mental health professional are able to accompany service users to their GP and to ensure concerns are not overshadowed by their current mental health diagnosis. The implication of a specialised physical health nurse has also been shown very effective in the delivery of physical health care. Multidisciplinary teams including support workers, social workers, and occupational therapists have significant knowledge on resources and mental health care delivery. Their understanding must be also actively encompassed in the delivery of physical health care. Exercise practitioners and wellbeing coaches, as part of the multidisciplinary mental health, can have an essential role as promoters for healthier lifestyle choices, addressing modifiable risk factors, and as facilitator to reduce stigma and care-seeking amongst mental health service users.

This study highlights a considerable amount of implications for improving mental health service users' physical health. It is key to understand people's barriers to physical health as a holistic construct of health and to address these barriers on multiple levels. The stigma of mental illness (Koschorke et al., 2021) and inequality persists. Previous

biomedical models make it difficult to see service users' physical health as one cornerstone of an interrelated and holistic construct of health. Assessment formats in Aotearoa and Australia are not currently aligned which the contemporary practice and thinking of mental health care (Wand et al., 2020). Furthermore, they do not adequately voice the service users' perspective or encourage comprehensive assessments that include past successes, abilities and skills, individuals strengths and future hopes. In particular, holistic approaches in primary care services are required to address these individualized complex health needs. Interventions must focus on the identified sedentary behaviours and risk factors, include integration and collaboration of other providers and services, be tailored and evidence based, while including whanau and the person themselves at the middle of decision making. A cross-agency approach which includes primary and secondary health care services in combination with a holistic and recovery focused approach is recommended. GPs should be mindful of diagnostic overshadowing and provide enough time for mental health service users to establish a meaning relationship. In addition, clinicians of both primary and secondary health care services are required to develop a shared-understanding and decision on treatment. This ensures not only the clinician-service user alliance, it also improves adherence with treatment (Chakrabarti, 2018).

Clinicians could provide in-depth conversations about harm minimizing strategies such as smoking cessation, weight reducing agents, light exercise and a healthy diet. For example Figure 6.2 presents international guidelines to weight management. Such guidelines could be adopted to help manage the weight issues identified in this study.

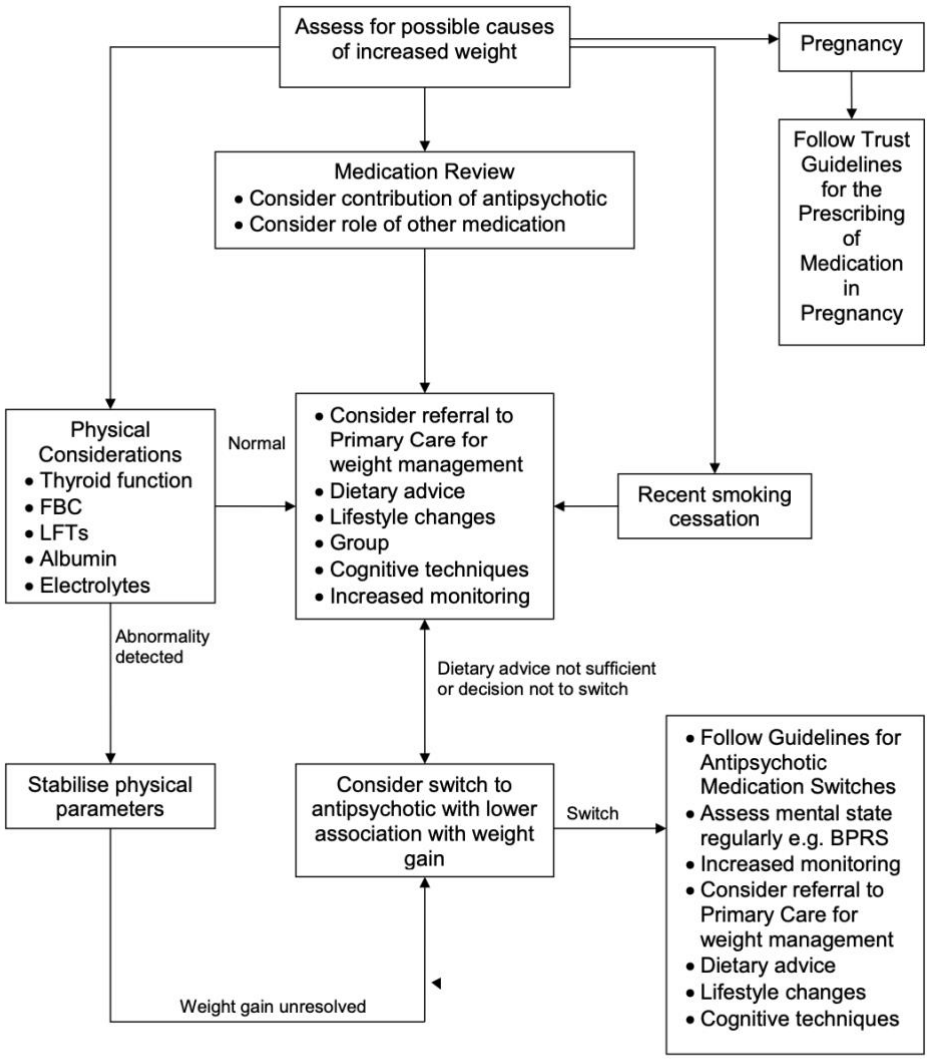


Figure 6.2 Weight management

Note. Adapted from "Medication management tool for antipsychotics" by Oritz-Moya, A., 2021, Retrieved from https://www.hey.nhs.uk/wp/wp-content/uploads/2016/03/antipsychotics.pdf

Although Figure 6.2 does not indicate in-depth conversation, dietary advice, guidance for lifestyle changes and the consideration of a referral to primary care for weight management are crucial for weight management of people with antipsychotics. Motivational interviewing techniques in primary are known to be additional strategies

in lifestyle counselling (Morton et al., 2015; Sonntag et al., 2012) and can be utilised by various health professional.

6.6 Future research

This research study specifically concentrated on mental health service users' perception of their physical health, there are potential ways of improving the research methodology and gather a richer quantitative and qualitative. Potential future research could consider peer interviews as an alternative due to the power dynamics between health professional and mental health service users. Investigations into the effectiveness of co-created physical health interventions may be further explored. In addition, future research could be undertaken to investigate the use of well-being coaches and exercise practitioners to address mental health service users' comorbidities. Regardless of the research objectives, implementing service user experiences needs to occur through all health settings as an evaluation and reflection of person-centred and holistic care.

6.7 Reflection on the research process

The research process began in February 2021. The same time my daughter Mala was born. The birth of my daughter was a memorable but also a difficult process which involved many ups and downs. The process of conducting my research was a similar positive and challenging process. As my daughter experienced the first sunlight and impression of the outside world, I slowly discover the vast world of research. Unknown to research, I stumbled across various topics and learned while I failed numerous times. Similar to my daughter's experiences as she gradually took her first step and improved her walking through trial and error. My motivation was driven by my goal to improve mental health services, however, was I was limited by my family commitment, lack of sleep and the need to prioritise my own mental health. Parallel to the period of conducting the research, I not only gained understanding of research methodologies, but I also adapted to my new role as a father.

My wife was my biggest support person and so were my colleagues at work. Service user advisor Brendon Dolman opened doors and ideas about service user inclusive

research. As I already had a rough outline of my mixed methods study, I had to adapt and re-design my research methods. Initially, I had planned to distribute the survey via hard-copy letter. Due to my experience working with high complex mental health service users with no access to mobile phones, I felt a hard copy would be the only solution of gaining a saturated result. Sending surveys to mental health service users addresses would involve too many costs and too much time, printing labels and packing the envelops. The distribution to rural mental health care providers seemed unproblematic, however, involved many limitations. First, once mental health service users received the survey it would take months to collect and analyse the findings. Secondly, mental health professionals in the rural area would deliver the survey. The survey may lay around peoples' homes for too long and potentially get discarded. Therefore, I decided to send the survey via e-text and risked only receiving responses from mental health service users with a mobile phone. The data analysis through SPSS and NVIVO was an enormous learning curve.

Writing and conducting this research study helped me to become a more reflective health professional and researcher. In regard to the research topic, the more I collected the data the more I realised how important it is to hear people's voices and advocate for their individual needs. This realisation began to influence my nursing practice. This research study gave me joy to teach nursing students on their placements and graduate nurses about the importance of collaborative nursing across primary and secondary health providers. In addition, I encourage mental health professionals to increase their understanding about mental health service users' complex physical health experiences and comorbidities.

6.8 Conclusion

Findings highlight mental health service users' perception of their physical health is linked to their interrelated construct of health. This perception of mental health service users is similar to international studies. In the context of their health needs they face multiple intrinsic and extrinsic barriers. Current and international research has shown mental health service users encounter similar barriers. Medication, weight, accessibility, staff attitude, physical pain and mental pain are key topics in regard to their perceived barriers. Basic therapeutic interventions such as motivational interviewing should be

utilised across all health services. Interventions to address the identified barriers, health care services will collectively need to enhance the accessibility for people with mental illness. In addition, current diagnostic mental health assessments such as the mental state examination need to be replaced by more contemporary assessments that takes the mental health service users' diversity into account. Contemporary mental health assessments are required to respect cultural aspects by including the contribution of family and community ties.

The perceptions expressed by mental health users in this study recommends a need for a wider, personalised, and individualised approach to their complex physical health needs. Health professionals, providers and policies need to recognise and empower mental health service users' efforts to live a balanced by providing them with collaborative individualised cross-agency resources. Mental health professionals can accompany, and advocate service users' needs during their GP visits. Moreover, participants of the current and international study preferred light physical activities such as walking. Mental health professional can facilitate individual to improve body and mind simultaneously. On the other hand, specialised physical health nurses in mental health services can be considered to improve accessibility to physical health care and to address physical health needs for people with mental illness. By taking this collaborative cross-agency stance, health providers have the opportunity to improve the inequity of those with mental illness.

Appendices

Appendix I: Waikato DHB research registration and ethics approval

30 April 2021

Stefan Heinz
Community Mental Health Nurse
Assertive Community Treatment Team
Adult Mental Health and Addictions
Waikato District Health Board

Stefan.Heinz@waikatodhb.health.nz

Dear Stefan,

Research Project (our ref RD021054)

Thank you for providing information on your proposed research project "An investigation into mental health service users' view of physical health".

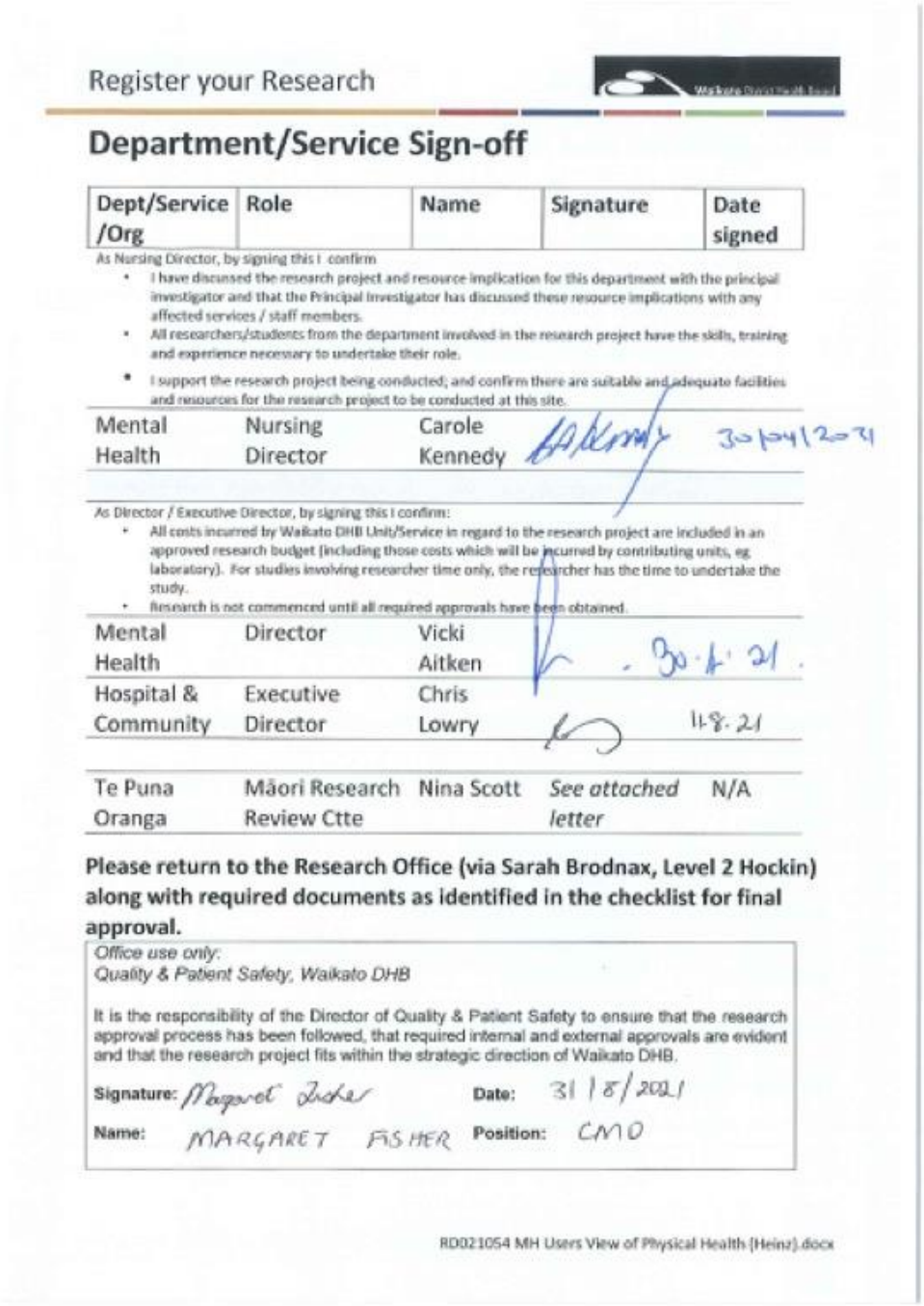
I confirm that your study has been registered at Waikato District Health Board and has been approved in principle by the Nursing Director and Operations Director of Mental Health and Addictions Service. Completion of the locality authorisation process will be contingent upon you gaining ethics approval from University of Waikato.

I look forward to seeing the outcomes of your research.

Yours sincerely,

Sarah Brodnax

Sarah Brodnax
Coordinator - Governance
Quality & Patient Safety



Register your Research

Department/Service Sign-off

Dept/Service /Org	Role	Name	Signature	Date signed
As Nursing Director, by signing this I confirm • I have discussed the research project and resource implication for this department with the principal investigator and that the Principal Investigator has discussed these resource implications with any affected services / staff members. • All researchers/students from the department involved in the research project have the skills, training and experience necessary to undertake their role. • I support the research project being conducted; and confirm there are suitable and adequate facilities and resources for the research project to be conducted at this site.				
Mental Health	Nursing Director	Carole Kennedy		30/04/2021
As Director / Executive Director, by signing this I confirm: • All costs incurred by Waikato DHB Unit/Service in regard to the research project are included in an approved research budget (including those costs which will be incurred by contributing units, eg laboratory). For studies involving researcher time only, the researcher has the time to undertake the study. • Research is not commenced until all required approvals have been obtained.				
Mental Health	Director	Vicki Aitken		30.4.21
Hospital & Community	Executive Director	Chris Lowry		11.8.21
Te Puna Oranga	Māori Research Review Ctte	Nina Scott	*See attached letter*	N/A

Please return to the Research Office (via Sarah Brodnax, Level 2 Hockin) along with required documents as identified in the checklist for final approval.

Office use only:
Quality & Patient Safety, Waikato DHB

It is the responsibility of the Director of Quality & Patient Safety to ensure that the research approval process has been followed, that required internal and external approvals are evident and that the research project fits within the strategic direction of Waikato DHB.

Signature: Margaret Fisher **Date:** 31/8/2021

Name: MARGARET FISHER **Position:** CMO

RD021054 MH Users View of Physical Health (Heinz).docx

Appendix II: Māori ethics approval

Te Puna Oranga Māori Research Review Committee

12 May 2021

Re: Māori Consultation for 'An investigation into mental health service users' view of physical health.'

Name of Applicant: Stefan Heinz

Tēnā Koe Stefan,

Thank you for submitting the above research proposal to the Waikato DHB Te Puna Oranga Māori Research Review Committee for Māori consultation. The research application has been reviewed in order to support and prompt the researcher to think about how this research will improve health outcomes and eliminate inequity for Māori living within the Waikato DHB region.

1. The Committee acknowledges the researchers for collecting ethnicity data as part of a demographic background of the participant to improve data collection for Māori in order to improve Māori health outcomes and reduce inequity for Māori.

2. The Committee encourages the research team to actively recruit equal numbers of Māori and Non-Māori. Any Research that involves Māori participation would require sufficient face to face time for fully informed consent to occur. Inclusion of the whānau of the Māori participant should be encouraged to support the continued engagement of the Maori participant in the research process.

3. The Committee encourages all research that involves participation of individuals, especially Māori participants to fully inform them regarding the detail of tissue collection. One consent form for the current use of Tissue. One consent form for the future use of tissue (this should be clear to the participant).

4. Studies using retrospective data must respect Maori data as outlined in Te Mana Raraunga: ***5.1 Respect***. *The collection, use and interpretation of data shall uphold the dignity of Māori communities, groups and individuals. Data analysis that stigmatises or blames Māori can result in collective and individual harm and should be actively avoided.*

   Reference: Te Mana Raraunga: Principles of Māori Data Sovereignty. Brief #1 | October 2018. https://static1.squarespace.com/static/58e9b10f9de4bb8d1fb5ebbc/t/5bda208b4ae237cd89ee16e9/1541021836126/TMR+Ma%CC%84ori+Data+Sovereignty+Principles+Oct+2018.pdf (Accessed August 2019)

5. If cultural issues arise for the Māori participant during any research, they will inform the research team during the study that an issue has occurred. Cultural issues may not be obvious to the participant or the researcher prior to commencement of the research.

6. The Committee encourages the research team to continue to consult with Te Puna Oranga, Māori Health service at any time, should they have any further queries.

7. Feedback regarding this research is appreciated and can be shared back to the Kaunihera Kaumatua via Te Puna Oranga Māori Health Service

The Committee noted that there does not appear to be any provision for whanau or family consent, and wondered if that had been considered. They also suggested you may wish to consider asking about an individual's cultural well-being at the beginning of the questions. The Committee endorses this research proposal with the consideration of the above cultural recommendations where appropriate and requests the researcher to collect ethnicity data for all study participants seen at Waikato DHB for our own internal records.

Dr Nina Scott
Te Puna Oranga-Maori Health Service

Appendix III: HREC ethics approval

The University of Waikato Human Research Ethics Committee
Private Bag 3105 Roger Moltzen
Gate 1, Knighton Road Telephone: +64021658119
Hamilton, New Zealand Email:humanethics@waikato.ac.nz

15 June 2021

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Stefan Heinz
Te Huataki Waiora School of Health
DHECS
By email: sh451@students.waikato.ac.nz

Dear Stefan

HREC(Health)2021#35 : An investigation into mental health service users' view of physical health

Thank you for your responses to the Committee feedback.
We are now pleased to provide formal approval for your project.
Please contact the committee by email (humanethics@waikato.ac.nz) if you wish to make changes to your project as it unfolds, quoting your application number with your future correspondence. Any minor changes or additions to the approved research activities can be handled outside the monthly application cycle.

We wish you all the best with your research.

Regards,

Emeritus Professor Roger Moltzen MNZM Chairperson
University of Waikato Human Research Ethics Committee

Appendix IV: Letter from service user advisor

To whom it may concern,

I have been asked to forward my thoughts and support for Stefan Heinz in his efforts to bring focus to a much needed area of improvement. As a user of mental health and addictions services I am aware that psychiatric medications has a considerable negative affect on physical health and along with the conditions brought about by unemployment, social, financial restrictions and the challenges of trying to make healthy food choices on such small budgets, it is not hard to see why this research has such value.

Stefan brings with him a fresh set of eyes to a longstanding issue that is faced by many Tāngata Whaiora Whānau over many years and he recognises the potential this topic has in improving all 4 Pou in relation to a person's Te Whare Tapawha.

Stefan is supported along this research journey by a number of our staff. With his open and genuine self and the care he gives to those around him it is not hard to see why confidence in Stefan is so high.

I look forward to supporting Stefan with this work and like others, am willing to invest in both this important topic and the potential that sits within Stefan.

Brendon Dolman

Recovery Advisor – Quality

Waikato Mental Health & Addictions Services

[Unsigned]

Appendix IV: Survey e-text

Kia Ora.

You are invited to take part in an anonymous online survey focusing on physical well-being. The study is being conducted through the University of Waikato.

The link below directs you to the online survey:

https://waikato.qualtrics.com/jfe/form/SV_24azkFeaBGA8StE

Ethics approval: HREC(Health)2021#35. Associate Professor Anthony O'Brien anthony.obrien@waikato.ac.nz

Appendix V: Survey

Physical Health Survey

Start of Block: SF-12

Intro
You are invited to take part in this research. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to participate, thank you for considering this request.

What is the aim of the project?
This project will explore people's views of their physical health, how they prefer to improve their physical health, and whether there is a need for peer support and Kaupapa Māori approaches. Your participation will support this research by exploring your individual point of view.

This research has been approved by the University of Waikato Human Ethics Committee [HREC(Health)2021#35] and the Waikato District Health Board [RD021054].

How can you help?
By completing this survey, you are contributing valuable insight on how GPs and Adult Mental Health Services better support people's physical health.

What will happen to the information you give?
This survey is anonymous. The summaries and any recordings will be kept securely and destroyed after 5 years.

What will the project produce?
The information from my research will be used in my Honours thesis and an academic publication.

Who am I?

My name is Stefan Heinz; I am a Community Mental Health Nurse and student in the BN Honours at the University of Waikato. This research project is contributing towards my thesis.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact:

Name: Associate Professor Anthony O'Brien
Role: Supervisor
School: University of Waikato
Phone: +64 27 277 0269
E-mail: anthony.obrien@waikato.ac.nz

Page Break

Q1 This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. Please answer every question by marking one box. If you are unsure about how to answer, please give the best answer you can.

In general would you say your health is:

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

Page Break

Q2

The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

Moderate activities, such as moving a table, pushing a vacuum cleaner or sporting activities

- ○ Yes, limited a lot
- ○ Yes, limited a little
- ○ No, not limited at all

Q3 Climbing several flights of stairs

- ○ Yes, limited a lot
- ○ Yes, limited a little
- ○ No, not limited at all

Page Break

Q4 During the past week, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

Accomplished less than you would like

- ○ Yes
- ○ No

Q5 Were limited in the kind of work or other activities

○ Yes

○ No

Page Break

Q6 During the past week, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

Accomplished less than you would like

○ Yes

○ No

Q7 Didn't do work or other activities as carefully as usual

○ Yes

○ No

Page Break

Q8 During the past week, how much did pain interfere with your normal work (including both work outside the home and housework)?

○ Not at all

○ A little bit

○ Moderately

○ Quite a bit

○ Extremely

Page Break

Q9 These questions are about how you feel and how things have been with you during the past week. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past week.

Have you felt calm and peaceful

○ All of the time

○ Most of the time

○ A good bit of the time

○ Some of the time

○ A little of the time

○ Not at all

Page Break

Q10 Did you have a lot of energy?

○ All of the time

- ○ Most of the time
- ○ A good bit of the time
- ○ Some of the time
- ○ A little of the time
- ○ Not at all

Page Break

Q11 Have you felt downhearted and blue?

- ○ All of the time
- ○ Most of the time
- ○ A good bit of the time
- ○ Some of the time
- ○ A little of the time
- ○ Not at all

Page Break

Q12 During the past week, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

- ○ All of the time
- ○ Most of the time
- ○ A good bit of the time

○ Some of the time

○ A little of the time

○ Not at all

End of Block: SF-12

Start of Block: Need

Q13 Do you like to do things on your own or to be part of a group-based activity? I prefer:

○ Exercising alone

○ Exercising with a training buddy

○ Team sports and/or group physical activity programs

○ I enjoy all of these, and would like a mixture of them

Page Break

Q14 Would you like to improve your physical health?

○ Absolutely

○ Quite a bit

○ Moderately

○ A little bit

○ Not at all

Page Break

Q15 What do you think would improve your physical health? Please indicate all the options that apply to you.

- [ ] Smoking cessation
- [ ] Healthy eating
- [ ] Physical activity
- [ ] Reducing alcohol
- [ ] Reducing substance use

Page Break

Q16 What physical activities would you like to try? Please indicate all the options that apply to you.

- [ ] Cycling
- [ ] Gym
- [ ] Running
- [ ] Walking
- [ ] Swimming
- [ ] Waka ama
- [ ] Rowing
- [ ] Surfing
- [ ] Yoga

☐ Others: _____

Page Break

Q17
(If Māori) How do you feel about Kaupapa Māori support groups?

○ There is a high need

○ There is a need

○ There is no need

Page Break

Q18 How do you think physical health care could be improved for people with mental illness or addiction issues?

_____

End of Block: Need

Start of Block: General Questions

Q19 Do you have a regular family doctor/GP?

○ Yes

○ No

Page Break

Q20 How often do you usually see your GP?

- ○ At least once a month
- ○ Once in a couple of months
- ○ Once every 3 months
- ○ Once every 6 months
- ○ Once every year
- ○ Less than every year
- ○ Unsure

Page Break

Q21 Have you been diagnosed with or treated for, any of the following health conditions by a doctor in the last five years?

- ☐ High blood pressure
- ☐ Diabetes (Type 2)
- ☐ Heart Disease
- ☐ Asthma
- ☐ High Cholesterol
- ☐ Other (please state): _____

Page Break

Q22 Do you have a physical health condition or disability that limits you, and that has lasted for 6 months or more

- ○ Yes
- ○ No
- ○ If yes, please state: _____

Page Break

Q23 Do you take regular medication for mental health or addiction?

- ○ Yes
- ○ No
- ○ Unsure

Page Break

Q24 Were you told about potential physical side effects of your mental health or addiction medication?

- ○ Yes
- ○ No
- ○ Unsure
- ○ Please tell us more: _____

Page Break

Q25 Do you currently smoke tobacco?

○ Yes

○ No

Page Break

End of Block: General Questions

Start of Block: Demographics

Q26 How long have you been with Mental Health and Addiction Services?

- ○ less than 1 year
- ○ 1-5 years
- ○ 6-10 years
- ○ 11-20years
- ○ More than 20 years

Page Break

Q27 Which ethnic group(s) do you belong to? Please tick all that apply

- ☐ New Zealand Māori
- ☐ NZ European/ Pākehā
- ☐ Samoan
- ☐ Cook Island Māori
- ☐ Tokelau
- ☐ Tongan
- ☐ Niuean
- ☐ Chinese
- ☐ Indian

☐ Other (please state): _____

Page Break

Q28 How old are you?

○ Under 18 years old

○ 18 - 24 years old

○ 25 - 34 years old

○ 35 - 44 years old

○ 45 - 54 years old

○ 55 - 65 years old

○ 65+ years old

Page Break

Q29 What gender do you identify as?

○ Male

○ Female

○ Gender diverse

○ Other (please state): _____

Page Break

Q30 What district do you mainly live in?

- ○ Hamilton
- ○ Hauraki
- ○ Matamata-Piako
- ○ Otorohanga
- ○ South Waikato
- ○ Taupo
- ○ Thames-Coromandel
- ○ Rotorua
- ○ Waikato
- ○ Waitomo
- ○ Waipa

Page Break

Q31 In which environment do you currently live?

- ○ Urban
- ○ Rural
- ○ Semi-rural

Page Break

Q32 How would you describe your current accommodation?

- ○ Independent living

○ Flatting with others

○ Supported accommodation

○ Living at home with my family/whanau

○ Emergency accommodation

○ Homeless

End of Block: Demographics

Start of Block: Contact Details

Q33 Please leave your email address or mobile number, if you wish to have a **conversation about <u>your</u> view on physical health** with the researcher and a cultural advisor.

_____

End of Block: Contact Details

Start of Block: Block 3

Appendix VI: Participant information sheet and consent form

Mental health service users' views of physical health

INFORMATION SHEET FOR PARTICIPANTS

You are invited to take part in this research. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to participate, thank you for considering this request.

Who am I?
My name is Stefan Heinz, and I am an Honours student in Health Science – Research Thesis at the University of Waikato. This research project is work towards my thesis.

What is the aim of the project?
This project will explore people's view of their physical health, how they prefer to improve their physical health and whether there is a need for peer support and kaupapa Māori approaches.
Your participation will support this research by exploring your individual point of view. This research has been approved by the University of Waikato Human Ethics Committee *HREC(Health)2021#35*.

How can you help?
By taking part in the interview, you are contributing valuable insight on how GP's and Adult Mental Health Services better support people's physical health.
If you agree to take part, I will interview you at Adult Mental Health Services at London Street in Hamilton. I will ask you questions about your general and physical health. The interview will take approx. 60 minutes. I will audio record the interview with your permission, and I write it up later. You can choose to not answer any question or stop the interview at any time, without giving a reason. You can withdraw from the study by contacting me at any time before the March 2022. If you withdraw, the information you provided will be destroyed or returned to you.

What will happen to the information you give?

This research is confidential. This means that the researcher and the interviewer named below will be aware of your identity, but the research data will be combined, and your identity will not be revealed in any reports, presentations, or public documentation.

Only my supervisors and I will read the notes or transcript of the interview. The interview transcripts, summaries and any recordings will be kept securely and destroyed after 5 years.

What will the project produce?

The information from my research will be used in my Honours thesis and an academic publication.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question;
- withdraw from the study is possible up to three weeks after the interview.
- ask any questions about the study at any time.
- receive a copy of your interview transcript;
- read over and comment on a written summary of your interview;
- be able to read any reports of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact me or my supervisor:

Researcher:		Supervisor:
Name: Stefan Heinz		Name: Professor Anthony O'Brien
Phone: 027 38 48 948		Role: Supervisor
Email	address:	School: University of Waikato
Stefan.Heinz@waikatodhb.health.nz		Phone: +64 27 277 0269
		E-mail: anthony.obrien@waikato.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research, you may contact the University of Waikato HEC. Email humanethics@waikato.ac.nz or telephone +64 7 838 4166.

Mental health service users' views of physical health

CONSENT TO INTERVIEW

This consent form will be held for 5 years.

Researcher: Stefan Heinz, University of Waikato.

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.

- I agree to take part in an audio recorded interview.

I understand that:

- I may withdraw from this study up to three weeks after the interview, and any information that I have provided will be returned to me or destroyed.

- The identifiable information I have provided will be destroyed after 5 years.

- Any information I provide will be kept confidential to the researcher and the supervisor.

- I understand that the findings may be used for an academic publication.

- I understand that the recordings will be kept confidential to the researcher and the supervisor.

- My name will not be used in reports and utmost care will be taken not to disclose any information that would identify me.

-

- I would like a copy of the recording of my interview: Yes ☐ No ☐

- I would like a copy of the transcript of my interview: Yes ☐ No ☐
- I would like a summary of my interview: Yes ☐ No ☐
- I would like to receive a copy of the final report and have added my email address below. Yes ☐ No ☐

Signature of participant: _____

Name of participant: _____

Date: _____

Signature of Whānau/family member: _____

Name of Whānau/family member:

_____

Date: _____

E-mail address if you would like a research summary:

Appendix VII: Syntax

```
RECODE Q1 (1=5) (2=4) (3=3) (4=2) (5=1) INTO Q1_a.
RECODE Q8 (1=5) (2=4) (3=3) (4=2) (5=1) INTO Q8_a.
RECODE Q9 (1=6) (2=5) (3=4) (4=3) (5=2) (6=1) INTO Q9_a.
RECODE Q10 (1=6) (2=5) (3=4) (4=3) (5=2) (6=1) INTO Q10_a.
EXECUTE.
RECODE Q2 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO PF02_1.
RECODE Q2 (MISSING=SYSMIS) (2=1) (ELSE=0) INTO PF02_2.
RECODE Q3 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO PF04_1.
RECODE Q3 (MISSING=SYSMIS) (2=1) (ELSE=0) INTO PF04_2.
RECODE Q4 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO RP2_1.
RECODE Q5 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO RP3_1.
RECODE Q8_a (MISSING=SYSMIS) (1=1) (ELSE=0) INTO BP2_1.
RECODE Q8_a (MISSING=SYSMIS) (2=1) (ELSE=0) INTO BP2_2.
RECODE Q8_a (MISSING=SYSMIS) (3=1) (ELSE=0) INTO BP2_3.
RECODE Q8_a (MISSING=SYSMIS) (4=1) (ELSE=0) INTO BP2_4.
RECODE Q1_a (MISSING=SYSMIS) (1=1) (ELSE=0) INTO GH1_1.
RECODE Q1_a (MISSING=SYSMIS) (2=1) (ELSE=0) INTO GH1_2.
RECODE Q1_a (MISSING=SYSMIS) (3=1) (ELSE=0) INTO GH1_3.
RECODE Q1_a (MISSING=SYSMIS) (4=1) (ELSE=0) INTO GH1_4.
RECODE Q11 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO MH4_1.
RECODE Q11 (MISSING=SYSMIS) (2=1) (ELSE=0) INTO MH4_2.
RECODE Q11 (MISSING=SYSMIS) (3=1) (ELSE=0) INTO MH4_3.
RECODE Q11 (MISSING=SYSMIS) (4=1) (ELSE=0) INTO MH4_4.
RECODE Q11 (MISSING=SYSMIS) (5=1) (ELSE=0) INTO MH4_5.
RECODE Q9_a (MISSING=SYSMIS) (1=1) (ELSE=0) INTO MH3_1.
RECODE Q9_a (MISSING=SYSMIS) (2=1) (ELSE=0) INTO MH3_2.
RECODE Q9_a (MISSING=SYSMIS) (3=1) (ELSE=0) INTO MH3_3.
RECODE Q9_a (MISSING=SYSMIS) (4=1) (ELSE=0) INTO MH3_4.
RECODE Q9_a (MISSING=SYSMIS) (5=1) (ELSE=0) INTO MH3_5.
RECODE Q6 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO RE2_1.
RECODE Q7 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO RE3_1.
RECODE Q12 (MISSING=SYSMIS) (1=1) (ELSE=0) INTO SF2_1.
```

```
RECODE Q12 (MISSING=SYSMIS) (2=1) (ELSE=0) INTO SF2_2.
RECODE Q12 (MISSING=SYSMIS) (3=1) (ELSE=0) INTO SF2_3.
RECODE Q12 (MISSING=SYSMIS) (4=1) (ELSE=0) INTO SF2_4.
RECODE Q10_a (MISSING=SYSMIS) (1=1) (ELSE=0) INTO VT2_1.
RECODE Q10_a (MISSING=SYSMIS) (2=1) (ELSE=0) INTO VT2_2.
RECODE Q10_a (MISSING=SYSMIS) (3=1) (ELSE=0) INTO VT2_3.
RECODE Q10_a (MISSING=SYSMIS) (4=1) (ELSE=0) INTO VT2_4.
RECODE Q10_a (MISSING=SYSMIS) (5=1) (ELSE=0) INTO VT2_5.
EXECUTE.

COMPUTE PF = (-7.23216*PF02_1) + (-3.45555*PF02_2) + (-6.24397*PF04_1) +
(-2.73557*PF04_2) + (3.93115*PF02_1) + (1.8684*PF02_2) + (2.68282*PF04_1) +
(1.43103*PF04_2).
EXECUTE.

COMPUTE RP = (-4.61617*RP2_1) + (-5.51747*RP3_1) + (1.4406*RP2_1) +
(1.66968*RP3_1).
EXECUTE.

COMPUTE BP = (-11.25544*BP2_1) + (-8.38063*BP2_2) + (-6.50522*BP2_3) + (-
3.80130*BP2_4) + (1.48619*BP2_1) + (1.76691*BP2_2) + (1.49384*BP2_3) +
(0.90384*BP2_4).
EXECUTE.

COMPUTE GH = (-8.37399*GH1_1) + (-5.56461*GH1_2) + (-3.02396*GH1_3) +
(-1.31872*GH1_4) + (-1.71175*GH1_1) + (-0.16891*GH1_2) + (0.03482*GH1_3)
+ (-0.06064*GH1_4).
EXECUTE.
.

COMPUTE VT = (-2.44706*VT2_1) + (-2.02168*VT2_2) + (-1.6185*VT2_3) + (-
1.14387*VT2_4) + (-0.42251*VT2_5) + (-6.02409*VT2_1) + (-4.88962*VT2_2) + (-
3.29805*VT2_3) + (-1.65178*VT2_4) + (-0.92057*VT2_5).
EXECUTE.
```

COMPUTE SF = (-0.33682*SF2_1) + (-0.94342*SF2_2) + (-0.56193*SF2_3) + (-0.18043*SF2_4) + (-6.29724*SF2_1) + (-8.26066*SF2_2) + (-6.94676*SF2_3) + (-5.63286*SF2_4).
EXECUTE.

COMPUTE RE = (3.04365*RE2_1) + (2.32091*RE3_1) + (-6.82672*RE2_1) + (-5.69921*RE3_1).
EXECUTE.

COMPUTE MH = (3.46638*MH3_1) + (2.90426*MH3_2) + (2.37241*MH3_3) + (1.36689*MH3_4) + (0.66514*MH3_5) + (4.61446*MH4_1) + (3.41593*MH4_2) + (2.34247*MH4_3) + (1.28044*MH4_4) + (0.41188*MH4_5) + (-10.19085*MH3_1) +
(-7.92717*MH3_2) + (-6.31121*MH3_3) + (-4.09842*MH3_4) + (-1.94949*MH3_5) + (-16.15395*MH4_1) + (-10.77911*MH4_2) + (-8.09914*MH4_3) + (-4.59055*MH4_4) + (-1.95934*MH4_5).
EXECUTE.

COMPUTE prePCS12RAW = (-7.23216*PF02_1) + (-3.45555*PF02_2) + (-6.24397*PF04_1) + (-2.73557*PF04_2) + (-4.61617*RP2_1) + (-5.51747*RP3_1) + (-11.25544*BP2_1) + (-8.38063*BP2_2) + (-6.50522*BP2_3) + (-3.80130*BP2_4) + (-8.37399*GH1_1) +
(-5.56461*GH1_2) + (-3.02396*GH1_3) + (-1.31872*GH1_4) + (-2.44706*VT2_1) + (-2.02168*VT2_2) + (-1.6185*VT2_3) + (-1.14387*VT2_4) + (-0.42251*VT2_5) + (-0.33682*SF2_1) + (-0.94342*SF2_2) + (-0.56193*SF2_3) + (-0.18043*SF2_4) + (3.04365*RE2_1) + (2.32091*RE3_1) + (3.46638*MH3_1) + (2.90426*MH3_2) + (2.37241*MH3_3) + (1.36689*MH3_4) + (0.66514*MH3_5) + (4.61446*MH4_1) + (3.41593*MH4_2) + (2.34247*MH4_3) + (1.28044*MH4_4) + (0.41188*MH4_5).
EXECUTE.

COMPUTE preMCS12RAW = (3.93115*PF02_1) + (1.8684*PF02_2) + (2.68282*PF04_1) + (1.43103*PF04_2) + (1.4406*RP2_1) + (1.66968*RP3_1) + (1.48619*BP2_1) + (1.76691*BP2_2) +

(1.49384*BP2_3) + (0.90384*BP2_4) + (-1.71175*GH1_1) + (-0.16891*GH1_2) + (0.03482*GH1_3) + (-0.06064*GH1_4) + (-6.02409*VT2_1) + (-4.88962*VT2_2) + (-3.29805*VT2_3) +
(-1.65178*VT2_4) + (-0.92057*VT2_5) + (-6.29724*SF2_1) + (-8.26066*SF2_2) + (-6.94676*SF2_3) + (-5.63286*SF2_4) + (-6.82672*RE2_1) + (-5.69921*RE3_1) + (-10.19085*MH3_1) +
(-7.92717*MH3_2) + (-6.31121*MH3_3) + (-4.09842*MH3_4) + (-1.94949*MH3_5) + (-16.15395*MH4_1) + (-10.77911*MH4_2) + (-8.09914*MH4_3) + (-4.59055*MH4_4) + (-1.95934*MH4_5).
EXECUTE.

COMPUTE PCS12 = prePCS12RAW + 56.57706.
COMPUTE MCS12 =preMCS12RAW + 60.75781.
EXECUTE.

Appendix VIII: Written correspondence with Simon Brown (Principal Analyst – Ministry of Health)

From: Stefan Heinz <Stefan.Heinz@waikatodhb.health.nz>
Sent: Tuesday, 26 April 2022 8:28 am
To: Simon Brown <Simon.Brown@health.govt.nz>
Subject: RE: Form Submission - Contact Kotata

Morena Simon.

I hope you had a great weekend.
I was not able to convert my scoring to the NZ population. I scored the SF12 using the old-school guide from John Ware.
It would be awesome if you could use the same weight to score the NZ Health Survey for the recent year. Please find the SPSS syntax attached.

Thanks heaps
Ngaa mihi
Stefan

From: Simon Brown <Simon.Brown@health.govt.nz>
Sent: Tuesday, 26 April 2022 11:07
To: Stefan Heinz <Stefan.Heinz@waikatodhb.health.nz>
Subject: RE: Form Submission - Contact Kotata

This email is from an external source. Please be careful if opening any attachments or clicking on links within the email
Waikato DHB IS

Mōrena Stefan

Thanks for sending that code through. Interesting – it's a bit different to the method we have coded, which sets up the z-scores for each of the subscales and then uses these to calculate PCS and MCS.

I can see though that John Ware's method is based on US population norms – and so is ours. So they should be broadly equivalent. I get the following scores for the 2019/20 year of the NZ Health Survey:

- Mean PCS score is 50.5
- Mean MCS score is 52.7

So, the NZ population results look similar to the US population norms for physical wellbeing but a bit better for mental wellbeing (as the NZ score is slightly above 50). The 95% confidence interval around both results is plus/minus 0.25.

These are unofficial estimates and I can't say for sure that they're exactly comparable to your own survey results, as our scoring code works a bit differently to yours. But this is our best estimate for the 2019/20 NZHS based on the US population norms (which you are also using).

I've used the 2019/20 NZHS year as the following year (2020/21) was significantly affected by Covid in terms of fieldwork etc.

Hope you had a good weekend too.

Simon

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