The Value of Allied Health Activity in a District Health Board Setting in New Zealand

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Abstract

Introduction: Workforce planning for allied health is complex and difficult. Measurement of allied health service activity is a key component of understanding service delivery and capacity. Activity data of allied health professionals' work is currently being captured in New Zealand District Health Boards (DHB) to develop a methodology to determine allied health staffing requirements. The purpose of this research was to determine if DHBs in New Zealand are measuring the allied health workplace activities that matter to patients, allied health staff, and managers. The research focused on one specific DHB as an exemplar. There were two aims: first, to investigate what activities allied health staff undertook at the Bay of Plenty District Health Board (BOPDHB); and second, to explore what allied health workplace activities were the most important to patients, allied health staff, and managers at the BOPDHB.

Methodology: A sequential mixed methods design, underpinned by pragmatism, was used to address both aims of the study. The initial quantitative phase collected allied health activity data from the BOPDHB. The data were analysed using a one-way ANOVA and post hoc analysis on six allied health disciplines' clinical care ratios and descriptive statistics of clinical activities which aligned to New Zealand national data standards. The subsequent qualitative phase used semi-structured interviews with patient, allied health staff, and manager participants at the BOPDHB to determine what activities were most important to each stakeholder. The interview transcripts were analysed using conventional content analysis.

Results: The quantitative analysis demonstrated that the BOPDHB used a broad approach to measure allied health workplace activities and showed different activity patterns across different disciplines. A large proportion of all clinical allied health workplace activity was indirect (43.5%); this was higher in the allied health assistant (51.7%), occupational therapy (53%), and social work (45.3%) disciplines. The qualitative analysis constructed three categories of important allied health workplace activities: building positive relationships; providing meaningful care; and backstage activities, such as non-clinical work and indirect patient activity. Allied health managers and staff had contrasting views on the importance of recording of activity statistics.

Discussion: The current approach to measuring allied health activity provides high-level insights into the work done by allied health in New Zealand DHBs. While this may be important for workforce planning, benchmarking, and understanding staff resourcing requirements for allied health services, an unintended consequence of this high-level approach is that aspects of allied health care which matter most to patients and allied health staff, such as relational practice and meaningful patient outcomes, are not visible. The current focus on metrics that matter to the organisation may mean that allied health staff struggle to prioritise and legitimise aspects of care which matter to patients. This study has highlighted a significant proportion of work conducted by allied health staff is indirect and often unseen. The results from this research support the calls for a national approach to measuring the outcomes of allied health activity which matter to patients; this would ensure what matters to patients is not lost to organisational and economic priorities when planning allied health services.

Contents

List of Figures

List of Tables

List of Appendices

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

30th July 2023

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Signature Date

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Ethics Approval

Ethical approval was obtained from:

- AUT University Ethics Committee (20/288) on 15th October 2020
- Bay of Plenty District Health Board Clinical School (2020-80) on 26th August 2020
- Toi Ora Māori Health Gains & Development (1666) on 24th August 2020

Chapter 1 Introduction

Allied health professionals are a key part of the health workforce. While there is evidence of the positive impacts of the work done by allied health professionals, their contribution is poorly understood and largely invisible in the context of medically dominated health systems (Philip, 2015). This research will focus on the growing emphasis placed upon allied health activity measurement in the New Zealand public health setting. This study will provide a greater understanding of the value of this diverse workforce and what they offer to patients and the health system (Ministry of Health, 2021). This introductory chapter will set the scene for the research by outlining the research question and aims. After discussing the background, rationale, and potential implications of this research, I will outline my own positioning and what has brought me to this research, in a short reflexive section. In the final section of this chapter, I provide an overview of the thesis structure and outline what the reader can expect in each chapter.

1.1 Research question and aims

The primary purpose of this research is to obtain a greater understanding of the concept of high-value allied health activity in the New Zealand public health context. The research question was:

> Are District Health Boards in New Zealand measuring the workplace activities that matter to patients, allied health staff and managers?

This research will focus on one District Health Board (DHB) as an exemplar. The overall question will be answered by addressing two research aims:

1. To investigate what activities allied health staff do at the Bay of Plenty District Health Board (BOPDHB).
2. To explore what allied health workplace activities are the most important to patients, allied health staff, and managers at the BOPDHB.

1.2 Background

1.2.1 Allied health professionals and assistants

Allied health professionals are a group of autonomous health care professionals who provide care in a variety of clinical and administrative settings (Ministry of Health, 2019). In the absence of an internationally agreed definition of allied health professionals, a common approach has been to group practitioners who are not part of the medical, nursing, or dental professions (Ministry of Health, 2019; Turnbull et al., 2009). In New Zealand, the allied health scientific and technical workforce consist of 30,000 people from over 50 disciplines and as a collective represent the second largest workforce in District Health Boards (DHBs) after nursing (Allied Health Aotearoa New Zealand, 2017). The breadth and scope of allied health practice has the potential to meet the evolving and growing health needs of New Zealanders (Ministry of Health, 2021).

Allied health assistants are a workforce of growing importance within the modern healthcare setting, this role assists and supports degree-qualified allied health professionals with a range of delegated clinical and non-clinical tasks (Lizarondo et al., 2010; Somerville et al., 2015; Stanhope & Pearce, 2013). The research question and aims refer to allied health staff throughout this thesis. This encompasses the allied health assistant workforce and allied health professions within the context of BOPDHB.

The highly skilled allied health workforce provides a range of activities across the entire health system including private practice, education, primary care, secondary care, public health, and non-government sectors (Ministry of Health, 2021). These activities vary by profession, role, and setting, but may include: assessment, rehabilitation, diagnostics, advocacy, leadership, counselling, research, support, and education (Allied Health Aotearoa New Zealand, 2017; National Health Service Education for Scotland, 2021). Which specific activities are done is influenced by who allied health provide care for, where the activity occurs, and the purpose of the episode of care (Turnbull et al., 2009). The allied health workforce also conducts non-clinical activities such as research, professional development, administration and management, which are crucial in providing safe and effective services (Jones & Jenkins, 2014; Scottish Executive National Health Service, 2006). Given the complex

and multifaceted nature of the work done by allied health services, leaders in health care settings need to ensure that future planning will provide sufficient resource and time for allied health to provide quality care and optimise patient outcomes (Jones & Jenkins, 2014).

1.2.2 Context of research

This research focuses on the workplace activities carried out by allied health staff in the New Zealand public health system. The public health system has its origins from the passing of the Social Security Act (1938), driven by the government's vision of free health care for all New Zealanders (Ashton, 2005). The New Zealand health system performs well, with longer life expectancies and higher patient reported health for adults older than 75 years compared to other Organisation for Economic Co-operation and Development countries (Minister of Health, 2016). Like Australia and Canada, the majority of health is publicly funded from general taxation (Mossialos et al., 2016; Tenbensel, 2016). When this research was designed, the Ministry of Health had overall responsibility for the health and disability system, acting as funder, monitor, and regulator; it also acts as the principle advisor to the Minister of Health on policy (Mossialos et al., 2016). The Ministry of Health funded and monitored 20 DHBs, who provided health services within each district (Ashton & Tenbensel, 2012). This study was based at the BOPDHB and focused on the workplace activities undertaken by publicly funded allied health services in a wide range of settings. These settings included Tauranga and Whakatane hospital inpatient, community, and outpatient. BOPDHB provided comparable allied health services, has a similar organisational structure and strategic priorities to other DHBs. Therefore, BOPDHB was an appropriate exemplar that can offer insight into the wider context of allied health practice in New Zealand (Minister of Health, 2016; Ministry of Health, 2022). This research examines what allied health work activities were undertaken and measured at the BOPDHB and provides insights into what activities are most important to a range of stakeholders at the BOPDHB.

During the research design, data collection, and early stages of analysis, the setting for this research was at the BOPDHB; therefore, throughout this thesis I will refer to the DHB setting. In the later stages of data analysis and during the thesis write-up, the public health system in New Zealand underwent a large reform. On 1st July 2022 the

Pae Ora (Health Futures) Act disestablished the 20 DHBs and replaced them with a new national organisation, Te Whatu Ora - Health New Zealand, who now operate hospital, primary, community, and health services at national, regional, and local levels (Ministry of Health, 2023). The context of where the study was conducted is now Te Whatu Ora - Hauora a Toi (Bay of Plenty). Given that workforce planning remains a high priority for Te Whatu Ora, the implications of this research and recommendations for future practice are applicable to the new health system structure (Te Whatu Ora, 2022b).

1.2.3 Allied health workforce planning

Health workforce planning is a complex and broad range of approaches to ensure the desirable level and skill mix of staff to meet current and future patient demand (Scott et al., 2011; Segal & Bolton, 2009). Workforce planning in health has a major impact on costs and on patient outcomes as appropriate staffing levels are critical to enable timely access to healthcare, and appropriate experience and skill mix of staff to provide high quality care (Scott et al., 2011). Planning for future allied health staffing levels is made challenging given the differing funding models (e.g., public and private) and the diverse context of allied health practice (Nancarrow et al., 2017). Despite the difficulties with determining current and future staffing levels for allied health professionals, effective staffing levels has an important influence on the quality of patient care (Jones & Jenkins, 2014). With limited published evidence and without a recognised approach on how to determine future staffing levels for allied health professionals, piecemeal efforts have been based on rudimentary staff to patient ratios, historical staffing levels, or available funding (Barrett et al., 2015; Jones & Jenkins, 2014; Schoo et al., 2008).

1.2.4 Care capacity demand management

One aspect of allied health workforce planning is effectively matching service capacity to patient demand. In New Zealand DHBs, the national approach is the Care Capacity Demand Management programme (CCDM) (Safe Staffing Health Workplaces, 2023b). CCDM is a collection of tools and processes used by DHBs to match capacity and demand to enable quality patient care, efficient use of resources, and better working environments for healthcare staff (Safe Staffing Health Workplaces, 2023b). These

include processes to respond to changes in service demand (Variance Response Management); a standardised core dataset of measures of quality workplaces, patient care, service capacity, and demand; and a validated methodology to determine staffing levels (Safe Staffing Health Workplaces, 2023a). CCDM was developed in partnership between New Zealand Nurses Organisation and DHBs following employment bargaining in 2005 and a subsequent inquiry into safe staffing (Central Region Technical Advisory Services, 2018a). CCDM for nursing is underpinned by patient acuity data which are consistently captured nationally by nurses and have been used to develop staffing recommendations for safe staffing levels (Safe Staffing Health Workplaces, 2023b).

While the initial focus of the CCDM was on nursing, there have been increasing efforts to roll out CCDM for allied health. This is being led by the Safe Staffing Healthy Workplaces unit and the Allied Health Advisory Group, a group of DHB and Public Service Association (PSA) representatives who are tasked with overseeing a programme of work to support CCDM within DHBs (Safe Staffing Healthy Workplaces Unit, 2018). This advisory group has the vision of developing a nationally mandated staffing methodology for allied health (Central Region Technical Advisory Services, 2018b). However, in order to engage meaningfully with CCDM, it was identified early on that allied health would require nationally consistent, valid, and standardised activity data (Chadwick & McCullough, 2016).

1.2.5 Importance of data

Allied health service and activity data are required to inform policy making and decisions about the funding and planning of service delivery (Fraher et al., 2011). Data are needed to evidence the impact of allied health on clinical outcomes, safeguard services from funding shortfalls, and ensure managers make effective decisions on staffing mix and numbers (Cartmill et al., 2012; Philip, 2015). Effective, data-informed decision making should ensure adequate time for allied health professionals to work with patients to achieve their goals (Jones & Jenkins, 2014). Consistent workforce data can improve workforce planning for allied health by enabling benchmarking between services, resulting in equitable distribution of workloads, which can impact upon staff satisfaction and patient outcomes (Hurst & Kelley Patterson, 2014; Simmons & Kuys, 2011). Recently there has been a growing emphasis on the importance of data on

allied health activity (Safe Staffing Healthy Workplaces Unit, 2022). However, it is not known if the most important allied health activities are being measured in New Zealand DHBs.

1.2.6 Allied health activity

An important first step in allied health workforce planning is to understand current service capacity and gaps in service (Scottish Executive National Health Service, 2006). This can be achieved by measuring all aspects of allied health clinical and non-clinical workforce activity (National Health Service Education for Scotland, 2021; Scottish Executive National Health Service, 2006). Jones and Jenkins (2014) provided a comprehensive overview of the purpose of measuring allied health workforce activity:

> Allied health professional managers and leaders need an accurate picture of workforce activity for staffing level determination, throughput, what work is undertaken, who does it, where it happens, what sort of interventions are provided… A thorough understanding of work activity is essential to service and workforce planning, development of staffing profiles… costing and pricing, evidence-based staff deployment, capacity and demand management… and staff activity analysis. (p. 50)

In 2018, a national Allied Health Data Standard was published to enable a consistent approach to allied health activity measurement in New Zealand to support service benchmarking, comparable service analytics, service planning and development (Health Information Standards Organisation, 2018). This high-level Allied Health Data Standard outlines the minimum data needed to describe patient-related clinical activity provided by allied health services (Health Information Standards Organisation, 2018). The dataset includes a range of fields on activity including important elements on who provides the activity, how it is delivered, the location of the activity, and how long it takes (Health Information Standards Organisation, 2018). This minimum dataset is supported by more detailed Allied Health Activity Datasets, one for mental health and another for physical health settings, which provide more detail on what activities are provided by allied health services (Safe Staffing Healthy Workplaces Unit, 2022). This research is focused on physical health settings. The allied health roles included in this standard are:

- Allied Health Assistant

- Dietitian
- Occupational therapist
- Physiotherapist
- Social worker
- Speech and language therapist

In the Allied Health Activity Dataset for physical health settings, all clinical activity is required to be mapped to level 3 codes which are broad descriptors of clinical activity:

- Initial patient encounter: the first direct contact with the patient
- Follow-up encounter: every direct patient interaction (after initial encounter)
- Group intervention: two or more patients attending the same service, at the same time
- Indirect encounter: activity that occurs where the patient is not present (e.g., documentation, screening, communicating with other services or clinicians)
- Diagnostic procedure: conducting an examination to help diagnose a condition (Safe Staffing Healthy Workplaces Unit, 2022).

This dataset also has level 4 activity codes which provide more detail on the activity provided, most of which are profession specific assessments, interventions, or procedures (Safe Staffing Healthy Workplaces Unit, 2022). The CCDM and national data standards has led to allied health staff working in DHB settings being required to capture data on their workplace activities, with a focus on measuring service inputs.

1.3 Rationale for the current research

Allied health plays a key role in the New Zealand health system; however, the value of allied health's contribution in terms of patient outcomes and experience is not always clear or recognised (Philip, 2015). Patient outcomes are rarely measured, these are reflective of a patient's healthcare journey and may include changes in health status such as function, quality of life, and the sustainability of benefits achieved (Porter et al., 2016). Patient experience has been defined as a collective of all healthcare interactions which influence patient perceptions (The Beryl Institute, 2023). The Ministry of Health (2019) has identified the need for allied health to measure and demonstrate the value-add of these professions as a priority. One way to demonstrate

value is to capture a range of data to show demand and measure the impact of allied health activity and interventions (Fraher et al., 2011; Health Informatics Society of Australia, 2019). However quantitative data on inputs alone cannot give a full picture in terms of value in health where the perspectives of health organisations, allied health professionals, and patients will differ (Comans et al., 2011). Other approaches should include gathering data from different sources such as patient feedback and the perspectives of frontline clinicians to understand the importance of allied health service activity. The differing views on value in allied health care includes managers who aim to run cost effective and efficient services within a set budget; clinicians want to use best practice and have sufficient time and resource to achieve this; and patients who have increasing expectations to improve their health as soon as possible (Cartmill et al., 2012; Comans et al., 2011). Approaches to allied health activity measurement is currently focused on service inputs which are easily linked to economic measures such as staff costs (Grimmer-Somers et al., 2012; Safe Staffing Healthy Workplaces Unit, 2022). Therefore, what is currently being measured will most likely reflect what funders and managers prioritise within allied health service delivery, meaning that what matters most to patients and frontline allied health staff may not be visible or prioritised.

A central issue in the complex topic of allied health workforce planning is the importance of understanding work activities (Jones & Jenkins, 2014). To date, relatively few studies have focused on allied health activity measurement, as the literature review chapter in this thesis will demonstrate. Clinical encounters between patients and frontline staff are measured in terms of number of encounters, time spent, and activity type to provide large amounts of data (Health Information Standards Organisation, 2018; Safe Staffing Healthy Workplaces Unit, 2022). The need for increased consumer involvement at all levels of healthcare is a key priority for the New Zealand Health system (Minister of Health, 2016). However, patients have not had the opportunity to be involved with the development of national allied health datasets. This means that what matters most to patients may be invisible, while allied health services in New Zealand are focused on measuring and understanding inputs and economic impact of allied health services. The purpose of this research is to determine

if DHBs in New Zealand are measuring the workplace activities that matter to patients, allied health staff, and managers.

1.4 Potential implications of the current research

This research on the topic of allied health activity measurement offers several potential implications for future allied health and Te Whatu Ora's organisational practice. First, this research will provide new knowledge on what workplace activities allied health do in a New Zealand public health setting. To my knowledge, no research has been conducted which quantifies the work done by allied health staff in a DHB setting. New knowledge on the work done by allied health professionals will be of interest to allied health leaders and health service funders and may inform more effective allied health workforce planning for new services and development of existing services.

Second, this study has the potential to provide new insights into what allied health activities are most valued. Addressing the primary research question will determine if current national data standards are fit for purpose and reflect what is most important to a range of stakeholders' including allied health managers, allied health staff, and patients. This study may highlight gaps in national standards and recommendations from this research may inform future changes to national data standards to ensure what matters is measured, visible, and considered when making decisions on allied health staffing levels, service planning, and resourcing.

Finally, this research may offer insights on the perspectives of patients, allied health staff, and managers on the current approach to measuring workplace activity. Allied health staff are required to record a lot of information on their daily work activities, but it is unknown if what is measured is meaningful to patients and clinicians and if this data is of use to managers in the DHB setting. New knowledge on what patients, clinicians, and managers feel is important may support changes to the activities that are measured and may improve staff engagement with data collection. This study provides the opportunity for allied health services to shift from counting activity and patient encounters, towards achieving an understanding of the impact of allied health activity and to demonstrate the value-add of allied health in a New Zealand public health setting (Health Informatics Society of Australia, 2019; Ministry of Health, 2019).

1.5 Positioning myself in this study

My professional background is in physiotherapy. This rewarding and fulfilling calling was grounded in my desire to put theoretical knowledge into practice in the real world and make a positive impact on peoples' lives. Since qualifying at the University of Ulster in 2007, physiotherapy has taken me around the world (twice) and has offered the opportunity to work with inspiring allied health professionals across public and private health settings in Ireland, Australia, the United Kingdom, and New Zealand. When working as an early career physiotherapist in various public health settings, I was always curious about the requirement to capture statistics/data about my work. The burden of data capture on busy allied health staff was a frequently discussed and contentious issue raised by my peers and I, who preferred to focus our energy and time on providing patient care. As activity data collection became increasingly digital and more detailed, an apparent divide grew between allied the health professionals I work with and *the* employer/organisation who valued the data which led me to ponder *why should we bother with stats*?

My career has led to several leadership positions within Te Whatu Ora - Hauora a Toi Bay of Plenty, formerly known as the BOPDHB. Working with other leaders locally, regionally, and nationally helped me to understand the potential opportunities data can provide. These opportunities include improving healthcare, decision making, and informing allied health staffing levels, with the latter being a critically important issue for patients, frontline allied health staff, and managers. My primary purpose at work is to enable allied health services have the skills, leadership, and data available to support safe and effective allied health staffing levels.

I have had several roles throughout this research journey. At the beginning of the research, I was the physiotherapy inpatient team lead at Tauranga hospital. Daily, I would be faced with decisions on staffing levels and skill mix to best support the team in managing increasing demands while struggling to negotiate unplanned leave, vacancies, and operating within a constrained budget. An interest in using data to improve work conditions has led me into the field of health informatics, where I see the value of high quality and accurate data as it improves service visibility and

identifies service pressures. However, I still am uncertain if the *right* data is visible to improve the quality of patient care.

1.6 Thesis overview

This thesis consists of six chapters. Following this Introduction where the research problem, focus, background, and rationale for the study have been outlined, two narrative reviews are presented in the Literature Review chapter. These narrative reviews will summarise and critique the current body of knowledge on existing approaches to the measurement of allied health workplace activity and knowledge on what allied health activities are most important to patients, health organisations and allied health professionals.

The Methodology chapter will outline how a sequential explanatory mixed methods design, underpinned by pragmatism, was most appropriate to address the aims of the current research. The main components of this research focus were allied health activity measurement at the BOPDHB, which required quantitative analysis of a large existing dataset followed by a qualitative element gaining the perspectives of patients, allied health staff, and managers on what allied health activities are most important.

The Results chapter is presented in two sections beginning with the quantitative findings on the activities allied health provided at the BOPDHB, followed by the qualitative findings presented in distinct categories following content analysis of the semi-structured interview transcripts. The Results chapter is then summarised with integration of the key quantitative and qualitative findings.

The Discussion chapter integrates the quantitative and qualitative findings of the study with previous literature and my interpretation specific to the research question and aims. The contribution of this research is discussed, along with implications for practice, followed by a review of the strengths and limitations of the study and recommendations for future research. Finally, a concluding section will summarise the key findings of the current research and answer the overall research question.

1.7 Summary

This introduction has provided background; established the need for inquiry into allied health activity measurement; and outlined this study's context, rationale, research question, and aims. The following chapter will present the current literature in two separate narrative reviews and demonstrate the gap in the literature that the current research will address.

Chapter 2 Literature Review

The previous chapter highlighted the importance of understanding the workplace activities and workloads of allied health professionals in enabling workforce planning to ensure effective staffing levels (Jones & Jenkins, 2014; Scottish Executive National Health Service, 2006). Within this chapter, the literature on two topics specific to allied health activity are presented in separate narrative reviews. A narrative review approach was chosen as it offers a general interpretation and broad understanding of the wide-ranging topic of allied health workplace activity (Green et al., 2006; Greenhalgh et al., 2018). The first review focuses on the approaches to allied health activity measurement. The second review examines what allied health activities are valued by patients, allied health professionals, and health organisations. The chapter concludes with a summary of the existing body of knowledge and the gap in the literature that the current research will address.

2.1 Measurement of allied health activity

Healthcare is a large and expanding field with increasing patient needs and expectations (Cartmill et al., 2012). One of the most pressing challenges to New Zealand's health system is the increasing demands of a growing population who are living longer with chronic conditions (Minister of Health, 2016). Health services are expected to optimise patient outcomes, while ensuring reasonable workloads for staff and responsible financial management to ensure they stay within a fixed budget (Comans et al., 2011; Simmons & Kuys, 2011). Accurate measurement work activity provides understanding of service provision, demand, and capacity (Jones & Jenkins, 2014). Therefore, having data on allied health work activity is an important component of workforce planning, cost analysis, and service development (Jones & Jenkins, 2014). The aim of this review is to explore the existing body of literature on the approaches to allied health activity measurement.

2.1.1 Search strategy

A narrative review of the literature was undertaken to examine the current approaches to allied health workplace activity measurement. The Doctor of Health Science programme at Auckland University of Technology (AUT) consisted of three

initial papers to develop the research proposal. One of these papers required a literature review on the topic of allied health activity measurement. This initial search, undertaken in 2019, yielded a small body of literature, none prior to 2000 and no grey literature specific to allied health activity measurement. This informed the decision to take a systematic approach to searching for literature, and the decision to exclude papers prior to 2000 were excluded. A database search of Scopus, Medline, Cumulative index to nursing and allied health literature (CINAHL), Ovid Emcare, and Google scholar (the first 200 articles) was conducted in June 2022. Therefore, the search was limited to studies published in English between 1st January 2000 and 31st May 2022.

Keywords included in the search included terms to identify allied health roles: “allied health” OR “physiotherap*” OR “physical therap*” OR “occupational therap*” OR “social work*” OR “speech and language therap*” OR “speech patholog*” OR “dietiti*” OR “allied health assistant*”. To this were added terms to identify workplace activity measurement: “work* activit*” OR “activit* data” OR “work* measure*” OR “activit* capture” OR “quantif* work” OR “productivity measure*” OR “work* capacity” OR “time-use” OR “work* allocation” OR “work* plan*” OR “work* based” OR “activity statistics” OR “work* statistics”.

Studies were included if they had a principle aim of measuring or quantifying allied health workplace activity of more than one allied health professional discipline and provided insight into how allied health activity is measured. Exclusion criteria for the search strategy included:

- Literature which examined the context and reasons for activity measurement as has been outlined in the introduction chapter.
- Literature which utilised activity data in their methodology to address aims unrelated to allied health activity measurement of an individual allied health profession.
- Studies which included non-allied health roles such as medical and nursing.

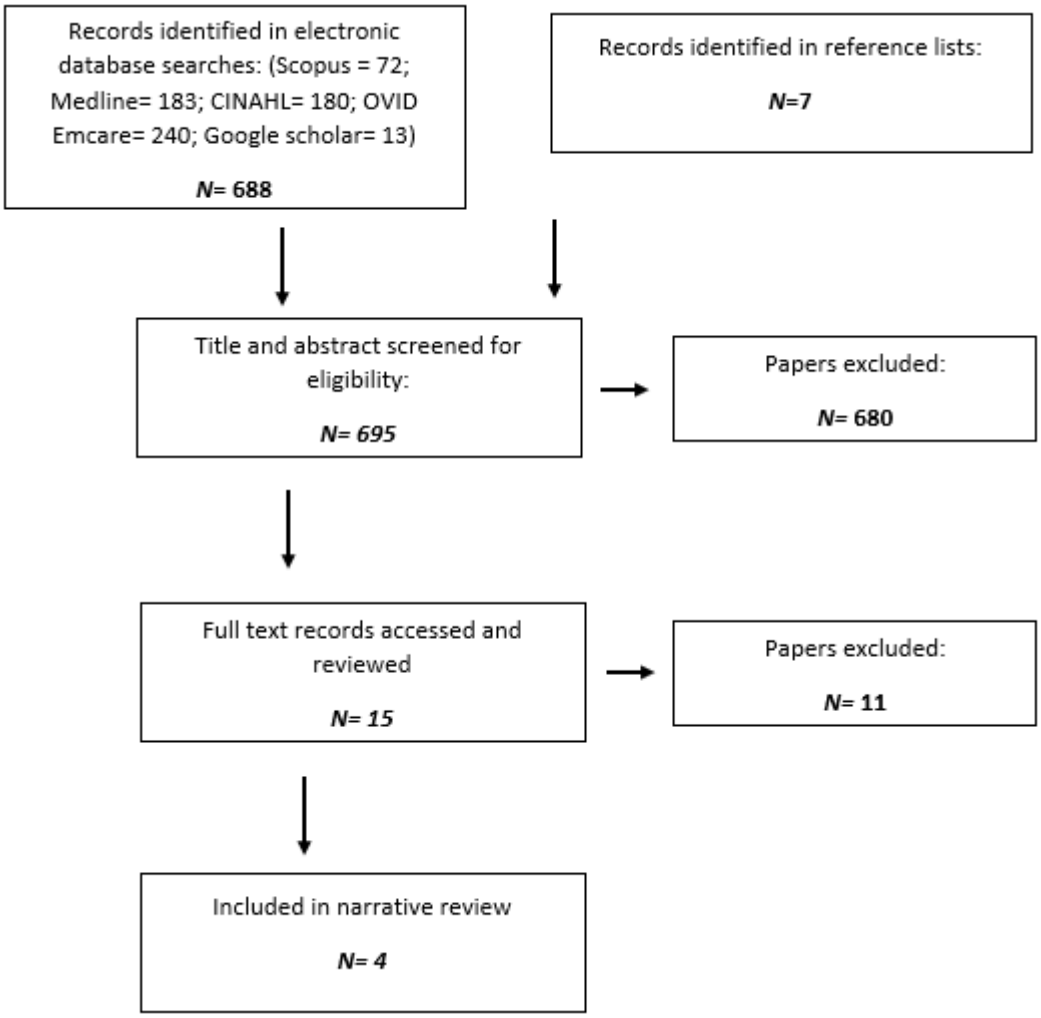
Study title and abstracts were reviewed for relevance from the results of each database search. Duplicates and non-English publications were removed. Reference lists from included studies were screened for relevant literature.

2.1.2 Search results

A summary of the results from the database searches is provided in Figure 1 (p. 164). The search of electronic databases and reference lists revealed 695 records. The database searches identified unrelated studies; for example, studies on patient physical activity levels, activities of daily living, and the use of wearable technology to track activity. Following screening of titles, abstracts, and the removal of duplicates and non-English publications, 15 articles were retrieved and reviewed. These included individual measurement of discipline specific interventions and studies which included nursing and medical activity measurement, which were subsequently excluded. Following review of the retrieved articles, four met the inclusion criteria and were included in the narrative review. The four included studies are summarised in Table 1 (p. 19). All included articles originated from Australia and have been categorised into two sections: how allied health activity has been measured (Schoo et al., 2008; Gimmer-Somers) and the use of clinical care ratios to measure allied health activity (Hearn et al., 2017; Simmons & Kuys, 2011).

Figure 1

Flow diagram of article inclusion process.



2.1.3 Approaches to measuring allied health activity

In a study exploring how allied health capacity measures are used to plan workforce requirements, Schoo et al. (2008) conducted a mixed methods study which included a systematic review on allied health work capacity measures. The study then explored the approaches to measuring activity by conducting focus groups with key stakeholders in the Victorian health system in Australia (Schoo et al., 2008). The second study, on approaches to allied health activity measurement, aimed to provide guidance on the choice of allied health service quality measures (Grimmer-Somers et al., 2012). This evidence-informed analytical review reflected on the variables health leaders should consider when determining service quality (Grimmer-Somers et al., 2012). Both studies outlined the challenges with measuring the wide range of activities provided by allied health services (Grimmer-Somers et al., 2012; Schoo et al., 2008)

which included the complexity of measuring allied health activity. Factors that complicate this process included: the diversity activities provided (such as assessment, therapy, counselling, and education), the variety of purposes across differing clinical settings, and the range of definitions used for the concept of activity measurement (Grimmer-Somers et al., 2012; Schoo et al., 2008).

Another challenge highlighted by Grimmer-Somers et al. (2012) was the requirement of recording activity data by busy allied health professionals, which may reduce ability to deliver patient facing care which is seen as core business. Therefore, when considering an approach to measure allied health workplace activities, Grimmer-Somers et al. (2012) argued for the importance of a balanced approach to activity measurement, supported by IT systems, to enable allied health staff to provide accurate and reportable activity data while minimising the burden of data collection.

In an attempt to address the above complexities and challenges in measuring allied health activity, Schoo et al. (2008) argued that workload measurement can be best understood by determining the relationship between the service demand and capacity, where the latter is defined as the amount of activity a service can provide. Several approaches to measuring capacity were identified by Schoo et al. in the systematic review component of the study. These include crude ratio-based methodologies such as population to allied health professional ratio, or categories of care where patient to staff ratio are utilised within for each patient condition; a casemix approach where allied health activity is linked to patient diagnoses; a combination of multiple approaches; and a procedure-based approach (Schoo et al., 2008).

Schoo et al. (2008) proposed that a procedure-based methodology for measuring allied health activity may be more attractive to allied health professionals and managers as it focuses on the *actual* work provided by allied health professionals. While Schoo et al. (2008) proposed that this approach was appealing as it offers a consistent approach that is acceptable to allied health professionals and managers, a limitation of a procedure-based approach is that it focuses on inputs and does not consider activity outputs or patient outcomes. Grimmer-Somers et al. (2012) supported these concerns, arguing that health organisations and funders have measured, monitored, and, at times, “place limits” on allied service inputs such as “occasions of service” (p.75),

which may not be reflective of, or address, patient need. Measurement of the number of encounters and time spent on clinical activity is the most common approach to quantifying allied health professionals' activity, both of which can be linked more easily with costing and financial data (Grimmer-Somers et al., 2012; Schoo et al., 2008). Grimmer-Somers et al. (2012) and Schoo et al. (2008) agreed upon the importance of a consistent approach to measuring allied health activity; this is a starting point towards providing an understanding between allied service inputs to patient and organisational outcomes.

Table 1

Summary of included articles on the measurement of allied health activity.

Author(s)	Country	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Grimmer-Somers, Milanese, & Kumar (2012).	Australia	To outline factors to be considered by health leaders when measuring allied health service quality.	Evidence informed analytical review.	No parameters or search criteria identified.	Measurement of allied health activity is complex. Patient outcomes and improvements rarely measured when determining quality of service. Focus has been on broad inputs such as occasions of service which can be monitored by funders. Time spent on collecting activity data may reduce allied health professionals' capacity to provide direct patient care.	No parameters inclusion of literature documented. The review considered a wide range of variables including patient, staff and organisational challenges.
Hearn, Govier, & Semciw (2017).	Australia	To determine whether allied health clinical care ratios are associated with seniority, type of role or profession.	Quantitative study. Two-way association of variance (ANOVA) and post hoc analysis used to determine association between clinical care ratio and seniority and discipline.	2036 allied health professions (dietitians, occupational therapists, physiotherapists, social workers, and speech pathologists) from 11 Australian tertiary hospitals.	Clinical care ratios decrease as level of seniority increases indicating more non-clinical time. Variation in clinical care ratios between professions.	Large sample size including 5 professional groups. Only included tertiary hospitals. Dependent upon consistent an accurate activity data entry. AHA workforce not included.

Author(s)	Country	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Schoo, Boyce, Ridoutt, & Santos (2008).	Australia	To identify workload capacity measurement measures and explore their utilisation.	Mixed methods. Systematic review to identify workplace capacity measures. Focus groups to understand what measures are being used.	Allied health professionals, managers, state health planners in Victoria.	Range of approaches to measuring allied health workload capacity. Procedure based approach most widely accepted. Need for a system wide approach.	Very large systematic review summarised into four categories. Participants inclusive of a range of stakeholders.
Simmons & Kuys (2011).	Australia	To develop and trial an allied health workload allocation model incorporating the Australian National Allied Health Casemix Committee's health activity classification.	Quantitative study. Allied health activity mapping tool, survey of participants, and outcome measures (clinical care ratio, overtime frequency/amount and tasks unable to be completed).	30 physiotherapists, occupational therapists, and speech pathologists across inpatient, community, and outpatient settings in two hospital districts. Over 4-week period.	More experienced allied health professionals had lower clinical care ratios. Staff with supervisory responsibilities recorded more overtime. Managers felt tool useful for business cases and benchmarking staff workloads.	Managers and allied health professionals felt that clinical care ratios accurately reflected their workload. Small number of participants from just 3 professional groups. Data accuracy impacted by staff time constraints as statistics often not completed in timely manner.

2.1.4 Clinical care ratios

While the above literature outlines allied health professional inputs, another approach to measuring allied health activity is differentiating between clinical activity and other non-clinical aspects of work such as management, research, and training activities (Hearn et al., 2017; Simmons & Kuys, 2011). This has given rise to the use of clinical care ratios are the focus of two studies in the Australian public health setting by Hearn et al. (2017) and Simmons and Kuys (2011). Clinical care ratio is a standardised approach to measuring the proportion of allied health professional time spent on clinical activity against non-clinical aspects of work (Hearn et al., 2017). Clinical care ratios are used by allied health managers for the purposes of workload management, work profiling, planning and benchmarking (Hearn et al., 2017).

In a study conducted in 11 Australian tertiary hospitals, Hearn et al. (2017) explored how clinical care ratio correlated with allied health profession, seniority, and type of role. The study included 2,306 allied health professionals from five disciplines: dietetics, occupational therapy, physiotherapy, speech pathology, and social work (Hearn et al., 2017). Simmons and Kuys (2011), in an earlier study, developed and trialled a workload allocation model for allied health which mapped the activity of occupational therapists, physiotherapists, and speech pathologists in two hospital districts in Queensland. Measures in this study included clinical care ratios, unpaid overtime, and tasks not completed by the allied health professionals (Simmons & Kuys, 2011).

Both Hearn et al. (2017) and Simmons and Kuys (2011) found that clinical care ratio was influenced by years of experience; with more senior allied health professionals having significantly lower clinical care ratios than new graduate staff. Increasing non-clinical work demands were placed upon more experienced staff, including clinical education and providing supervision (Simmons & Kuys, 2011). These were identified as the main reason for differing clinical care ratios in both studies (Hearn et al., 2017; Simmons & Kuys, 2011). The use of clinical care ratios provided managers with insights into allied health workload issues and outlined pressure points in services and enabled plans to effectively manage high demand (Simmons & Kuys, 2011). For instance, Simmons and Kuys (2011) also identified that senior staff recorded more frequent and

longer periods of unpaid overtime, indicating challenges in meeting both clinical and non-clinical demands within normal working hours.

Unpaid overtime was not measured in the study conducted by Hearn et al. (2017), suggesting that there may be aspects of work not included in the study, in turn affecting data accuracy. Data validity was also a limitation of Simmons and Kuy's (2011) study. While the majority of participants believed that clinical care ratio accurately reflected allied health work, the task of activity data collection was identified as the most common task *not* completed by allied health professionals, outlining the potential for inaccurate and incomplete data (Simmons and Kuys, 2011). The fact that data collection was incomplete further outlines the burden of data capture identified by Grimmer-Somers et al. (2012), who suggested increased non-clinical work demands which can reduce clinical time for patient care highlighted a need to balance data collection and the need to provide clinical activity.

While Simmons and Kuys (2011) measured the impact of a workload allocation model they developed at two Victorian hospitals; Hearn et al. (2017) investigated the influence of allied health discipline on clinical care ratio. They found significant variation among the allied health professions, with physiotherapy having statistically significant higher clinical care ratios and dietetics having statistically lower clinical care ratios (Hearn et al., 2017). This suggests that clinical care ratios are useful in highlighting the difference in work activities undertaken within professional groups, but not for comparing across allied health disciplines (Hearn et al., 2017). Hearn et al. (2017) concluded that clinical care ratio is a useful tool for benchmarking within professional disciplines; however, the research conducted by Simmons and Kuys (2011) shows that even within disciplines there will likely be variations due to variables such as service size, skill mix of staff, and clinical setting. While these studies measured the clinical care ratios of several allied health professions, both excluded key parts of the diverse allied health workforce, including allied health assistants.

The strengths of clinical care ratios are that they provide measurement of allied health time which both Grimmer-Somers et al. (2012) and Schoo et al. (2008) argued were important because time can be easily linked with service costs. Clinical care ratios are also straightforward to measure and easy to interpret. Furthermore, they measure the

non-clinical work carried out by allied health professionals (Hearn et al., 2017)which traditionally may not have been considered. However, clinical care ratios could be considered a crude instrument of measuring allied health activity. While clinical care ratios provide an easy to capture and simplistic view of activity which can be benchmarked across hospital sites and services, they are unable provide a full picture of the complexities of the allied health workday (Simmons & Kuys, 2011).

2.1.5 Summary

The difficulties in measuring allied health activity across a range of disciplines have resulted in approaches that focus on easy to capture inputs such as time spent, procedures provided, and occasions of service (Grimmer-Somers et al., 2012; Schoo et al., 2008). While these input metrics appear to meet the needs of allied health service funders, who may place limits on allied activity without considering patient needs and outcomes from service activity (Grimmer-Somers et al., 2012), more recent studies have suggested that clinical care ratios are useful for both benchmarking and use as a workload allocation tool. Additionally, they have shed light on the non-clinical components of allied health work (Hearn et al., 2017; Simmons & Kuys, 2011). However, these approaches to activity measurement do not link activity inputs to patient outcomes; therefore, it is unknown how much allied health input is optimal in terms of patient improvement (Grimmer-Somers et al., 2012). Regarding importance, there is no consensus on what allied health activities *should* be measured and in the body of literature there have been no studies identified which examines the activity of the allied health workforce in New Zealand.

2.2 What allied health activities are valued?

While the Introduction chapter highlighted the diverse activities carried out by allied health professionals, this second narrative review will focus on what allied health activities are most important. When determining importance, value, or quality of allied health care, several perspectives need to be considered: the patients who access allied health services, the organisations who provide services, and the clinicians who deliver the care (Comans et al., 2011). As this review will demonstrate, there are differing perspectives which result in significant tensions when considering high value allied health activity. The following narrative review is not intended to be an exhaustive

search of what is a very large body of literature; instead, it provides a summary of current knowledge about what workplace activities matter most to patients, health organisations, and allied health professionals.

2.2.1 Literature search

The purpose of this narrative review was to provide an overview of literature on the topic of important allied health workplace activities. As noted in the introduction to the previous review, the Doctor of Health Science programme at AUT consisted of three initial papers to develop the research proposal and these required a literature review on the topic of important allied health activities. This informed the inclusion criteria and the decision to undertake a systematic approach to search for relevant literature. Initial database searches of Scopus, Medline (via EBSCO), Cumulative index to nursing and allied health literature (CINAHL), Ovid Emcare, and Google scholar were conducted in June 2022. The search was limited to studies published in English between 1st January 2000 and 31st May 2022.

Keywords included in the search included terms to identify allied health roles: “allied health” OR “physiotherap*” OR “physical therap*” OR “occupational therap*” OR “social work*” OR “speech and language therap*” OR “speech patholog*” OR “dietiti*” OR “allied health assistant*”. To this were added terms to identify workplace activity: “activit*” OR “intevention*” OR “care*” OR “therap*”, and terms to identify importance: “important” OR “value*” OR “meaningful*”.

Initial database searches generated a very large number of articles (Scopus N=41,771; CINAHL N=25,413; Medline via EBSCO N=51,651; Ovid Emcare N=125,046). The volume of relevant articles was too large to review. Given the challenges around this broad search with a range of keywords to define allied health, workplace activity and importance, an independent AUT librarian assisted in developing the search strategy by utilising an iterative approach to finding and testing keywords. Accepting that all studies could not be included, this approach intended to summarise the allied health activities that are most valued with the aim of providing a general overview, illustrating consistent notions that were reflective of the wider evidence base. Study titles and abstracts were screened from the first 200 papers on each database and reference lists from included studies were screened for relevant literature. Following

screening and full text review, 24 articles were included in the review and are summarised in Table 2 below.

Table 2

Summary of included articles on important allied health workplace activities.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Adams, Sheppard, Jones, & Lefmann (2014).	Australia	Organisations	To understand what factors influence rural physiotherapy service provision.	Qualitative exploratory study: open-ended questionnaires (6) and semi-structured interviews (3).	One manager, three physiotherapists, one team colleague, and one consumer.	Public health rural physiotherapy service provision constrained by funding, capacity, workload, and organisational priorities. Services need to provide proof of value and align services to business priorities such as national targets for length of stay and waiting times.	Small sample size, focusing on rural Australia service provision.
Bastemeijer, van Ewijk, Hazelzet, & Voogt (2021).	Netherlands	Patients	To explore patient values during physiotherapy encounters.	Interviews, content analysis.	17 adult patients with chronic or recurring musculoskeletal pain from three primary care physiotherapy services.	Three categories of patient values: values about oneself (uniqueness and autonomy), values regarding PT (professional, compassionate, and responsive), and values on interaction (empowerment and partnership).	Narrow sample of chronic/recurring musculoskeletal conditions, participants only had neck, lower back, and shoulder pain.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Bright, Boland, Rutherford, Kayes, & McPherson (2012).	New Zealand	Allied health professionals	Explore client-centred care in context of rehabilitation goal settings.	Co-autoethnography: group discussions and written reflections.	Three clinical researchers.	Four activities identified which are important to client-centred care: mindful listening, allowing time, changing views of therapist role, and support patients to prioritise what is meaningful.	Small group of researchers, findings may differ in differing contexts and researchers/ practitioners.
Bright, Kayes, McPherson, & Worrall (2018).	New Zealand	Patients	To understand how rehabilitation practitioners engage stroke patients with communication disability.	Qualitative methodology underpinned by the voice centred relational approach. Longitudinal observational study, interviews and stimulated recall interviews with practitioners.	Three stroke rehabilitation patients with communication disability, 28 rehabilitation practitioners from outpatient/ community and inpatient stroke.	Relational practice is important for patient engagement. Relational work supported in practice by 'getting to know', working in ways valued by the patient and using relational communication strategies.	Large practitioner sample inclusive of a wide range of disciplines, experiences, and inclusive of all clinical settings.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Comans, Clark, Cartmill, Ash, & Sheppard (2011).	Australia	Organisations	To identify what quality indicators are used to evaluate advanced and new allied health roles.	Qualitative synthesis review.	23 studies included focusing on nine professional groups.	Most measures used to evaluate new allied health roles were economic and process based and reflected organisational needs. Consensus that advanced practice allied health roles reduced waiting times, patient outcomes rarely reported.	Comprehensive systematic search strategy.
Cosgrave (2020).	Australia	Allied health professionals	To determine the factors influencing rural allied health professional recruitment and retention.	Qualitative: semi-structured interviews, thematic analysis.	74 participants: allied health professionals (N= 55), managers (N= 15), and executives (N= 4).	Allied health professionals value professional development, particularly new graduates. Professional growth and career pathways were valued.	Participants included non-rural managers and allied health professionals.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Gardner, Refshauge, McAuley, Goodall, Hübscher, & Smith (2015).	Australia	Patients	To determine consistency or discrepancy between clinical outcome measures and patient goals in the treatment of chronic low back pain.	Single arm longitudinal cohort study. A patient-led goal setting intervention used to identify patient goals which were compared most common clinical and research outcome measures.	20 patients with chronic low back pain. Intervention delivered by physiotherapists.	27 unique patient goals identified. Clinical outcome measures did not reflect what was meaningful to patients.	Intervention to collect patient goals was patient-led.
Harding, Porter, Horne-Thompson, Donley, & Taylor (2014).	Australia	Organisations	To explore barriers to implementing evidence-based practice for allied health professionals.	Mixed methods: questionnaire and focus groups.	Allied health professionals (n=50) and managers (n=10) from seven disciplines.	Allied health professionals have positive attitude to evidence-based practice, but it is not highly valued with allied health activities which maintain patient flow prioritised.	Large sample and 8 separate focus groups.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Haywood, Pain, Ryan, & Adams (2012).	United Kingdom	Allied health professionals	To explore continuing professional development (CPD) for clinicians working in musculoskeletal settings.	Qualitative study: focus groups, conference calls, inductive coding.	10 physiotherapists, two occupational therapists, one podiatrist, two nurses, 11 musculoskeletal patients.	Allied health participants valued putting CPD into practice and linked CPD to career progression. Patients assumed allied health professionals had the knowledge and skills. Communication skills important to patients.	Wide range of participants including patients. Inductive coding ensured codes were grounded in transcribed data.
Lawton, Haddock, Conroy, Serrant, & Sage (2020).	United Kingdom	Patients	To identify what elements of care are important to people with aphasia attending speech and language therapy post-stroke.	Q methodology: two step design first 38 statements from literature review and qualitative interviews participants to form Q set. Participants then sorted statements on importance.	23 patients with aphasia from five NHS trusts in Northwest England who were provided speech and language therapy post-stroke.	Technical skills, professional, competency, firmness and honesty valued by patients with mild aphasia. Relationships, humour and empathy important to patients with moderate to severe aphasia.	Methodology suitable for participant population with limited or no speech.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Mickan, Dawber, & Hulcolmbe (2019).	Australia	Organisations	To identify what organisational contexts and mechanisms influence positive outcomes for allied health professionals.	Qualitative realist evaluation: interviews and focus groups.	Nine allied health leaders, five executives, and 49 allied health professionals working within Queensland Health.	Need for executive allied health leadership roles to influence planning and decision making. Need for increased visibility of allied health activity and to align with financial data to show business value of allied health.	Large sample but majority allied health professionals or managers, small number of executive participants.
Mills, Hume, & Stiller (2018).	Australia	Organisations	To evaluate the impact of increased allied health service provision on acute medical units.	Quasi-experimental mixed methods study. Statistical analysis of occupied bed days, length of stay, and adverse events. Qualitative data on allied health professionals' experience and impressions grouped into themes.	Two hospital sites, acute medical wards. Control was historical data for the same medical units from the previous year.	Increased allied health service provision resulted in significant reduction in length or stay and occupied bed days. Increased staffing also resulted in greater allied health professionals' intervention intensity, frequency and responsiveness. No significant differences in adverse events. No significant change in weekend discharges.	Other confounding variables may account for the changes in length of stay and occupied bed days. Qualitative data entered by allied health professionals into excel document, analysis methods unclear.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Mudge, Laracy, Richter, & Denaro (2006).	Australia	Organisations	To evaluate and enhanced multi-disciplinary model for acutely ill medical inpatients.	Prospective controlled trial. Interventions units had increased allied health staffing and implemented enhanced early assessment, new communication processes and explicit discharge date and destination recorded.	1538 consecutive medical inpatients at four medical units: two control and two intervention units.	Intervention units had improved access to allied health services, reduced mortality, non-significant trends of reduced length of stay and patients experienced less functional decline. This model improved sustainable efficiency gains and costs were compared to potential bed day savings.	Large range of medical inpatients had access to the increased resources and new model therefore results may be generalisable to other medical units. Patients unable to be randomised and staff unable to be blinded to the intervention as study conducted in the same hospital.
Mudge, Stretton, & Kayes (2014).	New Zealand	Allied health professionals	To understand person-centred care in context of rehabilitation physiotherapy.	Autoethnography: 10 written reflections and five joint discussions. Collaborative analysis included focused conversations and writing to develop joint narratives.	Two physiotherapists working in neurological rehabilitation settings.	Physiotherapy practice influenced by a biomedical approach which limits patient-centred rehabilitation. Goal setting and communication important to enable patient perspectives to be understood.	Collaborative approach to analysis to develop agreed themes and a joint narrative.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Mutsekwa, Byrnes, Larkins, Canavan, Angus, & Campbell (2022).	Australia	Patients	To identify what matters to patients when seeing advanced allied health professionals in substituted roles for medical specialists.	Semi-structured interviews.	29 patients who were seen by allied health professionals in one of four advanced practice roles: Dietitian first specialist appointment for gastroenterology, physiotherapy primary contact for pelvic health, physiotherapy for vestibular primary contact, and speech pathology for ear, nose and throat primary contact.	Patients valued continuity of care and co-ordinated care achieved though effective communication. Allied health professionals' expert clinical skills and delivery of positive outcomes important. More time with allied health professionals compared to consultants was important in expressing needs and increasing patient involvement in their healthcare.	Range of advanced allied health roles and professions included.
Rodwell, Noblet, Demir, & Steane (2009).	Australia	Allied health professionals	To investigate the impact of work conditions on allied health professional satisfaction, commitment and distress.	Quantitative: surveys, descriptive statistics, correlations and reliability coefficients.	113 allied health professionals.	Supervision support and organisational fairness may increase allied health staff satisfaction, commitment and well-being.	Only focused on one organisation, findings may not be generalisable.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Reeve & May (2009).	United Kingdom	Patients	To explore patient perspectives of quality within an extended scope physiotherapy spinal screening service.	Qualitative: face-to-face interviews, thematic framework analysis.	12 patients who attended a spinal screening service provided by extended scope physiotherapists.	Professional skills, competency, knowledge important to patients. Thorough assessment, diagnosis, provision of information and a clear plan for ongoing management was expectation of patients.	Robust analysis included blinded final coding between researchers to increase reliability of themes. All participants were white British, so findings may not be applicable to other patient demographics.
Sarkies, White, Henderson, Haas, & Bowles (2018).	Australia	Organisations	To determine effectiveness and cost effectiveness of additional weekend allied health services to sub-acute rehabilitation, medical and surgical inpatients.	Systematic review and meta-analysis.	Patients admitted to medical, surgical and sub-acute rehabilitation wards. Weekend allied health services (14 disciplines included).	Additional weekend allied health staffing had economic benefits. Correlated with a significant reduction in length of stay in a sub-acute rehabilitation setting (2.35 days). Effect of the additional allied health weekend services on medical and surgical settings unclear.	Comprehensive search strategy. Rigorous approach used where randomised and non-randomised trials were separated.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Scanlan & Hazelton (2019).	Australia	Allied health professionals	To explore relationship between job satisfaction, burnout, and meaningfulness of work activities.	Cross-sectional surveys and time use diary.	118 occupational therapists working in mental health settings.	High proportion of time spent on perceived meaningful activities was associated with higher job satisfaction, professional identity and lower burnout.	Nationwide survey with large number of participants.
Slade, Molloy, & Keating (2009).	Australia	Patients	To investigate patient experience of exercise programmes for non-specific chronic low back pain.	Focus groups, analysed thematically using grounded theory.	18 adult patients (3 groups of 6) who participated in an exercise programme for the management of non-specific chronic low back pain.	Preference for partnership in care with patients valuing playing an active role in their rehabilitation. Patients expressed frustration at not being heard and not having adequate explanations by care providers.	Independent transcription checked with audio recording, analysis verified by an independent third author.
Sladdin, Chaboyer, & Ball. (2018)	Australia	Patients	To understand person-centred care in dietetics consultations from a patient perspective.	Semi-structured telephone interviews, thematic analysis.	11 adult patients who attended more than one primary health dietitian consult.	Patients valued positive relationship, an individualised approach to care and being involved in healthcare involvement. Patients frustrated at “dictatorial” (p. 192) approach to care.	Telephone interviews enabled broader sample size but limit non-verbal cues which may provide opportunity for further questions.

Author(s)	Country	Activities important to	Study aim (s)	Study design	Participants	Summary of findings	Strengths/limitations
Snowdon, Sargent, Williams, Maloney, Caspers, & Taylor (2020).	Australia	Allied health professionals	To explore allied health professionals' perceptions of effective clinical supervision.	Mixed methods: semi-structured interviews, qualitative analysis and quantitative descriptive survey.	Physiotherapists, occupational therapists, social workers, speech and language therapists, dietitians, psychologists, and podiatrists.	Participants valued professional development and supervision. Participants reported supervision should be prioritised over other work activities.	Wide range of disciplines included however majority worked in hospital inpatient setting.
Wilson (2015).	Australia	Allied health professionals	Determine what influenced allied health professional job satisfaction and intention to leave.	Quantitative study: questionnaire survey, correlation analysis.	90 participants included with 56 responding (dietitians, occupational therapists, physiotherapists, podiatrists, social workers, and speech and language therapists).	Allied health professional job satisfaction factors included supervision, perceived level of competency, recognition and sense of accomplishment significantly correlated with reduced intention to leave.	Some disciplines had lower response rate. Potential for response bias.
Wong, Ngoi, Kwa, Koh, Chua, & Dancza (2022).	Singapore	Patients	To explore how patients, occupational therapists and managers perceive value in occupational therapy services.	Appreciative inquiry, two phases: semi-structured interviews and focus groups. Thematic analysis.	11 outpatients, 7 occupational therapists and 7 managers.	Value found in delivering outcomes meaningful to daily life, constructive therapeutic relationships and affordable, co-ordinated and understandable therapy.	Small sample size, only outpatients included whereas majority of recruited occupational therapy participants worked in inpatient settings.

2.2.2 Important allied health activities to patients

Patients valued allied health services which were professional, accessible, convenient, affordable, and co-ordinated, and clinicians who provide technically competent interventions while maintaining continuity of care (Mutsekwa et al., 2022; Wong et al., 2022). In terms of allied health workplace activity, three key components which patients valued were identified in the body of literature: professional skills and competency, building positive relationships, and providing meaningful care to patients. The following section will review each of these components.

Professional skills and competency

The professional expertise, knowledge, and expert skills were important to patients who received allied health professional care (Mutsekwa et al., 2022). A study conducted by Reeve and May (2009) explored patient views on quality care in the context of a spinal screening service provided extended scope physiotherapists in the United Kingdom. They found that patients expected appropriately qualified and skilled physiotherapists who were able to provide thorough assessments, accurate diagnosis, and effective recommendations on the best management plan (Reeve & May, 2009). Technical and professional competence were also important to patients in a recent study which focused on what was important to people with aphasia who attended speech and language therapy (Lawton et al., 2020). The authors found that patients with mild to moderate aphasia, who attended therapy for shorter periods, valued technical and professional competency which included firmness, challenging therapy, and honest feedback from therapists' on their progress (Lawton et al., 2020). However, in contrast, other aspects of speech and language therapy such as flexibility, effective relationships, and humour was important to patients with moderate to severe aphasia (Lawton et al., 2020). Allied health professionals' skills, knowledge, and competency are necessary for quality patient care; however, other literature suggests that positive relationships are essential to patients.

Building positive relationships

A recurring theme was the significance of allied health professionals developing positive and caring relationships to patients (Sladdin et al., 2018). Studies focusing on allied health in rehabilitation settings by Bright and colleagues (2012) and Bright et al. (2018), highlighted the importance of effective communication in establishing a

connection. Both studies stressed how patients valued attentive listening by allied health professionals to ensure that patient needs and what is meaningful were fully understood from the outset of the patient journey (Bright et al., 2012; Bright et al., 2018). An observational qualitative study conducted by Bright et al. (2018) explored how rehabilitation practitioners engaged stroke patients with communication disabilities, and outlined the importance of embedding relational activity into clinical practice. They argued this was achieved by allied health professionals adopting communication strategies to build a relational dialogue which provides patients with a sense of safety and trust (Bright et al., 2018). Allied health activities which develop and foster relationships are highly valued and Bright et al. (2018) argued that these relational activities should be seen as "legitimate" work (p. 991). This reflects there are tensions on what constitutes valued allied health activity with relational practice being important to patients as opposed to a biomedical approach which traditionally focuses on intensive discipline specific interventions (Bright et al., 2018).

Having enough time to support relationship building was highlighted repeatedly in the literature. However, the literature also showed the tensions which existed, specific to competing work demands on allied health professionals. In a study exploring what matters to patients who are seen by advanced practice allied health professionals in Queensland, Mutsekwa et al. (2022) underlined that patients valued having more time with allied health professionals. This meant patients felt less rushed and better able to express their concerns, while being more involved in their allied health care (Mutsekwa et al., 2022). The patients in that study identified that having a consistent relationship with one professional throughout their healthcare journey improved communication between services (Mutsekwa et al., 2022). These findings were similar to another study by Wong et al. (2022) which focused on the concept of high value occupational therapy in Singapore. They highlighted the value of developing therapist-patient relationships with communication skills, being consistent, and having time to support connection (Wong et al., 2022), similar to Bright et al.'s (2018) study in New Zealand. While investing time in developing therapeutic relationships is important to patients (Wong et al., 2022). Bright et al. (2012) recognised there were challenges in developing these relationships in the context of work environments with high demand

and organisational cultures of rapid assessment to facilitate hospital discharges and maintain patient flow through the health system.

Effective communication by allied health professionals provides a foundation for relationships to develop and to enable patients to become more active partners in their healthcare journey (Bright et al., 2018; Slade et al., 2009). Bright et al. (2012) argued this would necessitate a rethink on the role of the health professional from providing interventions towards supporting what is meaningful to patients. Research conducted by Slade et al. (2009) and Sladdin et al. (2018) described patients' frustration with allied health interventions that were predetermined and prescriptive. In a study exploring patient perceptions of person-centred care in dietitian consultations, Sladdin et al. found that several patients went as far as describing their care as "dictatorial" (p. 192) where decisions about their care were made for them, resulting in their needs not being considered and feeling they had a lack of control. Approaches which enhance collaboration, where the patient plays a more active role with mutual inquiry and shared decision making, were highly valued by chronic low back pain patients in a study on patient experience and engagement in Australia (Slade et al., 2009); yet, it is clear that this is not consistently experienced by patients.

While there is consensus from previous research on the importance of communication and partnership in enabling relationships and patient engagement, significant tensions exist regarding the time and capacity to support and value this relational work (Bright et al., 2012; Sladdin et al., 2018). It is clear from the literature that there are tensions between the importance allied health professionals place on providing discipline specific interventions and the need to embed a relational approach into practice (Bright et al., 2012; Bright et al., 2018).

Providing meaningful care

The literature on what matters to patients highlights the need for a shift in allied health practice towards individualised care which focuses on meaningful care in order to achieve the outcomes which are important to the patient (Bastemeijer et al., 2021; Sladdin et al., 2018; Wong et al., 2022). A study exploring how patients, occupational therapists, and managers perceived value in occupational therapy in Singapore was conducted by Wong et al. (2022). This appreciative inquiry found that enabling

outcomes which are meaningful to daily life were valued by all groups suggesting that meaningful patient outcomes were prioritised by incorporating what is most important to patients into the goals of therapy (Wong et al., 2022).

Some literature suggests that allied health practice does not always focus on meaningful outcomes from the patient perspective. Gardner et al. (2015) implemented a patient-led goal setting intervention by physiotherapists working with chronic low back pain patients and compared the patient goals with the most common outcomes measured used for chronic low back pain and recommended research outcomes. They found that patient goals included physical and emotional function, but the clinical outcome measures used included pain, range of movement, and strength (Gardner et al., 2015), reflective of a biomedical approach. In this study, the most used outcome measures in clinical practice did not measure what was meaningful to patients. Mudge et al., (2014) also illustrated the conflict between the physiotherapy biomedical approach and meaningful care from the patient's perspective. This study used autoethnography of two physiotherapists exploring their discomfort with person-centred practice in the neurological rehabilitation setting (Mudge et al., 2014). The authors argued that the adoption of a person-centred approach to practice requires a sea change in therapists' communication strategy away from a paternalistic approach towards joint goal setting (Mudge et al., 2014).

Previous literature has highlighted the need for allied health professionals to work more collaboratively with patients to understand and prioritise what is meaningful (Bright et al., 2012; Gardner et al., 2015). A recent Dutch study by Bastemeijer et al. (2021) outlined the importance of individual patient values in determining what is important when receiving outpatient physiotherapy care. The findings demonstrated the importance of patient autonomy and feeling empowered during clinical encounters (Bastemeijer et al., 2021), suggesting that understanding and responding to patient values was key in providing care. The authors recommended that values should be discussed during therapy sessions to help empower patients and individualise care to meet patient needs and preferences (Bastemeijer et al., 2021). These findings were similar to research by Sladdin et al. (2018) who found that dietetic patients valued individualised care. Participants outlined that developing a comprehensive understanding of the individual patient context was important in

providing a positive patient experience which, in turn, led to more engagement with dietary advice and better patient outcomes (Sladdin et al., 2018).

There is general agreement in the literature which suggests that meaningful allied health care should be grounded on what matters to patients by prioritising activities such as active listening, incorporating patient specific goals, and having an individualised approach (Mudge et al., 2014; Sladdin et al., 2018). Strong communication skills, having the time to make a connection, and the ability to foster a close working relationship are valued by patients accessing allied health care (Bright et al., 2012; Slade et al., 2009). While these studies provide useful knowledge on the allied health activities which matter to patients, there are differences from the perspective of healthcare organisations which will be outlined in the following section.

2.2.3 Important allied health activities to health organisations

While the previous section outlined what allied health patients value with regard to allied health activities, the research on what healthcare organisations, funders, and decision makers value highlights significant points of difference. In the context of financial constraints and high demand, health care providers value allied health activities which reduce costs and support national targets such as waiting times (Comans et al., 2011). Adams et al. (2014) explored factors influencing rural physiotherapy service provision in Australia and found that organisational priorities and funding were stronger drivers of physiotherapy service provision than patient need. The study concluded that with fiscal constraints, services needed to show value to decision makers and align services to business objectives (Adams et al., 2014). Similarly, Comans et al. (2011) investigated quality indicators for new and advanced practice allied health roles and, in a qualitative review, found that most advanced practice allied health roles were developed to influence organisational objectives. The majority of quality indicators for these allied health roles were process and economic measures such as waiting times and bed days, largely ignoring the potential impact of allied health interventions on patient outcomes such as improvement in function (Comans et al., 2011).

Organisational priorities, while influencing allied health service provision, can also impact upon intervention quality, suggest Harding et al. (2014). Their study found that

in the context of high levels of patient demand allied health professionals and managers prioritised direct patient-facing activity, which in their view influenced hospital flow, over evidence-based practice, despite its benefits in terms of efficacy of interventions and improved quality of care (Harding et al., 2014). Together, these studies argue that allied health activities, which have an impact on organisational priorities such as improving patient flow and reducing hospital length of stay, are more valued by healthcare organisations (Adams et al., 2014; Harding et al., 2014).

Proving value to funders and decision makers

Several studies focused on demonstrating impact of allied health activity on organisational objectives. Mickan et al. (2019), in an evaluation of allied health leadership, outlined the importance of allied health service visibility. They suggested that by aligning allied health activity with financial data, allied health leaders may have a stronger case to articulate the potential business value of allied health services. Mickan et al. (2019) argued that having data which provided comprehensive understanding of allied health services would help managers with business cases and conversations with decision makers to support service growth and increase capacity to deliver more allied health interventions for patients.

Common system-level measures which are valued by health organisations include hospital length of stay and occupied bed days, both of which can be easily linked to cost (Adams et al., 2014; Comans et al., 2011). These are commonly used in research to demonstrate the impact of allied health activities. Examples include studies by Mudge et al (2006) and Mills et al. (2018) which focused on medical inpatient units. The studies measured the impact of increased allied health staffing levels on hospital length of stay, occupied bed days against historical data (Mills et al., 2018) or against control wards with usual staffing and models of care (Mudge et al., 2006). The intervention units in both studies had more frequent, intensive, and responsive allied health interventions which resulted in reduced patient length of stay and reduced occupied bed days (Mills et al., 2018; Mudge et al., 2006). The study by Mills et al. (2018) found a statistically significant reduction in length of stay (median 0.7 days) and bed days savings (632.5 bed days/month), both of which were offset by the additional allied health staffing, and the model was adopted across all medical settings in the organisation. Similar organisational outcomes were used in a large systematic review

and meta-analysis evaluating the impact of additional allied health weekend services carried out by Sarkies et al. (2018). They found that allied health weekend services varied considerably and that there was a significant reduction in hospital length of stay (mean 2.35 days) in the sub-acute rehabilitation setting where weekend services were provided (Sarkies et al., 2018). However the impact of weekend allied health activity was less clear for medical and surgical wards, suggesting that allied health may add more value in the sub-acute rehabilitation setting and other variables may influence acute medical and surgical length of stay (Sarkies et al., 2018).

This review has demonstrated that healthcare service providers are increasingly interested in the potential economic and system-level benefits allied health can offer; however, little attention has been given to the impact of activity on patient level outcomes despite the importance of providing meaningful care to patients (Comans et al., 2011; Wong et al., 2022). The final section of this review will outline what workplace activities are important from the perspective of allied health professionals.

2.2.4 Important activities to allied health professionals

Allied health professionals value activities which improve clinical skills, knowledge, and competency (Comans et al., 2011; Wilson, 2015). The following section will outline how professional development activities and meaningful work activities are important to allied health professionals in terms of job satisfaction and career progression (Haywood et al., 2013; Scanlan & Hazelton, 2019).

There is a consensus in the literature on the importance of ongoing professional development at work from the perspective of allied health professionals (Haywood et al., 2013; Snowdon et al., 2020). In a study in the United Kingdom exploring continuing professional development, Haywood et al. (2013) highlighted how clinicians valued activities such as training, which developed their skills and expertise to improve patient care. They found that having access to funding, time at work, and an organisational culture which supported training and education were important enablers for allied health professionals to participate in professional development activities (Haywood et al., 2013). These findings were similar to that of Cosgrave (2020), who found that professional development activity at work, particularly for early career allied health professionals, can positively influence staff recruitment and

retention by enabling growth and supporting career pathways for allied health professionals.

Supervision is an important allied health activity in relation to allied health professional development and job satisfaction. Two quantitative studies which aimed to determine the factors that influenced allied health staff satisfaction at work were conducted by Wilson (2015) and Rodwell et al. (2009). Both studies found positive correlations between effective supervision and allied health professionals' well-being and job satisfaction (Rodwell et al., 2009; Wilson, 2015). However, health organisational priorities and support was an important factor in the uptake and prioritisation of supervision in the workplace (Rodwell et al., 2009). In a mixed methods study exploring allied health supervision, Snowdon et al. (2020) found that quality supervision was important to allied health professionals and it needed to be supported and valued by managers. In fact, the authors found that allied health participants felt that it was important to prioritise supervision over all other work activities, including patient care (Snowdon et al., 2020). This finding was in contrast to other research which suggested organisations and allied health managers prioritised direct patient-facing care (Harding et al., 2014). These contrasting findings indicate that there are tensions between allied health professionals and organisations on what activities are most important.

Job satisfaction for allied health professionals was also influenced by having meaning in their in day-to-day work (Scanlan & Hazelton, 2019). An Australian study exploring the relationship between job satisfaction and meaningfulness of work for mental health occupational therapists was conducted by Scanlan and Hazelton (2019). The study found that spending more work time on activities perceived to be meaningful correlated with less burnout and higher job satisfaction (Scanlan & Hazelton, 2019). The study also found that conducting workplace activities that were perceived to be occupational therapy specific correlated with a sense of strengthened professional identity, compared to undertaking *generic* activity (Scanlan & Hazelton, 2019). They concluded that an individualised approach to work allocation by managers to enable occupational therapists spending more time on what they enjoy and find meaningful may support increased job satisfaction (Scanlan & Hazelton, 2019). These findings resonate with another Australian study by Wilson (2015) who explored factors

influencing allied health professionals' job satisfaction. The author identified the significance of recognition and acknowledgement for the work allied health professionals do as important influences of satisfaction and retention (Wilson, 2015). A feeling of worthwhile accomplishment at work was the most powerful predictor of job satisfaction for the occupational therapist and physiotherapist participants, highlighting the importance of making a difference to allied health professionals (Wilson, 2015). The body of research on what workplace activities are important to allied health professionals focus on the impact upon job satisfaction and staff well-being. Interestingly, this differed considerably to what activities are important to patients, which were relational practice and providing meaningful care and outcomes.

2.2.5 Summary

This review has outlined the significant differences between stakeholders on what allied health workplace activities are most important. Patients found value in competency, effective allied health professional communication skills in supporting helpful relationships, and having interventions tailored to what is most meaningful (Bright et al., 2012; Bright et al., 2018; Mudge et al., 2014). Healthcare organisations value allied health activities such as direct patient care and early, rapid assessments which, in their view, influenced system level measures such as waiting times, hospital length of stay, and costs (Adams et al., 2014; Comans et al., 2011; Harding et al., 2014). Finally, allied health professional job satisfaction is significantly influenced by having access to professional development activities such as supervision and undertaking work that is meaningful to them (Scanlan & Hazelton, 2019; Wilson, 2015). Given these differences, further examination of the value of allied health workplace activities is warranted.

2.3 Literature review summary and rationale for this research

These reviews have highlighted the tensions and differing perspectives as to what allied health activity is valued. Health organisations value allied health activity which helps address system pressures, leading to a significant amount of research focusing on where allied health add value from an economic perspective. Allied health patients value therapeutic relationships, having control of their healthcare journey, and having their goals inform meaningful care (Bright et al., 2018; Sladdin et al., 2018; Wong et al.,

2022). Allied health professionals value professional development, supervision, and making a difference at work (Wilson, 2015). Despite these differing views, measurement of allied health activity has focused on inputs such as quantifying time spent, number of patient contacts, and clinical care ratios (Grimmer-Somers et al., 2012; Hearn et al., 2017). Patient level improvements and outcomes as a result of allied health interventions have been largely ignored in terms of measurement, despite being highly valued by allied health professionals and patients (Comans et al., 2011; Wong et al., 2022). This may lead to patient priorities being invisible to managers and funders when determining allied health service provision.

There is a growing focus on the importance of measuring allied health activity; yet, it is not known what activities are done by allied health professionals in New Zealand or what elements of allied health activity are most important in terms of patient and system level outcomes. Therefore, this research will aim to determine if DHBs in New Zealand are measuring the workplace activities that matter to patients, allied health staff, and managers. The aims of this research are to investigate what activities allied health staff do at the BOPDHB and to explore what workplace activities are most important to patients, allied health professionals, and managers at the BOPDHB. From this, it may be determined if national allied health data standards reflect what matters.

The following chapter outlines how a mixed methods design, underpinned by pragmatism, is the most appropriate approach to answer the research question and meet the aims of the study.

Chapter 3 Methodology

Crotty (1998) described four basic elements of the research process:

1. the theoretical framework,
2. the theory of knowledge or epistemology,
3. the methodology or research design,
4. the methods or procedures for data collection and analysis.

This chapter will give an overview and justification of pragmatism, as the theoretical framework underpinning this research. The chapter will then outline a mixed methods explanatory sequential design as the chosen methodology to address the research aims, before describing the specific research methods utilised in the study. Finally, the ethical considerations of this research will be discussed.

3.1 Pragmatism

A research paradigm is a basic belief system that guides the researcher and represents their worldview on the nature of reality (ontology), the relationship between the knower and the known (epistemology), and how knowledge can be obtained (methodology) (Guba & Lincoln, 1994; Lincoln et al., 2011). Pragmatism suggests that research steers clear of metaphysical debates on truth and reality; instead, focuses on real world issues (Patton, 2014). Therefore, this approach values research into the nature of reality that has a consequence for human life (DeForge & Shaw, 2012). Pragmatism, as a research paradigm, proposes that the methodological approach best suited to addressing the research problem should be used (Tashakkori et al., 1998). This approach focuses on seeking practical solutions in the real world (Morgan, 2014).

Pragmatism, as a philosophical movement, was developed by Pierce, Mead, Dewey, and James in the United States in the mid-19th century, and focused on human experience and practice (Kaushik & Walsh, 2019; Simpson, 2009). Pragmatists contest that human actions cannot be separated from experiences and beliefs, and that the meaning of human actions and beliefs are found in their consequences (Kaushik & Walsh, 2019). For pragmatists, reality is not static; the world is constantly changed by action (Kaushik & Walsh, 2019). Pragmatism asserts that multiple truths or realities can

exist (Feilzer, 2010). As such, in this study I aimed to explicate multiple truths and realities. The first aim was to investigate what activities allied health staff did at the BOPDHB, while the second aim was to understand the perspectives of patients, allied health staff, and managers on what workplace activities were important. Therefore, different approaches and data were required to address both research aims. A pragmatist-informed approach also offered the opportunity to address multiple practice concerns for patients, allied health staff, and managers in relation to their beliefs on high value workplace activity (Kelly & Cordeiro, 2020; Shaw et al., 2010). Pragmatism, with a focus on the experience of the participants, also had the benefit of exploring the connection between experience, action, and knowing in the context of all the participants (Kelly & Cordeiro, 2020).

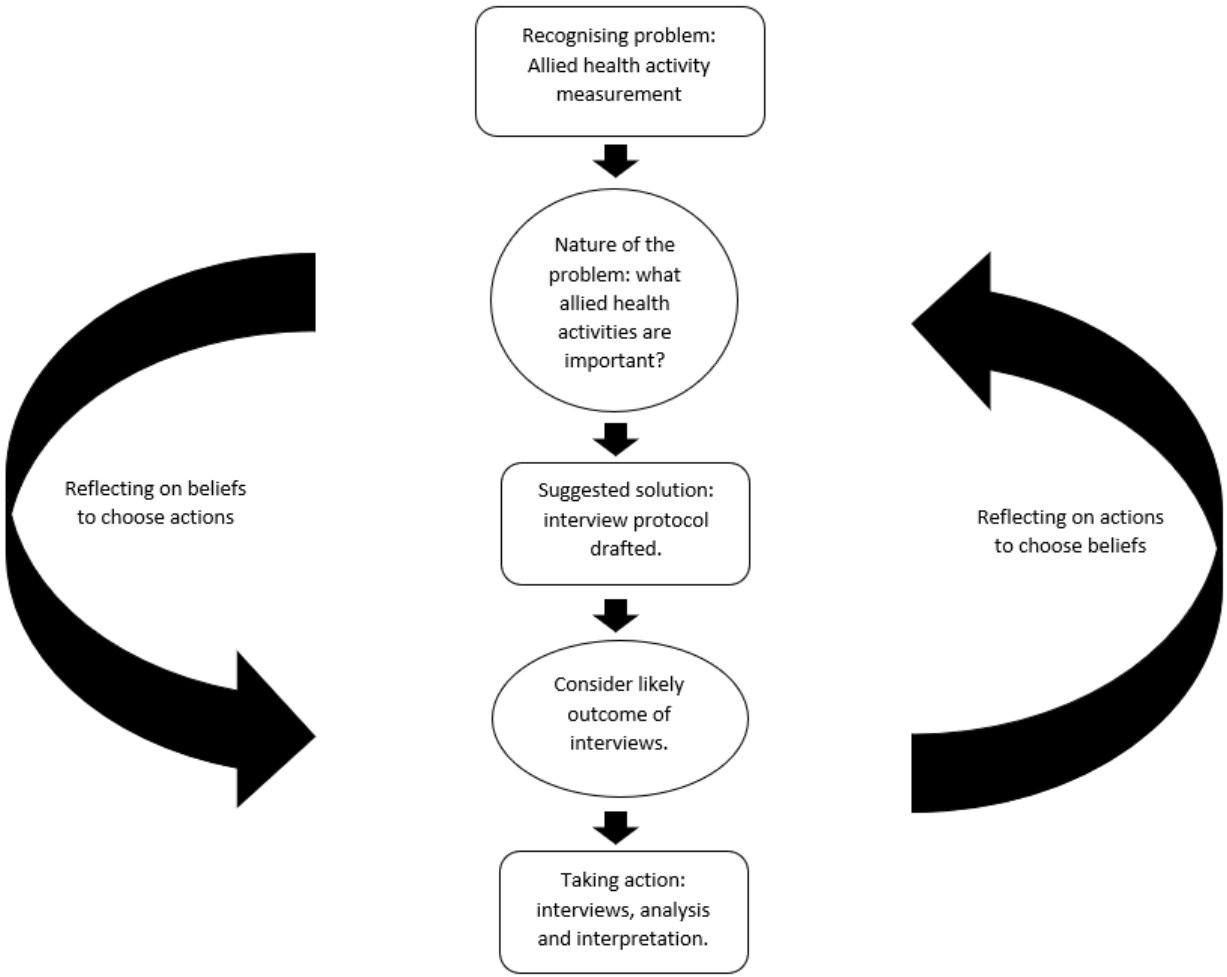
John Dewey's framework of social inquiry, described by Morgan (2014), has a strong emphasis on human experience. Dewey's approach to inquiry asks two fundamental questions: to understand the sources of our beliefs and to understand the meanings of our actions (Morgan, 2014). Dewey argued that contextualised experience brings beliefs and actions in contact (DeForge & Shaw, 2012; Morgan, 2014) which aligned closely with the current study as beliefs on what allied health staff activities (or action) at work are important to patients, allied health staff, and managers was based on their contextualised experiences. These beliefs both inform and are developed by each participant's contextualised experiences in the dynamic healthcare setting (DeForge & Shaw, 2012). For instance, participant beliefs about what should happen in an encounter with an allied health professional influence how the participant experienced the encounter.

Dewey proposed that a study grounded in pragmatism has four stages of inquiry. These are: (1) recognising a situation as a problem, (2) considering the nature of the problem, (3) considering potential solutions, and (4) considering likely consequences of these solutions before taking actions which are likely to best address the problematic situation (Morgan, 2014). Dewey's model of inquiry is a self-conscious and iterative decision making process where the researcher plays an active role (Morgan, 2014). Continuous cycles of reflecting on actions and beliefs guided my decisions on all aspects of this research. At the start of this research, I *recognised the problem* that allied health activity data may not reflect what matters to patients, allied health staff,

and managers at the BOPDHB. I reflected on the *nature of this problem,* which influenced the development of separate aims to investigate what activities allied health staff did at the BOPDHB and to explore what allied health workplaces activities were most important to patients, allied health staff, and managers. I *considered the potential solutions* (or methods) and the *likely consequences* (the degree to which each aim is addressed) of these methods before *taking action* and using separate methods to address each aim separately. As the study progressed, this cycle of reflection continued. In the quantitative phase I utilised data on allied health activity at the BOPDHB. My *experience* in utilising this data in my roles at the BOPDHB influenced my *beliefs* and enabled me to *consider the data which might best address the aim*; for example, more granular activity data would produce large volumes of data which would be challenging to manage, whereas mandated level three data would produce data which are a focus nationally and, therefore, may produce more useful and transferrable knowledge (Safe Staffing Healthy Workplaces Unit, 2022). In the qualitative phase I reflected on early data analysis of participant interview text to help me develop subsequent interview protocols (Morgan, 2014). Figure 2 (p. 50) illustrates how Dewey's model of inquiry was used to design, develop, and evolve the qualitative phase of this research.

Figure 2

Theoretical framework for the qualitative phase of the study.



Adapted from Dewey's model of inquiry (Morgan, 2014)

In order to address the aims of this study, there needed to be an investigation into the working world of allied health staff and the patients receiving their care. A pragmatist approach had the benefits of linking concerns raised in the 'real world' of clinical practice to the research process (Shaw et al., 2010). The comparison of the measured allied health activity in the BOPDHB with what was important to patients, staff, and managers was crucial to fully address the research question: *Are DHBs in New Zealand measuring the workplace activities that matter to patients, allied health staff, and managers?* The pragmatist lens prompted me to explore the complex and dynamic processes and actions surrounding allied health care at the BOPDHB (Kelly & Cordeiro, 2020); this information could not simply be gathered from quantitative data about what activities allied health professionals undertook. Pragmatism, with a focus on experience, prompted the probing of the experiences and actions of participants during allied health encounters, which were not being captured in allied health activity statistics (Kelly & Cordeiro, 2020).

In summary, there were several important factors which led me to choose a pragmatist approach to the study. The emphasis on experience and on the practical consequences of allied health activity from the point of view of the participants prompted attention to what mattered in context (DeForge & Shaw, 2012; Kelly & Cordeiro, 2020). Pragmatism also allowed me to be guided by the research problem, rather than an ontological or epistemological stance, when making decisions on the research design (Giddings & Grant, 2007). Pragmatism provided the opportunity to explore complex and multifaceted issues surrounding allied health practice, resulting in actionable knowledge that was meaningful to the study participants (Kelly & Cordeiro, 2020; Shaw et al., 2010). Dewey's approach to inquiry provided a clear template towards developing knowledge on high-value allied health activity, while fostering a self-conscious and reflective decision making process throughout the study (Morgan, 2014). Finally, by permitting the use of multiple research methods, pragmatism offered a comprehensive approach to investigating the complexity of allied health practice (Shaw et al., 2010). The following section outlines a mixed methods sequential explanatory design, which was my chosen methodology.

3.2 Mixed methods sequential explanatory design

With the practical appeal, some have argued that mixed methods research is rooted in pragmatism (Denscombe, 2014; Morgan, 2014). Mixed methods research bridges the quantitative and qualitative divide and allows the researcher to illuminate hidden variables which one method alone cannot do (Bergin, 2018). It adds rigour, credibility, and pulls on the strengths of differing methods (Johnson & Onwuegbuzie, 2004; Johnstone, 2004). This methodological approach supports more comprehensive results which can provide a fuller understanding of both research aims (Creswell & Clark, 2017; Wright-St Clair et al., 2014). A mixed methods design also allowed me to view the problem from different perspectives and use multiple methods to offset the potential weaknesses of each method (Creswell & Clark, 2017). The research question required quantitative data on allied health activity to understand what activities allied health staff did at the BOPDHB, and qualitative data to understand what is important from perspectives of patients, allied health staff, and managers. As a result, the research problem and aims could not be addressed with a single approach. Pragmatism provided a philosophical middle position to enable me to focus on finding a workable solution to meet the aims of the study (Johnson & Onwuegbuzie, 2004).

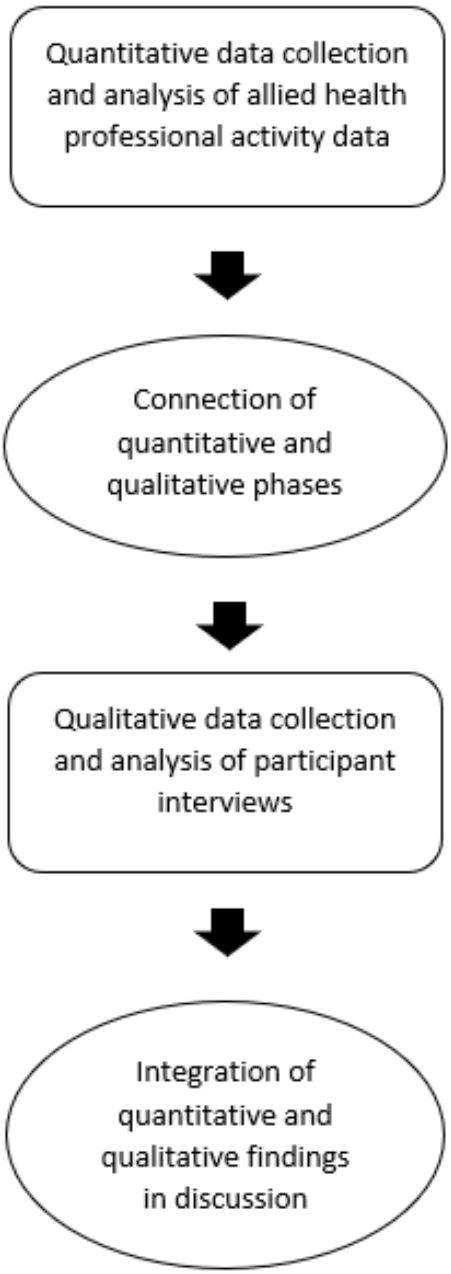
While the quantitative approach aims to avoid bias and values objectivity, subjectivity is valued in the qualitative end of the methodology spectrum (Braun & Clarke, 2013). My position as a researcher in terms of my experiences, previously held assumptions, knowledge, role, and values had a significant impact upon the development of the research question, design, methods, sampling, analysis, interpretation and, as a consequence, the knowledge produced (Braun & Clarke, 2013). With a pragmatist stance, I came with my own beliefs augmented from my previous experiences which influenced methodological decisions based on potential consequences of each design (Kaushik & Walsh, 2019). As a member of the allied health leadership team in both managerial and informatics roles, I had a vested interest in the allied health activity data collected within the BOPDHB. To use reflexivity as a method of enhancing rigour, I kept a research journal to reflect on my experiences, beliefs, and decisions made throughout the research journey (Braun & Clarke, 2013).

Creswell and Clark (2017) have outlined a sequential explanatory design, wherein the study starts with an initial quantitative phase with findings explored by the subsequent qualitative phase. The first aim of the study was to investigate what activities allied health staff did at the BOPDHB. Therefore, a sequential design was well suited to this study because a readily available and easily accessible quantitative dataset on allied health activity provided a useful important starting point, allowing me to meet this aim. The second aim was to understand what workplace activities are important to patients, allied health staff, and managers. Therefore, qualitative data were required to understand the perspectives of the participants in context. Dewey's four step model of inquiry supported an iterative approach to the collection of the qualitative data to ensure that the findings were grounded in the contextualised experiences of patient, allied health staff, and allied health manager participants (DeForge & Shaw, 2012; Morgan, 2014). This design offered the ability to meet the aims in two consecutive phases (Ivankova et al., 2006) and enabled an emergent approach where the qualitative phase was informed by the initial quantitative analysis (Creswell & Clark, 2017). A graphical model showing each phase of the design is outlined in Figure 3 (p. 54) (Ivankova et al., 2006).

The quantitative and qualitative data were integrated in two stages during the study. First, the findings of the quantitative phase, which outlined how allied health staff spent their time at work, informed the sampling and data collection approaches for the qualitative phase, which focused on understanding what workplace activities were important to both patients and allied health staff. Second, following analysis of the qualitative data in the second phase, the key quantitative and qualitative findings were integrated at the end of the Results chapter and interpreted in the Discussion chapter of this thesis. This integration of findings was used to answer the overall research question in the Discussion: Are District Health Boards in New Zealand measuring the workplace activities that matter to patients, allied health staff and managers?

Figure 3

Visual model for mixed methods sequential explanatory design procedures.



Adapted from Ivankova et al. (2006)

3.3 Methods

The following section outlines the specific methods used to sample, collect, and analyse data for the initial quantitative and subsequent qualitative phase of the study. Each section outlines the procedures used to increase validity and credibility in the quantitative and qualitative phases respectively. Table 3 (p. 52) outlines the methods employed throughout the study.

Table 3

Summary of research methods used in each phase in the study.

Phase of Research	Procedure	Output
Quantitative data collection	Allied health activity data	Clinical care ratio Proportion of time spent on clinical activities (level 3 codes)
Quantitative data analysis	Statistical analysis One-way ANOVA and post hoc analysis	Descriptive statistics Graphical illustration of data
Connection between quantitative and qualitative phases	Staggered sampling of participants Development and evolution of interview questions	Sample of allied health staff, manager, and patient participants Interview protocols
Qualitative data collection	Individual semi-structured participant interviews Verbatim transcription	Interview transcripts
Qualitative data analysis	Conventional content analysis	Conceptual map of categories
Interpretation of quantitative results qualitative	Mixing and interpretation of results from both phases of the study	Discussion New knowledge Implications for practice Study strengths and limitations Areas for future research

3.3.1 Quantitative phase

The first aim was to investigate what workplace activities allied health staff do at the BOPDHB. To address this, I conducted a retrospective analysis of allied health activity data at the BOPDHB. Allied health staff at the BOPDHB submit their activity data onto an electronic system on a daily basis. The system stores a large amount of data on allied health workplace activity and produces a suite of reports for the DHB. I gathered two data sources from the system for analysis: Clinical care ratio data over a 12-month period (1st July 2019 – 30th June 2020), and a sample of data on the time spent by allied health staff on level three clinical activities over the month of September 2019.

Clinical care ratio

Clinical care ratio is the proportion of time spent on clinical activities, including direct and indirect patient care, as opposed to non-clinical activities which include

administration, teaching, training, and management (Hearn et al., 2017). This is a continuous variable recorded in the system as a percentage of overall activity inputted by an individual allied health staff member. The "Staff Activity Overview Report" retrospectively provides each allied health staff member's clinical care ratio over a defined period of time. Although a broad metric, the clinical care ratio offered the benefit of being able to be applied across clinical settings and each discipline included in the study. The use of ratio data also had the benefit of mitigating the potential impact of any missing data from the database.

Inclusion criteria

The clinical care ratio data of all allied health assistants, dietitians, occupational therapists, physiotherapists, speech and language therapists, and social workers providing care in physical health settings at the BOPDHB. Activity data were included if collected by staff who were fully trained at recording activity data on the DHB system. The sampled time frame was from 1st July 2019 to 30th June 2020.

Exclusion criteria

Clinical care ratio data were excluded from:

- Staff who did not record activity data over the time period (e.g., staff on parental leave)
- BOPDHB allied health scientific and technical professionals not outlined in the inclusion criteria (e.g., podiatry, project roles, clinical physiology, orthotists)
- Allied health staff working in mental health do not currently capture activity data and were therefore excluded from the study
- Undergraduate allied health students were excluded; students only record clinical activity at the BOPDHB, therefore their clinical care ratio will always be 100%

Data collection

The clinical care ratio data was collected by an independent administrator with access to the system, with the agreement of the Executive Director of Allied Health, Scientific and Technical and the BOPDHB. This independent party signed an Auckland University of Technology (AUT) confidentiality agreement (Appendix A). The independent administrator accessed the "Staff activity overview report" which provided the overall

mean clinical care ratio for each of the included allied health professionals for the included 1-year period. Once the data were downloaded from the system as a Microsoft Excel file, they were arranged into separate worksheets in Excel by each profession. Undergraduate student allied health data were removed before all staff names were then removed from the dataset to ensure anonymity. All other data not related to the clinical care ratio on the report were removed from the Excel spreadsheet. The list of clinical care ratios by discipline was made available to me by an email attachment sent by the independent administrator to my AUT email. Appendix B shows an example of the collected raw data. Each numeric data point represents the mean clinical care ratio for each allied health professional group over the 1-year time period. All data were screened for missing data and errors, before being entered for analysis into the IBM Statistical Package for the Social Sciences (SPSS) Version 27 system.

Data analysis

The dependent variable was the clinical care ratio recorded as a percentage and entered as ratio data in the SPSS system. The independent variables were the six included allied health professions. These were entered into the SPSS system as nominal data. The SPSS software was used to produce descriptive statistics including mean, median, confidence intervals, and standard deviation of the clinical care ratio for each discipline. These statistics were illustrated by using histograms and tables which summarised the data. The distribution for each professional group was tested for normality using the Shapiro-Wilks test, before a one-way ANOVA was conducted to compare the means of each discipline group. Tukey's test was conducted post hoc to determine which discipline's mean differed statistically from the others. The level of significance was set at 0.05.

Data accuracy

To ensure reliability of the quantitative results, several procedures were conducted. The independent administrator who downloaded the clinical care ratio data from the system as a Microsoft Excel file checked the data in both systems to ensure it was accurate. After the data were transcribed into SPSS, the data were checked and then re-checked. The total data entries for each allied health group were compared between the raw data in Excel and the transcribed data in SPSS. Finally, descriptive

statistics, including the median and mean, were analysed in both SPSS and Excel to ensure they were the same. Each statistical test was conducted twice in SPSS to ensure consistency in the findings.

Clinical activity data on time spent

The second dataset used in the quantitative phase was data on total time spent by each profession on clinical activities in September 2019. Level three codes from the Allied Health Activity Dataset, which are the minimum level of data required for all DHBs, were used (Safe Staffing Healthy Workplaces Unit, 2022). There were large volumes of data on discipline specific level four activity codes; therefore, choosing level three codes grouped the data into manageable volumes (Safe Staffing Healthy Workplaces Unit, 2022). The Safe Staffing Healthy Workplaces Unit (2022) Allied Health Activity Dataset for Physical Health places clinical activities into five level three activity categories:

- Initial patient encounter
- Follow-up patient encounter
- Indirect encounter (e.g., documentation, liaising with multidisciplinary team, screening)
- Diagnostic procedure
- Group intervention

The total time spent in minutes in each of the above five codes by each discipline was the data collected for analysis. The proportion of time spent on level three activities by the collective and each individual discipline were calculated as percentages using Microsoft Excel.

Inclusion criteria

Data on the clinical activity of all allied health assistants, dietitians, occupational therapists, physiotherapists, speech and language therapists, and social workers providing care in physical health settings at the BOPDHB were included. Activity data were included if collected by staff who were fully trained at recording activity data on the DHB system. As the activity dataset had a large amount of data on time spent on clinical activities, the decision was made to sample a single month between 1st July 2019 and 30th June 2020 to ensure the amount of collected data was manageable. The

sampled time frame was the month of September 2019 as the data were not influenced by the COVID-19 pandemic or public holidays.

Exclusion criteria

Data on time spent on each clinical activity data were excluded from:

- Staff who did not record activity data over the time period (e.g., staff on parental leave)
- BOPDHB allied health scientific and technical professionals not outlined in the inclusion criteria (e.g., podiatry, project roles, clinical physiology, orthotists)
- Allied health staff working in mental health do not currently capture activity data and were therefore excluded from the study
- Undergraduate allied health students

Data collection

The data were collected by the same independent administrator who accessed and collected the clinical care ratio data as discussed above. The individual accessed the "All activities analysis report" for the month of September 2019. The dataset was downloaded from the system as a Microsoft Excel worksheet. This large dataset provided all the activity data over the course of the month including: staff information, patient information, date of activity, encounter start time and stop time, time spent in minutes, and location of activity. To ensure confidentiality, the administrator deleted all data containing patient identifiable information including name and national health index (NHI) number. All staff identifiable information such as name, employee number, health provider number, and clinical team were removed from the dataset after all undergraduate students were removed. The Microsoft Excel worksheet was then emailed to my AUT email address to give me access to the data. A small sample of the raw data on time spent in minutes on indirect clinical activity for the allied health assistant group is shown in Appendix C.

Data analysis

To prepare the data for analysis using Microsoft Excel, filters were applied to each data point. Non-clinical activities were unchecked leaving total time spent by discipline on each allied health clinical activity. Each level three activity was checked separately. The product of this was total time in minutes spent by each discipline for each of the five

level three activity codes outlined above. Filters were applied and reapplied for each activity to determine the total time spent in minutes which was converted to hours. This process was repeated for each activity for each individual allied health professional group. Microsoft Excel was used to determine the proportion of time spent on each activity as a percentage. This data was presented in a table in the Results chapter.

Data accuracy

To ensure reliability, similar procedures were followed as above. The data collected by the independent administrator were cross-checked. Once the Microsoft Excel workbook was made available, it was saved twice and the filtering procedures on Excel were repeated in both spreadsheets to ensure consistency. The total time spent, and proportion of time spent by each discipline on each of the five activities were checked three times with the saved Excel datasets to ensure consistent findings. The percentages for each discipline were added to ensure there was no missing data and it was reflective of 100% of the activity data.

3.3.2 Qualitative phase

The qualitative phase was designed to address the second aim of the study which was to explore what allied health workplace activities are most important to patients, allied health staff, and managers. The qualitative data were collected using individual, face-to-face semi-structured interviews and analysed using conventional content analysis as outlined by Hsieh and Shannon (2005). Data collection and analysis was conducted in an iterative way. This approach provided the opportunity for continuous cycles of reflection on interview protocols and analysis to shape the next interview. Figure 2 (p. 47) highlighted my decision-making process throughout the qualitative phase of the study by highlighting how reflections on each interview and subsequent analysis informed changes to interview protocols (Morgan, 2014). The quantitative findings informed the recruitment, sampling, and data collection for the qualitative phase as key findings could be followed up in the participant interviews (Creswell & Clark, 2017).

Inclusion criteria

Patient participants included patients receiving care from allied health at the BOPDHB in a physical health setting. *Staff participants* were eligible if they were from the six professions included in the study: allied health assistants, dietitians, occupational therapists, physiotherapists, speech and language therapists, and social workers. These staff participants were included if they were trained in and were using the BOPDHB's activity data system. *Manager participants* were eligible if they were a line manager in the BOPDHB wherein one or more of the included six allied health disciplines reported to them.

Exclusion criteria

Participants were excluded if they were:

- Patients who had not received allied health care provided in the BOPDHB setting
- BOPDHB allied health scientific and technical professionals not outlined in the inclusion criteria (e.g., podiatrists, clinical physiologists, radiographers)
- Staff who were not trained or currently recording activity data
- Staff who worked in mental health services as at the time of participant recruitment they did not measure their activity at the BOPDHB
- Allied health students
- Allied health staff who reported to me at the time of data collection

Recruitment

The recruitment of patient, allied health staff, and manager participants occurred throughout 2021. Allied health staff and manager participants were recruited using a brief email which outlined the study, along with my AUT email address. The allied health staff participant information sheet was attached to the email (Appendix D). An allied health administrator emailed all suitable staff and managers in the BOPDHB who met the above inclusion criteria. I was not directly involved recruiting any participants—including patients, allied health staff, and managers—to the study. Staff and managers who were interested in knowing more about the study or wished to take part were invited to email me directly on my AUT account. Those participants who decided to be involved were invited to interviews at a location, time, and date that suited them.

Potential patient participants who met the inclusion criteria were approached and given information about the study by allied health managers and clinical nurse managers (referred to as 'the recruiters') at the BOPDHB. If the patients were interested, a patient participant information sheet was provided (Appendix E). The potential patient participants emailed the primary supervisor of the study as their email address was on the information sheet. If the patient participants wanted to discuss the study with me in person, the recruiter arranged an introduction. Staff who reported to me were not involved in the patient participant recruitment process.

Data collection

The most common qualitative method for data collection is participant interviews (Braun & Clarke, 2013). Face-to-face, semi-structured participant interviews were conducted for all recruited participants. The semi-structured interview, as a method, offered flexibility to both participant and me (the interviewer), provided rich and detailed data, and gave the opportunity for the participant to raise aspects of their experience that I had not anticipated (Braun & Clarke, 2013). The semi-structured interviews used a combination of open and closed questions which aimed to elicit discussion about people's experiences and perspectives on what allied health workplace activities were important (Rubin & Rubin, 2011). This flexible approach allowed participants to describe their contextualised experiences in relation to allied health encounters which is important from a pragmatist stance (DeForge & Shaw, 2012).

All participants were welcome to bring along a family member or support person to encourage and support their participation. Tea, coffee, and water was available at each interview. A copy of the relevant participant information sheet was available for participants before the interviews to help address any questions (Appendices D & E). A consent form was also printed and made available in at the interview location, and following an introduction and overview of the study the participants could choose to participate by signing the Auckland University of Technology Ethics Committee (AUTEC) consent form (Appendix F).

The patient, allied health staff, and manager interview protocols were developed and modified over the course of the qualitative phase. Examples of these protocols can be

found in Appendices G, H, and I. *Patient participants* were asked questions about their health journey, what was important to them, which allied health staff supported them, and asked about the type of work they did to help them. *Allied health staff participants* were asked what a good patient encounter would look like from their perspective, what they felt were important work activities, and their views on workplace activity measurement. *Allied health managers* were asked about their views of high value care, the measurement of workplace activity for allied health, and what was important to management at the BOPDHB.

The interviews were recorded on two separate devices for the purposes of verbatim transcription. I transcribed all the interview recordings. While this was time-consuming, it provided the opportunity of early immersion with the data.

Data analysis

Once the interviews were transcribed, conventional content analysis was used to interpret meaning from the text data. Content analysis is an analytic technique which uses a number of procedures to make valid inferences from text data (Weber, 1990). This method aimed to develop a condensed and broad description of the phenomenon being studied (Elo & Kyngäs, 2008). Conventional content analysis was chosen as it aligned with the aims of the study, with the interview text data directly informing the coding (Hsieh & Shannon, 2005). Hsieh and Shannon (2005) outlined the process of conventional analysis that was used in this study. This process included immersion with the text data, noting initial impressions, open coding, refining codes, and grouping codes into categories (Hsieh & Shannon, 2005). Reading and re-reading the text data with the research question and aims in focus, allowed me to become familiar with the data (Erlingsson & Brysiewicz, 2017; Hsieh & Shannon, 2005). Then I made notes of initial impressions before commencing open coding from the text data (Hsieh & Shannon, 2005). Figure 4 (p. 64 illustrates an example of coding from a sample of an interview transcript. The codes were grouped into categories which form a conceptual map of the relationship between categories to provide an overview of the perspectives of each participant group (Elo & Kyngäs, 2008). Figure 5 (p. 65 illustrates an example of a conceptual map and how a sample of codes were grouped together into sub-categories and then categories during the analysis.

This process was recursive in that there was an ongoing process of analysis, writing, re-immersion with the text data, refining analysis to organise and re-organise the categories. The final product was a conceptual map of findings on what activities were most important to all participant groups which were presented in the Results chapter.

Figure 4

Example of open coding from an interview transcript.

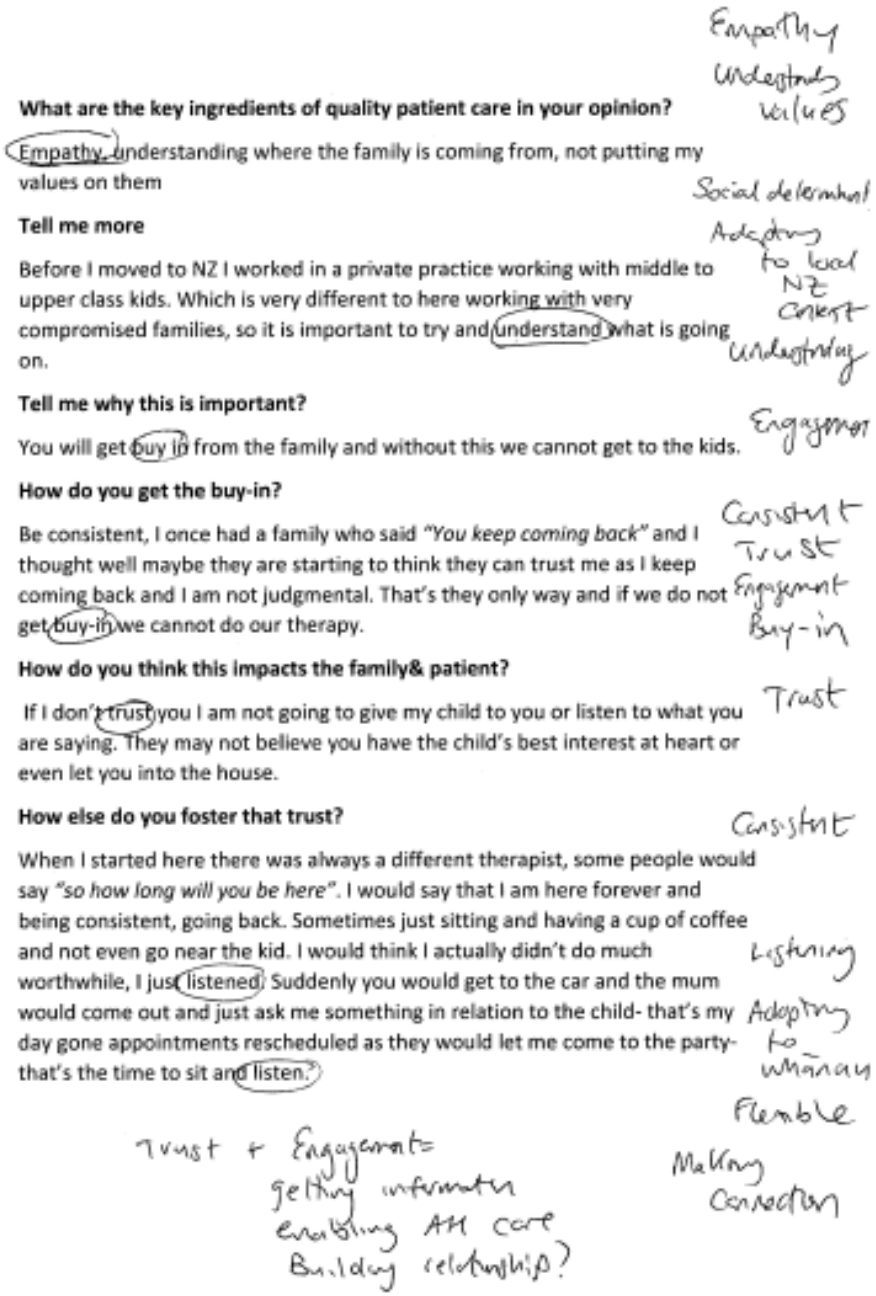


Figure 5

Grouping of codes into sub-categories and categories on what allied health activities were most important.

Trustworthiness

Lincoln and Guba (1986) outlined four criteria for trustworthiness in qualitative research: credibility (truth value), transferability (applicability), dependability (consistency), and confirmability (objectivity). To enhance the trustworthiness of the qualitative findings several methods were undertaken. First, credibility was enhanced by having prolonged engagement with participants during semi-structured interviews, actively exploring differing perspectives, and triangulating of findings from other participants (Lincoln & Guba, 1986). Second, to ensure transferability open ended questions were included to understand the participants' context; and participants were sampled from a range of clinical settings (paediatrics, adult, community, inpatient, outpatient, and management) (Lincoln & Guba, 1986). Third, the risk of failing to identify a code or category was mitigated with regular meetings with my supervisors to sense check findings, and samples of text data were coded separately by a supervisor to ensure dependability of findings (Graneheim et al., 2017; Hsieh & Shannon, 2005; Lincoln & Guba, 1986). Finally, I documented my pre-understandings, experience, biases, and assumptions which influenced decisions on sampling, interview design, interview style, data analysis, and interpretation of the findings (Erlingsson & Brysiewicz, 2017; Graneheim et al., 2017). I used reflexivity and kept a log of decisions, thinking, and biases to assert a degree of quality control (Braun & Clarke, 2013). This audit trial of decisions and biases enhanced the confirmability of the qualitative phase (Lincoln & Guba, 1986).

3.4 Ethical considerations and approval

Ethical approval was obtained following consultation with and application to the AUT Ethics Committee (20/288) on 15th October 2020 (Appendix J). A locality ethics approval was gained from the BOPDHB clinical school (2020-80) on 26th August 2020, this process required consultation and approval from Toi Ora Māori Health and Gains Development at the BOPDHB (see Appendices K & L). Several important ethical considerations influenced the data collection, storage, and analysis in both the quantitative and qualitative phases of the project.

The first ethical consideration was access and use of the allied health activity data in the first phase of the study. The quantitative phase was a retrospective analysis of

existing secondary datasets on allied health activity at the BOPDHB, these datasets contained patient and staff identifiable information. To mitigate any breach of confidentiality, the data were collected by an independent administrator who has access to the data system, this individual signed an AUT confidential form (Appendix A). The independent administrator removed staff and patient identifiable information and data which did not address the first aim of the study from both quantitative datasets, before providing me with access to the data.

The second ethical consideration was the potential conflict of interest between my position as researcher and my roles at the BOPDHB. Allied health staff who reported to me at the time of data collection were excluded from the study due to the potential power imbalance and conflict of interest between my managerial role and this research. Any patients for whom I provided care were excluded from the study. I was not directly involved with the initial stages of participant recruitment for the study. The participant information sheet and consent forms outlined my potential conflicts of interest and were explicit that participation was voluntary, and participants could withdraw from the study at any time.

A final consideration was the need to keep the signed consent forms and interview transcripts separate. The consent forms were scanned and emailed to the primary supervisor who saved and stored the forms in a locked cabinet at AUT, so they were separate from the transcribed data. The participant interviews were audio voice recorded and saved on two password protected devices. I transcribed all the interviews verbatim and the voice recordings were deleted once the transcriptions were checked and re-checked. All participants were given a pseudonym to ensure that the data were non-identifiable. Any identifiable information in the transcriptions, for example a member of staff's name, was also given a pseudonym to ensure that no identifiable information was presented in the findings.

Chapter 4 Results

The current chapter will present the findings from both the quantitative and qualitative phases of the study. The research question was: are DHBs in New Zealand measuring the workplace activities that matter to patients, allied health staff, and managers? The first section of this chapter provides an overview of the quantitative results specific to the first aim of the study which was to investigate what activities allied health staff did at the BOPDHB. The second section depicts the qualitative results from content analysis of patient, allied health staff, and manager participant interviews as to what allied health activities are most important at the BOPDHB.

4.1 Quantitative phase

The quantitative phase addressed the first aim of the study: to investigate what activities allied health staff did at the BOPDHB. An analysis of allied health activity data captured by allied health staff at the BODHB was undertaken in two components. The first component was an analysis of the clinical care ratios across the six included allied health disciplines in the study over a 1-year period from 1st July 2019 to 30th June 2020. An in-depth analysis of the clinical activities provided by each discipline over the month of September 2019 was then undertaken. The findings of both components of the quantitative phase of the study are presented in the following sections.

4.1.1 Clinical care ratio (1st July 2019 - 30th June 2020)

The initial component examining how allied health staff spent their time at work focused on the clinical care ratio of each of the six following disciplines: allied health assistant, dietetics, occupational therapy, physiotherapy, social work, and speech and language therapy. These six disciplines were included as they are part of the Allied Health Activity Dataset (Safe Staffing Healthy Workplaces Unit, 2022). As outlined in the Literature review, the clinical care ratio is the percentage of time spent on direct and indirect clinical activities at work as opposed to non-clinical tasks such as administration, training, management, and supervision. The allied health staff whose data were included in this research worked in all physical health settings across community, outpatient, and inpatient services. The clinical care ratio was measured

over the most recent 12-month period at the time of data collection, from 1st July 2019 to 30th June 2020.

Activity data were collected and submitted by a total of 224 allied health staff. Table 4 below illustrates the demographics of the allied health staff whose data were included in the analysis. Physiotherapy was the largest discipline included in the research in terms of total staff representing 31.3% of the staff, followed by occupational therapy which comprised 22.3% of staff. Speech and language therapy had the fewest staff with 7.1%, while dietitians were also one of the smaller groups proportionally representing 7.6%. Allied health assistants represented 16.5% of the allied health staff, while social workers were 15.2% of the sampled workforce.

Descriptive statistics were used to analyse the clinical care ratio of all staff and the findings summarised in Table 4 below. The allied health assistant group had the lowest mean (55.3%) and median (58%) clinical care ratio, while physiotherapy had the highest mean (70.3%) and median (69.9%) clinical care ratio. Dietetics, occupational therapy, social work, and speech and language therapy mean, and median fell between the allied health assistant and physiotherapy clinical care ratios.

Table 4

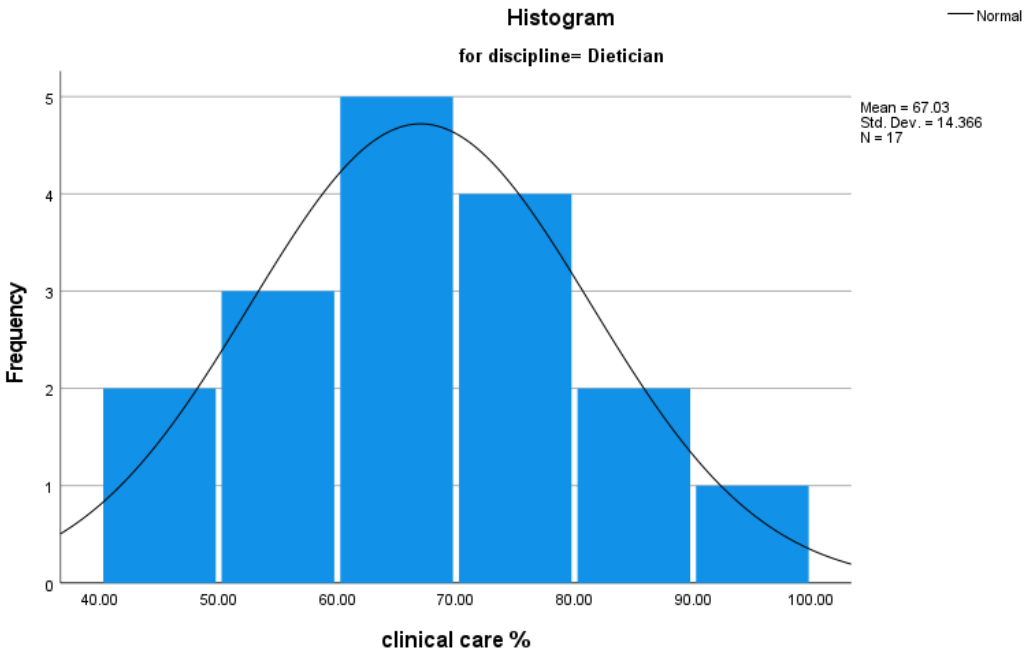
Demographic and descriptive data of clinical care ratio for each occupation between 1st July 2019 and 30th June 2020.

Occupation	Total number of staff (n)	Proportion of workforce (%)	Median CCR (%)	Mean CCR (%)	Standard Deviation	95% Confidence Interval for Mean CCR (%)	
						Lower bound	Upper bound
Allied health assistant	37	16.5	58	55.3	19	48.9	61.6
Dietitian	17	7.6	64.2	67	14.4	59.6	74.4
Occupational therapist	50	22.3	66.3	65.9	12.1	62.5	69.3
Physiotherapist	70	31.3	69.9	70.3	11.8	67.4	73.1
Social worker	34	15.2	60.2	62.7	13.5	57.9	67.4
Speech and language therapist	16	7.1	60.6	59.9	11.9	53.5	66.2

The clinical care ratio data for allied health assistant, dietetics, social work, and speech and language therapy appeared to be normally distributed as illustrated for the dietitian group in the histogram below (Figure 6).

Figure 6

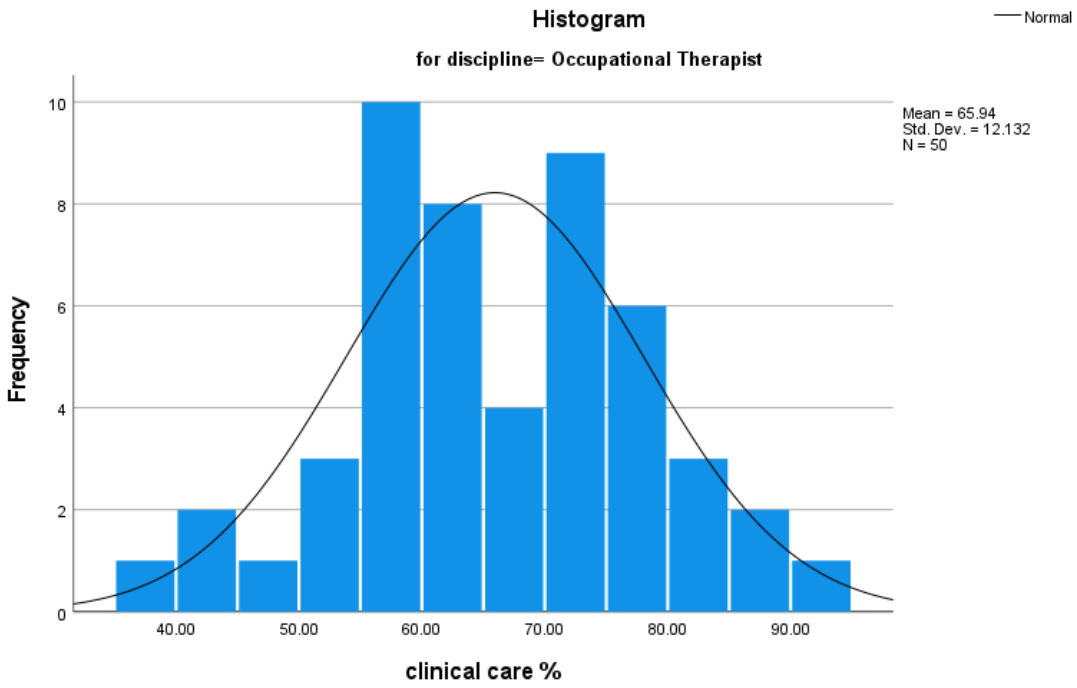
Histogram showing the distribution of the dietitians' clinical care ratio against a normal distribution.



The larger disciplines of physiotherapy (n=70) and occupational therapy (n=50) had bimodal distributions. The clinical care ratio peaked twice around 60% and 70% for the occupational therapy group as demonstrated in Figure 7 (p. 68); the physiotherapy clinical care ratio had a similar distribution peaks around 65% and 75%.

Figure 7

Histogram showing the distribution of the occupational therapists' clinical care ratio against a normal distribution.



The normality of the distribution for each discipline was analysed with the Shapiro-Wilk test. The null hypothesis stated that the data are normally distributed. If p>0.05, then null hypothesis is accepted. Table 5 below shows the results of the Shapiro-Wilk test. All six disciplines had a p>0.05; therefore, null hypothesis was accepted. The Shapiro-Wilk test did not show evidence of non-normality; therefore, the assumption of normal distribution required for a one-way analysis of variance (ANOVA) was met.

Table 5

Shapiro-Wilk test of normality for clinical care ratio of each discipline between 1st July 2019 and 30th June 2020.

Occupation	Degrees of Freedom	p value
Allied Health Assistant	37	0.287
Dietitian	17	0.704
Occupational therapist	50	0.869
Physiotherapist	70	0.676
Social worker	34	0.654
Speech and language therapist	16	0.891

A one-way ANOVA was performed to compare the effect of allied health discipline on clinical care ratio. A one-way ANOVA demonstrated a statistically significant difference in clinical care ratio between at least two allied health occupations F (5, 218) = 6.415, p<0.001. A post hoc Tukey honest statistical difference (HSD) test was conducted to determine where the clinical care ratio differed between the allied health groups. Tukey HSD test showed that the allied health assistant clinical care ratio was significantly lower than the dietitian (p=0.047), occupational therapy (p=0.006), and physiotherapy (p<0.001) groups. There was no statistical difference between the other disciplines. The results from the Tukey HSD test for the allied health assistant group are provided in Table 6 below.

Table 6

Results of Tukey HSD for allied health assistant group clinical care ratio compared to other allied health occupations at the BOPDHB between 1st July 2019 and 30th June 2020.

Allied health occupation (I)	Allied health occupation (J)	Mean Difference (I-J)	p value
Allied health assistant	Dietitian	-11.69428*	0.047
	Occupational therapist	-10.60286*	0.006
	Physiotherapist	-14.91772*	<0.001
	Social work	-7.37075	0.218
	Speech and language therapist	-4.54611	0.879

Note* the mean difference is significant where p <0.05

4.1.2 Clinical activity analysis (September 2019)

The second component of the quantitative phase of the study was an analysis on allied health clinical activity over the month of September 2019. This was done to determine the total time spent and the proportion of time spent by each allied health discipline as reflected in the level three codes from the allied health activity dataset for physical health (Safe Staffing Healthy Workplaces Unit, 2022). These level three codes included: initial patient encounter, follow-up encounter, indirect encounter, group intervention, and diagnostic procedure.

The demographic data on the allied health staff who recorded activity data are displayed in Table 7 (p. 70). A total of 185 allied health staff were included in the analysis. Speech and language therapy was the smallest group (n=11) while physiotherapy was the largest group (n=54).

Table 7

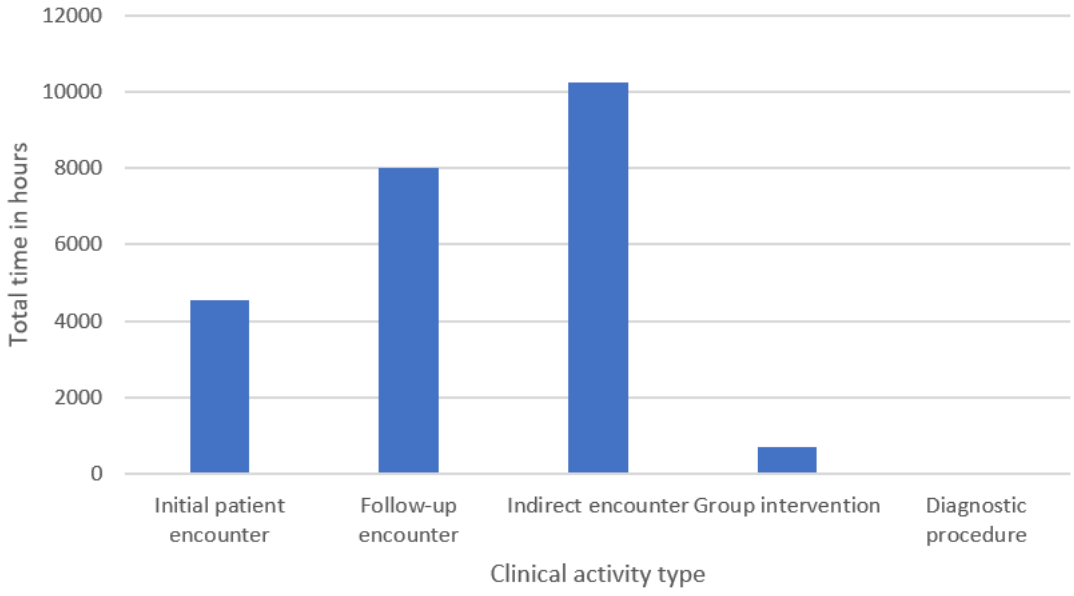
Demographic data of allied health staff who recorded clinical activity data in September 2019 at the BOPDHB.

Occupation	Total number of staff (n)	Proportion of workforce (%)
Allied Health Assistants	31	16.8
Dietitian	14	7.6
Occupational therapist	45	24.3
Physiotherapist	54	29.2
Social worker	30	16.2
Speech and language therapist	11	5.9

All six allied health groups recorded a total 23,498 hours of clinical activity in September 2019. Allied health staff collectively spend a large proportion of time undertaking indirect encounters (43.5%) and spent the least amount of time providing diagnostic procedures (0.2%). Initial patient encounters took up 19.3% of clinical time which was less than follow-up encounters (34%). Group interventions represented 3% of the total clinical activity. The collective time spent on each clinical activity by all six allied health professions are illustrated in Figure 8 below.

Figure 8

Bar chart showing total time in hours spent by all six allied health disciplines on each clinical activity type in September 2019 at the BOPDHB.



There were several differences in the types of clinical activities carried out by each allied health discipline. The proportion of time each discipline spent on each level three activity is illustrated in Table 8 below. Three disciplines spent the most amount of their time on indirect activity: allied health assistant (51.7%), occupational therapy (53%), and social work (45.3%). Allied health assistants did not provide any initial patient encounters (0%). Speech and language therapy were the only discipline to record time spent on diagnostic procedure (5.3%). Social work and dietetics did not provide any group interventions. Occupational therapy spent the most amount of time on initial patient encounters (26.2%) and least time on follow-up encounters (20.2%).

Table 8

Proportion of time (%) spent on each level three clinical activity by six allied health disciplines in September 2019 at the BOPDHB.

	Allied health assistant (%)	Dietitian (%)	Occupational therapist (%)	Physiotherapist (%)	Social worker (%)	Speech and language therapist (%)
Initial patient encounter	0	23.9	26.2	19.7	13.6	13.5
Follow-up encounter	39.1	46.1	20.2	39	41.1	42.2
Indirect encounter	51.7	30	53	36.4	45.3	36.4
Group intervention	9.2	0	0.6	4.9	0	2.6
Diagnostic procedure	0	0	0	0	0	5.3

4.1.3 Summary of quantitative results

In summary, there were statistical differences between the clinical care ratio of the six allied health disciplines over a 1-year period at the BOPDHB. Both occupational therapy and physiotherapy had bimodal distributions of clinical care ratios. Allied health assistants had the lowest mean (55.3%) and median (58%) clinical care ratio. Post hoc analysis showed that the allied health assistant group had statistically lower clinical care ratio than the dietetic, occupational therapy, and physiotherapy groups.

An analysis of time spent on clinical activity in September 2019 showed that significant amount of collective time was spent on indirect encounters (43.5%). An analysis of each clinical activity type by discipline highlighted several differences. Allied health

assistant (51.7%), occupational therapy (53%), and social work (45.3%) groups spent the most time proportionally on indirect encounters. Allied health assistants provided no initial patient encounters, while speech and language therapy were the only discipline to provide diagnostic procedures. Occupational therapy was the only group to spend more time on initial patient encounters than follow-up encounters. The next section of the results chapter will present the findings from the qualitative phase of the study.

4.2 Qualitative phase

The purpose of qualitative phase was to address the second aim of the study: to explore what allied health activities are most important to patients, allied health staff, and managers. Nine people participated in the qualitative phase. Table 9 below shows each participant's role, clinical setting, specialty, and pseudonym.

Table 9

Participants from the qualitative phase of the study.

Pseudonym	Participant role	Clinical setting	Specialty
Kevin	Patient	Outpatient	Musculoskeletal
Manaia	Patient	Inpatient, Community, Outpatient	Rehabilitation
Wai	Allied Health Assistant	Inpatient, Outpatient	Rehabilitation
Emma	Occupational Therapist	Community	Paediatric
Anne	Physiotherapist	Inpatient	Acute
Emily	Physiotherapist	Outpatient	Women's and men's health
Susan	Allied Health manager	Inpatient, Community, Outpatient	Manager
Rhonda	Allied Health manager	Inpatient	Manager
Niamh	Allied Health manager	Inpatient, Community, Outpatient	Manager

Workplace activities that were important to all groups (patients, allied health staff, and managers) were captured within three core categories; these were building positive relationships, providing meaningful care, and 'backstage' activity. A fourth category

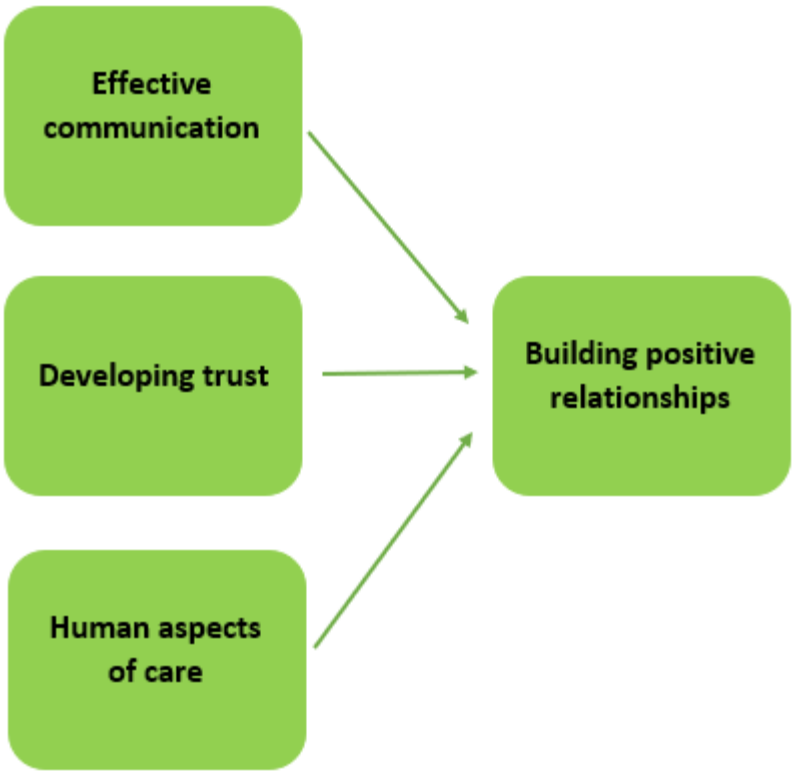
was developed to reflect staff' and manager' perspectives on recording activity statistics.

4.2.1 Category one: Building positive relationships

Building and supporting positive working relationships with patients, other healthcare professionals, and services was highly valued and seen as an important component of allied health practice. This category reflects a common view that positive working relationships underpinned good patient care and experience. It was achieved through three relational workplace activities: communication, developing trust, and the human aspects of care (see Figure 9) below.

Figure 9

Activities which contribute to building positive relationships.



Effective communication

Effective communication skills were seen as important to all participant groups as these were key in developing relationships and understanding patient needs. Communication was comprised of multiple skills: listening, ensuring enough time for communication, use of everyday language, and enabling safe transitions of patient care.

Strong listening skills were important in understanding the needs of patients, and placing patients and their needs at the centre of management plans. Kevin, a patient attending an outpatient clinic, outlined how listening formed the foundation of an ideal clinical encounter with the physiotherapist. It ensured there was a mutual understanding of his needs and that his therapy session was planned around these needs.

> A good session is when we sit down at the start and I explain where I am at, what I think I am having difficulty with and what I am progressing with… [listening] can let him [the physiotherapist] know where I am at physically, mentally, and in life as a whole which is important. This is helpful as we can then apply this into the gym, the exercises and the changes to the programme which may be needed. (Kevin, patient)

Allied health staff participants shared Kevin's view that listening was the basis of meaningful communication. However, in the context of limited time with patients, allied health staff reported two co-existing priorities: getting information from patients while ensuring patients felt heard. Emily (physiotherapist) discussed these tensions in the context of assessment, something which is a large part of the allied health workload. While she was focusing on "getting the right information", she intentionally used particular communication practices to try and help people feel heard in the context of being asked specific questions. Emily described the importance of her approach to communication to both acquire the information she needs whilst also ensuring her patients felt listened to.

> It's how you ask the questions you can go through an assessment and it is very box ticky, but if you can say *"tell me about"*. I know open ended questions can be a bit hard to direct but finding that balance to let the patient talk and getting the right information so that they feel heard. (Emily, physiotherapist)

Both patient and staff participants suggested patients were more likely to be forthcoming with information and engage in their own health and well-being journey when people feel that their allied health provider is listening to them. Manaia (patient) provided an example of how active listening helped shape her journey and expectations:

> When they recognised that I have strong views on where I think I should go with the rehab, they do not say "sorry that's hopeless, you are not going to walk". They would say things like "yes you will and maybe you need a walking aid to help".

Communication skills enabled patients to feel more involved in their allied health care. This suggests allied health professionals need to not only listen, but to be *seen and felt* to be listening. Patients described how strong listening skills make allied health staff appear more approachable, enabling patients to express their needs and to participate in their treatment. In fact, this was often the first thing participants suggested when asked what matters most to patients: "That they are listened to, that the feel comfortable to bring up any issues. That they can participate in their treatment choices, and they get what they need, when they need it" (Anne, physiotherapist).

While people described communication as important, there was a tension between the importance of it and the perceived legitimacy of communication as "real work" (Emma, occupational therapist). Emma, an occupational therapist working with children, highlighted that communication was important in building close relationships with the parents of the children with whom she worked. However, she downplayed the perceived value of communication in relation to other aspects of care.

> Sometimes just sitting and having a cup of coffee and not even go near the kid. I would think I actually didn't do much worthwhile, I just listened. Suddenly you would get to the car and the mum would come outside and just ask me something in relation to the child. That's my day gone, appointments rescheduled as mum would all of a sudden let me come to the party, that's the time to sit and listen. (Emma, occupational therapist)

Having time to communicate effectively and building a connection were important in sowing seeds of trust and opening the door for patients to engage more with their healthcare journey therapy plan. Despite the importance of communication, staff participants struggled to find time to build a connection and felt that they had to balance this with other tasks such as assessment and providing interventions. Interestingly, patients perceived that allied health professionals allowed more time for meaningful interactions than medical staff. Kevin highlighted a contrasting experience between his physiotherapy and orthopaedic consultant appointments, outlining the impact of rushed communication on his overall experience:

> There were a few questions I wanted to ask about the surgery and why things were taking longer that weren't answered as most of the time I was trying to work out what he was saying. It was so fast I almost felt bad if I said I wasn't all good. It was very quick yes and no questions like "are you running yet?" I do understand that there are 30 other people waiting outside the room to see him. (Kevin, patient)

Rushed communication resulted in patients not feeling heard, and feeling that their insights were not valued. Allied health staff were aware of the impacts of time limitations on patients which came about for several reasons, including busy clinical workloads, staffing gaps, and the need to support patient flow through the system. Allied health staff participants reported employing a range of communication strategies to manage these limitations including: acknowledging what a patient had said was important and liaising closely with other services and disciplines. One physiotherapist reflected on how she prioritised time for communication in the context of time constraints which, in her view, helped clarify expectations and build trust with her patients.

> I think being listened to and not being rushed is a big thing… it is important that you have the ability to give the patient the time that they need… Validating what is important to them will make them feel heard and more trusting. (Emily, physiotherapist)

As well as having sufficient time, the use of particular language during allied health encounters was seen as important when building relationships. All participant groups agreed that the language used by healthcare providers could be a barrier to patient understanding and engagement as reflected in Rhonda's (manager) comment: "A lot of our language, which we use in the DHB is not recognised by the public or sometimes even ourselves". Patients also reported the challenges with using excessive medical jargon which did not always reflect what mattered to them:

> The day after the surgery I was sore and groggy. The physios and doctors were saying things about my knee which I didn't understand… I just wanted to know everything went well or not and when I could get going with my rehab because all I cared about was getting back to surfing. (Kevin, patient)

Allied health professionals' approach to address patient understanding included speaking in simple, easy to understand language, building a connection, and modifying

questions. An example was outlined by Emma (occupational therapist), who used non-medical language to build trust and connection to achieve a better understanding of the needs of a patient and their whānau (family). This approach ensured Emma was well-positioned to advocate for the whānau and to help them make an informed choice on their treatment options:

> Not speaking in medical terms, we have got a literacy issue here and not just medical literacy. If I talk of this that in medical terms, I will have lost the family. You need to explain things in plain language, sometimes even go with the family to a paediatrician clinic to be the middle person to help them make sense of the medical world. (Emma, occupational therapist)

By recognising the challenges with health literacy, the allied health professional's role in supporting communication went beyond their disciplinary focus towards role of a translator to facilitate patient understanding and better healthcare journeys.

Communication was not only between patients and providers. Allied health staff participants invested significant time and effort in communicating with other services and healthcare professionals across a complex health system. This inter-professional and across-service communication activity was seen as crucial in smoothing patient journeys, minimising risk, and co-ordinating patient care. It involved talking with multiple agencies: "when discharge planning, we do lots of liaising with OTs [occupational therapists], family members, carers, with ACC [Accident Claims Compensation], the other teams…" (Anne, physiotherapist). Inter-professional communication, from the allied health staff perspective, therefore, played a significant role in navigating patients through the health system.

Communication failures resulted in complications and frustration during the patient participants' health journeys resulting in interruptions in their care and delays in accessing healthcare; it also had safety implications. Breakdowns at handover of care resulted in a fall for one participant; she went on to highlight how lack of communication between services impacted her during transitions in her health journey.

> So, I transferred from Auckland to Tauranga hospital and went to the stroke rehab unit… However, I arrived at the hospital with no notes, absolutely nothing about what had happened to me, shocking really.

> They had to rely on the information I told them... So, because I went to the stroke unit everyone made the assumption that I had a stroke. (Manaia, patient)

It is clear from Mania's examples that communication is not simply a 'nice to have' but a crucial component of safe and effective allied health practice. The impact of effective communication had a large influence on patient experience and outcomes. Emily (physiotherapist) highlighted how strong communication between both the patient and another provider had a profound impacted on a patient. When describing the impact of using communication to effectively build a relationship with a patient: "She cried for quite a while, I think she had a lot of relief and knows that she has somebody in her corner now which is fantastic" (Emily, physiotherapist).

Allied health communication was seen as an important component of allied health practice in supporting positive relationships. Good communication ensures patient needs are placed at the centre of management plans, smoother transitions of care, and fosters positive working relationships between allied health staff, patients, and other healthcare professionals.

Developing trust

The second sub-category of important relational allied health activity was to ensure that allied health professionals had the patient's trust. A range of approaches were identified which allied health professionals used to develop trust. These included: building rapport, making patients feel safe, working together, and trust between healthcare providers. Many participants identified that making a connection with patients and whānau was an essential part of allied health practice. When asked what she would say to a new allied health staff member in relation to what matters most to patients, Manaia (patient) outlined how connecting easily with the allied health professional was important: "Establishing a really special rapport is critical, absolutely critical. Like it is for a teacher and a student".

Allied health staff used several strategies to build a connection with patients which included: putting patients at ease, not rushing the process of connection, and finding a common ground before "getting into the rehab" (Wai, allied health assistant). Wai was asked how she would connect with a new patient to her hydrotherapy group. She

provided an example of how finding a connection helped patients feel safe during hydrotherapy:

> I just don't throw them in there at the deep end. Particularly for people that don't really like water and they think that they just need to go here and swim. I sort of find a common ground with them before we begin the therapy (Wai, allied health assistant)

An outcome of successfully making patients feel safe and assured was establishing trust. Participants described how they were happier to engage and be involved in their management plan or rehabilitation. A patient participant reflected on the impact of having trust in her physiotherapist in the rehabilitation sessions during her hospital stay.

> They had to be careful, reassuring, and able to give me confidence. I needed to know that they knew what they were doing, and I was. I saw [the physiotherapist] daily and I used to hang on for that hour with her every day. (Manaia, patient)

Strategies to foster a trusting and collaborative partnership with patients included: being present, being consistent, providing choices, and not placing clinicians' values upon patients. Emma (occupational therapist) provided an example of how she effectively worked with families in her community role:

> I once had a family who said: "You keep coming back", and I thought well maybe they are starting to think they can trust me as I keep coming back and I am not judgmental. That's they only way and if we do not get buy-in we cannot do our therapy.

Emma highlighted the importance of building trust with whānau as well as with her patients. Several other participants highlighted that this was particularly relevant in the New Zealand context. When discharge planning for patients in hospital, Anne (physiotherapist) highlighted the value of having a trusting relationship with whānau as an "way in" to get the correct information and form a robust and sustainable patient plan:

> The patients here [in our region] are more likely to engage with their whānau, I am more likely to find out things from the whānau for example if they are in pain or if something might not work for the patient at home, they may not tell me, but the family will.

Working in close partnership with other healthcare professionals was seen as important to good patient care. Trust between healthcare professionals was important for patient journeys and was facilitated by working more collaboratively. Building trust ensured that allied health professionals were confident in the capabilities and responsiveness of other staff in relation to safe and effective care as outlined by Wai (allied health assistant):

> it's very important that they [the physiotherapists] build up trust in me because I'm just the assistant, even though I have years of experience and background in personal training and a have my health science degree in rehab, I'm still only the assistant.

Effective teamwork helped develop trust between staff. When asked what allied health workplace activities she valued, Rhonda (manager) provided an insight into her views on teamwork:

> I would like my team to focus on building those relationships with other team members so that we can (collectively) get the work done appropriately for the patients. Relationships drive this, if we get it right then we can prioritise together and trust each other to huddle and triage separately knowing that the outcome will be the same for the person.

Similar to effective communication, trusting partnerships between health services is seen as the lubricant in a large and complex health system. Rhonda went on to describe how trust between both hospital and community allied health services helped smooth a patient's transitions of care and ensured "the whole system" worked well:

> … they advised they (the community team) would see the patient promptly after discharge as the patient only needed a very brief medical treatment in hospital… I trusted that the patient would have a responsive and early intervention after discharge from hospital. This is how I envisage a good system to work. (Rhonda, manager)

Creating, nurturing and building partnerships between allied health staff, patients, and other healthcare professionals is an integral part of the allied health workday. The next section focuses on the final sub-category of allied health practice supporting positive relationships, the human approach to allied health care.

The 'human aspects' of care

The human side of allied health care was highly valued. Human aspects of care included attributes such as compassion, empathy, and patients feeling respected as individuals and not just another number in the health system. It also encapsulates concepts such as the significance of the use of humour and a narrative that allied health clinicians should not be seen as "just another whitecoat" (Emily, physiotherapist). By being 'more human', allied health professionals were more approachable and were able to connect with patients more easily.

Several participants outlined the importance of the individual patient experience during their healthcare journey. Activities such as understanding and adapting to the patient's preferences and context enabled therapy to be tailored to the individual patient. In a group exercise class setting with many patients, Wai (allied health assistant) outlined how she tailored her approach so that patients feel valued: "... treating the patient as a person and that they are important and that they are individuals, even if in a class setting…". Emily (physiotherapist) shared this sentiment when asked what contributes most to her patient's experience during their physiotherapy sessions. She suggested that the "softer aspects of care" were just as essential as the overall patient outcome.

> I would ask [the patients] were they respected? Did they feel heard? More of the touchy-feely stuff rather than the outcome measure stuff… More of the feeling questions as opposed to we improved you by this much. (Emily, physiotherapist)

Empathy, compassion, and kindness were fundamental in supporting and developing the patient-therapist relationship and fostered a shared understanding. Emma (occupational therapist) explained "By having empathy and trying to understanding where the family is coming from, by not putting my values on them" was how she approached the family of a new patient in her service when aiming to establish a positive working relationship from the outset. A human approach to care was an important pre-requisite to patient care but was not perceived by staff as allied health *work*. For staff, the human aspects of care were separate and needed to be balanced alongside providing the "actual rehab" (Wai, allied health assistant). Similar to the need for effective allied health communication, it was clear that kindness and human

decency was an essential part of allied health practice: "… particularly that empathy and compassion all that kind of stuff and just listening and encouraging and not just going 'three sets of 12 reps' in the gym" (Wai, allied health assistant).

The use of humour by allied health staff was frequently seen as a means to help put patients at ease, make a connection, and to place context into their interventions. Emily (physiotherapist) provided an example of how she used humour to broach a sensitive issue in a woman's health setting, she goes on to highlight the impact of humour on the overall patient experience:

> I gave her some imagery to help... asking her "to pretend that you are trying not to break wind in front of her Hollywood crush", there is a visceral component to that which means more to the patient than "tighten your pelvic floor" which means little to anyone. But if you asked someone to hold in a fart in front of Harrison Ford, they get that. There was a connection there, she could laugh about it. I mean this is something that has really oppressed her, something that she is really upset about and bringing some humour in… can it makes you seem more human to them… That's the biggest thing for me, people leaving laughing means people are generally happy!

The use of humour helped put patients at ease and could build and develop helpful working relationships which could improve patient experience. Manaia (patient), when reflecting on a positive experience during her health journey, underlined how the relationship with her physiotherapist was strengthened with regular laughter. It is what contributed to why she looked forward to therapy sessions during her hospital stay:

> She [the physiotherapist] had a tough reputation, she said I am tough but so are you! We used to laugh a lot together… I used to hang on for our sessions in the gym, they were the highlight of my day. (Manaia, patient)

The final perspective on the human aspects of care from participants depicts the notion that allied health professionals are human too. Being seen as a human being, who had their own life experience, was important to patients when working towards a shared understanding with allied health staff. When discussing with her occupational therapist, who has had health problems, Manaia (patient) explained how she felt more comfortable raising issues regarding her treatment plan and felt less afraid. This

connection, in her opinion, contributed significantly to her progress towards her overall goals:

> She was really good because she recognised that things would be very tough, as she had been through this herself. She was approachable and easy to talk to. A lot of my concerns and fears were allayed. I am a pretty positive person and a fighter, so with her and the physio's comments, and by regularly visiting the gym to work in the bars, it was amazing what we did achieve together. (Manaia, patient)

Being seen as a human also contributed towards addressing the allied health professional-patient perceived power imbalance, where the 'expert' carries all the knowledge and drives the plan for the patient. A good example of an allied health strategy to breakdown this hierarchy and potential barrier to human connection was given by Emily (physiotherapist:

> … or bringing shared stories about my journey with my own difficult birth helped with a level of understanding that we have both been through helped as well, this is a luxury that you don't always get to share your own experience of the patient. But if you can it makes you seem more human to them, you are not just another whitecoat wearer, you are a person who has had your own stuff go on and you do understand. The human side of things is important.

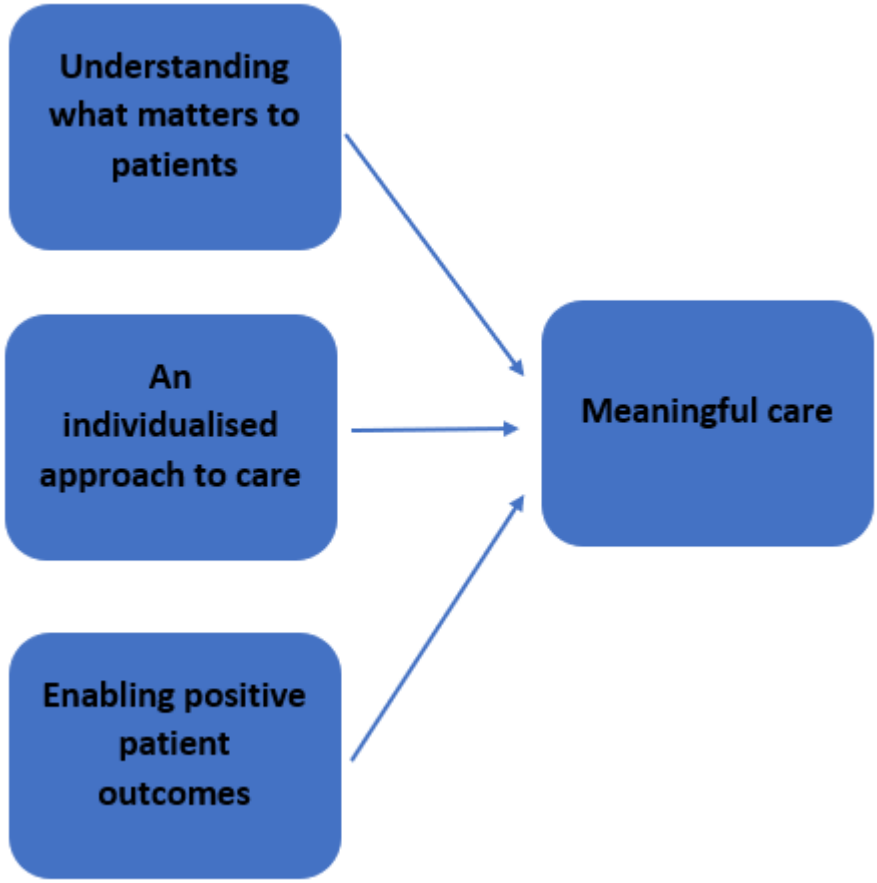
In summary, effective communication, developing trust with patients, and the human aspects of care were identified as important allied health workplace activities which contributed to building positive relationships. According to all participant groups, successful relationships were a significant component of valued allied health practice.

4.2.2 Category two: Meaningful care

This category reflects the views that all participant groups had on the importance of providing meaningful care. Allied health staff provided a range of interventions and activities and drew on a plethora of skills, therapy options, and approaches to improve patient quality of life, function, and independence. However, participants outlined the importance of "meaningful" (Wai, allied health assistant) care and focusing on the individual, as critical in achieving positive patient outcomes. The activities which contributed to meaningful care were reflected in three sub-categories: understanding what matters to patients, having an individualised approach, and enabling positive outcomes. Figure 10 (p. 84) illustrates this category.

Figure 10

Activities which enable meaningful care.



Understanding what matters to patients

This sub-category encompasses allied health activities which enable care to be focused on what matters to patients. Several activities were highlighted which supported allied health professionals in understanding what was important to patients, including learning and understanding what is most important to patients, understanding patient priorities, and having visibility of therapy aims and objectives. By not having a pre-determined agenda and asking open-ended questions during initial patient encounters, allied health professionals were able to understand what matters to patients. Susan (manager) felt that the patient's needs should drive the planning of allied health care: "Having conversations with patients about what matters. We should always start every conversation with a patient asking, 'what matters to you?'. Then we can tailor our interventions around that".

There were tensions between patient priorities and organisational and allied health staff priorities in relation to allied health care. This contributed towards frustration

from patients who did not always feel they were involved in their care. Manaia (patient) described how her therapy goals should determine her treatment plan to ensure best outcomes. She expressed frustration that in practice her therapy plans were determined by what was important to the allied health professional.

> Try and work out what is important for them [the patients]. Then realign your goals to that person then you would get maximum results. If you come in and try to impose what you think needs to happen on the patient without involving them, then it is not going to work. (Manaia, patient)

Establishing clear and patient-focused aims of treatment was considered important to contextualise and individualise allied health interventions. Kevin (patient) provided an example of his context, priorities, and fears were discussed with the physiotherapist during his first assessment.

> I did it skiing. I love skiing, surfing, skateboarding boarding so it's important for me to get back to these things. To not reinjure my knee again, I have done it a few times and now that I have had the surgery, I don't want the knee to pop out again...

When asked what would help with shared understanding between patient and allied health professional priorities, Manaia (patient) outlined how visibility, clarity, and transparency can be a win-win:

> An independent treatment plan. The patient in hospital needs to be aware of what their goals are, they need to set the goals, they need to be written down and the plan would have markers towards the goals. That works very well for both the health professional and for the patient.

While listening, documenting, and having visibility of what matters to patients was prioritised, having the time to discuss what matters was identified as another important in supporting meaningful care. Rhonda (manager) highlighted the value of staff investing time initially to understand the patient's aspirations:

> Spending an extra 30-40 minutes first puts the patient at the centre, it establishes their goals and priorities before you start adding new stuff which you believe is adding value but may not be...

The process of understanding what matters to patients was considered a key component and a starting point for allied health professionals delivering meaningful care.

An individualised approach to care

The previous sub-category outlined the importance of understanding what matters to patients; this sub-category focuses on matching allied health activities to what matters. Participants articulated how allied health care needs to support patients in making choices on their preferred interventions. Activities which were individualised, meaningful, and flexible to changing needs were valued by all participant groups. Tailoring allied health interventions to the individual patient was an important part of ensuring care was meaningful to patients. An illustrative example was provided by Wai (allied health assistant) when discussing what her most important patient-related work was:

> Functional activities, activities that are appropriate for that person's life. If they play golf, for example, their exercises shouldn't be to practice skydiving. Even in a group class you need to tailor things to the patient even though we are in a hospital environment.

Individualised and meaningful interventions were considered to help patients to be more involved in their healthcare, as care was relatable to what matters to patients. Relevant and meaningful interventions were seen as more effective than "off-the-shelf programmes, which mean nothing to patients" (Ronda, manager).

Another component of individualised care was allied health professionals' ability to incorporate practical and real-world situations into practice which helped support patient independence and self-management. Manaia (patient) outlined how an occupational therapist provided meaningful care was to her after she discharged home from hospital:

> I would like to see much more practical application in all the kind of rehab, for instance the OT was interested to see me in the kitchen using my knife to peel and orange and an apple… She really helped me with tasks around the house like filling the sink or doing dishes which also would work my legs and balance as she got me to stand so it was meaningful.

Understanding the context of the individual person was important in developing treatment plans. Allied health professionals were able to provide more meaningful interventions by having a rich understanding of the individual patient, what is important to them, and their preferences. Niamh (manager) outlined the importance of a holistic view, in the context of physiotherapy practice:

> We do not just give a patient a frame. We need to understand their [the patient] context, their home environment, social situation, and whānau support… it's not just that 30 minutes with the patient, it's the broader picture of looking after that person and thinking about their whole life journey and what they are going home to and understand that what we do today will influence how they recover and return back to their normal function.

Treatment plans that were flexible and responsive to changing patient needs were seen as important when staff participants reflected on how they enabled an individualised approach to patient care. Emma (occupational therapist) provided an example of how her flexible approach to patient care enable a patient's more urgent individual needs to be prioritised over her plan for the session:

> … you go to a house and you don't know what you're going into. You could be hit with a major housing modification that you didn't know about, so you need to adapt. In our world you can have a huge plan of what you need to do today, but the child maybe hasn't eaten in 2 or 3 days so what you need to do now is not important as they need food, help, support, or something else.

Another aspect of individualised approaches was adapting therapy and care to address evolving needs during unpredictable health journeys. This often occurred through on-going assessment and monitoring by allied health staff. Kevin (patient) outlined how his physiotherapist would modify his exercise programme during his post-operative knee rehabilitation in an outpatient setting:

> The physio is flexible and always has back up exercises if they are too easy or difficult so he can tweak things. This is good for me as I can tend to overdo things a lot as I want to progress, I would sometimes push too hard. He has been good at times telling me to ease off or slow down as I do not want to hurt it again.

Responsiveness to unforeseen requests for care is also important in valuing a patient's time, providing better access to allied health care, and quickly addressing patient need.

When asked why she felt flexibility was an important attribute, Anne (physiotherapist) provided an example of how this put the patient first.

> I would just drop what I am doing like an amputee who doesn't have an appointment arrives at the department as he is at another clinical appointment needing a prosthetic liner. This would take me 10 minutes to sort now but save him another 5-hour round trip up the coast. (Anne, physiotherapist)

To summarise, an individualised approach is an important component of enabling meaningful care. This sub-category captures understanding what matters to patients through developing individualised allied health plans before planning practical and meaningful interventions which are adaptable to evolving needs during the patient journey.

Enabling and demonstrating positive patient outcomes

The purpose of allied health activity from most participants' perspectives was to support a meaningful improvement in quality of life. This sub-category highlights two perspectives on the importance of understanding the impact of allied health services on patient outcomes. The first view was having visibility of patient outcomes to provide patients and allied health professionals with reassurance and a sense of achievement. The second perspective was from managers who valued visibility of patient outcomes and correlating these to allied health activity to show value.

Making a positive difference in a patient's quality of life, function, and well-being were the main purposes of allied health interventions. When talking about this idea, Wai (allied health assistant) summarised the impact of her work on her patients:

> I think the most crucial activity is following the plan to achieve the best patient outcome so that they are better than when they started. The whole point of rehab is to enable more quality of life at whatever stage they are at. Whether they are in a wheelchair or are independent but to improve their quality of life so that they enjoy life a little bit more.

Patient participants echoed these views and discussed the importance of having a sense of progress, moving towards meaningful and tangible results from their allied health care. This sense of achievement and moving forward was important to all participant groups. Receiving regular, objective feedback on progress motivated

patients and gave them some perspective on their journey towards achieving goals. More than this, a sense of achievement also offered reassurance and supported mental well-being. Kevin (patient) commented:

> We would do a strength test on the leg press to see how far I have progressed. This is for him but also for me. It's really good for me to see my progress and where I have come from… Seeing progress is really important as it's hard to see it when you are living day to day with it and it doesn't look like its moving but coming back every 3 weeks or so and seeing the progression is helpful also for my mental state of mind… I feel like I am progressing and even on days where I feel like I am not progressing he is reassuring and helps me focus on the longer term and letting me know that we will get there.

Several participants suggested that the main purpose of allied health interventions was to achieve meaningful change. Wai (allied health assistant) discussed how she felt it is important for patients to feel that they are achieving a positive outcome during their rehabilitation.

> The sense of achieving an outcome even if they have not fully got there but have a little improvement in their balance or walking better. I had one lady who could get in and out of her car better. I think that contributes greatly to a person's experience because there is no point in doing these things if there isn't any change. (Wai, allied health assistant)

Managers had different motivations for capturing and *showing* positive patient outcomes, which one described as "good news stories" (Susan, manager). Linking positive patient outcomes to allied health activities was seen to improve visibility and enable managers to show value. Managers highlighted that understanding patient outcomes could enable service improvement and more effective service planning. However, this linking of outcomes and allied health activity is not currently happening. Susan (manager) felt that patient outcomes were the missing piece of the picture and suggested how services could use this information to inform service provision:

> We haven't done this yet, but how does our interventions marry-up with the improvement of a patient's outcome, the changes patient-centred outcomes. So eventually we can say that we have done X amount, but it didn't make a difference, or it did make a difference. We will be able to much more discerning on where we do things and what we do.

By helping patients achieve meaningful outcomes and providing a sense of achievement during an episode of care, allied health staff can improve experience, empower and motivate patients by grounding their practice to what matters. While patients and allied health staff wanted to understand patient outcomes at an individual and practical level, managers identified a need for services to capture patient outcomes to help *show* the impact of service activity.

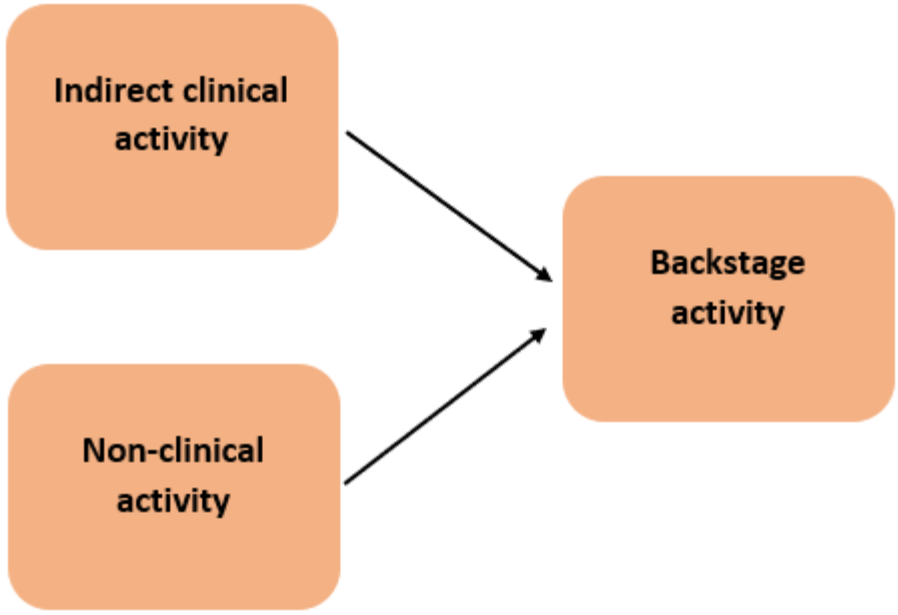
In summary, the category of providing meaningful care was supported by goal setting, an individualised approach to patient care, and enabling positive patient outcomes through allied health interventions. The next category on what activities were most important focused on the hidden aspects of allied health work.

4.2.3 Category three: 'Backstage' activity

The final category captures perspectives on the importance of "behind the scenes" (Emma, occupational therapist) work done by allied health professionals. While a lot of allied health practice was visible to the patient during therapy sessions, assessments, counselling, or group exercise classes, other, no less important, work was done away from the patient. These 'backstage' workplace activities included indirect clinical activity and non-clinical tasks as outlined in Figure 11 below.

Figure 11

Activities contributing towards backstage workplace activity.



Indirect clinical activity

As shown in the quantitative findings, indirect clinical activity is a significant focus of allied health time use. All participants valued this work; although this work was often invisible to patients and only visible to managers through allied health activity statistics. This clinical activity took place away from the patient and included liaising with other healthcare professionals and external agencies, documentation, discharge planning, co-ordination of home care supports, planning and preparation for direct patient encounters. A key function of these activities, which were often not perceived as traditional allied health 'work', was to ensure patient flow through the health system. Anne (physiotherapist) explained, "if I only did the physio things for this patient, I would already have them discharged, but they would sit in the hospital and never move".

These tasks needed to be prioritised by allied health clinicians to ensure safe and effective patient care as outlined below by Anne (physiotherapist):

> There are somethings that are important to do right now but it's not directly with the patient… if you do not do this it can create problems, there are things happening behind the scenes that are required to make the service run and required to provide good quality care but not with the patient in the room directly face-to-face.

The importance of indirect work was well-recognised by patients. They perceived this as allied health staff going above and beyond to help them. In fact, when describing what made the biggest positive impact in her health journey, Manaia highlighted how allied health indirect care managed to get her discharged home.

> This is when I had the most wonderful help from the occupational therapist, absolutely outstanding. He managed to requisition a Molift at home for me because there was nowhere that the wheelchair could fit in my bathroom. Normally you cannot get this equipment, but he worked miracles and managed to get one. (Manaia, patient)

This indirect work enabled Manaia to safely return home to her family and, as such, shows indirect activity is a fundamental aspect of allied health practice from a patient perspective.

Indirect activity was not without tensions. First, many clinicians derived significant job satisfaction from their face-to-face work with patients. Indirect activity was acknowledged as important; however, was not the source of value or joy. This was highlighted by an allied health assistant who had a lot of essential but non-patient facing delegated work which limited face-to-face contact with patients. Wai (allied health assistant) said, “I am of the opinion that no job is perfect and there will be some things that you don’t like, but I have quite a few classes with patients and that makes up for it”. Several participants also discussed how spending more time with patients and seeing tangible gains in therapy was rewarding to them. “A good day for me is when I work in the community with patients… you know that you are making a difference and that you are part of something” (Emma, occupational therapist).

Second, there were perceptions that indirect activity was not as important as the “actual work” (Anne, physiotherapist). In describing “actual work”, Anne referred to working directly with patients doing activities such as assessments, therapy, and problem solving. This was not just a perception that staff had. It reflected organisational imperatives. In the context of high levels of service demand, the DHB prioritised high volumes of initial direct patient encounters to reduce waiting times and optimise patient flow. Both managers and staff recognised the battle between providing enough direct patient contacts to manage demand, while providing quality care. Indirect clinical work was central in the provision of quality care. Rhonda (manager) reflected how her inpatient service dedicates more time to direct, patient facing work because that is “what the system requires”. She discussed the value of the “indirect but important work” and the challenges of navigating quantity and quality of care of patients in the hospital.

> The frustrating thing is that when we have high demand and hospital flow issues. Some people 100% dedicate themselves to seeing patients and getting them home. Others focus on the quality work linking with providers, liaising with teams, and spending 30 minutes off the wards, knowing it will save a lot of time and effort down the track. The constant battle for us is how to we balance quality and relationships versus quantity and the way the system needs us to work. (Rhonda, manager)

Both allied health staff and manager participants outlined the importance of measuring indirect activity to understand what staffing resource and time the service

requires to provide responsive, safe, and quality patient care. Understanding indirect activities enabled better planning and support for allied health staff to find balance between both the direct and indirect clinical activity. By capturing indirect work and making it more visible, Niamh (manager) argued that it could highlight the importance of this work:

> You cannot do one aspect of care well without the other. If we can shine a light on this important work, it is valuing all of the input that our clinicians provide, it is important that we can find a way to shine a light on that other background work that is done.

Finally, there were tensions with variables which influenced the need to perform indirect clinical tasks. These factors included a "legal requirement" (Emma, occupational therapist) to undertake indirect activity; indirect activity being related to an individual professional role, the 'system' requiring allied health professionals to work in a certain way, and the requirements of external organisations. These variables were often a source of frustration that impacted how staff had to work and led to a sense of little control over how their work would be prioritised in the context of finite resources. For example, in the community setting, occupational therapists need to spend a significant amount of time on housing modifications or complex equipment applications for patients which can take "months" (Niamh, manager). This work is a requirement for external agencies and essential to enable patients to remain living independently at home. However, participants questioned if this is the best use of time and skills. Niamh (manager) illustrated these tensions, arguing that if her team could delegate this indirect work, there would be no waiting list for community patients for her team.

> OTs get sucked into these Enable and housing modification applications and get stuck in this process for up to 18 months. If we could shed this work and free up that clinician to do what they are trained to do and experts at doing. Co-ordinating architects and builders are not things that should sit with a clinician, if we could get someone else like a project manager to do it, this would release capacity and free up our skills and resources… This is a roadblock created by an external agency, this is a colossal waste of resource. If we didn't have to do this, it would free up our resource and for us that would mean no waiting list and a massively improved and more responsive service. (Niamh, manager)

In summary, indirect clinical activity is seen as an essential component of allied health practice; however, the *amount* of indirect work has significant implications for staff satisfaction and what care can be delivered to existing and future patients. A key driver of indirect work is the requirements of the 'system'. This work plays a crucial role in providing quality care and facilitating connected care for patients. However, there are tensions as staff did not always perceive indirect clinical activity as legitimate work, just something that needs to be done before "real work can begin" (Emma, occupational therapist). Managers valued having visibility of indirect clinical activity so it can be considered when planning allied health services.

Non-clinical activity

Non-clinical activity reflects work done by allied health staff which was not patient related work. This work included operational, administration, and management tasks to support service delivery; training, teaching, and supervising other staff and students; professional development activities and leading service improvement initiatives. Several groups highlighted that these non-clinical activities were essential for building capacity, improving staff capability and services, and enabling day-to-day running of services.

Managers valued transparency about the amount of non-clinical activity carried out by staff as it assisted with service planning, fairness, and time management. Information on how much allied health time was available for non-clinical activity was suggested as useful to staff and managers alike. There was a consensus that more experienced staff needed time set aside for the non-clinical activities. Susan, a manager, described how this data can help inform service and individual work plans for allied health and monitoring clinical versus non-clinical activity.

> I need the team leads to understand their teams' activity and what it means, this should be informing our work plans. For example, what should a new graduate staff member do in terms of clinical activity versus non-clinical activity and monitoring the change in the data. (Susan, manager)

While increased visibility of non-clinical work was important, staff had a perception of surveillance on the amount of non-clinical activity they do. Several staff participants outlined how reducing waiting lists and hospital occupancy were 'system' priorities

and these were addressed by providing clinical activities which were more seen to be more valued by managers and visible in their statistics such as time to first initial patient encounter. Anne (physiotherapist) had the view that her manager valued clinical encounters and patient throughput more than non-clinical work:

> My manager is very interested in my numbers, total patients waiting, patients seen and patients discharged… we measure this [clinical activity] well but my non-clinical activity data, is broad and lacks detail, suggesting that it is not as important.

While staff felt work time spent on non-clinical activities was contentious, effective time management, planning, and visibility was key to them performing their role. In the context of her senior outpatient role, Emily (physiotherapist) suggested time management and efficiency was important to her manager:

> My manager is looking at my time management, how much is clinical versus supervision, teaching or admin. As a senior staff member, you are expected to do more teaching or supervision compared to a new grad, or that I would be more efficient with my time as I have more experience.

The non-clinical work done by allied health staff varied and some aspects were clearly more valued than others. A commonly valued activity was professional development which included training, attending courses, supervision, and self-directed learning. Development activities were closely associated to high-quality and evidence-based practice. Rhonda (manager) suggested how training and professional development activity is a win-win for both staff and the DHB:

> We pushed in-service [training] and dedicated [more] time and this was reflected in our data. We could see there were less hospital readmission rates for patients we have been involved with, we seen more home visits and access visits earlier in the patient journey as the team were skilled and could do that well.

Undertaking training and development work activities also improved staff satisfaction, motivation, and was seen as a rewarding part of their work, whenever they “could find time for it” (Emily, physiotherapist). Professional development time at work was significant to allied health staff to “keep fresh and motivated” (Wai, allied health assistant). When asked what activity they would like to spend more time doing several interviewees discussed education and training:

> To have the ability and support from the workplace to get some professional development on the job is good, otherwise you are really going to struggle to get it. (Emily, physiotherapist)

> You cannot say 20 years ago we used to do this, because now it's not evidence based. I just think it is good for you as a person to keep fresh and motivated that's why I think it's important to do professional development. (Wai, allied health assistant)

Not all staff groups had opportunity to benefit from professional development and supervision time. This was particularly evident for the allied health assistant workforce. Niamh (manager), when discussing how some assistants were not being able to attend in-service training, described this as unfair and "a travesty". Wai (allied health assistant) agreed, recognising the importance of training and learning for her job satisfaction and for patients receiving quality and evidence-based care.

> I find also from my perspective with the other work demands it is really hard to do professional development. Our assistants don't seem to have anyone to help us with that … I think you need to keep learning, keep updated with evidence-based practice and what's changed. (Wai, allied health assistant)

While professional development was a highly valued activity, several staff participants viewed other aspects of non-clinical work as less fulfilling and menial. Operational, administrative, and maintenance work were identified as needed to keep allied health services running smoothly and effectively; however, these tasks were frequently delegated to the same assistants who struggled to access training opportunities at work. Wai (allied health assistant) reflected that she did not necessarily enjoy all aspects of her job, accepting that "somebody has to do it". She went on to say: "You know some of the things I do behind the scenes are not that glamorous you know like cleaning, managing stock, and stuff like that … but at the end of the day it is just part of the role" (Wai, allied health assistant).

The need to support other staff at work was frequently raised by staff, particularly more experienced clinicians. Activities such as supervision, pastoral support, troubleshooting clinical and service questions were described as important to ensuring allied health teams operate effectively and are important for long-term service delivery and staff development. Several staff suggested these non-clinical tasks are

often unplanned, unpredictable, and, at times, needed urgent attention to ensure safe care is provided by well-supported allied health workforce. There was a consensus that this work can add up significantly, therefore it needed to be "accounted for" (Emily, physiotherapist) in their activity statistics.

> There are lots of non-clinical stuff that happen like dealing with staff. After White Island [a local disaster event] there was lots of staff debriefing, staff huddling into corners and crying and we need that time to spend 10-15 minutes, maybe longer, to getting them back on track so they can work properly and effectively. (Anne, physiotherapist)

The final non-clinical activity raised by participants was leadership. Leadership was seen as essential to advocate for allied health services, improve visibility, drive changes, and ensure that allied health had a seat at the DHB decision making table. In the context of a historically dominated medical and nursing health system, managers highlighted that strong and assertive leadership skills at all levels of the allied health workforce is needed to address this perceived hierarchy. As one manager put it:

> We need to be louder, more persistent, less apologetic and make sure that we are seen and heard. That way we can advocate and articulate the value allied health bring to the whole patient journey. (Niamh, manager)

The notion of allied health in DHBs being too quiet, even apologetic for what they do, and what allied health can add to the overall system is an issue that can be addressed by developing leadership capability in allied health workforce—something that is a form of non-clinical activity. Susan (manager) highlighted this when asked what activity she would like to see allied health staff do more of at work:

> … that we are a bit more radical and demonstrate much better clinical leadership around what it is that we can do. I spoke with a colleague, an allied health director in Scotland, and she was saying that we have to be warriors to completely knock this [hierarchy] all in the head and turn it around.

To be able to encourage and support leadership at all levels, investing work time in developing staff was important. To be "at the table" (Niamh, manager), time must be available for staff to successfully lead allied health forward and develop skills such as

change management. Susan (manager) summarised this when outlining her vision of an excellent allied health team and the skills required to realise key strategic goals:

> We need good, strong leaders at the managerial level, the professional level and at the clinical leadership level. We need to support all our new graduates coming through to work differently, to change, to be stronger in change-management approaches and in leadership. We need to support our workforce.

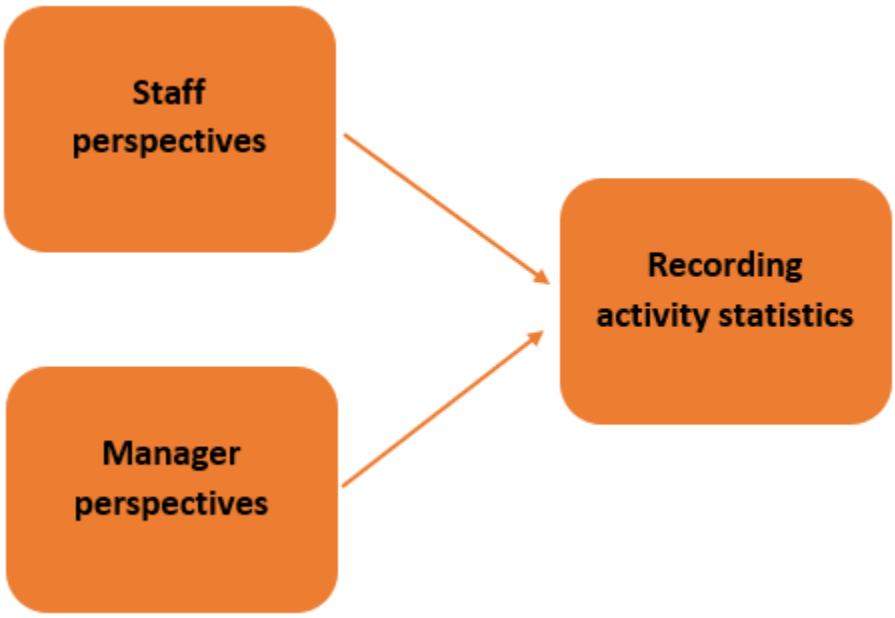
In summary, non-clinical activity is imperative to both allied health staff and managers with a shared view that non-clinical time is often difficult to find in a busy workday. This work includes supporting others to thrive at work, developing professionally, and a variety of tasks required to keep services functioning. The need for more leadership capability and investing work time to advocate, represent, and show the value of allied health was highlighted as an essential non-clinical activity.

4.2.4 Category four: Perspectives on recording activity statistics

Historically, allied health has been invisible within health services (Philip, 2015). It is only relatively recently that allied health has been represented at an Executive level within DHBs. A key driver for measuring allied health activity is increasing visibility of the work of allied health. However, different participant groups have different motivations for measuring allied health activity. The fourth and final category captures opinions from allied health staff and manager participants on allied health activity measurement and data. The activity of recording allied health activity itself divided opinions between managers and allied health staff participants, who had opposing perspectives on the usefulness and importance of the data. Figure 12 (p. 99) summarises this final category.

Figure 12

Differing perspectives on the value of measuring allied health workplace activity.



Staff perspectives on recording activity statistics

All frontline allied health staff participants expressed negative views on allied health activity data or their "stats" (Anne, physiotherapist). To allied health staff, recording activity statistics was seen as a source of frustration, a burden, meaningless, complex, and often inaccurate. Staff reported the statistics made them feel micromanaged by 'big brother' management and expressed guilt when not completing their "cumbersome" (Emma, occupational therapist) statistics. In the context of being short staffed and having high levels of workload recording statistics was viewed as less important and described by Emily (physiotherapist) as "a chore". Several staff interviewees claimed that recording their activity was a menial task which added little value to their practice or patient care:

> It is one of things you have to do… the problem at the moment we are just inputting into a computer. Yes, I mean you can pull a report out of it, but it means nothing for me and my day-to-day. (Emma, occupational therapist)

> Stats, I know some people in our department would rather stab themselves in the eye than do them or talk about them… they are so boring… I literally do them because I am paid to do them… I don't think that they matter to the patient at all. (Anne, physiotherapist)

Staff described the difficulty in quantifying the complexities of allied health practice. Difficulty categorising and coding a wide range of work activities led to confusion, inaccuracy, and inconsistency with the recording of activity: “For our [activity] data here, I personally think it’s too complex and there always some confusion within my team so we are probably not as consistent as we could be which means it is probably inaccurate” (Anne, physiotherapist).

Another common view raised by staff participants was that their statistics were a tool to monitor their work. Most staff described how the feeling of being micro-managed contributed to negative opinions on recording their data through implying mistrust and scepticism regarding the purpose for recording data on their activity at work: “You don’t want to feel micromanaged, that you feel someone is watching your numbers... I know that I have been working not sitting around on Facebook” (Emily, physiotherapist). Others talked about a sense of guilt for not making time to do their statistics at the end of a busy workday: “I try my best to be accurate and to do them [stats], but it does take a considerable amount time” (Wai, allied health assistant).

In summarising these negative views on activity data, Anne (physiotherapist) had a succinct and strong view of her activity data, questioning the relevance in her workday:

> To be honest I only do it because they [the DHB] pay me to do it. I have very little interest in it and they are the bane of my life… our stats are not accurate, not valuable and meaningless to staff.

While allied health professionals had generally negative views on their activity statistics, manager participants had a more positive outlook.

Manager views on activity measurement

Manager participants had contrasting opinions to staff on allied health activity data, shining a more positive and hopeful light on what this data can do. They highlighted how increasing visibility of their teams’ activity raised awareness within the DHB, improved understanding of service demand and unmet need, and helped with more sustainable workforce planning and decision making. Niamh described how more visibility of her team’s workplace activities benefited the service.

> It’s highlighting the massive increase in demand and further highlighting the gap between the demand and the resource that we

> have got. We can see the demand going up, we can see increased patient interventions delivered by our teams… but we can also see unmet patient need increase. This can help shape the conversations we need to have with the financial decision makers about bolstering staffing levels. (Niamh, manager)

Measuring and reporting on activity data was seen as an important part of workforce planning and ensuring services had sufficient staffing levels to meet current and future service demands.

> We need to address the tricky issue of understanding our workforce capacity, demand, and unmet need. Having a minimum dataset that tells us our activity is vital. This will help us futureproof or future model our workforce and what we can do. It tells us so many important things like where we are delivering our services, the type of our intervention, and the length of our interventions. (Susan, manager)

There was consensus between manager participants that the clinical aspects of allied health work are captured collectively and that quantitative data or "hard numbers" (Niamh, manager) were seen as essential to enable leaders and managers to advocate for allied health professionals and to grow services:

> I think we are probably measuring our clinical activity as best as we can. We know who we are seeing, what we are doing, and where it is happening… It [activity data] is giving us evidence for the arguments that we are already trying to make. It's essential to have the data to back up these discussions… if we have no data, we cannot get our business cases over the line. (Niamh, manager)

Susan provided an example of how the data can support better decision making and impact positively on allied health staff and patient care from a frontline perspective. She described how activity data could be used to strengthen cases to increase staffing levels or help decisions on workforce activity to optimise patient outcomes and patient flow through the hospital system.

> Having evidence that we have provided all this activity and we are getting great outcomes in terms of patient function, getting people through the system, then that says things at different levels about the impact of what we are doing. I could say to our chief executive this is what we are achieving but if we doubled it up this is what we could deliver. (Susan, manager)

Evidence-based workforce planning and staffing allocation was a key focus and driver for managers when discussing activity measurement. Allied health service provision was also important to allied health patients. Manaia (patient) attributed her progress towards her goals to the amount of allied health care she received during her journey, outlining the impact of care disruptions and low staffing levels:

> [Allied health staff] only had a set period of time to be with me, the assistant's time should have been at least doubled. I needed input during times like holidays and weekends which didn't always happen. If I had more input and more therapy time my progress would have been much quicker. (Manaia, patient)

Activity data were also seen as an important starting point to evaluating current service provision, capacity, identifying potential service development, and supporting allied health practice change.

> It [activity data] provides us with answers to questions like, can we increase our capacity? Are we showing that because of our interventions we are making a real difference? It opens routes of inquiry which we have never been able to do before, our work used to be a bit of a black box until we had the data. (Susan, manager)

The allied health staff's perspectives on activity measurement were put to the managers. Managers suggested that work is required to improve clinicians' understanding of what the data can do for them and for frontline allied health staff to have more ownership of their activity data.

> Probably that they [the staff] do not feel that they are owning it. Maybe they see it as a chore, a tick box that they have to do, and they see as time-consuming... We are too invisible as it is. We need to understand why they do not find it valuable. We have work to do for the teams to see the value in it. (Susan, manager)

Both the sense of ownership and supporting frontline staff to understand the benefits of their statistics were seen to potentially empower frontline staff to advocate for their skills and their beneficial impact on patient care. Enabling a feedback loop from the data to clinicians by illustrating what it means to staff and having team discussions was raised by managers as a possible way forward. Niamh suggested that open discussions can help with transparency, staff engagement, and ownership of future workforce planning.

> Reporting the data in a meaningful way so that staff can see what the impact of the data collection can do. So that collecting that information forms the picture for us to examine where we are providing services, how we are providing services or where we need additional resource. We need to get better at articulating that. (Niamh, manager)

Another manager had views that the data could be used to celebrate the hard work her team are doing or have the traditional focus on unmet need which can impact on her teams' perceptions around work demands. "The data can change the narrative, it can help create a good vibe in the team as the skills we have - mean that we are doing hugely valuable work" (Rhonda, manager).

In summary, there are conflicting views between managers and allied health staff on the importance of recording activity statistics. While allied health staff provided a somewhat critical focus of their ''stats'' (Anne, physiotherapist), managers expressed opportunities of service visibility, workforce planning, and supporting service improvement. Managers suggested a sense of staff ownership and staff visibility of the data may bridge the gap between staff and managers. The final section of the results summarises the qualitative findings outlined above.

4.2.5 Summary of qualitative results

There were three categories that reflected the allied health workplace activities which were important to allied health staff, managers, and patients. These included effective communication, developing trust, and the 'human aspects' of care which contributed towards allied health professionals building positive relationships. Gaining an understanding on what matters to patients, having an individualised approach, and enabling and demonstrating positive patient outcomes were reflected within the category of meaningful care. Indirect clinical care and non-clinical care contributed to the 'backstage' activity done by allied health staff. The fourth category from the qualitative phase of the study outlined the contrasting perspectives of managers and allied health staff on the importance of recording data on allied health workplace activity.

4.3 Chapter summary

This chapter has outlined the activities that are provided and measured at the BOPDHB, and demonstrated what allied health workplace activities were most important to patients, allied health staff, and managers at the BOPDHB. There were similar and contrasting findings from the quantitative and qualitative phases of the study. The approach to allied health activity measurement at the BOPDHB was focused on inputs in terms of time spent or proportion of time spent; and on broad activities such as clinical care ratio, direct and indirect clinical activity, and non-clinical activity. These measured activities were important to participants in the qualitative phase and were visible to allied health staff and manager participants. However, other aspects of allied health activity which were important to participants in the qualitative results such as relationship building, effective communication, the human aspects of care, focusing on what is meaningful to patients, and patient outcomes, were not visible in the quantitative results.

The following Discussion chapter will integrate the key quantitative and the qualitative findings from each phase of the study. The findings are explained in relation to previous literature.

Chapter 5 Discussion

This doctoral research question was: *Are DHBs in New Zealand measuring the workplace activities that matter to patients, allied health staff, and managers?* To address this question, two separate narrative reviews summarised existing knowledge on the approaches to allied health activity measurement and what allied health activity were important to patients, health organisations, and allied health professionals (Chapter 2). A sequential explanatory mixed methods study design was used to produce findings to meet the two aims of the study (Chapter 4). The first aim was to investigate what activities allied health staff did at the BOPDHB, and it was addressed using a quantitative analysis on measured allied health activities. To my knowledge, this was the first study on allied health activity in the New Zealand DHB setting. The second aim was to explore what allied health workplace activities were most important to patients, allied health staff, and managers at the BOPDHB, and was the focus of the qualitative phase of the study.

Within the current chapter, the key findings from both phases of the study are integrated and compared to the existing literature to address the research question. The study's contributions to the existing body of literature are discussed. Following a summary of the key findings and how they relate to what is known from previous studies, the three main findings which contribute to the body of literature are discussed. These were: a broad approach to allied health activity measurement, the significance of indirect clinical activity conducted by allied health professionals, and the activity done by the allied health assistant workforce in the New Zealand DHB setting. The implications for practice from this research are discussed before the strength and limitations of the current research are outlined. Finally, recommendations for further research are offered.

5.1 Summary of key findings

The current research aimed to determine if DHBs in New Zealand measuring the workplace activities that matter to patients, allied health staff and managers. Table 10 (p. 107) summarises the contributions of the research, what is known from the existing

literature on allied health activity measurement, and what the research adds to the existing body of knowledge.

The main finding from the quantitative phase of the research was a broad approach to measuring allied health activity within the BOPDHB which resulted in visibility of *some* aspects of care which matter. These activities focused on allied health service inputs such as time spent on direct and indirect clinical activities and on non-clinical activities. However, in the qualitative phase of the study the allied health workplace activities which were important to patients, such as relationship building, effective communication, determining what matters, and patient outcomes, were not visible amidst such a broad approach to activity measurement. The mismatch between what is measured and what is valued may contribute to aspects of allied health care which matter to patients not being prioritised.

The quantitative findings from this research have provided visibility of the indirect clinical activity that allied health clinicians undertake. Indirect clinical activity was being measured in the DHB setting; yet, this work is often missing in research on allied health activity. The large proportion of indirect activity undertaken by allied health professionals in the current study was a surprising finding given the emphasis placed upon on measuring direct patient allied health inputs in previous research (Grimmer-Somers et al., 2012; Schoo et al., 2008). The qualitative phase of the research has outlined the importance of behind-the-scenes work in providing co-ordinated, effective, and safe patient care. However, despite the importance of indirect activity, the high volume of this work reduced allied health services capacity to respond to system priorities such as addressing system pressures.

Table 10

Summary of what was known on the topic of allied health activity measurement and what the current research adds to the existing body of literature.

What is known	What this research adds
• There are differing perspectives on high value allied health activity, highlighting differing priorities: - Patients value professional skills, competency, communication, relationships, an individualised approach, and being a partner in their healthcare. - Health organisations value cost effectiveness, efficiency, and addressing system pressures which contribute to direct patient care being prioritised. - Allied health professionals value having access to supervision, professional development, and career progression. • Efforts to measure allied health activity have been varied. To address these challenges there has been a focus on a broad approach to measuring inputs such as time spent and occasions of service; these are easily linked to costing measures. • Clinical care ratios have been used in previous studies to benchmark allied health activity. More experienced staff undertake more non-clinical work, and there are differences between the clinical care ratios of allied health professions.	• New Zealand DHBs utilise a broad approach to measuring allied health professional clinical and non-clinical activity, where some aspects of allied health work are more visible. - There is visibility of direct clinical inputs, with a focus on delivering high volumes of direct activity to address system pressures such as reducing hospital occupancy and waiting lists. - Patients valued relationship building and achieving meaningful outcomes; these are not visible in allied health activity statistics. Activities which mattered most to patients were not always prioritised or perceived to be legitimate work by allied health professionals. - There is a dichotomy between managers and allied health staff on the value of measuring work activities. • Indirect clinical activity accounted for a large proportion of allied health activity, despite previous literature outlining the value of direct patient care. Indirect activity is important to provide safe and effective patient care, and is being measured in the DHB setting. • The allied health assistant workforce undertakes the largest proportion of non-clinical activity and a high proportion of indirect clinical activity. Assistants highlighted issues accessing training and supervision indicating potential barriers to increasing the scope of the allied health assistant role.

A third contribution the current study makes to understanding allied health activity is that it has made visible the important contribution of the allied health assistant workforce in the New Zealand DHB setting. Allied health assistants spent more time on non-clinical activities and less on direct patient-facing activity compared to the other disciplines in this study. The qualitative findings explained the differing work patterns of the assistant workforce; for instance, while patient-facing allied health assistant activity was valued by all participants, the essential backstage aspects of work were the most frequently delegated tasks to assistants. Despite the higher proportion of non-clinical activity, the allied health assistant workforce in the current study were also unable to access professional development activities at work.

The next three sections will discuss each of the key findings in relation to the research question and literature.

5.2 A broad approach to allied health activity measurement

The first aim of this research was to determine what activities allied health staff did at the BOPDHB. The quantitative findings highlighted clinical activity, non-clinical activity, and clinical care ratios were measured by the BOPDHB in the current study. However, other important allied health activities identified in the qualitative phase of the study were not reflected in activity data statistics. These activities included relationship building, focusing on what is meaningful to patients, and capturing patient outcomes. The findings of this study suggest that by having a broad approach to classifying allied health activities, essential aspects of allied health care which improve patient experience were invisible. Therefore, there may be several unintended consequences of the current approach to allied health activity measurement in the DHB setting.

5.2.1 Visible allied health activities

Clinical activity, non-clinical activity, and clinical care ratios were visible to managers and allied health staff at the BOPDHB. In this study, the following section will discuss each of these activities in relation to the existing research.

Clinical activity

The framework measuring allied health clinical activities are outlined in current national data standards, these activities were measured by allied health services at the BOPDHB (Health Information Standards Organisation, 2018; Safe Staffing Healthy Workplaces Unit, 2022). Clinical activities in this study were classified into broad categories (i.e., initial patient encounter, follow-up patient encounter, diagnostic procedure, group intervention and indirect encounter); and is consistent with national and international approaches (Grimmer-Somers et al., 2012; Safe Staffing Healthy Workplaces Unit, 2022). Similarly, the focus on service inputs when measuring clinical activity at the BOPDHB, such as total time spent by allied health professionals, was similar to the most utilised activity measurement methodologies identified in earlier studies by Grimmer-Somers et al. (2012) and Schoo et al. (2008). As found in other research (Grimmer-Somers et al., 2012; Schoo et al., 2008), allied health professionals in the current study found it challenging to capture the diversity of their activities in the existing approach to activity. Perspectives of allied health staff participants in the qualitative phase of the current study also suggested that efforts in recording more detailed and specific activity require more time on recording activity statistics. These challenges may be partially explained by the wide range of roles, interventions, and definitions that are used to describe activities provided by allied health professionals (Schoo et al., 2008). These complexities may have contributed to the use of a simplified and broad approach to measuring allied health activity in the New Zealand DHB setting. A reductionist approach may offer easier and quicker data collection and provide high-level understanding of service activity. However, this study has highlighted that the approach was of less value to allied health staff and contributed towards participant staff disengagement with the requirement to record activity statistics in the current study. Staff participants also suggested that this disengagement might impact upon the integrity of the activity data.

One reason for adopting a broad approach to inputs, such as quantifying time spent on specific procedures, is that allied health service activity can be more easily linked to costing data within health organisations (Grimmer-Somers et al., 2012; Schoo et al., 2008). Manager participants in this study outlined the benefits of linking costs to allied health activity, arguing that these insights supported efforts for service growth when

influencing financial decision makers on the benefits of increased allied health staffing levels. The data were used by managers to evidence the impact of allied health to the BOPDHB's priorities such as patient flow. This finding was similar to an earlier study that focused on the factors influencing rural physiotherapy service provision in Australia. Adams et al. (2014) suggested that to demonstrate value, physiotherapy services needed to align activity with organisational priorities such as national targets, addressing waiting lists, and reducing hospital length of stay. The benefits of utilising data to show economic value may, in part, explain the need for a broad and consistent approach to measuring allied health clinical activity in the New Zealand DHB setting.

Direct clinical activities such as face-to-face patient care, telehealth, and group therapy, were highly valued by all participants in the current research. This finding is consistent with other studies such as those exploring what matters to patients in the context of advanced allied health practice (Mutsekwa et al., 2022; Reeve & May, 2009) and allied health satisfaction with work (Scanlan & Hazelton, 2019). However, beyond simply supporting staff *satisfaction*, participants in the current study highlighted that direct activity also reflected understandings of how allied health staff constructed their role. Direct allied health activity was visible and measured in the current study, and may reflect and reinforce allied health staff perceptions on the work. For instance, in the qualitative phase of the study, direct clinical activity was frequently referred to as the "real work" (Emma, occupational therapist), and was seen to be the primary purpose of their roles. This finding was similar to earlier research into occupational therapy job satisfaction which found that spending more time on activities perceived to be meaningful to allied health staff increased the participants' sense of professional identity (Scanlan & Hazelton, 2019).

Another reason for allied health staff and manager participants valuing direct work is that it was seen to meet organisational objectives such as enabling patient discharges from hospital; a finding also suggested in other work. For instance, Harding et al. (2014) explored the uptake of evidence-based practice by allied health professionals. The authors found that direct patient activities were prioritised over activities which enhance evidenced-based practice, such as reviewing clinical guidelines, as direct interventions were seen to influence health system pressures (Harding et al., 2014). In the current study, implicit and explicit organisational priorities impacted on what

activities allied health staff prioritised. For example, initial patient encounters were considered important in reducing waiting lists and commencing treatment plans for patients and, as such, were often prioritised by staff as waiting times were visible. Therefore, findings from the current study suggest that organisational priorities, such as hospital occupancy, significantly influence the workplace activities carried out by allied health professionals in the DHB setting.

Non-clinical activity

The second aim of the research was to explore what allied health professional workplace activities were most important to patients, allied health staff, and managers at the BOPDHB. Allied health staff participants outlined the value of non-clinical activity for several reasons, including enabling efficient day-to-day running of services, supporting other staff, and improving their clinical knowledge and skills through professional development. That these activities *were* seen as important by clinicians may provide support for a move to increase the visibility and significance of the work by including non-clinical work in national activity data standards. Internationally there has been a call for allied health services to measure non-clinical activities for the purpose of understanding all aspects of allied health workloads (National Health Service Education for Scotland, 2021; Scottish Executive National Health Service, 2006). This call may explain why non-clinical activities were measured by allied health services at the BOPDHB, despite the fact that these activities are not explicitly required in current data standards in New Zealand (Health Information Standards Organisation, 2018; Safe Staffing Healthy Workplaces Unit, 2022).

Professional development activities were essential to allied health professional participants in the current study as such activities were required, and seen to support quality patient care and staff satisfaction. Undertaking professional development activity is a requirement for registration for most allied health professions and staff participants felt it improved knowledge and skills which, in turn, improved patient care and outcomes. The connection between professional development and quality care has been made in physiotherapy research. For instance, in an overview of professional development in physiotherapy, French et al. (2008) identified the purpose of development activities was to enhance patient care and service delivery. The authors conducted a systematic review into the evidence of professional development on

patient outcomes. Evidence for physiotherapy was limited, but they found positive impacts of increased professional development activity in medical and nursing fields on improved patient outcomes (French et al., 2008). In their review, the authors also identified that most physiotherapy regulatory bodies, including in New Zealand, outlined minimum professional development requirements (French et al., 2008), suggesting that professional development time at work is more than a *nice to have* but a professional requirement for many allied health professionals and, in some cases, mandated nationally.

Enhancing knowledge and skills was also a source of joy, motivation, and inspiration for staff participants and was seen to enhance career opportunities, a finding not unique to the current study. Cosgrave (2020) explored factors influencing rural allied health recruitment and retention and found that professional development activity was highly valued by allied health professionals because it offered opportunities for professional growth and career progression. However, in the current study, in the context of busy clinical workloads, clinicians highlighted difficulties in accessing time at work to undertake professional development. In fact, participants highlighted frustrations that their professional development was not seen as a priority to managers who were seen to be more interested in monitoring clinical activity. This finding was consistent with research into the uptake of evidence based practice by allied health professionals. Harding et al. (2014) found that that activities which enhance clinical knowledge, such as journal reviews, were not seen as a priority to managers or allied health professionals compared to direct clinical activity which influenced patient flow. The current study adds to the work of Harding et al. (2014) by suggesting that a short term focus, such as hospital discharges, may unintentionally reduce time for allied health professionals to develop their skills and, in turn, may impact on their ability to provide better quality patient care.

Supervision contributes to allied health professionals' satisfaction at work (Rodwell et al., 2009; Wilson, 2015). Supervision was important to staff participants in the current study. However, as with other professional development activities, having time for supervision was an ongoing challenge. Participants outlined that they needed time to both provide supervision to new graduates and participate in their own supervision at work. While some authors have suggested supervision be prioritised over all other

work activities (Snowden et al., 2020), the current study found that clinical activities are frequently prioritised over supervision. Given that previous research on allied health satisfaction, intention to quit (Wilson, 2015), and staff well-being (Rodwell et al., 2009) has outlined the importance of having access to supervision, the findings that supervision was not prioritised in the current study may have implications for allied health staff retention and well-being in the New Zealand DHB setting. The importance of professional development activities are relevant in the current environment within the New Zealand health system, given the current focus on health workforce retention and recruitment to reduce health system pressures (Te Whatu Ora, 2022a). However, measuring non-clinical activities may offer opportunities for managers to benchmark professional development and supervision activity and, in turn, offer the opportunity to plan and ensure allied health staff have access to professional development and supervision at work.

Clinical care ratios

Measuring non-clinical activity offered the opportunity for allied health services in the current study to benchmark clinical and non-clinical activity by using clinical care ratios. Clinical care ratios describe the proportion of time spent on clinical activity, inclusive of both direct patient-facing activity and indirect clinical activity (Hearn et al., 2017). Despite being a broad measure and crude tool, clinical care ratios have been highlighted in previous research as relatively straightforward, easy to measure and interpret, and useful in benchmarking allied health activity (Hearn et al., 2017; Simmons & Kuys, 2011). Clinical care ratios were measured by allied health professionals at the BOPDHB and were, therefore, included in the quantitative phase to partially address the first aim of the study which was to investigate what activities allied health professionals did. The current research builds on the work of Hearn et al. (2017) and Simmons and Kuys (2011) into clinical care ratios; and is, to my knowledge, the first research conducted on clinical care ratios in a New Zealand DHB setting.

Previous research into allied health clinical care ratios identified a correlation between increasing years of experience and increasing non-clinical demands. This was reflected in lower clinical care ratios for more experienced allied health professionals (Hearn et al., 2017; Simmons & Kuys, 2011). The findings from the current study outlined in Figure 7 (p. 71 suggested similar trends, with the larger disciplines of physiotherapy

and occupational therapy having a bimodal distribution in clinical care ratios, signifying two tiers in each professional group, with one conducting more non-clinical activity. This finding is important for managers who aim to grow a sustainable allied health workforce, as they need to ensure experienced allied health professionals can plan to conduct more non-clinical workplace activities, which were essential to staff participants in the current study.

The findings from my study also showed differences between the clinical care ratios of some professional groups. This was consistent with findings identified by Hearn et al. (2017), who found different clinical care ratios within professions and concluded that benchmarking of clinical care ratios should focus within each professional group and across different hospitals and settings. However, by comparing the clinical care ratios and including the allied health assistant workforce, which were missing from previous studies, the current study has demonstrated the differing work profiles of each discipline and provided new knowledge on what allied health do at the BOPDHB. Clinical care ratios, therefore, offer the potential for benchmarking allied health activity across health districts and regions in New Zealand (Hearn et al., 2017). Including clinical care ratio in national standards may enable more insights on the non-clinical activities conducted by allied health professionals and support more effective workforce planning (Jones & Jenkins, 2014).

5.2.2 Invisible allied health activities

The second aim of the current study was to explore what allied health workplace activities were most important to patients, allied health staff, and managers, as addressed in the qualitative phase of the study. Allied health services at the BOPDHB measured broad descriptors of types of interaction; yet, failed to provide information about the nature of or quality of clinicians' actions and, in doing so, failed to attend to activities that are important for enabling positive patient experiences and outcomes. These include activities which contribute to relationship building and activities that ensure that allied health care is meaningful to patients.

Relationship Building

A key finding of this study was the value placed upon allied health professionals building positive relationships with patients. The importance of relational allied health

practice was highlighted in previous research into rehabilitation (Bright et al., 2012) and dietitian consultations (Sladdin et al., 2018). In the current study, positive relationships were developed by several allied health workplace activities including communication, building trust, and the human aspects of care. However, relationship building activities, which were seen as essential for positive patient experiences, were not visible in allied health activity data in the quantitative phase of the study.

Effective communication strategies such as attentive listening to understand patient needs and preferences were important for the overall patient experience, as was being *seen* to listen. This finding was similar to a study by Bright et al. (2012), who investigated client centred care in a rehabilitation setting and identified mindful listening as an important allied health skill. Bright et al. (2012) suggested that active listening may support improved patient experience and more meaningful allied health care, as patients are empowered to play a more active role in their rehabilitation. While communication was important to participants in my research, it was not without tensions for allied health clinicians, for which there are several possible explanations.

Communication was not perceived to be legitimate *work* to staff participants in the current study, as suggested by Emma (occupational therapist): “I didn’t do much worthwhile, I just listened”. This sentiment is contrasted with patient participants who valued communication: “[listening] can let him [the physiotherapist] know where I am at physically, mentally and in life as a whole, which is important” (Kevin, patient). In fact, patient participants outlined frustrations at not being listened to by allied health professionals, a finding consistent with previous studies exploring patient experiences in physiotherapy (Slade et al., 2009) and dietetic practice (Sladdin et al., 2018). The current study suggests that time is a critical factor to enable effective communication and substantiates earlier findings in a study focusing on advanced practice allied health roles (Mutsekwa et al., 2022). The authors argued that when allied health professionals spent more time with patients, patients were more forthright in outlining their needs and concerns (Mutsekwa et al., 2022). However, many participants in the current study outlined how busy allied health professional workloads pressures resulted in direct patient-facing activity or “the real work” (Emma, occupational therapist) being prioritised. Finally, communication was not measured or reflected in allied health activity data in the current study. As a result, time spent on

communication may be grouped into a broad activity classification such as initial or follow-up encounter (Safe Staffing Healthy Workplaces Unit, 2022) which highlights how the broad approaches to activity measurement hide the skilled work that occurs in interactions. At worst, it resulted in such work being invisible and devalued. Thus, effective communication, and the time needed to enable that communication to occur, may not be considered by managers as important when workforce and service planning is undertaken.

Previous research has highlighted the importance of relational practice and called for such work to be seen as recognised, valued, and considered legitimate (Bright et al., 2018). Bright et al. (2018) suggested that, in the context of stroke rehabilitation, therapeutic relationships improve patient engagement and support better patient outcomes. A recent scoping review in the context of rehabilitation of acquired brain injury also outlined the importance of close working relationships between patients and allied health professionals (Stagg et al., 2019). Stagg et al. (2019) highlighted the importance of allowing time for patient-therapist collaboration which enhanced therapy; and, as a result, they argued that relationships influence patient outcomes. The current study has identified several allied health activities which support positive relationships, but they are invisible to managers and health organisations.

The current study found that there were challenges facing allied health staff when prioritising relational practice. This has specific implications within the New Zealand context, and particularly for how health services respond to the needs and priorities of Māori. Positive relationships with healthcare staff have previously been identified as important to Māori patients in the New Zealand public health system (Graham and Masters-Awatere, 2020; Levack et al., 2016). In a review of Māori experiences of healthcare in New Zealand, Graham and Masters-Awatere (2022) found that an absence of connected relationships in healthcare contributed towards Māori not sharing information with healthcare providers, which contributed to inequitable health outcomes. This was consistent with earlier research conducted by Levack and colleagues (2016) who focused on Māori patient engagement with a pulmonary rehabilitation programme. They found that attendance and engagement with pulmonary rehabilitation was influenced by health professionals' culturally appropriate communication skills and ability to make meaningful connections with Māori patients

(Levack et al., 2016). While previous research supports the current study's findings on the importance of relationship building, the invisibility of this relational activity may be a contributing factor towards the relationships not being prioritised in allied health practice. The invisibility and reduced emphasis on relational practice may perpetuate existing inequities of health outcomes for Māori.

The current study adds to the body of knowledge by demonstrating the contrasting, and sometimes conflicting, needs and priorities of different stakeholders. Patients expect and require helpful relationships with allied health professionals. The allied health workforce struggle to find time to develop a connection with patients; yet also consider it important. Health managers also described the value of relational work. However, health organisations focus on the best use of health resources and productivity by measuring the volume of patients seen and by quantifying allied health staff time-use. This is seemingly at odds with organisational values of being person-centred, for which communication is critical, and talks to the complex environment within which clinicians are working. Allied health services, through the measurement of inputs, are measuring use of health resources and productivity; but, in doing so, render essential relational allied health activities such as communication, the human aspects of care, and developing trust, invisible. The invisibility of relationship building may contribute to this work not being prioritised or seen as legitimate to allied health professionals and organisations despite its importance to patients.

Patient outcomes

The second aim of this research was to understand what allied health workplace activities were important to patients, allied health staff, and managers at the BOPDHB. A key finding in the current study was the importance of understanding the impact of allied health activity on patient outcomes. With a growing need for allied health services to show value and be recognised for positive patient outcomes (Philip, 2015), it is somewhat surprising that patient outcomes were not measured in the current research. This finding is consistent with previous research conducted by Comans et al. (2011) who investigated quality indicators for assessing the impact of advanced practice and new allied health roles. They suggested that economic and process measures, such as waiting times, were used to determine service quality, as opposed to outcomes from the patient perspective (Comans et al., 2011). In not measuring

outcomes which matter to patients, the current study suggests that there may be implications; four, in particular, that require further discussion.

First, outcomes which matter most to allied health patients may not be considered as a priority. Indeed, in my study, I demonstrated that there was no organisational approach to measuring patient outcomes or linking these to allied health inputs. Allied health staff participants outlined how their practice was influenced by addressing organisational pressures such as the need to get patients moving through the system and addressing waiting lists. These practices were seen to be achieved by providing high volumes of direct patient encounters. In the current study, prioritisation of organisational objectives may be explained by previous research which examined the impact of increased allied health service provision with hospital occupancy. Mills et al. (2018) demonstrated that allied health can have a significant impact on patient throughput on general medical wards in Adelaide, Australia; however it needed to be supported by increased resourcing. In the context of current workforce shortages, it may be unrealistic to expect the allied health workforce to enable patient flow without other aspects of care being compromised. A focus on allied health professionals delivering organisational priorities may take precedence over patient outcomes, such as improved function or quality of life, and result in these not being measured. Further, it may contribute to what matters to patients not being a priority for allied health services in the DHB setting.

Second, allied health services may place less emphasis on individual patient objectives in their health care journey. The contextualised experiences of allied health staff in the current study suggest that they are drawn towards the so called “real work” (Emma, occupational therapist), as opposed to workplace activities which improve patient experience and outcomes. In the current study, patients expressed frustration with perceived prescriptive and pre-determined allied health interventions, resulting in patients outlining a power imbalance in their healthcare while clinicians tried “to impose what they [allied health professionals] think needs to happen” (Manaia, patient). These tensions were consistent with earlier research conducted by Sladdin et al. (2018), who explored patient perspectives of dietitian consultations. The authors outlined how a dictatorial approach to determining care plans reduced patient involvement and a sense of control of their health journey (Sladdin et al., 2018). Other

studies on the management of chronic low back pain (Slade et al., 2009) and rehabilitation (Bright et al., 2012) outlined the importance of patients *feeling* heard and called for allied health professionals to support patients to prioritise what is meaningful. The findings from the current study suggest that having visibility of specific and meaningful patient outcomes may support a change in approach where allied health professionals aim to understand what matters, feel supported to prioritise patient outcomes, and provide clinical activities that are more tailored to the individual patient and less *off-the-shelf*.

Third, a finding from the current study was the need to ensure allied health care was contributing to patient improvements and outcomes. The importance of seeing improvement had positive effects on patient participants' mental well-being and engagement with rehabilitation plans, while for allied health professionals it enabled intervention effectiveness to be assessed and improved job satisfaction. This finding was also identified in earlier research conducted by Wong et al. (2022), who explored the concept of high value occupational therapy care in Singapore. Wong et al. (2022) suggested that patients found value from occupational therapy when they achieved meaningful outcomes from their perspective. In the current study, patient progress also provided staff participants with a sense of joy and offered staff meaning in their work when supporting patient recovery and seeing tangible improvements. Similarly, other research has shown patient progress to be important for allied health staff satisfaction at work (Wilson, 2015). While such impacts might be seen at an individual level, meaningful outcomes from the patient perspective were not measured at an organisational level, meaning patient outcomes were largely invisible. Positive patient outcomes and reassurance that interventions were effective was important to both staff and patient participants in the current study, but these are not reflected in current allied health data standards in New Zealand (Health Information Standards Organisation, 2018; Safe Staffing Healthy Workplaces Unit, 2022).

Finally, participants who were managers, were interested in visibility of positive patient outcomes to enable them to, share "good news stories" (Susan, manager) and advocate for their services within the wider organisation. Managers in the current study suggested a way to show value was to attribute positive patient outcomes to allied health activity; however, data on patient outcomes were not available.

Understanding the impact of allied health activity on patient outcomes was seen as an important, but missing, piece of the puzzle. Other research has highlighted that patient outcomes were rarely measured in allied health services (Comans et al., 2011; Grimmer-Somers et al., 2012). Comans et al. (2011) offered some explanation for the invisibility of patient outcomes as they argued the role of allied health, from the perspective of health organisations, was to deliver organisational objectives, such as waiting times. As a result, economic and process outcomes were frequently used to appraise the effectiveness of allied health services, not patient improvement (Comans et al., 2011). In the current study, allied health managers highlighted the importance of gaining an understanding of the relationship between activity and patient outcomes to enable an appraisal of service provision and support staff and managers to be "much more discerning on where we do things and what we do" (Susan, manager). This finding may suggest that managers were interested in understanding how activity inputs linked with patient outcomes to help inform service provision and support decision making on allied staffing levels and models of care. However, in the current study the activities that supported allied health professionals in understanding what matters to patients and patient outcomes were invisible.

5.2.3 Differing perspectives on allied health activity measurement

The second aim of the study was to understand what allied health workplace activities were most important to patients, allied health staff, and managers at the BOPDHB. A key finding from the qualitative phase, which was not reflected in activity data at the BOPDHB, was the time spent by allied health staff on the recording of activity statistics. Manager and allied health staff participants had polarising views on the importance of activity data measurement. Managers valued activity data which, in their view, provided visibility, enabled advocacy, supported sustainable workforce planning, and added evidence to business cases for growing allied health services. Whereas, allied health staff had negative views of activity data entry which was, from their perspective, time-consuming, complex, inaccurate, and "boring" (Anne, physiotherapist). There are several possible reasons for these differing opinions, some of which are novel.

First, there may not be a shared understanding between managers and staff as to the potential value of allied health activity data. Allied health staff suggested that they

were suspicious as to the purposes of activity data. This idea is consistent with previous findings identified by Samios (2013) who examined the implementation of a tool to measure pharmacy activities in Australia. Samios (2013) suggested that staff needed to be supported in understanding the importance of activity data and that regular discussion on service data may improve adherence with staff recording activity data.

Second, a recurring theme from this study was the workload pressures and time demands placed upon allied health staff. As such, clinical activity was often prioritised, with patient-facing activities seen as more important and meaningful and administrative tasks, such as recording statistics, could be seen by staff as "a box ticking exercise" (Susan, manager). The time required to enable accurate recording allied health activity data was also identified in previous studies. During a trial of an allied health workload allocation model in Australia, Simmons and Kuys (2011) found that the most frequent task not completed by staff was the recording of activity statistics. This is significant as their research outlined the potential burden of data collection on busy allied health staff and potential for retrospective and inaccurate data collection (Simmons & Kuys, 2011). Their finding was similar to the current study where activity data quality and consistency was an issue raised by staff participants. Grimmer-Somers et al. (2012) suggested there is a need for allied health services to find a balance between accurately capturing the minimal activity data, while not reducing ability for allied health staff to provide clinical care. They advocated for greater use of information technology across health services to reduce the burden of data collection on allied health professionals (Grimmer-Somers et al., 2012).

Finally, important activities, such as relationship building and patient outcomes, were not reflected in allied health activity data. This is significant because the data captured, from the perspective of allied health staff who are required to record it was seen as "not valuable and meaningless" (Anne, physiotherapist). While inputs, such as staff time spent on clinical activity, are easily aligned and visible to data on staffing costs, the activities which matter to patients were not. This may suggest that wrong activities are being measured and prioritised from the perspective of allied health staff, and may partly explain staff disengagement and frustration on the need to record activity statistics.

5.3 Indirect allied health clinical activity is critical to providing quality care

To my knowledge, the current research is the first study to demonstrate the large proportion of indirect clinical activity conducted by allied health in the New Zealand DHB setting. Indirect clinical activity refers to the clinical work done by allied health professionals when the patient is not present; it is specified in current national activity data standards and measured at the BOPDHB (Safe Staffing Healthy Workplaces Unit, 2022). While previous literature on activity measurement suggested that direct clinical inputs were the primary focus when understanding allied health workload (Grimmer-Somers et al., 2012; Schoo et al., 2008), the findings from the current research suggest that indirect clinical activity accounted for a large proportion of allied health activity.

Healthcare organisations commonly prioritise direct patient care over indirect clinical activity, as evidenced through directives to show the business and organisational value of allied health professionals by aligning direct clinical activities to organisational priorities, such as reducing hospital occupancy (Adams et al., 2014; Mickan et al., 2019). However, the current study has demonstrated that quality patient care, from the perspective of patients and allied health staff, requires both direct and indirect activity. This may explain the unexpected finding that allied health staff in my study collectively spent a large proportion of clinical time (43.5%) on indirect activity. The significant amount of time spent on indirect activity may be explained by several factors and have implications for future allied health service and workforce planning.

Indirect activities were important to all participant groups in the current study. Activities such inter-professional communication, documentation, and arranging ongoing health services were essential in providing holistic, safe, effective, and co-ordinated patient care. The current study has outlined how the amount of time needed to conduct indirect activities was influenced by the health system structure. This finding was consistent with recent research into occupational therapy practice. Donnelly et al. (2023), in a scoping review of the role of occupational therapy in primary care, found that the most common activities identified were indirect in nature. Activities such as care co-ordination, patient advocacy, and connecting patients between complex and fragmented services, were highlighted as important to improve access, reduce health inequities, and address factors which influence the social

determinants of health (Donnelly et al., 2023). Therefore, indirect allied health activity plays a critical role in ensuring equitable and quality care, and needs to be considered when planning for allied health services.

A contrasting view on the importance of indirect activity was highlighted by managers in the current study. The high volume of indirect activity, while important for quality care, had an impact on allied health services' ability to address waiting lists and system pressures. For example, occupational therapists spent the most time on indirect activity (53%). Occupational therapists in community services at the BOPDHB were required to undertake work such as arranging equipment and applying for housing applications as mandated by external organisations. This may reflect a whole-of-system failure to provide comprehensive patient care, where the DHB occupational therapists have to undertake work which could be done by others. Perceived lack of control over what activities can be provided was a source of frustration to staff and managers as it contributed to longer wait times due to inability to provide new patient assessments and ongoing direct patient care.

Managers valued direct client-facing activity. Previous approaches to measuring allied health activity have focused on quantifying occasions of service on time spent on direct patient procedures (Grimmer-Somers et al., 2012; Schoo et al., 2008). These approaches have contributed to the invisibility of indirect allied health clinical activity. An earlier time-in-motion study of social workers in an older adults context in Canada, found that social workers spent the majority of their time on indirect activity (Delli-Colli et al., 2013). Delli-Colli et al. (2013) suggested that the importance of indirect activities may be overlooked, with the authors arguing that having visibility of indirect activities is critical to demonstrate that it is considered in workforce planning and service evaluation. The current study has demonstrated the large proportion of time spent by allied health professionals on indirect activity and highlighted its importance. Therefore, it is somewhat reassuring that in New Zealand national data standards, indirect activity is included, classified, and required, suggesting that this work is considered an important part of allied health practice (Safe Staffing Healthy Workplaces Unit, 2022). National benchmarking and analytics of indirect activity may support more effective allied health workforce planning by ensuring adequate staff resourcing is in place to provide these previously invisible aspects of care.

5.4 Allied health assistants play a critical role in healthcare provision

The activities carried out by allied health assistants were highly valued by patient participants in the study. However, the role of allied health assistants is commonly underutilised (Somerville et al., 2015) and not overtly supported or developed through organisational practices such as professional development (Stanhope & Pearce, 2013). Previous research into the effectiveness and implementation of the allied health assistant role suggested that assistants could be utilised to provide more therapy time, occasions of service, and, as a result, support improved patient satisfaction and outcomes (Lizarondo et al., 2010; Somerville et al., 2015; Stanhope & Pearce, 2013). However, the findings from the quantitative phase of the current study suggest that the assistant workforce spend much of their time on *backstage* aspects of work such as non-clinical and indirect clinical activity.

The current study has been, to my knowledge, the first to make the work of the allied health assistant workforce visible in the New Zealand public health setting. This is important because the allied health workforce has the potential to increase service capacity and, in turn, help reduce health system pressures and improve patient outcomes (Philip, 2015). Previous research in Australia has highlighted the underutilisation of allied health assistants, demonstrating how a significant proportion of allied health professionals' activity in inpatient (11-17%) and community (24%) health settings can be provided by the assistant workforce (Somerville et al., 2015; Somerville et al., 2017). However, the current study has found that the allied health assistants provided the least clinical activity. The allied health assistant (55.3%) group had a significantly lower mean clinical care ratio than the physiotherapy (70.3%), dietetic (67%), and occupational therapy (65.9%) groups, indicating that assistants undertook more non-clinical activity. This finding adds to the existing body of knowledge on allied health clinical care ratios conducted by Hearn et al. (2017) and Simmons and Kuys (2011). Including the allied health assistant workforce is significant as it has demonstrated the difference between the workplace activities done by allied health assistants and allied health professionals and provides an opportunity for the work profiles of the allied health assistant workforce to be benchmarked in New Zealand DHBs.

Patients and clinicians valued the work of allied health assistants. In the current study, patients reported issues with accessing time with the assistant workforce. Previous research into the role of allied health assistants demonstrated how allied health assistants make a valuable contribution and are well accepted by patients (Lizarondo et al., 2010). However, more recent studies into allied health assistants have suggested that their skills were an underutilised resource in the modern healthcare setting (King et al., 2022; Somerville et al., 2015). The current research supports these earlier findings as allied health assistants provided less clinical and direct patient-facing activities, despite the importance of the assistants to patient participants in my study.

There are several possible explanations for the underutilisation of allied health assistants, including lack of clarity on the allied health assistant role, allied health professionals' trust in the assistant workforce, delegation skills of allied health professionals, and assistant access to training and professional development.

First, there is no agreement on what workplace activities allied health assistants can and should do. In a previous systematic review on advanced allied health assistant roles, Stanhope and Pearce (2013) highlighted how an uncertain allied health assistant scope of practice could be a barrier to the implementation and growth of allied health assistant roles. These uncertainties around the role and scope may partially explain why non-clinical activities represent a large proportion of assistants' workload in the current study. Recent research has also suggested that lack of clarity around the allied health assistant role has led to inconsistent delegation of activity by allied health professionals (King et al., 2022; Sarigiovannis et al., 2021). Given these uncertainties, allied health professionals in the current study may only delegate *backstage* aspects of work to assistants leading to assistants having lower clinical care ratios and a higher proportion of indirect activity.

Second, it is possible that clinicians may not have trust in the assistant workforce who may consequently lack confidence. Indeed, the assistant participant in the current study frequently referred to herself as "only an assistant" (Wai, allied health assistant). A lack of trust and organisational culture may contribute to a sense of inadequacy experienced by allied health assistants. A perception of role inadequacy was highlighted as a barrier to assistant utilisation in a systematic review into the role of

allied health assistants (Lizarondo et al., 2010). A more recent study exploring allied health assistants' perspectives of their role in healthcare suggested that a lack of trust in assistants contributed towards allied health professionals' unwillingness to delegate (King et al., 2022). This issue of a lack of trust may explain the findings from the current study, whereby allied health professionals considered it *safer* to delegate non-patient facing activities to the assistant workforce.

Third, previous research has suggested that allied health professionals may not have effective delegation skills (Sarigiovannis et al., 2021; Wallace, 2016). A mixed-methods systematic review on delegation of work to allied health assistants was conducted by Sarigiovannis et al. (2021). The authors' found that supervisory and delegation skills of allied health professionals were important facilitators of effective delegation to the assistant workforce (Sarigiovannis et al., 2021). An earlier commentary by Wallace (2016) agreed; and the author also identified the need to support qualified allied health professionals with training on delegation to support greater utilisation of assistants. Delegation skills are included in allied health competency frameworks, such as the widely used Calderdale Framework in the United Kingdom and Australia, which focuses on more utilisation of the assistant workforce (Nancarrow et al., 2012). In a qualitative study to examine the utility of the Calderdale Framework in Australia, Nancarrow et al. (2012) highlighted the importance of delegation skills in optimising the utilisation of the assistant workforce. A lack of allied health professional delegation and supervision skills may partially explain why the assistants in the current study provided less patient-facing activity.

Finally, allied health assistants in the current study were unable to access supervision or professional development time at work. To be able to fulfil their role as core members of the allied health team, allied health assistants require quality supervision and professional development. Education, supervision, and development will support assistants in increasing their contribution in the modern healthcare environment (King et al., 2022). A previous study outlined the importance of professional development in terms of allied health staff motivation and career progression (Cosgrave, 2020). Inability to access training had an impact on allied health assistant's job satisfaction in the current study. This inequitable access to professional development opportunities for assistants was described "as a travesty" (Niamh, manager). A consequence of a lack

of training is that allied health assistants described feeling “stuck” (Wai, allied health assistant) in their role. Allied health assistants’ access to professional development is critical in improving clinical skills and knowledge. It needs to be prioritised to maximise the impact of the allied health assistant workforce for both health services and patients in the New Zealand public health system.

The current study has highlighted the important contribution of allied health assistants and has outlined the workplace activities done by this workforce. National activity data standards in New Zealand are inclusive of the allied health assistant workforce which has increased the visibility of this important workforce (Safe Staffing Healthy Workplaces Unit, 2022). Benchmarking assistant activity has potential to improve the quality, frequency, and intensity of therapy activity for patients while also releasing professionals’ time to focus on top of scope activity while improving job satisfaction by assigning the right task to the most appropriate allied health role (Somerville et al., 2015). However, the findings from the current study suggests that patient facing tasks are a small component of the assistant workload in the New Zealand DHB setting. Therefore, work is needed to build allied health assistant capability and allied health professionals’ ability to support the assistant workforce.

5.5 Implications for practice

The CCDM programme requires allied health services to capture activity data to support a national approach to developing and implementing staffing methodology to ensure appropriate staffing levels for allied health services (Safe Staffing Health Workplaces, 2023a; Safe Staffing Healthy Workplaces Unit, 2022). Safe and effective allied health staffing levels aim to optimise patient safety, a quality work environment, and efficient use of allied health resources (Safe Staffing Health Workplace Unit, 2023). The current study has presented new insights into the workplace activities done by allied health professionals and insights into the allied health activities that matter in the New Zealand public health system. The key findings from this study have several implications for practice. These include the need to consistently measure and report on outcomes which matter to patients, the opportunities which benchmarking allied health activity can offer, utilising data to develop the allied health assistant role, and addressing differing views between managers and staff on recording activity statistics.

5.5.1 Prioritisation of relational practice

The overall finding in relation to the research question is that a broad approach to measuring allied health activity provides a high-level understanding of the work done by allied health professionals. While this is useful for managers undertaking workforce planning in supporting business cases for more staff, relationship-building activities, which were most important for patient experience, were invisible. The findings from previous literature and the current study research suggest that relational activities were not always prioritised by allied health professionals or seen as legitimate work (Bright et al., 2012). It is unknown if classifying and measuring activities which support relationship-building would enable this work to be more valued and prioritised by allied health professionals. It may also be difficult to capture relational aspects of allied health practice, as they are not discrete activities such as procedures or specific allied health interventions. Given that allied health staff in the current study had strong and negative views on the burden of capturing activity data, careful consideration is needed by allied health leaders about adding more data requirements on an already stretched allied health workforce who suggested that current activity data is already "complex and confusing" (Anne, physiotherapist). Creating new activity codes to classify and reflect relationship building may not be feasible. However, identifying and enacting different ways to make this relational practice visible and legitimate may mean staff feel more able to prioritise relational work in the face to organisational imperatives.

5.5.2 Measuring meaningful patient outcomes

While current New Zealand and international approaches focus on service inputs that can be easily linked to costs and outcomes which add value to the system, patient outcomes have been identified as the missing piece of the puzzle in relation to the value of allied health (Comans et al., 2011; Grimmer-Somers et al., 2012). While the high-level level three activity codes from national Allied Health Activity Datasets enable easier and consistent data collection, these standards currently do not offer DHBs the opportunity to link allied health inputs to meaningful outcomes from the patient perspective (Safe Staffing Healthy Workplaces Unit, 2022). A recommendation from this research is the need for a consistent approach to demonstrating the relationship between patient level outcomes and allied health activity. Such an

approach could offer opportunities for patients to track their progress, allow allied health professionals to assess the effectiveness of their interventions, and demonstrate the value that allied health can offer patients, rather than the health system. More robust and consistent data on patient outcomes may support a change in allied health practice in DHBs, where patient outcomes drive therapy plans, not organisational and economic imperatives. Having service-level insights into the allied health impact on patient improvements may support evaluation of service effectiveness and decision making on allied health service provision and resources, and add a patient voice to the CCDM programme's primary goal of developing a staffing methodology for allied health (Safe Staffing Health Workplaces, 2023a).

5.5.3 Benchmarking allied health activity

A consistent national approach to measuring allied health activity offers the potential for comparing allied health services and benchmarking workplace activities (Health Information Standards Organisation, 2018). This study has provided insights into how allied health invest their time at the BOPDHB, and the findings support the opportunities benchmarking may offer. For example, allied health professionals, in the current study, provided a significant amount of indirect clinical activity. Benchmarking allied health activity can enable comparisons of services across districts in New Zealand and support the planning of new, and development of existing, allied health services (Health Information Standards Organisation, 2018; Safe Staffing Healthy Workplaces Unit, 2022). This can offer the potential for Te Whatu Ora to compare allied health models of care and enable a starting point to measure and support allied health service improvements on a national level.

This research has outlined the importance and significance of non-clinical activity. Although not in current data standards, these activities were measured at the BOPDHB (Health Information Standards Organisation, 2018; Safe Staffing Healthy Workplaces Unit, 2022). Measuring both clinical and non-clinical activities enabled the utilisation of clinical care ratios, which was has been identified as useful for benchmarking (Hearn et al., 2017). A national approach to measuring professional development activities, which are important to allied health staff in terms of quality of care and job satisfaction, may ensure all staff have fair and equitable access to learning and training opportunities (Wilson, 2015). Therefore, this research calls for the inclusion of non-

clinical allied health activities in national allied health data standards. Inclusion would enable national level analytics on professional development and ensure all aspects of allied health workplace activities are visible when planning for future allied health services (Scottish Executive National Health Service, 2006).

5.5.4 Using data to develop the role of the allied health assistant workforce

This study has provided unique insights into the activity undertaken by the allied health assistant workforce which was highly valued by patients, clinicians, and managers; yet, patients identified that direct allied health assistant care was difficult to access. The current study suggests that less than a quarter of allied health assistant time was spent on direct patient activity, which may suggest that the higher professional clinical care ratios are enabled because the allied health assistant workforce are doing more service specific non-clinical work.

The current study has demonstrated that allied health assistants are not able to access training and development opportunities, possibly due to other delegated tasks. Further work is needed to determine what activities can be safely delegated to the assistant workforce and what support registered allied health professionals need to be able to delegate effectively in the New Zealand public health setting. Insights into the specific activities which can be safely provided by allied health assistants may support and inform training programmes, shift the allied health assistant of scope of practice, and potentially release the registered workforce's capacity to work with complex patients or provide top of scope assessments and interventions (Somerville et al., 2017).

5.5.5 Recording activity statistics

The final implication for practice from this study relates to the discourse between allied health professionals and managers in relation to the value of recording activity statistics. While managers highlighted the importance of these data, staff participants had strong views on the burden of data collection and its usefulness. Leadership is required to enable allied health staff to understand the purpose of activity data and the potential benefits these data can offer staff and patients. The current study supports recommendations made by Samios (2013), who suggested that discussing activity data at team meetings and displaying the data to staff may improve staff

engagement with the recording of statistics. As per the current study, findings suggest using the data to highlight successes and achievements may change the narrative for staff on activity data.

Another potential opportunity for addressing the differences in perspectives could be through allied health staff seeing how their data enable meaningful and positive differences to workloads and quality of patient care. Allied health professionals may be more invested in capturing accurate activity data if the data are seen to support better and more significant service decisions on increasing service capacity, staff distribution, and staffing levels. Given the stage of allied health in the CCDM journey, and the fact that the allied health staffing methodology is not yet fully implemented, supporting staff to focus on the potential longer-term benefits of measuring workplace activity.

Staff participants in the current study outlined the time it takes to record accurate activity data and potential inaccuracies with data collection. There may be opportunities that technology can offer in enabling quick, accurate, and easy data capture. Understanding which current data systems are used across New Zealand, and which work best for managers in terms of quality data and staff for ease of recording, may enable more consistent data collection, potential reduced costs in terms of system licensing, and more accurate data.

5.6 Research strengths and limitations

This section discusses the methodological strengths and potential limitations of the research.

5.6.1 Study strengths

The current study has explored what workplace activities are conducted by allied health professionals in a New Zealand public health setting. The initial quantitative phase of the study, which focused on what activities allied health staff did at the BOPDHB, utilised previously collected data on allied health activity. The large sample sizes and time frames for data collection (1-year for the clinical care ratio data and 1-month for the clinical activity data), increased the generalisability of the results. Both sections of the quantitative phase included allied health activity data from a wide range of clinical settings (inpatient, outpatient, community). Another strength of the

quantitative phase of the study was that it included an analysis of clinical care ratios of the allied health assistant workforce.

The second, qualitative, phase of the study was to understand what allied health workplace activities were most important. A strength of this phase was that recruited participants included patients, allied health staff, and managers who either received care or worked in all clinical settings (inpatient, outpatient, community). As a result, findings on what activities were most important were representative of a wide range of stakeholder perspectives. Another strength was the use of semi-structured interviews which provided rich context and data on participant perspectives to explain the quantitative results. The iterative approach to interviews drew on Dewey's model of inquiry where cycles of reflection and redesigning interview protocols supported the collection of data (Morgan, 2014). This approach enabled an emergent approach where new findings could be further explored in subsequent interviews, resulting in more robust conclusions on what activities were most important.

5.6.2 Study limitations

There were several potential methodological limitations and challenges with the current study which need to be acknowledged.

The retrospective activity data analysis on both clinical care ratio and level three clinical activities were reliant upon accurate activity data collection by all included allied health staff and it is unknown if any data were missing or inaccurately captured. The existing activity data were not recorded for the purpose of this research; therefore, other variables that may be important to the relationship between the activity data and allied health role (e.g., the level of staff experience or the clinical setting) were not included. Another limitation in relation to the use of the existing dataset was that only specific activities were able to be measured. While these activities did align to national data standards it meant there was no opportunity to develop or use a different classification system which would potentially offer another methodology to address the first research aim; for example, an ethnographic study of allied health professional activity.

There were several limitations with the qualitative phase of the study which required specific methods to improve rigour and trustworthiness of the findings. As the

researcher, I also had several roles at the BOPDHB over the study duration, including team lead, allied health informatics lead, and acting as the associate director of allied health. Given that I have a vested interest in allied health activity data, my pre-understandings, experience, and assumptions may have influenced the sampling, interview design, interview style, data analysis, and interpretation of the findings (Erlingsson & Brysiewicz, 2017; Graneheim et al., 2017). These potential biases were mitigated by using reflexivity and keeping a research log of decisions, thinking, and biases for the purposes of quality control (Braun & Clarke, 2013).

Recruitment was a challenge throughout the study due to the COVID-19 pandemic, multiple lockdowns, and need for social distancing. It was also significantly impacted by sustained and unprecedented pressure on hospital and allied health services at the BOPDHB. These recruitment challenges contributed to small sample of allied health assistant staff (one) and patient (two) participants, therefore this small sample was a limitation. I was also unable to recruit any dietitian, social work, or speech and language therapy participants; therefore, the perspectives of these important allied health professions were not included in the findings. This limitation was mitigated, in part, by including manager participants who had dietitian, social work, and speech and language therapists within their teams. Despite the high proportion of Māori within the Bay of Plenty, a significant limitation was that no Māori patients, managers or allied health staff were recruited to participate in the research. Another potential limitation was the size of the BOPDHB which included a small hospital and a medium sized hospital; therefore, findings may not be applicable to larger teaching hospitals or larger allied health teams which may have patients from different specialities or patient demographics.

As a novice qualitative researcher, I developed my interview and analysis skills through extensive reading on research methods and attending several postgraduate workshops run by AUT. My limited, but growing, skills and confidence with qualitative analysis were mitigated with regular supervision where samples of coded data were reviewed by a supervisor to ensure consensus, as well as prolonged engagement with the textual data (Graneheim et al., 2017; Hsieh & Shannon, 2005).

5.7 Implications for future research

Several areas for future research have been identified from this doctoral study. The context of the current study was the BOPDHB; therefore, findings may not be generalisable to larger health organisations which may include large tertiary hospitals, different patient demographics, and more specialised allied health services. Future research into allied health activity across several or all regions may add to the findings from the current study by benchmarking allied health activity nationally.

This research was inclusive of a wide range of clinical settings including inpatient, community, and outpatient activity. Future research focusing on how allied health invest their time on activities in specific settings such as community or inpatient rehabilitation could be applied in several regions and used for comparison of allied health service provision and perspectives on what activities were most important for specific patient types. A more focused, in depth understanding of the work activities may support more consistent allied health service provision across New Zealand, and more equitable staffing levels, access to training, and patient outcomes.

While dietitians, social workers, and speech and language therapists were unable to be recruited in the current study, a future focus on what activities were important to these professional groups may add to the findings of the research. Future research could also focus on the activities done by other allied health scientific and technical roles (e.g., podiatry, audiology, clinical physiology, and imaging professions).

Further research into high-value allied health workplace activity should include Māori participants. Insights into both the workplace activity inputs and what influences positive outcomes for Māori patients, will add to this research by providing a deeper and wider understanding of what allied health workplace activities matter.

Future research which correlates allied health activity inputs with patient outcomes may provide new knowledge on the value of allied health professionals' activity from the patient perspective. This knowledge may support allied health managers in advocating for service growth, include data on what matters to patients in allied health workforce planning, and supplement existing data which are readily available on organisational priorities such as hospital length of stay and waiting lists.

The final recommendation for future research focuses on the tension between managers and allied health professionals regarding activity measurement. The current study found that there were polarising perspectives among managers and allied health staff on the value of measuring workplace activity. A national approach to understanding why these differences in views exist may support a positive way forward in relation to more consistent, accurate, and easier means for allied health services to capture activity data. Doing so would potentially support the development of a national staffing methodology and ensure decisions on future allied health staffing levels were based upon robust and accurate data.

5.8 Conclusion

This purpose of this research was to determine if DHBs in New Zealand are measuring the workplace activities that matter to patients, allied health staff, and managers. The current approach to measuring allied health activity provides high-level insights into the work done by allied health professionals in New Zealand DHBs. While this high-level approach may be important for workforce planning, benchmarking, and understanding staff resourcing requirements for allied health services, an unintended consequence is that aspects of allied health care that matter most to patients and allied health professionals, such as relational practice and meaningful patient outcomes, are not visible. The current focus on metrics that matter to the organisation may mean that allied health professionals struggle to prioritise and legitimise aspects of care which matter to patients.

This study has highlighted a significant proportion of work conducted by allied health professionals is indirect and often unseen. This backstage work was measured and it was important to all participants to ensure quality, safe, and co-ordinated patient care. However, the significant amount of indirect activity had an impact on allied health professional workloads in the context of organisational imperatives, such as waiting times, which required allied health professionals to focus on the provision of face-to-face patient care.

The research has demonstrated the critical role of the workplace activities done by the allied health assistant workforce towards patient experience and outcomes in the DHB setting. However, most of the allied health assistant activity in the current study was

backstage in nature, indicating that allied health professionals delegated more non-patient facing activities to assistants. The research has also demonstrated that the allied health assistant workforce was passionate about growing skills and knowledge to enable a broader scope of practice, but they outlined significant barriers in accessing professional development and supervision at work.

The findings from this research support the calls for a national approach to measuring the outcomes of allied health activity which matter to patients. A national approach would ensure what matters to patients is not lost to organisational and economic priorities when planning, delivering, and evaluating allied health services.

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Appendices

Appendix A AUT confidentiality agreement

Confidentiality Agreement

For an intermediary or research assistant.

Project title: The value of allied health in a District Health Board setting in New Zealand.

Project Supervisor: Duncan Reid and Felicity Bright

Researcher: Gary McNicholl

- ○ I understand that all the material I will be asked to record is confidential.
- ○ I understand that the contents of the Consent Forms, tapes, or interview notes can only be discussed with the researchers.
- ○ I will not keep any copies of the information nor allow third parties access to them.

Intermediary's signature: .....

Intermediary's name: .....

Intermediary's Contact Details (if appropriate):

.....

.....

.....

.....

Date:

Project Supervisor's Contact Details (if appropriate):

.....

.....

.....

Approved by the Auckland University of Technology Ethics Committee on *15/10/2020*, AUTEC Reference number 20/288.

Locality approval granted by the Bay of Plenty District Health Board Clinical School on 26/08/2020 Reference 2020/80.

Note: The Intermediary should retain a copy of this form.

Appendix B Sample of raw data of clinical care ratio

AHA	Dietitians	OT	PT	SW	SLT
89.3%	64.2%	62.3%	75.8%	75.4%	60.9%
37.4%	74.7%	49.2%	64.3%	59.6%	37.3%
68.7%	99.0%	73.6%	73.4%	57.3%	60.3%
66.6%	63.1%	55.0%	69.8%	83.5%	41.7%
39.6%	77.8%	58.9%	60.9%	59.4%	61.8%
22.5%	73.4%	73.7%	97.0%	37.5%	59.8%
55.5%	85.8%	70.6%	77.8%	69.0%	63.9%
52.4%	47.4%	92.6%	63.9%	51.1%	51.4%
49.7%	60.0%	57.6%	75.7%	87.7%	59.9%
67.0%	50.5%	71.0%	44.4%	48.5%	47.7%
14.0%	67.1%	61.3%	85.1%	60.5%	67.9%
20.3%	73.0%	77.1%	63.7%	73.2%	72.3%
52.0%	83.7%	77.2%	63.8%	53.4%	70.0%
71.9%	54.9%	52.1%	86.7%	62.3%	52.7%
51.0%	60.1%	67.7%	64.4%	74.0%	85.0%
60.1%	58.2%	78.5%	43.6%	58.4%	
33.8%		76.2%	66.4%	79.7%	
40.9%		28.6%	86.3%	41.7%	
18.7%		80.8%	76.2%	86.9%	

*AHA = allied health assistant; OT = occupational therapy; PT = physiotherapy; SW = social work; SLT = speech and language therapy

Appendix C Sample of raw data of allied health assistant indirect activity

Patient Type	Staff Duration(Time in minutes)	Activity Type	Level 3 activity	Level 4 activity	Staff Discipline
Inpatient	40	Clinical Care	Indirect	MDT Liaison	Allied Health Assistant
Outpatient	12	Clinical Care	Indirect	Screening	Allied Health Assistant
Outpatient	12	Clinical Care	Indirect	Screening	Allied Health Assistant
Outpatient	18	Clinical Care	Indirect	Screening	Allied Health Assistant
Inpatient	8	Clinical Care	Indirect	Documentation	Allied Health Assistant
Inpatient	23	Clinical Care	Indirect	Documentation	Allied Health Assistant
Inpatient	27	Clinical Care	Indirect	Documentation	Allied Health Assistant
Community	24	Clinical Care	Indirect	Documentation	Allied Health Assistant
Inpatient	4	Clinical Care	Indirect	Documentation	Allied Health Assistant
Outpatient	2	Clinical Care	Indirect	Screening	Allied Health Assistant
Inpatient	22	Clinical Care	Indirect	Documentation	Allied Health Assistant
Community	15	Clinical Care	Indirect	Screening	Allied Health Assistant
Community	15	Clinical Care	Indirect	Documentation	Allied Health Assistant
Outpatient	22	Clinical Care	Indirect	Travel Time	Allied Health Assistant
Community	19	Clinical Care	Indirect	Documentation	Allied Health Assistant
Community	29	Clinical Care	Indirect	Travel Time	Allied Health Assistant
Community	9	Clinical Care	Indirect	Documentation	Allied Health Assistant
Inpatient	40	Clinical Care	Indirect	Screening	Allied Health Assistant

*MDT= Multi-Disciplinary Team

Appendix D Staff participant information sheet

Participant Information Sheet (Allied health staff participants)

Date Information Sheet Produced:

25 August 2020

Project Title

The value of allied health activity in a District Health Board setting in New Zealand.

An Invitation

Hello, my name is Gary McNicholl and I am conducting this research as part of a Doctor of Health Science qualification at Auckland University of Technology. I am a physiotherapy team leader at the Bay of Plenty District Health Board (DHB) and I am also in a role leading the allied health informatics programme at the DHB. I am inviting you to participate in my research. Whether you choose to participate or not will neither advantage or disadvantage you.

What is the purpose of this research?

This study aims to understand what matters the most to patients and staff when it comes to allied health workplace activity. Findings from this study can help shape future allied health data requirements with staff and patient perspectives, this will aim to improve future decision making on workforce planning for allied health.

How was I identified and why am I being invited to participate in this research?

Part of the inclusion criteria is aimed towards allied health staff who work at Bay of Plenty District Health Board in a hospital setting. You have received this information because you have indicated to me as possibly being interested to know more about the study having seen the recruitment email.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

If you have further questions or would like to discuss the research project further you can discuss with me via email (details below), should you choose to participate in the research you can contact me and you will need to complete a Consent Form.

What will happen in this research?

The research will involve interviews of patient and allied health staff at the Bay of Plenty District Health Board. The face to face interviews will take place at a room in Tauranga hospital.

During the interview, I will ask you about your work activity, your discipline or profession, your usual place of work and what you feel contributes most to patient care in a hospital. The interview will be voice recorded and transcribed before the content of the interview studied. If you are a physiotherapist or allied health assistant based on at Tauranga hospital the verbal explanation, consent process and interviews will be conducted by a research assistant.

As part of the study I will be interviewing allied health patients about what their perspectives on what type of workplace activities make the most impact on their care and journey.

What are the discomforts and risks?

Discussing your workplace activity and work pressures may be emotional at times.

How will these discomforts and risks be alleviated?

If you are showing signs of discomfort, we can pause the interview, or stop the interview completely if you would prefer.

In the very unlikely event that the interview causes distress, you can access free and confidential counselling services through the DHB's employee assistance programme (EAP).

What are the benefits?

This research will contribute towards my Doctor of Health science qualification. There are no immediate benefits to patient or staff participants, however this study may contribute to improving allied health workforce planning which in turn may improve patient outcomes in the future.

What compensation is available for injury or negligence?

In the very unlikely event of a physical injury as a result of your participation in this study, the interview will be terminated so you can access the most appropriate care. If you sustain an injury as a result of an accident cover may be provided under ACC legislation.

How will my privacy be protected?

The research assistant and transcriber will sign a confidentiality agreement to protect participants privacy. The signed consent forms will be stored securely and separately to the interview recordings and transcriptions. Each interview participant will be given a unique participant code which will be used in the data analysis and study write-up. No participant identifiable information will be included in the final written report, summary or publications.

What are the costs of participating in this research?

The interviews will take approximately an hour total time to include introduction, addressing any possible questions before completing the consent form and the interview itself. This is excluding time to travel to and from the interview location.

What opportunity do I have to consider this invitation?

All participants will have a week to consider this invitation to participate in the research, if you require more time to consider the invitation this can be extended.

Will I receive feedback on the results of this research?

Yes, a summary will be sent to all participants at the end of the study, if requested on the consent form.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Duncan Reid, (+649) 921 9999 ext 7806, duncan.reid@aut.ac.nz .

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz* , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Gary McNicholl

ymg5991@autuni.ac.nz

Project Supervisor Contact Details:

Professor Duncan Reid

(+649) 921 9999 ext 7806

duncan.reid@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on *15/10/2020*, AUTEC Reference number 20/288.

Locality approval granted by the Bay of Plenty District Health Board Clinical School on 26/08/2020 Reference 2020/80.

Appendix E Patient participant information sheet

Participant Information Sheet (Patient participants)

Date Information Sheet Produced:

25 August 2020

Project Title

The value of allied health activity in a District Health Board setting in New Zealand.

An Invitation

Hello, my name is Gary McNicholl and I am conducting this research as part of a Doctor of Health Science qualification at Auckland University of Technology. I am a physiotherapy team leader at the Bay of Plenty District Health Board (DHB) and I am also in a role leading the allied health informatics programme at the DHB. I am inviting you to participate in my research. Whether you choose to participate or not will neither advantage nor disadvantage you.

What is the purpose of this research?

This study aims to understand how allied health staff spend their time, and to understand what allied health activities matter the most to patients and staff. By 'allied health', I am referring to allied health assistants, dieticians, physiotherapists, occupational therapists, social workers and speech and language therapists.

Findings from this study can help shape future allied health data requirements with staff and patient perspectives, this will aim to improve future decision making on workforce planning for allied health.

How was I identified and why am I being invited to participate in this research?

I am recruiting patients who are currently or have recently under the care of allied health services in a hospital at Bay of Plenty District Health Board. You have received this information because you have indicated you are interested to know more about the study.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

If you have further questions or would like to discuss the research project further you can discuss with me via email or phone (details below). Should you choose to participate in the research you can contact me and you will need to complete a Consent Form.

What will happen in this research?

The research will involve interviews of patient and allied health staff at the Bay of Plenty District Health Board. The face to face interviews will take place at a venue of your choosing – this might be at the hospital, or at your home, or somewhere else. You are welcome to bring along a support person or family member to the interview.

During the interview, I will ask you about your hospital stay, the type of allied health professional involved in your care and your thoughts about how allied health staff influenced your care in hospital. The interview will be voice recorded and transcribed before the content of the interview studied.

As part of the study I will be interviewing allied health staff about what their perspectives are on effective use of time at work and what type of workplace activities make the most impact on patient care.

What are the discomforts and risks?

Discussing your care at the hospital and the reason for needing allied health involvement may be emotional at times.

How will these discomforts and risks be alleviated?

If you are showing signs of discomfort, we can pause the interview, or stop the interview completely if you would prefer.

In the unlikely event that the interview causes distress, you can access free and confidential counselling by calling or texting the "Need to Talk" national telehealth service on Tel: 1737 this is available 24 hours a day, 7 days a week.

What are the benefits?

This research will contribute towards my Doctor of Health science qualification. There are no immediate benefits to patient or staff participants, however this study may contribute to improving allied health workforce planning which in turn may improve patient outcomes in the future.

What compensation is available for injury or negligence?

In the very unlikely event of a physical injury as a result of your participation in this study, the interview will be terminated so you can access the most appropriate care. If you sustain an injury as a result of an accident cover may be provided under ACC legislation.

How will my privacy be protected?

The researcher and transcriber will sign a confidentiality agreement to protect your privacy. The signed consent forms will be stored securely and separately to the interview recordings and transcriptions. Each interview participant will be given a unique participant code which will be used in the data analysis and study write-up. No information that could identify you will be included in the final written report, summary or publications.

What are the costs of participating in this research?

The interviews will take approximately an hour total time to include introduction, addressing any possible questions before completing the consent form and the interview itself. This is excluding time to travel to and from the interview location.

What opportunity do I have to consider this invitation?

All participants will have a week to consider this invitation to participate in the research, if you require more time to consider the invitation this can be extended.

Will I receive feedback on the results of this research?

Yes, a summary will be sent to all participants at the end of the study, if requested on the consent form.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Duncan Reid, (+649) 921 9999 ext 7806, duncan.reid@aut.ac.nz .

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz* , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Gary McNicholl

ymg5991@autuni.ac.nz

Project Supervisor Contact Details:

Professor Duncan Reid

(+649) 921 9999 ext 7806

duncan.reid@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on *15/10/2020*, AUTEC Reference number 20/288.

Locality approval granted by the Bay of Plenty District Health Board Clinical School on 26/08/2020 Reference 2020/80

Appendix F Consent form

Consent Form

For use when interviews are involved.

Project title: The value of allied health activity in a District Health Board setting in New Zealand.

Project Supervisor: Professor Duncan Reid

Researcher: Gary McNicholl

- ○ I have read and understood the information provided about this research project in the Information Sheet dated 25 August 2020.
- ○ I have had an opportunity to ask questions and to have them answered.
- ○ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ○ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- ○ I agree to take part in this research.
- ○ I wish to receive a summary of the research findings (please tick one): Yes○ No○

Participant's signature: .....

Participant's name: .....

Participant's Contact Details (if appropriate):

.....

.....

.....

.....

Date:

Approved by the Auckland University of Technology Ethics Committee on *15/10/2020*, AUTEC Reference number 20/288.

Locality approval granted by the Bay of Plenty District Health Board Clinical School on 26/08/2020 Reference 2020/80.

Note: The Participant should retain a copy of this form.

Appendix G Patient interview protocol

Patient interview protocol

1. Tell me about your most recent encounter with allied health.
   - who was involved in your care?
   - What did they do?
   - Was the care timely?
   - What was most helpful to you?
   - What did you feel was unhelpful?
   - Do you feel that you had enough time with the therapist/ clinicians/assistant?
   - How could the encounter be improved?

2. Tell me about your overall care
   - What had largest impact on your treatment outcome?
   - What improved your overall experience?
   - How was the communication between you and the clinician?
   - Did you feel involved in your care?
   - Were your goals discussed?
   - How involved did you feel with problem solving and planning your care? If not why not? If involved why?

3. Reflect on your overall journey so far.
   - What made the biggest positive impact on you?
   - What would help improve your outcome/ progress towards your goals?
   - What aspect of your care would you like to see improved? Why?
   - What would a good treatment session/ encounter look like from your perspective?
   - When you see an allied health professional what is the most important things to you?
   - Overall were your needs met? Who did you feel helped the most with your journey?

Appendix H Allied Health staff interview protocol

Allied Health Staff interview protocol

Thank you for coming along and participating in this study. This study is aiming to understand the value of allied health.

1. What allied health professionals/assistants do?
   -Reflect on a patient that you seen today/yesterday
   -Tell me about all the things you did to provide care for that person.
   -How do you think these things impacts on the patient's care?
   What aspect of the care did you feel was most important?
   - Can you comment on the things that you did away from the patient?
   - Are these important? Why?

2. What workplace activities do AHP/AHA think matters the most?
   - What do you believe are the core ingredients of quality patient care?
   - What is most important in terms of patient outcomes? Why?
   - What is most important activities in terms of patient experience? Why?
   - What are the different factors that you consider when deciding how to spend your time?
   - What matters most to the DHB system? How do you know this?
   - What does a great day at work look like for you? Why?

3. Thoughts on recording/measuring what they do and what they think matters?
   - What are your opinions on your workplace activity being measured?
   - What value does this add to you?
   - What aspects of care do you feel are missing currently?
   - What would you like to be more visible?
   - What would make the data more meaningful to you?

Appendix I Manager Interview protocol

Allied Health Leadership manager interview protocol

Thank you for coming along and participating in this study. This study is aiming to understand the value of allied health. As you know we capture a lot of information on allied health workplace activity, I have interviewed several AH professionals and assistants on what they do, what they think matters most and their views on their activity being measured. I am interested in what you see as useful and meaningful work activities for allied health.

1. What allied health professionals/assistants do?
    - Tell me what your team do at work.
    - Tell me about all the things they need to do for patients.
    - Why are these activities important for patients?
    - Can you comment on the things that your team need to do when they are away from the patient?
    - How do you think this impacts on the patients' care?
    - Is there anything that you would like to see your team spend more time doing? Why?

2. What workplace activities do AHP/AHA think matters the most?
    - What do you believe are the core ingredients of quality patient care?
    - What are the most important in terms of patient outcomes? Why?
    - What are the most important activities in terms of patient experience? Why?
    - What are the different factors that you team consider when deciding how to spend their time?
    - AHP and AHA participants feel the DHB cares most about number of patients seen, cost effectiveness, efficiency but not the other aspects of care- have you and thoughts on this?
    - What would a great day at work look like for your team rom your perspective?

3. Thoughts on recording/measuring what they do and what they think matters?
    - What are your opinions on your team's workplace activity being measured?
    - Is your team's activity data helpful?
    - Does it help support:
        Your service?
        Workforce planning?
        Decision making?
        Help advocate for your team?
    - What aspects of care do you feel are missing currently?
    - What would you like to be able to capture?
    - So far AHP/AHA have said that their data does not impact on their work or patient care, have you any comment on this?
    - What do you think would make this data more meaningful for your team?

Appendix J AUTEC approval letter

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

15 October 2020

Duncan Reid
Faculty of Health and Environmental Sciences

Dear Duncan

Re Ethics Application: **20/288 The value of allied health in a District Health Board setting in New Zealand**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 15 October 2023.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: garymcnicholl1@hotmail.com; felicity.bright@aut.ac.nz

Appendix K BOPDHB clinical school locality approval letter

Bay of Plenty
CLINICAL SCHOOL

BAY OF PLENTY DISTRICT HEALTH BOARD HAUORA A TOI

Gary McNicholl
Tauranga Hospital
BOPDHB
TAURANGA

Study Ref: 2020-80

26 Aug 2020

Dear Gary

RE: The value of Allied Health in a District Health Board Setting in New Zealand

I am pleased to advise that this research application has been authorised to be conducted within the Bay of Plenty District Health Board (BOPDHB).

It is your responsibility to ensure that your research is conducted in accordance with the guidelines provided by NEAC. https://neac.health.govt.nz/publications-and-resources/neac-publications/streamlined-ethical-guidelines-health-and-disability

As a condition of this authorisation you are required to:

(i) inform the Research Office of the start and stop dates of your project;
(ii) contact the Research Office if there are any changes to your study protocol; and
(iii) provide a copy of the final study outcomes or report once your research has been completed.

Please contact the Research Office by email at research@bopdhb.govt.nz.

Please don't hesitate to contact the Research Office for further information about your application. We wish you all the best for your study.

Yours sincerely,

Linda Pattison
Clinical School Coordinator

Bay of Plenty Clinical School. Ground Floor Pohutukawa House, Tauranga Hospital, Cameron Road, Tauranga 3143 New Zealand. DDI + 64 7 5798565 | M + 64 27 8078658 | F + 64 7 5780895 |

Appendix L Toi Ora Māori Health and Gains development approval letter

Research Approval Letter
Māori Health Gains & Development

TE TOI AHORANGI

Gray McNicholl
Physiotherapy Team Leader - Inpatients + Programme Lead - Allied Health
Tauranga Hospital
Email: Gary.McNicholl@bopdhb.govt.nz
Cc: Charlie.Stratton@bopdhb.govr.nz

24 August 2020

Study Title Name **The value of alied health in a District Health Board settying in New Zealand.**

Tēnā koe Gary

Your application has been endorsed by Manukura Executive Director Toi Ora Māori Health Gains and Development on behalf of the 18 iwi of Mai i Ngā Kuri a Whārei ki Tihirau / Bay of Plenty District Health Board.
All health research conducted in New Zealand and within BOPDHB is of relevance to Māori.

As a Treaty partner and a priority population Māori involvement in health research is critical because Māori are disproportionately represented in the majority of health and wellbeing statistics Māori Health Gains and Development recommends you utilise the Guidelines for Researchers on Health Research Involving Māori (2010)[1] to assist you in planning and conducting your research project in a culturally sensitive, safe and responsive way.

Please provide a summary of your research findings and recommendations at the completion of your work to Māori Health Gains and Development by submitting your summary via ZOOM meeting in due course. The summary should include your analysis of the data by ethnicity, age, deprivation with a focus on any Maori Health themes that may be relevant. You may be invited to present your findings in person to BOPDHB Runanga and/or BOPDHB Te Amorangi Kahui Kaumatua Kaunihera (Māori Elders Council).

Nāku noa, nā

Marama Tauranga
Manukura – Executive Director
Toi Ora Māori Health and Gains Development

[1] Guidelines for Researchers on Health Research Involving Māori (2010)

BAY OF PLENTY DISTRICT HEALTH BOARD NAUORA A TOI