Validation of Two Patient Self-Report Questionnaires Measuring Cultural Responsiveness of Physiotherapists Practising in New Zealand

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KO TE RARAWA !

KO TE RARAWA !

KO TE OHAKI TE WHARE AROHA

KO WHANGATAUATIA TE MAUNGA WHAKAHI

KO KARIRI KURA TE MOANA

HE TAI MIHI TANGATA

HE TAI MATE

KA NUKUNUKU !

KA NEKENEKE !

TITIRO KI TE TAI O AHIPARA

E HORA MAI RA

MEHE PIPIWHARAUROA KEI TUA

TAKOTO TE PAI

TAKOTO TE PAI

HAERE E TAMARA MA

E MOE I ROTO I TE ARIKI

Table of Contents

List of Figures

List of Tables

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I would like to acknowledge the very ‘real’ challenge that I have faced as a Māori writing a quantitative research thesis about cultural paradigms. There have been times when I have felt I have lost my voice in writing in a scientific manner, without necessarily being able to provide more context or background knowledge around some of the concepts. My struggle was to ensure that although the findings were paramount, that the presentation of these findings was in such a way as to reflect my cultural worldview, and therefore my point of difference.

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 that has been previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other diploma or degree of a university or other institution of higher learning, except where due acknowledgement has been made in the acknowledgements.

Signature: 

Date: 22 March 2018

Abstract

Background: The importance of cultural competence for the safe and effective practice of physiotherapy is widely acknowledged. Cultural competence is recognised by the Physiotherapy Board of Aotearoa New Zealand as a prerequisite for professional registration as a physiotherapist. To date, there is no known assessment tool in New Zealand to accurately measure the level of a physiotherapist's cultural competence.

Aim: To investigate the structure, validity and the internal consistency of two minimally adapted existing overseas culturally-based questionnaires to evaluate patient perceptions of their physiotherapists' cultural responsiveness to their individual needs within a New Zealand context. The Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHPI-PF) and the Healthcare Provider Cultural Competency Survey (HPCCS).

Methods: One hundred and fifty-eight participants from seven private musculoskeletal physiotherapy clinics completed culturally-based questionnaires on cultural sensitivity and cultural competency. The structure of these questionnaires was evaluated using factor analysis and validated with a patient satisfaction scale and patient adherence measure.

Results: Exploratory and confirmatory factor analyses of the T-CSHCPI-PF and HPCCS revealed that they have three factors and two factors respectively, both with high internal consistency and validity. Both the T-CSHCPI-PF and HPCCS have moderate to strong correlations with the PSPECS, but not with the RAdMAT.

Conclusions: The T-CSHCPI-PF and HPCCS questionnaires address some of the limitations in the measurement of physiotherapist's cultural responsiveness. Neither questionnaire would be an appropriate or valid standardised tool for use in

physiotherapy clinics in New Zealand in their current form. Further research is therefore required.

1 Chapter 1. Introduction

1.1 Statement of the problem

In addition to safe and effective practice, the current professional legislative requirement for registration of physiotherapists in New Zealand includes demonstrating a level of cultural competence (Hullena & Skinner, 2010; Main, McCallin, & Smith, 2006; Ratima, Waetford, & Wikaire, 2006). However, there is no officially prescribed standard measure to assess culturally competent practice, neither is there a mechanism for physiotherapists to receive feedback from their patients in an anonymous way about their level of cultural competence in their daily clinical practice. It is therefore difficult for physiotherapists to show credible evidence of their ability to practice in a culturally competent manner should they be selected for a recertification audit (Thom & Tirado, 2006).

In New Zealand, the Physiotherapy Board of New Zealand (PBNZ) has stipulated a number of different evaluation requirements for physiotherapists to demonstrate their cultural competence. However, PBNZ have used these cultural terms in an interchangeable manner. For example, culturally responsive practice has been defined as requiring *"physiotherapists to reflect not only on their own culture but that of their client and to engage in new and ongoing learning relevant to cultural safety"* (Physiotherapy Board of Australia & Physiotherapy Board of New Zealand, 2015, p. 11.). The Physiotherapy practice thresholds, which determine the entry level requirement for professional registration, also stipulates that physiotherapists must always, *"consider each client as a whole, adopt client-centred and family/whānau focused (where relevant) approaches and prioritise cultural safety and cultural respect"* (p. 8.). Additionally, *"A holistic, client-centred approach to practice requires cultural competence"* (Physiotherapy Board of Australia & Physiotherapy Board of

New Zealand, 2015, p. 11.). All of these aforementioned key competencies and components have been described by PBNZ as abilities that can be assessed in practice.

Cultural competence, safety, sensitivity, and responsiveness have become progressively important in the provision of healthcare to diverse ethnic groups (Hunt, 2007; May & Potia, 2013; Paternotte, van Dulmen, van der Lee, Scherpbier, & Scheele, 2015), with attempts being made to define each of these different culture related terms. For example the pioneering concept of *'cultural safety'* was developed within nursing education in the 1980s (Ramsden, 1993), with *'cultural competency'* emerging as a complimentary concept (Duke, Connor, & McEldowney, 2009; Gray & McPherson, 2005) which has gradually become more widely used across the health professions. Although the term *'cultural responsiveness'* is increasingly appearing in the day-to-day vernacular, each one of these culture related terms of reference including *'cultural awareness'* and *'cultural sensitivity'* have also been used interchangeably across health professions. Consequently, disagreement has arisen among health professionals about the precise meaning of the concept of cultural competency (Alizadeh & Chavan, 2016; Garneau & Pepin, 2015) and the closely related notions of cultural safety, sensitivity, and awareness (Durie, 2001). This, therefore, highlights the challenge of trying to assess cultural competency, when a shared understanding of its precise meaning is not commonly acknowledged.

While the regulatory body should provide its own clear measurement framework it is also vital that patients as recipients of healthcare provision provide feedback for physiotherapists concerning their cultural competency. This would be best undertaken in an anonymous way, through the use of questionnaires with closed-ended items and the provision for additional comments if required.

1.2 Purpose statement

The purpose of this thesis is to investigate the structural and content validity of two internationally designed culturally-based, patient self-reported questionnaires measuring New Zealand physiotherapists' cultural responsiveness within the context of Aotearoa New Zealand. The factors of the adapted version of the Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHPI-PF) (Tucker, Nghiem, Marsiske, & Robinson, 2013) and an adapted Healthcare Provider Cultural Competency Survey (HPCCS) (Lucas, Michalopoulou, Falzarano, Menon, & Cunningham, 2008) will use two tools previously validated with New Zealand physiotherapy patients. The first is the Patient Satisfaction with their Physiotherapist's Empathy and Communication Scale (PSPECS) (Bassett, McNair, Clark, & Harman, 2015), and the second is the Rehabilitation Adherence Measure for Athletic Training (RAdMAT) (Granquist, Gill, & Appaneal, 2010).

1.3 Significance of the Study

Should either the Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHCPI-PF) and/or the Healthcare Provider Cultural Competency Survey be found to have structural and content validity, then physiotherapists in Aotearoa New Zealand will have a scientifically sound measurement tool for patients to use when asked to evaluate the cultural responsiveness of physiotherapists within their clinical setting. The provision of an assessment tool would therefore help to satisfy the requirements of registration as stipulated by PBNZ, in both clinical competence and ethical conduct (Ratima et al., 2006).

1.4 Overview of the Thesis

This thesis is organised into five chapters. It undertakes to evaluate two international clinically-based measurement tools of physiotherapists cultural

responsiveness in Aotearoa New Zealand. Having set the stage for investigating the structural and content validity of these international questionnaires in this introductory chapter, chapter two explores the literature to summarise works pertinent to the current study. In chapter three, I describe the methodological framework, study procedure and data analysis for this research. In chapter four, I provide the findings of this study. Finally, in chapter five, I provide the discussion and provide both the strengths and limitations of this study. I also draw conclusions and recommendations whilst identifying potential future research.

2 Chapter 2. Literature Review

2.1 Introduction

This chapter consists of four sections. First, a summary of the search strategies undertaken to identify the articles used in the literature review. Second, a description of the interpretive dilemma posed within much of the current literature where multiple meanings are ascribed to each of the terms cultural safety, cultural competency, and cultural sensitivity. The additional and more recent term of cultural responsiveness is also considered. Third, some of the methodological issues in the existing literature are highlighted. Fourth, descriptions of patient satisfaction with particular reference to physiotherapists' empathy and communication are identified, with patient adherence considered within a healthcare setting.

2.2 Literature Search Strategy

Literature relating to the cultural safety, competency, sensitivity, and responsiveness of healthcare professionals was considered for this review. Particular reference to patient-reported measures of their healthcare professionals' cultural considerations, along with healthcare provider-patient interactions. Patient satisfaction and adherence to physiotherapy were also considered.

The inclusion criteria used to determine which studies would be examined were: (i) literature containing at least one cultural aspect (safety, competency, or sensitivity) pertaining to a healthcare provider; (ii) literature that used patient-reported measures of their healthcare professionals' cultural capability; and (iii) relevant studies that were published in English.

The articles were retrieved electronically utilising the following listed databases: EBSCO Health Database, CINAHL Plus, MEDLINE, SPORTDiscus, SCOPUS, E-Journals (Auckland University of Technology Library), ProQuest and PubMed. The reference lists of each included article were reviewed manually for other appropriate articles that may have been inadvertently omitted via previous electronic searches. Additional author searches were conducted to identify more recently published articles, as well as further cited references (see Figure 1).

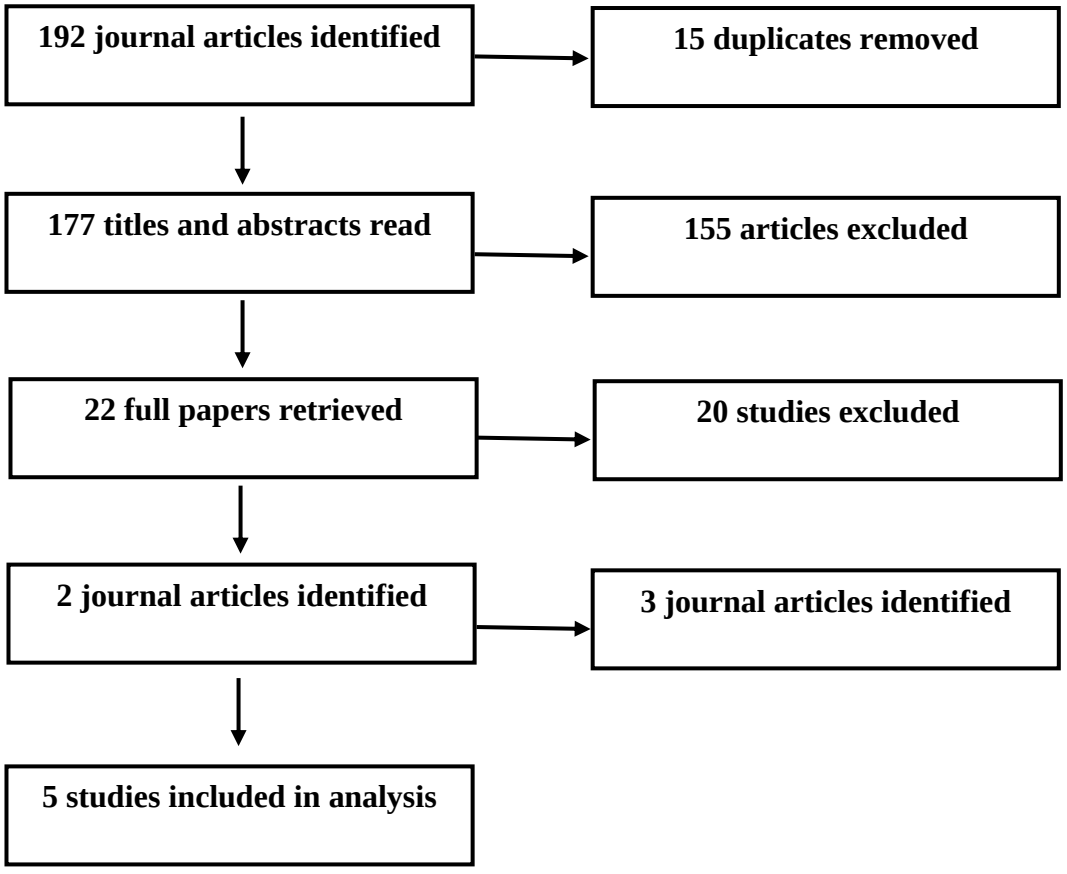

Figure 1. Search strategy of studies using patient-reported perceptions of their healthcare professionals' cultural competencies

Literature searches were conducted using the key words identified in Table 1.

Table 1. Key Search Terms Used

Key Words		
cultur*	appropriateness	physiotherap*
ethnic*	satisfact*	physical
rac*	communicat*	therap*
indigen*	interpersonal*	rehab*
competenc*	empath*	manual*
sensitiv*	measure*	patient
safe*	adhere*	report*
responsiv*	healthcare provider	experience*
awareness	practitioner	narrative*

2.3 Cultural concepts and interpretations

2.3.1 Cultural Safety

In Aotearoa New Zealand, cultural safety first emerged as a term of health professional interest during the latter part of the 20th century (Ramsden, 1993). Early conceptualisations of cultural safety emerged as Māori health professionals, primarily nurses sought to respond more effectively to the increasing issue of poor health status among Māori (J. Anderson et al., 2003; Gerlach, 2012; Papps & Ramsden, 1996). Coincidental with the era of sustained political pressure from tangata whenua for a culturally safe delivery of a range of public services, Māori healthcare professionals developed the pioneering cultural safety theoretical framework (Garneau & Pepin, 2015; Ramsden, 1993; Wepa, 2015). Following a nationwide nursing education leadership hui, Ramsden (1993), a prominent Māori nurse educator in Aotearoa New Zealand, together with a small number of her colleagues were responsible for first proposing and then more clearly defining the concept of cultural safety. They undertook to critique the public healthcare system and in particular to identify specific ways in which they considered the system catered primarily to the needs of the

dominant non-Māori population group. Closely related was the work of Doane and Varcoe (2005) who provided a comprehensive overview of the ways in which historical, economic and social factors conspired to influence people's health status and healthcare services. In particular, they described the ways in which minority populations were disadvantaged within mainstream institutions. They were adamant advocates of diversity training for all health professionals thus enabling the issues of disadvantage to be more systemically addressed.

Practising in a culturally safe manner is complex and not simply a matter of learning the idiosyncrasies of each culture, or of following a prescribed cultural checklist (Ramsden, 2005). According to Ramsden (2005) all patients irrespective of their cultural background should be treated by healthcare professionals in an empathetic and culturally safe manner taking into account their culturally based social, economic, spiritual and linguistic realities. Hence, to be culturally safe all healthcare professionals should aim to acquire an expansive portfolio of culturally-based knowledge, understanding, and experience. It is further suggested that healthcare professionals should recognise the serious negative implications of having limited understandings of other cultures in their professional practice (Gerlach, 2012; Ramsden, 1993, 2005; Smye & Browne, 2002).

The ethical framework for cultural safety originated from three of the guiding principles of partnership, participation, and protection, which are embedded within the Treaty of Waitangi, a founding document of Aotearoa New Zealand (Papps, 2005). Early advocates of cultural safety developed a model in which culturally safe practice was represented by the "3 Rs" (Recognise, Respect & Rights) (Wood & Schwass, 1993). Conversely, they also denoted culturally unsafe practices and schematically represented these as the "3D's" (Demean, Diminish & Disempower) (see Figure 2).

Figure 2. A visual representation of Wood and Schwass's (1993) model of cultural safety and cultural risk.

Bidzinski, Boustead, Gleave, Russo, and Scott (2012) developed the concept of cultural safety further, as being a process starting with the intentional provision of cultural awareness and cultural sensitivity training for all health professionals thus ensuring the provision of culturally safe care. Cultural safety has become an attribute of care experienced by the recipients of healthcare as being a requirement for healthcare professionals' to ensure that in every instance, their professional behaviour is culturally safe (Durie, 2001; Gray & McPherson, 2005; Main et al., 2006; May & Potia, 2013; Papps & Ramsden, 1996).

Increasingly the intellectual focus of cultural safety is introspective. There is an expectation that all healthcare professionals are able to identify those cultural factors which shape their own worldviews, and accordingly their attitudes toward patients who are not culturally similar (Smye & Browne, 2002). Taking this further, in recognition of the critical importance of culturally based attitudes and behaviours, Bozorgzad, Negarandeh, Raiesifar, and Poortaghi (2016) insist that the power relations which govern all aspects of society must also be interrogated in order to expose the ways in which disadvantage accrues to certain groups especially minorities. In the case of healthcare provision, advocates of cultural safety are understandably adamant that the

disadvantages accruing for both minority patients and minority healthcare professionals are deeply attitudinally and systemically rooted, and therefore need to be educationally and structurally modified. The question of uneven power relations, its causes and effects, cannot be ignored (Bozorgzad et al., 2016; Gerlach, 2012).

Bozorgzad et al. (2016) reported that patients felt safe when healthcare professionals understood and respected them as uniquely culturally formed and shaped people. These patients felt safe in articulating the ways in which complex culturally based factors may perhaps be implicated in both causing and/or in healing their particular illness. Smye, Josewski, and Kendall (2010) also found that the provision of healthcare was deemed safe when patients did not experience feelings of inferiority or of being treated 'differently'. Consequently, cultural safety highlighted the structural inequities affecting healthcare systems, especially in increasingly multicultural or diverse societies. It was ultimately to ensure the provision of more equitable, more culturally safe universal healthcare for those previously institutionally defined and therefore treated as minorities (J. Anderson et al., 2003; Gerlach, 2012). This more likely ensured that the patients' identities were recognised and their health needs considered in the healthcare plan (Smye & Browne, 2002).

Ramsden's critique has ultimately led to the acceptance of cultural safety as an essential component of all healthcare curricula (Gerlach, 2012). The primary theoretical underpinning of cultural safety has remained constant throughout its international translation, especially into other post-colonial indigenous societies also seeking to improve their health outcomes and achieve social justice (Johnstone & Kanitsaki, 2007; Smye et al., 2010). Yet, the clarity of cultural safety has been influenced by a tendency within healthcare practice and education to align culture with cultural awareness and

sensitivity with particular regard to race and ethnicity, instead of the broader interpretation in cultural safety (Papps & Ramsden, 1996).

2.3.2 Cultural Competency

In the late 20th century, the term 'cultural competence' eventually emerged as a complementary concept to cultural safety (Duke et al., 2009; Gray & McPherson, 2005). However, a decided lack of intellectual critique of cultural competence relative to cultural safety has allowed untested assumptions and interpretations to prevail rendering cultural safety at risk of being misunderstood, undervalued or even dismissed. Both concepts are valid and necessary for the well-being of minority patients. Cultural competency is argued as deserving to be understood as a stand-alone concept essential to healthcare professional standards of practice (Bozorgzad et al., 2016).

Internationally there has also been movement toward cultural competence in response to health status disparities, particularly amongst minority and marginalised populations compared to those most dominant. Health systems which are not attentive to cultural competency are seen as being demonstrably disconnected especially from those marginalised populations that they are nonetheless professionally obligated to serve (Bell, Kravitz, Thom, Krupat, & Azari, 2002; Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003; Ngo-Metzger, Sorkin, & Phillips, 2009). Consequently, patients from minority and or culturally diverse smaller population groups inevitably experience feelings of disrespect and lack of trust. Both factors lead to negative consequences such as provider ineffectiveness, limited engagement between patients and healthcare professionals, an unacceptably reduced quality of healthcare and inferior health statistics. It has been reported that there is a deficit in examining the antecedents of cultural competency findings and of meaningful outcomes-based research in this regard (Perloff, Bonder, Ray, Ray, & Siminoff, 2006). Subsequently, with this

recognition, was the wider acceptance of the need for all health professionals to be measurably competent to deal with diverse population groups. (Alizadeh & Chavan, 2016; Duke et al., 2009; Nápoles et al., 2012).

The National Quality Forum (NQF) (2009) defined culturally competent care as "safe, patient and family-centred, evidence-based, and equitable" (p. 2). Cultural competency was more commonly used to describe the sensitivities and capabilities required of health professionals to be effective in their treatment of patients from diverse backgrounds (Hunt, 2007; May & Potia, 2013; Paternotte et al., 2015). Cultural differences when either not understood or accepted, act as a barrier to effective access and utilisation of healthcare services for a vulnerable sector of society (Anderson, Scrimshaw, Fullilove, Fielding, & Normand, 2003; Hunt, 2007; O'Shaughnessy & Tilki, 2007; Stewart, 2002). The cultural competence of healthcare professionals has increasingly been recognised as being fundamental to healthcare systems demonstrably capable of providing access to and delivery of high quality, high-value healthcare across all population groups. This more equitable healthcare provision has been seen to be instrumental in reducing healthcare disparities (Doorenbos, Schim, Benkert, & Borse, 2005; Hunt, 2007; Starr & Wallace, 2011).

Cultural competence is recognised as an ongoing process that occurs when healthcare professionals work effectively with empathy and respect while being appropriately attentive to the cultural context of patients (Campinha-Bacote, 2002, 2009; Ekelman, Dal Bello-Haas, Bazyk, & Bazyk, 2003; O'Shaughnessy & Tilki, 2007). It was identified that those healthcare professionals who do possess a range of cultural knowledge and skills are far more likely to deliver effective culturally appropriate healthcare interventions (Sue, 2006), and reduce adverse health outcomes (Fernandez, Seligman, Quan, Stern, & Jacobs, 2012). With an increase in the number of patients of

diverse racial, ethnic and cultural diversity, the need for culturally competent providers has also arisen with increasing urgency (Duke et al., 2009; Thom & Tirado, 2006).

2.3.3 Cultural Sensitivity

Cultural sensitivity describes the attitudes and behaviours of health professionals that are demonstrably sensitive to the cultural needs and associated expectations of patients (Doorenbos et al., 2005; Tucker et al., 2013). Recognition of personal heritage and respect for the multifaceted ways in which cultural issues shape every aspect of healthcare are fundamental to being a culturally sensitive healthcare provider (Doorenbos et al., 2005). Further, Kupperschmidt, Kientz, Ward, and Reinholz (2010) posit that cultural sensitivity required dynamic awareness of both cultural differences and similarities among and between racially discrete population groups. Cultural sensitivity has been identified as a foundational skill for the development of cultural competence. Intercultural sensitivity, on the other hand, is one requiring effective cross-cultural communication skills (Alizadeh & Chavan, 2016; Kupperschmidt et al., 2010). Kupperschmidt et al. (2010) also acknowledged that intercultural sensitivity was the demonstrable ability to adapt or modify one's behaviour, knowledge, understandings, and modes of respect in response to recognised cultural needs and or stated culturally-based preferences.

The concept of patient-centred culturally sensitive healthcare was based on the premise that patients' perspectives warranted priority consideration when developing a policy definition for cultural sensitivity in healthcare (Tucker et al., 2007; Tucker et al., 2003). This concept was about patient-empowerment and placed the emphasis on the need to identify and to respond with sensitivity to patient needs and patient feelings in terms of their interactions with health professionals and services (Herman et al., 2007). This is consistent with the findings of the solitary qualitative study undertaken in New

Zealand to investigate Māori peoples' experiences as physiotherapy patients (Bassett & Tango, 2002). The key findings of this study showed patients preferred to be respected as individuals with a universal human right to be treated with dignity and sensitivity. In addition to the health professionals' attributes of cultural sensitivity, these patients valued effective communication with their physiotherapists.

Increased cultural sensitivity within all healthcare systems has been shown to positively affect patient-provider communication, patient satisfaction (Morales, Elliott, Weech-Maldonado, & Hays, 2006; Phillips, Chiriboga, & Jang, 2012) and treatment adherence (Morales et al., 2006; Wall, Tucker, Roncoroni, Allan, & Nguyen, 2013). Furthermore, all play an important role in determining the overall quality of care (Lucas et al., 2008). These findings point to the use of additional quantitative measures for both patient satisfaction with communication and treatment adherence to confirm whether these claims can be further substantiated within Aotearoa New Zealand.

2.3.4 Cultural Responsiveness

Culturally responsive practice has been identified as involving a blend of both cultural competence and cultural safety (Werkmeister-Rozas & Klein, 2009). Increasingly, cultural responsiveness has been used to describe a more appropriate level of interaction between the patient and the healthcare provider (Wilson, 2014). It has been used by the Victorian Government Department of Health (Department of Health, 2009) with specific reference to healthcare services that are respectful of, and relevant to, the health practices and beliefs, and cultural needs of diverse patient populations. It was identified that when working with ethnically diverse families and communities, healthcare professionals are required to be more acutely aware of the traditions, worldviews, and strengths of cultural groups, whilst remaining open to the dynamic nature of culture (Waites, Macgowan, Pennell, Carlton-LaNey, & Weil, 2004). The use

of this term signifies a more active role on the part of the provider to respond to the cultural needs of the individual, rather than being merely sensitive to those needs (Wilson, 2014). Being a culturally responsive healthcare provider necessitates being proactive and is associated with making a positive difference for marginalised healthcare recipients.

In the research component of this thesis, cultural responsiveness will therefore be used in preference to cultural safety, cultural competence and cultural sensitivity. The emphasis this brings is to the capability to be responsive and proactive to the healthcare needs of diverse populations. However, when referring to previous literature, their specific cultural terms of reference in 'competence', 'safety', and 'sensitivity' will also be maintained.

2.4 Methodological issues in measuring cultural competency

Although increasingly in demand, the methodological basis for implementing and evaluating professional standards of cultural competency is proving problematic. This is because much of the related literature regarding cultural competency has been based on observations, case studies, and anecdotes (Schim & Doorenbos, 2010). Similarly, the concept of cultural safety which was initially formulated in response to the demands of nationwide hui and wider consultation with both Māori leaders and health professionals (Durie, 1994) has suffered from the same methodological insufficiency. Whilst May and Potia (2013), concluded that there is considerable research evidence to indicate that cultural competency should work, in reality, however, health systems have insufficient evidence about which techniques intended to improve cultural competency are actually effective. This situation has to date hampered efforts to develop and evaluate cultural competency interventions and this in turn, is mostly

due to the ineffective measurement strategies employed to quantify cultural competency findings (Fortier & Bishop, 2004; Perloff et al., 2006).

Currently, there are no known methods of evaluation for health professionals to meet the requirements of cultural competency that allow for informed feedback from the recipients of healthcare. Existing measures focus on the cultural capabilities of healthcare professionals through self-evaluation, rather than patient-reported perceptions of their healthcare provider's cultural competencies (Campinha-Bacote, 1999; Culhane-Pera, Reif, Egli, Baker, & Kassekert, 1997; Doorenbos et al., 2005; Weissman et al., 2005). The Inventory to Assess the Process of Cultural Competence Among Healthcare Professionals (IAPCC), was a self-administered, 20-item instrument that measured the constructs of healthcare professionals' cultural awareness, cultural knowledge, cultural skill, and cultural encounters (Campinha-Bacote, 1999). The Multicultural Assessment Questionnaire (MAQ), was a 16-item measure, requesting physicians to rate their cultural knowledge (6 items), skills (6 items), and attitudes (4 items) (Culhane-Pera et al., 1997). The Cultural Competence Assessment Instrument (CCA), was a 38-item measure of cultural diversity experience, cultural awareness and sensitivity, and cultural competence behaviours of hospice providers (Doorenbos et al., 2005). A survey instrument for resident physicians posed questions related to attitudes toward cross-cultural care, preparedness to care for diverse patient populations, self-assessment of skills, and reports of educational experiences (Weissman et al., 2005).

Healthcare professionals have been self-reporting their perceptions of their own levels of cultural competency when engaging with patients from diverse or differing cultural backgrounds. Self-reporting may increase the potential for respondents to be influenced by social desirability, rather than by direct observation that will more accurately gauge actual provision or quality of care provided. This may possibly

preclude healthcare professionals from comparing their self-perception of being culturally competent to that of their patient's perceptions (Van Ryn & Burke, 2000; Van Ryn & Fu, 2003). The appraisals healthcare professionals use to influence policy or interpret the health needs of ethnic minorities, are known to be undertaken less robustly than by that of minority patients themselves. There is an increasing need to develop valid patient-reported measures of healthcare provider cultural competency (Fortier & Bishop, 2004; Loftin, Hartin, Branson, & Reyes, 2013; Perloff et al., 2006), as well as recognition that these patient-reported measures or tools accurately reflect indigenous populations (Harwood, 2010).

There are very few published cultural-competency based studies within physiotherapy (Ratima et al., 2006), and likewise with culturally responsive measures of patient experiences in healthcare in general. There is, however, an increasing body of literature pertaining to cultural competency among healthcare professionals, particularly nurses in New Zealand (Main et al., 2006; Ramsden, 1993; Wepa, 2015; Wilson, 2014). A small number of international physiotherapy-specific qualitative cultural competency-based studies have been undertaken in Norway (Fougner & Horntvedt, 2012), India (May & Potia, 2013; Unevik, Wickford, & Melander Wikman, 2012), and the United Kingdom (Kale & Hong, 2007; Norris & Allotey, 2008). Four of these studies were based on either physiotherapy student cultural experiences or perceptions, as well as the evaluation of varying cultural training during their undergraduate programme (Fougner & Horntvedt, 2012; Kale & Hong, 2007; May & Potia, 2013; Unevik et al., 2012). Only one study is known to have considered the complexities of clinical interactions within cross-cultural physiotherapeutic practice (Norris & Allotey, 2008). This particular study set about primarily exploring the dilemmas faced by physiotherapists when trying to achieve cultural competence. It did not attempt to review culturally appropriate methods of measurement.

In New Zealand, there currently are no known instruments or questionnaires used for patients to evaluate the cultural competency of their healthcare provider in physiotherapy. Internationally there are at least five self-reported questionnaires identified that allow patients to provide feedback regarding their healthcare provider's level of cultural competency in a confidential manner. All of the measures were physician-specific, with conditions ranging from diabetes and/or hypertension (Thom & Tirado, 2006), oncology (Davey, Waite, Nuñez, Niño, & Kissil, 2014), asthma and mental health (Lucas et al., 2008), as well as general medical illnesses, diseases and/or disorders (Nápoles et al., 2012; Tucker et al., 2013).

The shortcomings of three of the questionnaires were identified in their application within each of the respective studies. The first patient-reported measure of physician cultural competence was developed and validated within a group of ethnically diverse, and mostly lower-income primary care patients with diabetes and/or hypertension and their physicians (Thom & Tirado, 2006). This study examined patients' reports of providers' culturally competent behaviours. Despite developing a measure targeting physician behaviours thought to be important for cultural competency, most of the items rate communication behaviours that would be desirable irrespective of differences in healthcare provider-patient ethnicity or culture. Nápoles et al. (2012), developed a patient-reported, multidimensional survey of clinicians' cultural sensitivity to cultural factors affecting the quality of care amongst a predominantly Latino patient group 50 years of age or older from primary care practices. However, the relevance of this measure for populations outside of California, and for differing ethnicities is unknown. Davey et al. (2014) surveyed a racially diverse, adult oncology population with a newly developed patient-reported measure of providers' cultural competence. These authors did, however, identify limitations concerning face and

construct validity. Limitations identified in each of these three studies were considered sufficient enough to exclude from this thesis.

Whilst not specific to physiotherapy, the two additional questionnaires developed in the United States were considered for this thesis. These were the Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHCPI-PF) (Tucker et al., 2013) and the Healthcare Provider Cultural Competence Survey (HPCCS) (Lucas et al., 2008). The T-CSHCPI-PF is the first known inventory for patients to evaluate their clinicians' culturally sensitive practice (Tucker et al., 2013). The development of this questionnaire was intended to address known limitations of existing culturally based inventories, thereby providing a quantitative, patient-reported measure that focussed on broader aspects of cultural sensitivity such as communication skills. The T-CSHCPI-PF contains 27 items, which consist of three factors of Competence/Confidence, Sensitivity/Interpersonal Skill, and Respect/Communication Skill.

The HPCCS is a 9-item measure that was adapted from guidelines for measuring cultural competency in mental health provider settings (Lucas et al., 2008). Lucas et al. (2008), developed a standardised patient-reported measure of cultural competency with the capacity to inform research across a broad range of both clinical and cultural contexts. Similar to the Tucker et al. (2013) T-CSHCPI-PF, development and validation of the survey was based on being a patient - rather than a provider-report. Three main factors were measured including the physicians' knowledge of a given culture, a sensitivity to their own cultural biases and consideration of how that bias may influence their perceptions of a patient, and cultural skill that encompasses a provider's ability to act in a culturally relevant but adaptive manner (Lucas et al., 2008). Given the lack of culturally appropriate patient-reported measures available in Aotearoa New

Zealand, it would be timely to test both of these international questionnaires and validate their appropriateness of use within our unique cultural context.

2.5 Factors associated with improved healthcare provider-patient interaction

Numerous factors such as the healthcare professional-patient interaction, treatment environment, personal consideration and cultural sensitivity are all known to be influential in how people experience healthcare provision. Patient experience is in turn also considered to have a significant bearing on patient adherence to rehabilitation treatment. The relationship between the interpersonal style of healthcare professionals and several dimensions of satisfaction with care and health-related quality of life has been well documented in previous research (Nápoles, Gregorich, Santoyo-Olsson, O'Brien, & Stewart, 2009).

2.5.1 Patient Satisfaction with their interaction with Healthcare Providers

Respectful culturally based interactions between healthcare professionals and patients are known to reduce health inequities, while concurrently improving elements of patient satisfaction. Patient satisfaction was identified by Otani, Kurz, and Harris (2005) as a subjective judgement of the quality of care, often influencing their choice or recommendation of a provider. Patient satisfaction has been identified as being fundamentally a patient-centred and clinically appropriate health outcome measure (Hush, Cameron, & Mackey, 2011). Other evidence shows patient satisfaction results from healthcare provider cultural competence (Fuertes et al., 2006), which has also been identified as an important outcome of the healthcare provider-patient interaction (Bertakis & Azari, 2011). Factors such as empathy, trust, and confidence are known to enhance healthcare provider-patient interaction when cultural practices are respected as part of the treatment programme (Dudley, Wilson, & Barker, 2014; Tucker et al., 2007). Furthermore, it has also been shown to be associated with greater subsequent

engagement in healthcare services (Damashek, Bard, & Hecht, 2012), and patient treatment adherence (Govere & Govere, 2016).

There is general acknowledgement that communication between healthcare professionals and recipients of healthcare may be affected by their respective cultural differences (Lucas et al., 2008). Culturally insensitive communications are known to not only negatively impact the quality of care a patient receives (Lucas et al., 2008; Perloff et al., 2006; Sue, 2006), but also risk the ability of healthcare professionals to fully comprehend patient queries and respond appropriately to patients' own accounts of their physical symptoms (Ashton et al., 2003). Miscommunication is viewed as an important factor in terms of the interpersonal deficits it can and does create (Lucas et al., 2008; Perloff et al., 2006; Sue, 2006). This highlights the view that providers' understanding of particular cultural characteristics or traits, principles and traditions may be determinative of the quality of treatment a patient ultimately receives (Lucas et al., 2008). The definitive goal of culturally competent care and communication is one which seeks to improve healthcare professional-patient relationships and thereby achieve optimal clinical results (Durie, 2001).

Patient satisfaction measurement tools have generally attempted to determine patients' perceptions of treatment benefit, the structure of these tools mostly measured the extent to which patient expectations relating to the process of delivery of care were met. However, a patient satisfaction with their physiotherapist's empathy and communication scale (PSPECS) recently developed in New Zealand, has proven internal consistency with Cronbach's alpha was acceptable (.90), as was the factor structure. It is apparent that there are conceptual similarities between patient-physiotherapist interaction and communication and that of culturally-sensitive practice.

Hence, it seems appropriate to use the PSPECS as a validation tool when investigating the feasibility of measures of physiotherapists' culturally-sensitive practice.

2.5.2 Adherence

Patient adherence in physiotherapy has been defined as following a prescribed treatment programme, and the ability and willingness of patients to actively follow the advice and recommendations of their healthcare provider (Bassett, 2003). The determinants of patient adherence to clinic-based rehabilitation have been identified as being complex, with a diverse range of physical, psychological and situational factors that are unlikely to operate in isolation (Bassett, 2003). Effective communication between the patients and the physiotherapists enhances patient adherence to their rehabilitation programmes (Clark, Bassett, & Siegert, 2018). Further, it has been shown that there is a strong association between patient satisfaction and adherence when more structured and personalised home-based, culturally competent programmes were implemented (Damashek et al., 2012).

Patient-centred culturally sensitive healthcare (PC-CSHC), has been identified as an important precursor to treatment adherence (Roncoroni et al., 2014). It has been suggested that within a PC-CSHC model, trust of the healthcare provider is an important predictor of patient satisfaction and is therefore linked to treatment adherence (Nielsen, Wall, & Tucker, 2016; Tucker, Marsiske, Rice, Nielson, & Herman, 2011). Similarly, increased levels of patient adherence have been reported when healthcare professionals are attentive to the culturally-based needs of the patient, which in turn engenders an increased level of trust and confidence between the healthcare providers and patients (McEwen & Boyle, 2007).

A recent New Zealand physiotherapy study found that the Rehabilitation Adherence Measure for Athletic Training (RAdMAT) was a comprehensive and valid

measure of patient clinic-based adherence (Clark et al., 2018). The RAdMAT is a measure of adherence which includes patients' attitudes and communication along with their clinic behaviours (Granquist et al., 2010). Given these attributes of the RAdMAT, it would seem appropriate to use it as a validation tool when evaluating culturally-sensitive physiotherapy practice.

2.6 Summary

Cultural competency, safety, sensitivity, and responsiveness have been used interchangeably within physiotherapy, as well as across other health professions. In spite of the legislative requirement for the provision of culturally competent healthcare as part of physiotherapists' professional registration in New Zealand, there are no known measurement tools to assess that particular competency. It would, therefore, be timely to investigate the utility of the Healthcare Provider Cultural Competency Survey (Lucas et al., 2008), and the Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (Tucker et al., 2013) by evaluating their structure and use the PSPECS (Bassett et al., 2015) and the RAdMAT (Granquist et al., 2010) as validation tools.

3 Chapter 3. Methods

3.1 Study Design

This study is located within the scientific or quantitative paradigm, and utilises a cross-sectional design to evaluate the psychometric properties of adapted versions of the Tucker-Culturally Sensitive Health Care Practitioners Inventory – Patient Form (T-CSHCPI-PF) (Tucker et al., 2013) and the Healthcare Provider Cultural Competency Survey (HCPCCS) (Lucas et al., 2008). The construct validity was evaluated using the Patients Satisfaction with their Physiotherapist's Empathy and Communication Scale (PSPECS) (Bassett et al., 2015) and the Rehabilitation Adherence Measure for Athletic Training (RAdMAT) (Granquist et al., 2010).

3.2 Study Participants

One hundred and fifty-eight participants were recruited from seven private musculoskeletal physiotherapy clinics in a large metropolitan area between May 2016 and November 2016.

3.2.1 Inclusion and exclusion criteria.

People were included in the study if they were undertaking a course of physiotherapy treatment, had attended at least one appointment with the same physiotherapist, and were able to read and comprehend English. There were no specific exclusion criteria.

3.2.2 Sample size.

The sample size required for this study was determined by recommendations of research previously undertaken, that had also involved conducting factor analysis (Amini, Hassani Mehraban, Haghani, Mollazade, & Zaree, 2017; Guadagnoli & Velicer, 1988; Knapp & Brown, 1995). The recommended sample size was based on having between three and ten times the number of items in a questionnaire being evaluated.

Given that 27 was the most number of items in any one of the questionnaires in this current study, a sample size of more than 150 was deemed more than sufficient.

3.3 Ethical and Cultural considerations

Ethical and cultural considerations were respected in the collection and processing of data, as well as in the reporting of the findings. Implementation of the Treaty of Waitangi principles of partnership, participation, and protection ensured the process embraced Tikanga Māori, was undertaken in good faith, and always considered the confidentiality of each participant. Partnership was demonstrated through initial consultation with Equity academics, physiotherapists as well as physiotherapy students from a diverse range of ethnicities regarding a review of the questionnaires prior to the undertaking of the study. Participation was achieved by the voluntary involvement of participants in the study and contributing their responses to the questionnaires. Whilst protection was ensured through informed consent (Appendix A), with the allocation of participant numbers allowing de-identified data to be used. Participants were also informed of their right to withdraw consent to participate, without explanation and without any adverse consequences to their further and future medical treatment.

3.4 Measures

3.4.1 Demographic and injury characteristics.

The questionnaire consisted of both closed-ended and open-ended questions. Closed-ended questions were used for recording the participants' age, gender, cultural affiliation, occupation, income, whether the injury was sport-related and whether they had previously received physiotherapy treatment. Open-ended questions were used for the participants' level of regular physical activity and their injury characteristics, including the date and cause (Appendix B).

3.4.2 Cultural sensitivity.

Cultural sensitivity was measured using an adapted version of the T-CSHCPI-PF (Appendix C), which was a 27-item questionnaire about patient's physiotherapy treatment experiences, as well as the importance they placed on the interaction with their physiotherapist. Some of the items were adapted so that they would be suitable for a physiotherapy population in New Zealand. For example, the word *'medicine'* was replaced with *'rehabilitation activities'* to align more with physiotherapeutic terminology. All items were scored using a Likert scale with a response range, 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, 4 = *strongly agree*. Tucker et al., (2013) reported internal consistency of Cronbach's alpha for each factor in the adapted T-CSHCPI-PF as: Competence/Confidence, $\alpha = .96$; Sensitivity/Interpersonal Skill; $\alpha = .94$; and Respect/Communication, $\alpha = .94$. The importance of each of these respective items was measured by an additional Likert scale with a response range, 1 = *not important*, 2 = *mildly important*, 3 = *moderately important*, 4 = *very important*.

3.4.3 Cultural competence.

Cultural competence was measured using an adapted version of the HCPCC (Appendix D), which was a nine-item questionnaire about how well the physiotherapist understood the participant's specific culture, heritage, and ethnicity, with impressions of their acceptance of the participant's culture. All nine items were modified from the use of the word *'doctor'* and replaced with *'physiotherapist'*. For example, *'How well do you think your physiotherapist understands your culture's specific characteristics?'*. All items were scored using a Likert scale with a response range from 1 = *not at all* to 7 which included varying responses *very well, very aware, a lot of effort, very well equipped, very much and highly recommend*. Lucas et al., (2008) reported internal consistency of Cronbach's alpha for each factor in the HCPCC as: Knowledge, $\alpha = .88$, Awareness, $\alpha = .81$, and Skill, $\alpha = .89$. The importance of each of these respective

items was measured by an additional Likert scale with a response range, 1 = *not important*, 2 = *mildly important*, 3 = *moderately important*, 4 = *very important*.

3.4.4 Patient Satisfaction.

Patient satisfaction was assessed using the PSPECS (Appendix E), which is a 16-item questionnaire indicating the participant's responses to the level of communication and interaction with their physiotherapist. Items were worded either positively or negatively, with examples of each respectively being, *'I really felt the physiotherapist understood the concerns I have about my injury/disorder',* and *'I felt that this physiotherapist wasn't sympathetic towards my injury/disorder as I would have liked'*. All items were scored using a Likert scale with a response range, 1 = *very strongly disagree* to 7 = *very strongly agree*. Bassett et al. (2015) reported an internal consistency of Cronbach's alpha .90.

3.4.5 Adherence.

The RAdMAT measured clinic-based patient adherence (Appendix F). This is a 16-item questionnaire completed by the physiotherapist at the end of the course of treatment. All items were scored using a Likert scale with a response range, 1 = *never true*, 2 = *sometimes true*, 3 = *usually true*, 4 = *always true*. The RAdMAT has three factors (attitude/effort, attendance/participation, and communication) with reported internal consistency of Cronbach's alpha for the total and all three factors being greater than 0.75 (Granquist et al., 2010). This questionnaire has been validated within a physiotherapy study in New Zealand (Clark et al., 2018)

3.4.6 Participant Feedback.

Participants provided verbal feedback voluntarily about the questionnaires. Their perceptions of ease or relative difficulty of use, and wording of the items was obtained and recorded informally.

3.5 Study Procedure

Ethical approval was granted from the Auckland University of Technology Ethics Committee (AUTEC) Application Number 16/43 (Appendix G). Physiotherapy patients who met the inclusion criteria were invited to take part in the study by the receptionists of the clinic they were attending. An information sheet (Appendix H) was given to potential participants, and those interested in the study being referred to the primary researcher who was located in the clinic at the time. The researcher provided more information about the study and their role in it. Those who indicated a willingness to take part signed a consent form and completed four questionnaires at the physiotherapy clinics or by mutual agreement, at the participant's home.

Physiotherapists completed an adherence questionnaire for each of their patients who participated in the study, at the physiotherapy clinic. All data were collected in written form and securely stored in a lockable cupboard in the primary researcher's office. Consent forms were stored separately in another lockable cupboard so no link could be made between them and the completed questionnaires, ensuring confidentiality of the data.

3.6 Data Processing

The Statistical Package for Social Sciences (SPSS) software version 24 (IBM Corporation, 2016) was used for data processing. To confirm the accuracy of data entry, all data were checked using the descriptive statistics. The continuous data were checked using frequency, means, and standard deviations. The categorical data were checked using frequencies. In preparation for the data analysis, categories of demographic and injury characteristics data that consisted of small numbers of participants were merged with similar groups for ease of processing. For example, ethnic data for *'Indian', 'Asian'* and *'European other'* was collapsed into the *'Other'*

category, and the occupation data for *'Professional', 'Management', Skilled',* and *'Unskilled'* was collapsed into the *'Employed'* category. The injury characteristics time since injury data were collapsed into three broader timeframe categories of *'1-4 week', 'Between 1-3 months'* and *'More than 3 months'*, and the site of injury was also collapsed into three broader categories of *'Lower limb', 'Spine/Torso',* and *'Upper limb'*.

A visual estimation of the histograms for the response range of the importance scales for the adapted versions of the T-CSHCPI-PF and HPCCS was undertaken. This inspection revealed that the majority of responses were grouped as either not important or very important. Hence it was decided to collapse the data into two categories (1 = *not important*, 2 = *important*). The scoring of the negatively worded items of the PSPECS were reversed.

3.7 Data Analysis

Data were analysed using SPSS version 24, with the alpha level set at .05. Frequencies and percentages were calculated for categorical demographic and injury characteristics data, whilst range, mean and standard deviation were analysed for the continuous demographic variable. Data analysis was undertaken by following these steps:

3.7.1 An exploratory analysis of the adapted versions of the T-CSHCPI-PF and HPCCS questionnaires was undertaken.

The adapted versions of the T-CSHCPI-PF and the HPCCS were subjected to a principal components analysis (PCA). An inspection of the correlation matrix for evidence of coefficients greater than .3 was completed (Tabachnick & Fidell, 2013). Further assessment of the factorability of the data was completed with two statistical measures, the Bartlett's test of sphericity (Bartlett, 1954), and the Kaiser-Meyer-Olkin

(KMO) measure of sampling adequacy (Kaiser, 1970). For the factor analysis to be considered appropriate, the Bartlett's test of sphericity should be significant ($p<.05$), and the KMO index suggested a minimum value of .6 (Tabachnick & Fidell, 2013). Using the Kaiser criterion, only factors with Eigenvalues above 1.0 were considered. An inspection of the Scree plot (Catell, 1966) determined the number of factors above the elbow in the plot were retained. The number of factors also explained the total variance of the data.

3.7.2 A confirmatory analysis of the adapted versions of the T-CSHCPI-PF and HPCCS questionnaires and importance scales was completed.

Direct Oblimin rotation was used as the strength of the correlations were above .32 (Tabachnick & Fidell, 2013). The presence of a simple structure (Thurstone, 1947) confirming the variables loading strongly onto only one component. An analysis of the importance of each item of the adapted T-CSHCPI-PF and adapted HPCCS was also undertaken, measuring the frequency of each response.

A Chi-square test for independence explored the relationship between the ethnic groups and ratings of importance of culturally based items of both adapted versions of the T-CSHCPI-PF and the HPCCS. The effect size was measured by the *phi* coefficient value using Cohen's (1988) criteria of .10 for a small effect, .30 for medium effect and .50 for large effect.

3.7.3 Validation of the adapted versions of the T-CSHCPI-PF and HPCCS questionnaires, using the PSPECS and the RAdMAT.

The internal consistency of the adapted T-CSHCPI-PF, adapted HPCCS and RAdMAT and their possible factors, with the PSPECS were analysed using Cronbach's alphas. Concurrent validity of adapted T-CSHCPI-PI and the adapted HPCCS were tested using Spearman correlations with the PSPECS and RAdMAT, as the data was ordinal.

The verbal feedback provided by participants about the ease of using the adapted T-CSHPI-PF and adapted HPCCS, as well as general responses to the nature of the items was analysed quantitatively by noting common responses. Similarly themed responses were categorised into a broader response, for example, responses such as, *"I'm not sure what this means", "I don't understand"* or *"It's never been discussed"*, were thematically reduced to a broader response of *"Uncertain".*

4 Chapter 4. Results

4.1 Sample Characteristics

There were 158 people who participated in the study, completing questionnaires in person at seven different private practice physiotherapy clinics. These clinics were representative of a wide range of socio-economic localities within the wider Auckland region. Figure 3 shows a summary of the survey sections completed.

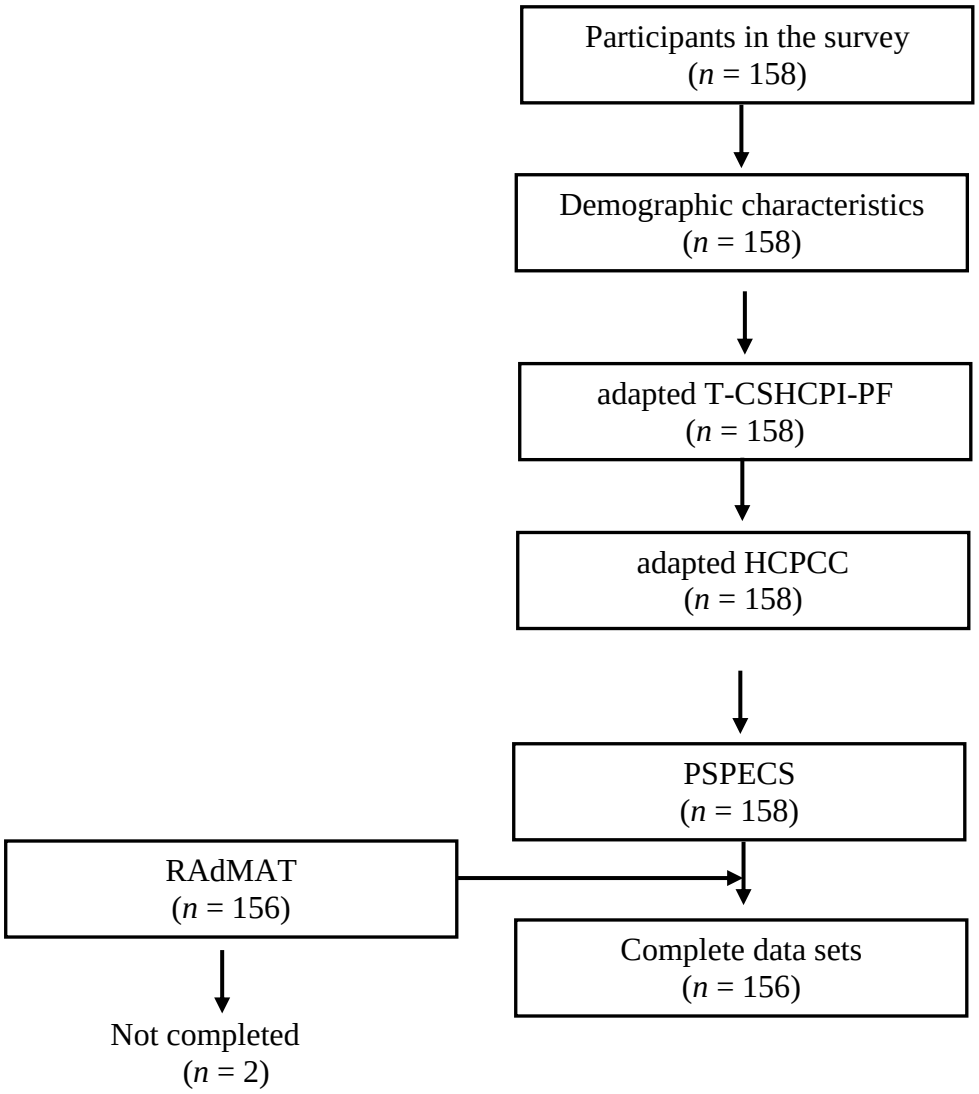

Figure 3. Overview of the survey data collection, evaluating patient satisfaction and perceptions of their physiotherapists' cultural responsiveness, and physiotherapist measured patient rehabilitation adherence.

Note: *n* = number, T-CSHCPI-PF = The Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form, HCPCC = Healthcare Provider Cultural Competency Survey, PSPECS = Patient Satisfaction with their Physiotherapist's

Empathy and Communication, RAdMAT = Rehabilitation Adherence Measure for Athletic Training.

4.1.1 Demographic characteristics.

The analysis of the participants' demographic characteristics are presented in Table 2. There was a wide age range among the 158 participants. There were marginally more female than male participants. The majority ethnic composition of the sample were New Zealand European, with those identifying as either of Pacific Island or Māori origin accounting for the next two largest ethnic groups. The 'Other' ethnic subgroup consisted of very low numbers of diverse ethnicities, for example, Japanese, South African, Persian, and Swedish. The majority of participants were in paid employment, with just under half having an income of over $50,000. Most of the participants maintained an active level of sports participation or recreational activity, and the majority of all participants had received physiotherapy treatment for a previous injury. For a more detailed analysis of the participants' demographic characteristics, refer to Table 2.

Table 2. Descriptive Statistics of Participant Demographic Characteristics

Variable	**Frequency (*n* = 158)**	**Mean**	**Percent**
Age range (years)	14 - 86	41.1(16.76)	
Gender			
Males	73		46.2
Females	85		53.8
Ethnicity			
New Zealand European	67		42.4
New Zealand Māori	37		23.4
Pacific Island	40		25.3
Other	14		8.9
Occupation			
Employed	114		72.2
Student	16		17.7
Not employed	28		10.1
Income			
Less than $25,000	51		32.3
$25,000 to $50,000	36		22.8
Over $50,000	70		44.3
Level of sport participation			
Recreational	76		48.1
Competitive	67		42.4
No regular physical activity	15		9.5
Injury sustained during physical activity/sport			
Yes	87		55.1
No	71		44.9
Previous physiotherapy			
Yes	135		85.4
No	23		14.6

Note. *n* = number

A summary of the participants' injury characteristics is shown in Table 3. The majority of participants had been injured for a period of one to four weeks, conversely the second largest group having been injured for a period of more than three months. Lower limb injuries accounted for the most common injury site, with the most common cause of injury resulting from a sudden movement.

Table 3. Participant Injury Characteristics

Variable	Frequency (*n* = 158)	Percentage
Time since injury		
1-4 weeks	69	43.7
Between 1-3 months	42	26.6
More than 3 months	47	29.7
Site of injury		
Lower limb	66	41.8
Spine/Torso	41	25.9
Upper limb	51	32.3
Cause of injury		
Fall	34	21.5
Physical contact	26	16.5
Sudden movement	43	27.2
Impact/hit	14	8.9
Lifting	24	15.2
Other	17	10.8

Note. *n* = number

4.2 The adapted Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHCPI-PF)

The 27 items of the adapted Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form (T-CSHCPI-PF), were subjected to principal components analysis (PCA). Suitability of data for factor analysis was assessed by undertaking an exploratory PCA. Inspection of the correlation matrix showed the presence of many coefficients of .3 or greater. The Kaiser-Meyer-Olkin measure of sampling adequacy was .875, above the suggested value of .6, and Bartlett's Test of Sphericity was significant (χ^2 (351) = 1500.69, p <.0001). This supported the factorability of the correlation matrix.

Direct Oblimin (Oblique) rotation was used for the data analysis as the strength of the correlations were around or above .32 (Table 4), which identified at least 10% overlap in variance among the factors warranting the use of oblique rotation (Tabachnick & Fidell, 2013).

Table 4. Factor Correlation Matrix for the adapted T- CSHCPI-PF

Factor	1	2	3
1	-		
2	-.41	-	
3	.39	-.35	-

Note: T-CSHCPI-PF = The Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form

The confirmatory analysis also revealed the three factors to be interpreted. The presence of a simple structure (Thurstone, 1947), was revealed by the rotated solution, with all three factors showing several strong loadings and all variables loading prominently on only one factor (see Table 5). The interpretation of the three factors showed moderate loading on Factors 1 and 3, with strong loading on Factor 2. The findings related to the percent rating importance of each item are also presented in Table 5.

Table 5. Individual Item Descriptive Statistics and Factor Analysis of the adapted T-CSHCPI-PF, and the Percentage Rating of Item Importance

Item	Mean (SD)	Factor Analysis			Percent Rating Item Importance
		1	2	3	
2. Is dedicated to her/his work	3.85 (.37)	**.86**			97.5
13. Does not talk down to me	3.93 (.26)	**.74**			96.8
4. Is well-educated	3.83 (.43)	**.69**			98.1
7. Is confident in her/his abilities	3.86 (.35)	**.65**			99.4
1. Is honest with me	3.91 (.29)	**.65**			100
11. Does not question the truth or accuracy of what I am feeling	3.70 (.54)	**.63**			96.2
5. Is knowledgeable about physiotherapy	3.92 (.27)	**.56**			99.4
19. Does not make me wait long	3.66 (.53)	**.52**	-.31		84.8
17. Does not embarrass me in private or public	3.84 (.43)	**.45**			93.7
3. Enjoys what she/he is doing	3.78 (.46)	**.42**			96.2
12. Does not diagnose all of my problems as psychological or “in my mind”	3.78 (.50)	**.38**			93.0
6. Knows what she/he is doing	3.91 (.29)	**.33**			100
26. Is respectful of my religious/spiritual beliefs	3.50 (.70)		**-.81**		68.4
27. Understands my culture	3.55 (.64)		**-.80**		73.4
25. Shows care and concern for my family	3.56 (.69)		**-.79**		79.7
21. Lets me know about illnesses and diseases common among people of my ethnicity/race	2.90 (.89)		**-.68**		61.4
23. Understands my financial situation	3.26 (.92)		**-.67**		65.2
20. Follows up on my visits	3.66 (.55)		**-.66**		91.8
15. Tries to educate me	3.75 (.48)		**-.50**		94.9
9. Seems interested in my injury(ies)/movement disorder(s)	3.84 (.39)			**.75**	96.2
10. Takes my concerns seriously	3.84 (.39)	.36		**.62**	99.4
18. Prescribes rehabilitation activities when she/he is sure of my injury/movement disorder	3.88 (.35)			**.60**	97.5
8. Is right about why I am injured	3.82 (.38)			**.53**	100
16. Takes all of my concerns seriously even if she/he does not consider them to be serious	3.71 (.48)			**.47**	96.2
22. Prepares me for the next steps in treating my injury/movement disorder	3.81 (.41)			**.39**	100
14. Tries to communicate with me	3.92 (.27)			**.38**	98.7
24. Shows appreciation for me and her/his other patients	3.75 (.45)		-.36	**.38**	92.4

Note: T-CSHCPI-PF = The Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form, SD = Standard Deviation.

Table 6 shows the presence of three factors with Eigenvalues exceeding 1 were revealed by the principal components analysis, explaining 46.9% of the total variance. A review of the screeplot identified an obvious change in the slope gradient after the third factor. Using Catell's (1966) scree test, it was decided the three factors above this point were retained (Appendix I).

Table 6. Descriptive Statistics, Cronbach's Alpha Scores and Percentage of Variance Explained for the adapted T-CSHCPI - PF

Factor number	**Factor mean score (SD)**	**Cronbach's alpha**	**Eigenvalues**	**Percentage of variance explained**
1	3.83 (.24)	.84	8.91	33.01
2	3.48 (.51)	.85	2.22	8.23
3	3.82 (.26)	.81	1.53	5.65

Note: T-CSHCPI-PF = Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form, SD = Standard Deviation

The participants' verbal feedback for the adapted T-CSHCPI-PF was similar for several items (see Table 7). For items one through seven, the response from most participants' revealed shared sentiments. Items 11-13 and 15 required further explanation or clarification for several participants. Item 21 received multiple responses with a number of participants not willing to answer or deeming it not fair to expect a response when neither option portrayed their desired response and some participants simply wrote *"not applicable"* as a self-generated response on the questionnaire. Item 23 generated a negative reaction from several participants concerning the relevance of such an item, however, some participants were most appreciative of the physiotherapists' willingness to make payment arrangements to suit them. The remaining items generated similar responses.

The overall feedback from participants highlighted that definitive responses with some of the items were not possible. This was due to either not having discussed the topic or never having experienced in physiotherapy treatment whatever the item was

asking. Hence, they considered '1' was too negative and was not representative of their experience or the item content had not occurred during their physiotherapy. Many participants noted that while some items did not directly refer to culture, they believed the attributes of respect, communication, and empathy were integral in a culturally responsive interaction. The specific items identified were, *'Is honest with me', 'Tries to communicate with me', 'Does not embarrass me in private or public',* and *'Shows appreciation for me and her/his other patients'*.

Table 7. Participant Verbal Feedback for the adapted T-CSHCPI-PF

Items		**Participant feedback (*n* =)**
1.	Is honest with me	*"Would assume so"* (*n* = 76)
2.	Is dedicated to her/his work	
3.	Enjoys what she/he is doing	
4.	Is well-educated	
5.	Is knowledgeable about physiotherapy	
6.	Knows what she/he is doing	
7.	Is confident in her/his abilities	
11.	Does not question the truth or accuracy of what I am feeling	*"Uncertain"* (*n* = 44)
12.	Does not diagnose all of my problems as psychological or "in my mind"	
13.	Does not talk down to me	
15.	Tries to educate me	
21.	Lets me know about illnesses and diseases common among people of my ethnicity/race	*"Not considered important for physiotherapy"* (*n* = 43)
23.	Understands my financial situation	*"Preferred not to say"* (*n* = 34) *"Made alternate payment arrangements"* (*n* = 8)
25.	Shows care and concern for my family	*"Not considered important during physiotherapy treatment"* (*n* = 18)
26.	Is respectful of my religious/spiritual beliefs	*"Not considered important during physiotherapy treatment"* (*n* = 24)
27.	Understands my culture	*"Uncertain"* (*n* = 8) *"Haven't thought about culture"* (*n* = 43)

Note: T-CSHCPI-PF = Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form, *n* = number.

As a consequence of the participants' verbal feedback, noting especially comments from some indicating they did not consider they had a culture, it was decided to investigate whether there were any ethnic group differences on the items of the T-CSHCPI -PF that were culturally based (see Table 8). A Chi-square test for independence showed no significant association between the ethnic groups and ratings of importance for letting them know about illness and diseases relevant to them, or understanding their financial situation. However, a significant association was found between the ethnic groups and ratings of importance of being respectful of their spiritual beliefs, as well as understanding their culture. The effect size identified by the *phi* coefficient value showed only one of the items with a medium effect, with the remaining three items considered to have a small effect.

The Total percentage ratings of *"Not Important'* and *'Important'* reflects general responses of item importance. However, the ethnic group comparisons have highlighted that for both Māori and Pacific Island people it is more important for the physiotherapist to be respectful of their religious/spiritual beliefs, as well as their culture. Whilst the percentage rating of importance for Pacific people and Other was higher for the remaining two items regarding information about illnesses/diseases common among their ethnic group and understanding their financial situation when compared to the Total sample the difference was not significant.

Table 8. Ethnic group comparison of responses to Importance ratings of cultural items of the adapted T-CSHCPI -PF

Variables		Not Important (*n* =) (%)	Important (*n* =) (%)	Pearson Chi Square	*Phi*
21.	Let's me know about illnesses and diseases common among people of my ethnicity/race			χ^2 (3) = 6.57, *p*=.087	.21
	New Zealand European	31 (46.3%)	36 (53.7%)		
	Māori	16 (43.2%)	21 (56.8%)		
	Pacific Islander	9 (23.1%)	30 (76.9%)		
	Other	4 (28.6%)	10 (71.4%)		
Total		60 (38.2%)	97 (61.8%)		
23.	Understands my financial situation			χ^2 (3) = 4.50, *p*=.212	.17
	New Zealand European	28 (41.8%)	39 (58.2%)		
	Māori	14 (37.8%)	23 (62.2%)		
	Pacific Islander	9 (22.5%)	31 (77.5%)		
	Other	4 (28.6%)	10 (71.4%)		
Total		55 (34.8%)	103 (65.2%)		
26.	Is respectful of my religious/spiritual beliefs			χ^2 (3) = 15.42, *p*<.001	.31
	New Zealand European	30 (44.8%)	37 (55.2%)		
	Māori	7 (18.9%)	30 (81.1%)		
	Pacific Islander	6 (15.0%)	34 (85.0%)		
	Other	7 (50.0%)	7 (50.0%)		
Total		50 (31.6%)	108 (68.4%)		
27.	Understands my culture			χ^2 (3) = 13.61, *p*<.003	.29
	New Zealand European	24 (35.8%)	43 (64.2%)		
	Māori	7 (18.9%)	30 (81.1%)		
	Pacific Islander	4 (10.0%)	36 (90.0%)		
	Other	7 (50.0%)	7 (50.0%)		
Total		42 (26.6%)	116 (73.4%)		

Note: T-CSHCPI -PF = The Tucker-Cultural Sensitivity Health Care Provider Inventory -Patient Form, *n* = number.

4.3 The adapted Healthcare Provider Cultural Competency Survey (HPCCS)

The nine items of the adapted Healthcare Provider Cultural Competency Survey (HPCCS) were subjected to principal components analysis (PCA). Suitability of data for factor analysis was assessed prior to undertaking PCA. Inspection of the correlation matrix showed the presence of all coefficients greater than .3. The Kaiser-Meyer-Olkin measure of sampling adequacy was .891, which is above the suggested value of .6, and Bartlett's Test of Sphericity was significant (χ^2 (36) = 1335.04, p <.0001). This supported the factorability of the correlation matrix.

Direct Oblimin rotation (oblique) rotation was used for the data analysis as the strength of the correlation between the two factors of cultural knowledge and cultural skill (r = .66), was above the suggested value of .32. This identified more than a 10% overlap in variance among the factors warranting the use of oblique rotation (Tabachnick & Fidell, 2013). The confirmatory analysis also revealed the two factors to be interpreted. The presence of a simple structure (Thurstone, 1947), was revealed by the rotated solution with both factors showing very strong loadings and all variables loading prominently on only one factor (see Table 9). The interpretation of the two factors showed a strong loading on Factor 1 and a moderate loading on Factor 2. The findings related to the importance of each item are also presented in Table 9.

Table 9. Individual Item Descriptive Statistics and Factor Analysis of the Adapted HPCCS, and the Percentage Rating of Item Importance

Item	Mean (SD)	Factor Analysis		Percent Rating Item Importance
		Factor 1	Factor 2	
3. How informed does your physiotherapist seem to be about your culture	5.55 (1.55)	**.97**		64.6
2. How well do you think your physiotherapist understands your culture's specific characteristics	5.52 (1.55)	**.94**		66.5
1. How knowledgeable do you feel that your physiotherapist is of your culture	5.71 (1.51)	**.93**		67.7
6. Does your physiotherapist seem to be aware of cultural differences	6.08 (1.20)	**.82**		79.1
4. Do you feel as though your physiotherapist is aware of the views that he/she may have towards specific cultural groups	5.66 (1.36)	**.79**		70.3
5. Do you feel as though your physiotherapist makes an effort to understand cultural differences	5.94 (1.33)	**.74**		75.9
8. Does your physiotherapist possess the skills that are needed to treat a patient from your cultural or ethnic background	6.47 (1.13)		**.96**	84.8
7. Do you think that your physiotherapist is well equipped to treat patients of your ethnic or cultural background	6.52 (1.13)		**.91**	85.4
9. Would you recommend your physiotherapist to someone with your same ethnic or cultural background	6.65 (1.09)		**.87**	91.1

Note: HPCCS = Healthcare Provider Cultural Competency Survey, SD = Standard Deviation.

Table 10 shows the presence of two factors with eigenvalues exceeding 1 were revealed by the principal components analysis, explaining 79.4% of the total variance. A review of the screeplot identified an obvious change in the slope gradient after the second factor. Using Catell's (1966) scree test, it was decided the two factors above this point were retained (Appendix J).

Table 10. Descriptive Statistics, Cronbach's Alpha Scores and Percentage of Variance Explained for the adapted HPCCS

Factor number	**Factor mean score (SD)**	**Cronbach's alpha**	**Eigenvalues**	**Percentage of variance explained**
1	5.75 (1.24)	.94	6.08	67.57
2	6.55 (1.02)	.91	1.07	11.88

Note: HPCCS = Healthcare Provider Cultural Competency Survey, SD = Standard Deviation.

The participants' verbal feedback was provided in direct response to a number of the items of the adapted HPCCS (see Table 11). For items one through six, the response from most participants' shared similar sentiments. The overall feedback from participants highlighted the difficulty a number of them had with the concept of culture, and what it meant to them. A few participants found the questionnaire very confronting, and others had not thought about their culture until answering the questionnaire.

Table 11. Participant Verbal Feedback for the adapted HPCCS

Items	**Participant feedback (*n* =)**
1. How knowledgeable do you feel that your physiotherapist is of your culture?	*"Did not know about culture/ Haven't thought about culture"* (*n* = 29)
2. How well do you think your physiotherapist understands your culture's specific characteristics?	*"Challenging/ Thought provoking/ Confrontational"* (*n* = 84)
3. How informed does your physiotherapist seem to be about your culture?	
4. Do you feel as though your physiotherapist is aware of the views that he/she may have towards specific cultural groups?	
5. Do you feel as though your physiotherapist makes an effort to understand cultural differences?	
6. Does your physiotherapist seem to be aware of cultural differences?	
7. Do you think that your physiotherapist is well equipped to treat patients of your ethnic or cultural background	*"Uncertain"* (*n* = 10) *"Yes, because they're the best physio, not because they're ….. (ethnic group)"* (n = 34) *"Yes, because they understand my cultural needs, so would feel safe for them to treat my grandparents"* (n = 10)

Note: HPCCS = Healthcare Provider Cultural Competency Survey, *n* = number.

Due to the participants' verbal feedback, it was decided to investigate whether there were any ethnic group differences on the items of adapted HPCCS that were culturally based (see Table 11). A Chi-square test for independence showed a significant association between the ethnic groups and ratings of importance for the physiotherapists': knowledge of their culture; awareness of views towards specific cultures; ability to treat patients of similar ethnicity; understanding of specific cultural characteristics; being informed about their culture; attempts to understand cultural differences; and skill level is adequate to treat patients of a similar ethnicity. A significant association was also shown between the ethnic groups and recommending their physiotherapist to someone of a similar ethnicity. The effect size identified by the *phi* coefficient value showed three items showing a medium effect using Cohen's (1988) criteria, with the remaining six items all considered to have a small effect as they were above .10. However, the Chi-square test for independence showed no significant association between ethnic groups and ratings of importance for the physiotherapists' awareness of cultural differences.

The Total percentage ratings of *"Not Important'* and *'Important'* reflects general responses of item importance. All items of the HPCCS favoured being more 'important' than not for the Total population. Percentages of *'Important'* and *'Not Important'* were different for both Māori and Pacific Island people when compared to the Total population for the physiotherapist to be knowledgeable of their culture, and to understand their culture's specific characteristics. For Māori, it was important for them that their physiotherapist was informed about their culture, compared to other populations. For Pacific Island people it was important for all of their respondents that the physiotherapist was well equipped to treat patients of their ethnic background when compared to the Other population. The percentage rating of importance for the Total sample was very high for items acknowledging the importance of their physiotherapist

being well equipped to, and possessing skills needed to treat patients of their ethnicity, as well as recommending their physiotherapist to someone of the same ethnicity.

Table 12. Ethnic group comparison of responses to Importance ratings of cultural items of the adapted HPCCS

Variables		**Not Important (*n* =) (%)**	**Important (*n* =) (%)**	**Pearson Chi-Square**	***Phi***
1.	How knowledgeable do you feel that your physiotherapist is of your culture?			χ^2 (3) = 17.11, p<.001	.33
	New Zealand European	30 (44.8%)	37 (55.2%)		
	Māori	6 (16.2%)	31 (83.8%)		
	Pacific Islander	7 (17.5%)	33 (82.5%)		
	Other	8 (57.1%)	6 (42.9%)		
Total		51 (32.3%)	107 (67.7%)		
2.	How well do you think your physiotherapist understands your culture's specific characteristics?			χ^2 (3) = 11.23, p<.011	.27
	New Zealand European	30 (44.8%)	37 (55.2%)		
	Māori	7 (18.9%)	30 (81.1%)		
	Pacific Islander	9 (22.5%)	31 (77.5%)		
	Other	7 (50.0%)	7 (50.0%)		
Total		53 (33.5%)	105 (66.5%)		
3.	How informed does your physiotherapist seem to be about your culture?			χ^2 (3) = 9.62, p<.022	.25
	New Zealand European	29 (43.3%)	38 (56.7%)		
	Māori	7 (18.9%)	30 (81.1%)		
	Pacific Islander	12 (30.0%)	28 (70.0%)		
	Other	8 (57.1%)	6 (42.9%)		
Total		56 (35.4%)	102 (64.6%)		

Variables		Not Important (*n* =) (%)	Important (*n* =) (%)	Pearson Chi-Square	*Phi*
4.	Do you feel as though your physiotherapist is aware of the views that he/she may have towards specific cultural groups?			χ^2 (3) = 17.26, p<.001	.33
	New Zealand European	23 (34.3%)	44 (65.7%)		
	Māori	7 (18.9%)	30 (81.1%)		
	Pacific Islander	7 (17.5%)	33 (82.5%)		
	Other	10 (71.4%)	4 (28.6%)		
Total		47 (29.7%)	111 (70.3%)		
5.	Do you feel as though your physiotherapist makes an effort to understand cultural differences?			χ^2 (3) = 9.52, p<.023	.25
	New Zealand European	21 (31.3%)	46 (68.7%)		
	Māori	7 (18.9%)	30 (81.1%)		
	Pacific Islander	4 (10.0%)	36 (90.0%)		
	Other	6 (42.9%)	8 (57.1%)		
Total		38 (24.1%)	120 (75.9%)		
6.	Does your physiotherapist seem to be aware of cultural differences?			χ^2 (3) = 6.23, p=.101	.20
	New Zealand European	18 (26.9%)	49 (73.1%)		
	Māori	5 (13.5%)	32 (86.5%)		
	Pacific Islander	5 (12.5%)	35 (87.5%)		
	Other	5 (35.7%)	9 (64.3%)		
Total		33 (20.9%)	125 (79.1%)		

Variables		Not Important (*n* =) (%)	Important (*n* =) (%)	Pearson Chi-Square	*Phi*
7.	Do you think your physiotherapist is well equipped to treat patients of your ethnic or cultural background?			χ^2 (3) = 21.98, p<.0001	.37
	New Zealand European	12 (17.9%)	55 (82.1%)		
	Māori	4 (10.8%)	33 (89.2%)		
	Pacific Islander	0 (0.0%)	40 (100.0%)		
	Other	7 (50.0%)	7 (50.0%)		
Total		23 (14.6%)	135 (85.4%)		
8.	Does your physiotherapist possess the skills that are needed to treat a patient from your cultural or ethnic background?			χ^2 (3) = 8.27, p<.041	.23
	New Zealand European	12 (17.9%)	55 (82.1%)		
	Māori	5 (13.5%)	32 (86.5%)		
	Pacific Islander	2 (5.0%)	38 (95.0%)		
	Other	5 (35.7%)	9 (64.3%)		
Total		24 (15.2%)	134 (84.8%)		
9.	Would you recommend your physiotherapist to someone with your same ethnic or cultural background?			χ^2 (3) = 9.50, p<.023	.25
	New Zealand European	7 (10.4%)	60 (89.6%)		
	Māori	2 (5.4%)	35 (94.6%)		
	Pacific Islander	1 (2.5%)	39 (97.5%)		
	Other	4 (28.6%)	10 (71.4%)		
Total		14 (8.9%)	144 (91.1%)		

Note: HPCCS = Healthcare Provider Cultural Competency Survey, *n* = number.

4.4 Validation of the PSPECS and RAdMAT Questionnaires

Spearman rho Correlations were undertaken to measure the strength and direction of the relationships of the total and factors for the adapted versions of the T-CSHCPI-PF and the HPCCS, with the Patient Satisfaction with Their Physiotherapist's Empathy and Communication Scale (PSPECS: Bassett et al., 2015) and the Rehabilitation Adherence Measure for Athletic Training. The PSPECS and RAdMAT have been validated within New Zealand populations in physiotherapy studies with a large number of participants (RAdMAT: Granquist et al., 2010). The internal consistency for both the PSPECS and RAdMAT were reported.

4.5 Correlations of the adapted T-CSHCPI - PF, the adapted HPCCS, PSPECS and RAdMAT Questionnaires

Spearman Rank Order Correlation (rho) revealed significant, positive and moderate relationships between the 27-item T-CSHCPI-PF total, the HPCCS total, and PSPECS total. Relationships between the factors of both the T-CSHCPI-PF and HPCCS with the PSPECS total were also significant, positive and moderate. The analysis also revealed a negative and weak relationship between the T-CSHCPI-PF and HPCCS with the RAdMAT total. Relationships between the factors of the T-CSHCPI-PF and HPCCS with the RAdMAT were mainly positive and weak. T-CSHCPI-PF factor two was the only negative and weak relationship with the RAdMAT. Refer to Table 13 for more detailed information.

Table 13. Spearman's rho Correlations Amongst Questionnaire Total and Factors

Measures	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1. T-CSHCPI Total	-											
2. T-CSHCPI Factor 1 (Competence/Confidence)	.64**	-										
3. T-CSHCPI Factor 2 (Sensitivity/Interpersonal Skills)	.67**	.55**	-									
4. T-CSHCPI Factor 3 (Respect/Communication)	.66**	.59**	.55**	-								
5. HPCCS Total	.50**	.28**	.49**	.21**	-							
6. HPCCS Factor 1 (Cultural knowledge)	.47**	.27**	.49**	.22**	.98**	-						
7. HPCCS Factor 2 (Cultural skills)	.34**	.29**	.37**	.16*	.63**	.55**	-					
8. PSPECS Total	.55**	.49**	.51**	.61**	.41**	.41**	.30**	-				
9. RAdMAT Total	-.10	-.01	-.12	.03	-.04	-.06	.02	.16	-			
10. RAdMAT Factor 1 (attitude/effort)	-.11	-.05	-.11	.01	-.03	-.05	-.00	.16*	.97**	-		
11. RAdMAT Factor 2 (attendance/participation)	-.13	-.05	-.16*	-.11	-.15	-.18*	-.05	-.10	.56**	.48**	-	
12. RAdMAT Factor 3 (communication)	-.05	.10	-.10	.12	.03	.01	.10	.17*	.78**	.67**	.29**	-

Note: T-CSHCPI-PF = The Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form, HCPCC = Healthcare Provider Cultural Competency Survey, PSPECS = Patient Satisfaction with their Physiotherapist's Empathy and Communication, RAdMAT = Rehabilitation Adherence Measure for Athletic Training, (*$p < .05$, **$p < .01$).

The Cronbach alpha values for the PSPECS and RAdMAT in their respective studies were .90, and .92. Table 14 shows the Cronbach's alpha for both the PSPECS, the RAdMAT total and factors within the current study.

Table 14. Cronbach's Alpha Scores for the PSPECS & RAdMAT Questionnaires

Measure	**Cronbach's alpha**
PSPECS Total	.82
RAdMAT Total	.72
RAdMAT Factor 1 (attitude/effort)	.95
RAdMAT Factor 2 (attendance/participation)	.76
RAdMAT Factor 3 (communication)	.84

Note: PSPECS = Patient Satisfaction with Their Physiotherapist's Empathy and Communication Scale, RAdMAT = Rehabilitation Adherence Measure for Athletic Training

5 Chapter 5. Discussion

5.1 Introduction

The aim of this study was to investigate the factor structure, internal consistency, and validity of adapted versions of the T-CSHCPI-PF and HPCCS. Both of these culturally-based questionnaires were structurally sound, and the factors for each were high. They also had moderate to strong correlations with PSPECS, but only weak correlations with the RAdMAT. The participants rated the majority of items in the T-CSHCPI-PF as important, whereas the items of the HPCCS were not rated as highly. The feedback from participants was in line with these ratings of importance, however, they did further report that some of the items were not related to physiotherapy in terms of culturally-based practice. A secondary analysis of the data of the two questionnaires showed significant differences amongst ethnic groups on two of culturally specific items of the T-CSHCPI-PF, and eight of the nine items of the HPCCS.

Beyond these main findings, there are some additional points warranting further discussion within the context of this current study and these points will be discussed as they relate to each questionnaire. Next, the strengths and limitations of the study are outlined, followed by the clinical and professional application of the findings and suggestions for future research. This chapter will conclude by summarising the pertinent findings of this research.

5.2 Demographic and injury characteristics

The self-selected gender of participants in the current study is similar when compared to the wider Auckland population, the mean age differing slightly with participants being 41.1 years compared with 35.1 years for people in Auckland (Statistics New Zealand, 2013a). Whilst New Zealand Europeans made up the largest ethnic group for both the current study and Auckland populations with 42.4% and

59.3% respectively, rates of Māori 23.4% (10.7%), Pacific peoples 25.3% (14.6%) and other 8.9% (1.2%) were quite dissimilar (Statistics New Zealand, 2013b). This more accurately reflects the higher levels of ethnic diversity found within private practice physiotherapy clinic localities. These clinics were specifically selected to ensure the likelihood of accessing a more diverse participant population.

Descriptive statistics revealed that the majority of participants in this study were physically active, with a small minority reporting no regular physical activity. These findings were similar to the Ministry of Health figures that showed 50.2% and 44.6% of adults (aged 15 years and over) did at least 2.5 hours and 5 hours respectively of activity in the past week during 2016/17. In comparison, 13.4% of adults did less than 30 minutes of physical activity over the same time period (Ministry of Health, 2017). Just over half of the participants in this study identified having sustained their injury during physical activity or sport, with the most common causes of injury resulting from a sudden movement or fall. The most common sites of injury being both the lower and upper limbs. The majority of participants reported previously having had physiotherapy treatment for other musculoskeletal injuries.

The physiotherapy practices were all privately owned musculoskeletal clinics, including one hands specialist physiotherapy clinic within the wider Auckland region. The clinics were selected to reflect a wide range of socio-economic localities, as well as diverse ethnic populations. While not reported in the results chapter, the sample of physiotherapists in this study were more ethnically diverse in comparison to the national profile of physiotherapists practising in New Zealand (The Physiotherapy Board of New Zealand, 2017).

5.3 Patient-reported cultural responsiveness questionnaires about their physiotherapist

5.3.1 The adapted Tucker-Culturally Sensitive Health Care Provider Inventory – Patient Form

The factor analysis confirmed the three factors of the T-CSHCPI-PF: Competence/Confidence; Sensitivity/Interpersonal skills; and Respect/Communication, which was in keeping with the findings of Tucker et al. (2013). However, not all items of the adapted T-CSHCPI –PF loaded onto the same factors as was found by Tucker et al. (2013), for example item nine: *"Seems interested in my injury(ies)/movement disorder"* loaded onto the Respect/Communication factor as opposed to with Tucker et al. (2013) where the item loaded onto the Competence/Confidence factor. Additionally, item 13: *"Does not talk down to me"* loaded onto the Competence/Confidence factor in this study, whereas Tucker et al. (2013) identified it on the Respect/Communication factor. This may be explained by the difference in the participants' demographics between the two studies, in that the ethnic composition between countries, ethnicities, and communities are quite distinct and may account for the variations of interpretation in a number of the items. Additionally, this current study included physiotherapy patients, and not general practitioner patients as was reported by Tucker et al. (2013). Both of these health professions have different methods of health service delivery, which could account for the differences in item loadings.

Evidence of its validity came from the strong correlations amongst the adapted T-CSHCPI –PF and its factors, the HPCCS and the PSPECS. A closer inspection of some of the items of the T-CSHCPI -PF's identifies similarities to that of some of the PSPECS's items. For example, T-CSHCPI -PF's item number 16. *"Takes all of my concerns seriously even if she/he does not consider them to be serious"*, compared to PSPECS's item number 1. *"I really felt the physiotherapist understood the concerns I have about my injury/disorder"*. Similarly, item number 11. *"Does not question the*

truth or accuracy of what I am feeling", compared with item number 6. *"The physiotherapist gave me a chance to say what was really on my mind"*. Item number 15. *"Tries to educate me"*, with item number 10. *"The physiotherapist told me all I wanted to know about my injury/disorder"*. These examples highlight that the T-CSHCPI -PF appears to align itself more with attributes of interpersonal skills that reflect patient satisfaction, as opposed to culture exclusively.

The correlations between the T-CSHCPI –PF and RAdMAT totals and factors were weak which may be due to each one measuring different aspects of treatment behaviours. This finding was surprising given the association between treatment adherence and cultural sensitivity reported in previous literature (Roncoroni et al., 2014; Tucker et al., 2011). This further indicates the T-CSHCPI -PF may not be a reliable cultural measure within the cultural context of Aotearoa New Zealand.

Despite there being some differences between the findings of this study and that of Tucker et al. (2013), there were also some similarities. According to Tucker et al. (2013), the T-CSHCPI -PF had excellent internal consistency, with high Cronbach alpha scores. In the current study, the Cronbach alphas for the three factors were slightly less. Although the internal consistency of the adapted T-CSHCPI -PF was measured lower for this current study, it was still above .7, which has been reported as an acceptable value of alpha (Bland & Altman, 1997; Tavakol & Dennick, 2011).

Three additional points of interest regarding the T-CSHCPI -PF merit further discussion. One, the only item of the 27 with any reference to culture at all, was the last questionnaire item, *"Understands my culture"*. Likewise, there was only one item that referred to ethnicity *"Lets me know about illnesses and diseases common among people of my ethnicity/race"*, which participants found ambiguous. The remaining twenty-five items addressed the characteristics of interpersonal sensitivity. Tucker et al. (2013)

identified that the Sensitivity/Interpersonal skills factor assessed the provider's ability to demonstrate sensitivity to the patient's culture through their interpersonal skills, whereas the Respect/Communication factor reflected their ability to demonstrate their respect and trust of the patient's concerns and experiences through communication skills. These findings appear limited within the context of Aotearoa New Zealand where culture does not exclusively reflect ethnicity. Rather, it takes into full account cultural competence, safety and/or sensitivity with the personal attributes of empathy and respect (Harwood, 2010; Ratima et al., 2006), trust and confidence (Dudley et al., 2014; Ratima et al., 2006), and cross-cultural communication (Durie, 2001; Harwood, 2010; Ratima et al., 2006).

Two, some of the items of the T-CSHCPI -PF, although adapted for use within the physiotherapeutic environment of the current study, were deemed irrelevant by participants. For example, *"Lets me know about illnesses and diseases common among people of my ethnicity/race"* and *"Understands my financial situation"*. Participant feedback identified that these items were not relevant to their physiotherapy treatment and that they were beyond the physiotherapist's scope of practice. Some participants mentioned they would see a doctor if they had any concerns about illnesses or diseases.

Three, verbal feedback provided by some participants in the current study commented on the greater number of items in the T-CSHCPI -PF when compared with the HPCCS, and that it was more arduous. While it has been suggested that fewer questionnaire items will result in greater survey completion results, Kim et al. (2017) found no detectable pattern of completion between longer and shorter forms of quality of life surveys. Cottrell et al. (2015) found similar results, further observing that there was no standard length of questionnaire, rather the length of a questionnaire was likely determined by the profile of the target population and topic of the given measure. It

should be noted that the adaptation of item wording may have unintentionally influenced the way items were interpreted and therefore analysed. Further validation of the T-CSHCPI -PF is advisable in order to review for its appropriateness of use within the cultural context of Aotearoa New Zealand.

Patient feedback on the Importance scale of the T-CSHCPI-PF identified several priority attributes they required of their physiotherapists. The first item asking participants if they felt throughout the course of their treatment that their physiotherapist *"Is honest with me"* had a high mean score, and all participants identified that honesty was very important to them. Additionally, all patients placed high value on the technical skills and abilities of their physiotherapist, with all participants identifying the importance of the following scale items, *"Knows what she/he is doing"*, *"Is right about why I'm injured"*, and *"Prepares me for the next steps in treating my injury/movement disorder"*. Displaying appropriate professional certification and levels of clinical experience clearly increased patient confidence with over 98% of participants indicating the importance of the following items, *"Is well-educated"* and *"Is confident in her/his abilities"*. These findings were consistent with the findings of a systematic review of patient satisfaction with musculoskeletal physiotherapy care (Hush et al., 2011). Hush et al. (2011) identified physiotherapists' attributes of skill, knowledge, professionalism, friendliness, and effective communication as the most consistent findings associated with patient satisfaction across the studies.

The findings of the T-CSHCPI -PF's importance scale identified that 23 of the 27 items revealed a percentage rating of above 79% percent. All items loading onto factors one (Competence/ Confidence) and three (Respect/ Communication), with the exception of three items loading onto factor two (Sensitivity/ Interpersonal skills). The

remaining four items percentage of importance rating were below 74%, and all loaded onto factor two. Two of these items were previously identified as not relating specifically to physiotherapy, with the remaining two reflecting the only culturally-based items of the questionnaire, of which one received the lowest percent rating of all 27 items. These findings suggest that a number of participants did not see the importance of their physiotherapist's cultural sensitivity, in comparison to the personal attributes of competency, respect, and communication. These results are similar to the findings of a physiotherapy-specific literature review in which patients' satisfaction of their care was influenced by the physiotherapist's professional manner, knowledge, and empathy (Hills & Kitchen, 2007).

Further analysis of participant responses to the four items of lowest ratings of importance identified some differences between ethnic groups. Māori and Pacific Island people identified how important it was for them that their physiotherapist was respectful of the religious and spiritual beliefs. Likewise, their percentage rating of importance for their physiotherapist to understand their culture. Although the 'total' percentage of importance rating showed a much lower percentage in comparison for the respective items, it would be a flawed assumption to think these items were not important when considering people of diverse cultures.

5.3.2 The adapted Healthcare Provider Cultural Competency Survey

The factor analysis of the data of the current study confirmed the two factors of the adapted HPCCS Survey as Cultural knowledge and Cultural skill. This analysis differed slightly to the findings of Lucas et al. (2008), who identified a third factor of Cultural awareness. This original factor contained items that elicited responses of patients' awareness of their doctor's sensitivities, *"Do you feel as though your doctor is aware of the views that he/she may have towards specific cultural groups?"*, *"Do you*

feel as though your doctor makes an effort to understand cultural differences?" and *"Does your doctor seem to be aware of cultural differences?"*. In the current study the three adapted items (by substituting 'doctor' with 'physiotherapist'), loaded strongly onto the first factor. This may be due to the differences in the participants' demographic characteristics in the two studies. Lucas et al. (2008) purposively sampled low income and predominantly African American participants in Detroit, USA, compared to multi-ethnic, mixed-income participants from a metropolitan area in New Zealand in the current study. The various cultural differences between countries, ethnicities, and communities are quite distinctive and therefore account for the marked differences of interpretation in several of the items. Additionally, the current study included physiotherapy patients, rather than general practice patients who participated in the Lucas et al. (2008) study. Both of these health professions have different methods of health service delivery, which could further account for the differences in item loadings.

According to Lucas et al. (2008), the HPCCS had good internal consistency, with high Cronbach alpha scores for all three factors. In comparison, the Cronbach alphas of the current study were higher which may be due to the different factor loading of the items with only two factors identified. In this current study, there were large significant correlations amongst the HPCCS, and of its factors indicating that it is a theoretically grounded measure of cultural competency. Evidence of its validity came from the correlations amongst the HPCCS and its factors, the T-CSHCPI -PF and its factors and the PSPECS. Similar to the T-CSHCPI -PF findings, the correlations between the HPCCS and its factors and the RAdMAT were weak, which may be due to these two questionnaires measuring different concepts. These weak correlations were unexpected as previous research has found links between patient-centred culturally sensitive healthcare and treatment adherence (Roncoroni et al., 2014).

Two additional points of discussion regarding the HPCCS were the potential for the direct nature of the item wording and the generalisability of the questionnaire. One, verbal feedback provided by participants about the HPCCS deemed it more confrontational about culture than the T-CSHCPI –PF. All nine items referred to culture, with a number of participants commenting on their personal struggle with the concept of culture. Comments such as *"thought-provoking"* and *"challenging"* were frequently mentioned, with some participants questioning the relevance of assessing culture in healthcare as until that point they had not necessarily experienced cultural sensitivity as being a routine part of healthcare provision. Feedback provided on the importance scale of the HPCCS also reflected this ambivalence, with only one of nine items receiving a rating of importance greater than 90%. This item was *"Would you recommend your physiotherapist to someone with your same ethnic or cultural background"*. Responses varied between being *"uncertain"* to agreeing as they felt the physiotherapist understood their cultural needs, so would be *"safe"* to treat elderly family members who may be more challenged with reduced English-speaking abilities. The more commonly expressed response, however, indicated their preference to have the best physiotherapist irrespective of their ethnicity. These responses were based on previous positive treatment outcomes with the same physiotherapist and were similar to the findings of Bassett and Tango (2002).

Two, although Lucas et al. (2008) identified the format of the HPCCS as lending itself toward being a generic cultural measure, the findings of the Importance scale of the adapted HPCCS in this current study highlight some uncertainty of its use within our cultural context in Aotearoa New Zealand. Six of the nine items scored below 80%, and of these, three scored below 68%. However, further analysis of participant responses to the three items of lowest ratings of importance identified some notable differences between ethnic groups. Māori and Pacific Island people identified how

much more important it was for them that their physiotherapist was knowledgeable of their culture, that they understood specific characteristics of their culture, as well as being informed about their culture. Although the percentage of importance rating of New Zealand Europeans, and especially the Other group showed a much lower percentage in comparison, it would be a flawed assumption to think these items were not important when considering people of diverse cultures.

When comparing the overall percent rating of importance for items of the T-CSHCPI -PF, these findings would suggest the HPCCS might not be an appropriate cultural measure within this context in its entirety, however, it would warrant further investigation.

5.4 Strengths and limitations of the study

There were two main strengths of this present study. One, the sample size was sufficient for the validation of the questionnaires, falling within the recommended range of between 150 to 300 participants (Pallant, 2013). The sample group was also representative of the wider population, including an ethnically diverse range of participants from multiple geographical localities. Although the healthcare providers involved in the study reflected a more diverse range of ethnicities than are represented nationally, it was entirely appropriate given the scope of this current study. Two, the use of three other validated questionnaires (T-CSHCPI -PF, PSPECS, and RAdMAT) which increases the credibility, allowing for comparison with earlier research. A limitation of the study is the use of self-report questionnaires that may encourage socially desirable responses, by either overestimating or underestimating the attitudes, behaviours or importance measured on the questionnaires.

5.5 Clinical and Professional Application

The importance of cultural competence for the safe and effective practice of physiotherapy is widely acknowledged. Although identified as part of the Physiotherapy practice thresholds required for initial and continuing professional registration in New Zealand, there is yet to be developed a standard measure to assess culturally responsive practice.

While the findings of this study are limited with regard to the appropriateness of use of the adapted T-CSHCPI -PF and HPCCS questionnaires, some elements are useful in identifying a more patient-friendly approach by physiotherapists in clinical practice. Feedback provided by participants clearly identified the importance of a mutually respectful patient-physiotherapist interaction with open and honest communication. Feedback also suggested physiotherapists need to take into consideration the cultural differences amongst ethnic groups, and the importance of culturally responsive practice.

5.6 Suggestions for future research

This study is a start in the process of exploring the use of questionnaires for patients to provide feedback anonymously about their physiotherapists' cultural sensitivity in the clinical setting. Despite the questionnaires being sound structurally and having construct validity, the participants' feedback indicates that these are not totally suitable for the New Zealand context. Hence questionnaires that address the culturally-based issues in physiotherapy in New Zealand need to be developed. It is envisaged that this process would commence with a qualitative study exploring physiotherapy patients' views on a culturally sensitive interaction with their physiotherapists. The next step would be to develop a questionnaire that would be suitable for patients to complete.

5.7 Conclusions and recommendations

Both adapted versions of the T-CSHCPI-PF and HPCCS were structurally sound, with high internal consistency and validity. They were also found to have both moderate to strong correlations with the PSPECS, however, both cultural questionnaires had weak correlations with the RAdMAT.

The T-CSHCPI – PF is unique in that it is a patient-reported inventory designed by culturally diverse patients, as opposed to an expert or healthcare provider defined inventory. The HPCCS whilst brief and culturally-specific has been shown in this study and within the cultural context of Aotearoa New Zealand to be too confrontational for participants. The feedback highlighted the nature of the questions as very direct and "loaded". Although, the findings of the last three items do lend themselves to be considered for inclusion in some form given the higher total ratings of importance.

In spite of this, it has been shown in this current study that participants preferred a trustworthy interaction with their physiotherapists that included being treated with respect and that communication be honest and open which embodied the values of culturally-based practice. In addition, these factors indicated that a high quality, mutually respectful relationship between the physiotherapist and patient was important for ease of navigation through the rehabilitation process and likely successful outcome of their treatment. The results of this study suggest that neither the adapted versions of the T-CSHCPI –PF nor the HPCCS is yet seen as completely suited to measuring the specifics of cultural responsiveness of physiotherapists in Aotearoa New Zealand, thus pointing toward the need for further culturally considerate research which this thesis has sought to identify.

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Appendices

Appendix A. Consent Form

CONSENT FORM

Project title: A test of the structural and content validity of adapted versions of the Tucker-Culturally Sensitive Health Care Provider Inventory - Patient Form and the Healthcare Provider Cultural Competency Survey with New Zealand Physiotherapy Patients.

Project Supervisor: Dr Sandra Bassett

Researcher: Tammi Wilson Uluinayau

- ○ I have read and understood the information provided about this research project in the Information Sheet dated 02 February 2016.
- ○ I have had an opportunity to ask questions and to have them answered.
- ○ I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- ○ I agree to take part in this research.
- ○ I wish to receive a copy of the report from the research (please tick one): Yes○ No○

Participant's signature: .....

Participant's name: .....

Date:

Approved by the Auckland University of Technology Ethics Committee on 13 April 2016 AUTEC Reference number 16/43

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

Appendix B. Demographic Characteristics Form

AUT
TE WĀNANGA ARONUI O TĀMAKI MAKAU RAU

DEMOGRAPHIC CHARACTERISTICS FORM

This questionnaire is to be completed by the participant.

Please answer the following questions, where an option is given **circle the response** that is correct for you.

Age in years at last birthday:	**Gender:** Male/Female
Cultural Affiliation: New Zealand European/Pakeha New Zealand Maori Tribe(s), please specify: Pacific Island Please specify: Other Please specify:	**What is your occupation/job?** **Is your income:** below $25,000/year between $25,000 and $50,000/year above $50,000/year
Level of regular recreational physical activity/sport participation: Recreational Competitive No regular physical activity	**Date this injury/disorder occurred:** **Cause of the injury/disorder:** **Did the injury/disorder occur during participation in regular recreational physical activity/sport?** YES/NO
Before this injury/disorder have you had any injuries/disorders that required physiotherapy? YES/NO	

Participant Number: Date:

Appendix C. The adapted Tucker-Culturally Sensitive Health Care Provider Inventory -Patient Form

THE ADAPTED TUCKER-CULTURALLY SENSITIVE HEALTH CARE PROVIDER INVENTORY – PATIENT FORM

Please indicate what you think about your interaction with the physiotherapist by using the scale below to show the extent to which you agree with each of the statements. Please also rate how important each statement is with regard to your interaction with the physiotherapist according to the following scale:

1. = Not important
2. = Mildly important
3. = Moderately important
4. = Very important

Please answer all questions

	Strongly Disagree	Disagree	Agree	Strongly Agree	Importance
1. Is honest with me	1	2	3	4	1 2 3 4
2. Is dedicated to her/his work	1	2	3	4	1 2 3 4
3. Enjoys what she/he is doing	1	2	3	4	1 2 3 4
4. Is well-educated	1	2	3	4	1 2 3 4
5. Is knowledgeable about physiotherapy	1	2	3	4	1 2 3 4
6. Knows what she/he is doing	1	2	3	4	1 2 3 4
7. Is confident in her/his abilities	1	2	3	4	1 2 3 4
8. Is right about why I am injured	1	2	3	4	1 2 3 4
9. Seems interested in my injury(ies)/movement disorder(s)	1	2	3	4	1 2 3 4
10. Takes my concerns seriously	1	2	3	4	1 2 3 4
11. Does not question the truth or accuracy of what I am feeling	1	2	3	4	1 2 3 4
12. Does not diagnose all of my problems as psychological or "in my mind"	1	2	3	4	1 2 3 4
13. Does not talk down to me	1	2	3	4	1 2 3 4
14. Tries to communicate with me	1	2	3	4	1 2 3 4
15. Tries to educate me	1	2	3	4	1 2 3 4
16. Takes all of my concerns seriously even if she/he does not consider them to be serious	1	2	3	4	1 2 3 4
17. Does not embarrass me in private or public	1	2	3	4	1 2 3 4
18. Prescribes rehabilitation activities when she/he is sure of my injury/movement disorder	1	2	3	4	1 2 3 4
19. Does not make me wait long	1	2	3	4	1 2 3 4
20. Follows up on my visits	1	2	3	4	1 2 3 4
21. Lets me know about illnesses and diseases common among people of my ethnicity/race	1	2	3	4	1 2 3 4
22. Prepares me for the next steps in treating my injury/movement disorder	1	2	3	4	1 2 3 4
23. Understands my financial situation	1	2	3	4	1 2 3 4
24. Shows appreciation for me and her/his other patients	1	2	3	4	1 2 3 4
25. Shows care and concern for my family	1	2	3	4	1 2 3 4
26. Is respectful of my religious/spiritual beliefs	1	2	3	4	1 2 3 4
27. Understands my culture	1	2	3	4	1 2 3 4

Participant Number: Date:

Appendix D. The adapted Healthcare Provider Cultural Competency Survey

AUT
TE WĀNANGA ARONUI O TĀMAKI MAKAU RAU

THE ADAPTED HEALTHCARE PROVIDER CULTURAL COMPETENCY SURVEY

For these questions, we are interested in how well your physiotherapist understands your specific culture, heritage and ethnicity. We are also interested in your impressions of his/her acceptance of your culture.
Please answer each question using the seven-item scales that are provided. Please also rate how important each statement is with regard to your interaction with the physiotherapist according to the following scale:

1. = Not important
2. = Mildly important
3. = Moderately important
4. = Very important

1. How knowledgeable do you feel that your physiotherapist is of your culture? **Importance**

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			Knows a Lot	

2. How well do you think your physiotherapist understands your culture's specific characteristics?

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			Very Well	

3. How informed does your physiotherapist seem to be about your culture?

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			Very Well	

4. Do you feel as though your physiotherapist is aware of the views that he/she may have towards specific cultural groups?

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			Very Aware	

5. Do you feel as though your physiotherapist makes an effort to understand cultural differences?

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			A lot of Effort	

6. Does your physiotherapist seem to be aware of cultural differences?

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			Very Aware	

7. Do you think that your physiotherapist is well equipped to treat patients of your ethnic or cultural background?

1	2	3	4	5	6	7	1 2 3 4
Not at All			Neutral			Very Well Equipped	

8. Does your physiotherapist possess the skills that are needed to treat a patient from your cultural or ethnic background?

1	2	3	4	5	6	7	1 2 3 4
Not at all			Neutral			Very Much	

9. Would you recommend your physiotherapist to someone with your same ethnic or cultural background?

1	2	3	4	5	6	7	1 2 3 4
Not at all			Neutral			Highly Recommend	

Participant Number: Date:

Appendix E. Patient Satisfaction with their Physiotherapist's Empathy and Communication Scale

AUT
TE WĀNANGA ARONUI O TĀMAKI MAKAU RAU

PATIENT SATISFACTION WITH THEIR PHYSIOTHERAPIST'S EMPATHY AND COMMUNICATION SCALE

To indicate what you think about your communication and interaction with the physiotherapist use the scale below to show the extent to which you agree with each of the statements.

Very strongly disagree	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Very strongly agree
1	2	3	4	5	6	7

1. I really felt the physiotherapist understood the concerns I have about my injury/disorder	
2. I felt free to talk to my physiotherapist about the things that were bothering me	
3. The physiotherapist was very sensitive towards my need as an active person	
4. I felt that this physiotherapist wasn't sympathetic towards my injury/disorder as I would have liked	
5. I felt the physiotherapist tried to understand how the injury/disorder may affect my involvement in sport/physical activity	
6. The physiotherapist gave me a chance to say what was really on my mind	
7. After talking with the physiotherapist, I now know how much more the severity of my injury/disorder	
8. After talking with the physiotherapist, I have a better idea of how long the injury/disorder rehabilitation process should take	
9. The physiotherapist told me all I wanted to know about my injury/disorder	
10. The physiotherapist explained the nature of my injury/disorder in words that were difficult to understand	
11. The diagnosis of my injury/disorder was made following a thorough and careful examination	
12. The physiotherapist didn't seem at all rushed during the examination of my injury/disorder	
13. I am not really certain how to follow the physiotherapist's advice	
14. The physiotherapist did not really understand my reason for coming	
15. The physiotherapist has relieved my worries about my injury/disorder	
16. The physiotherapist seemed to know just what to do for my injury/disorder	

Participant Number: Date:

Appendix F. Rehabilitation Adherence Measure for Athletic Training

REHABILITATION ADHERENCE MEASURE FOR ATHLETIC TRAINING

To be completed by the physiotherapist at the end of the participant's treatment sessions. For each of the following circle the number that best indicates the patient's behaviour:

Never true	Sometimes true	Usually true	Always true
1	2	3	4

1	Attends scheduled rehabilitation sessions	
2	Arrives at rehabilitation on time	
3	Follows the physiotherapist's instructions during rehabilitation sessions	
4	Follows the prescribed rehabilitation plan	
5	Completes all tasks assigned by the physiotherapist	
6	Asks questions about his/her rehabilitation	
7	Communicates with the physiotherapist if there is a problem with the exercises	
8	Provides the physiotherapist feedback about the rehabilitation program	
9	Has a positive attitude during rehabilitation sessions	
10	Has a positive attitude toward the rehabilitation process	
11	Gives 100% effort in rehabilitation sessions	
12	Is self-motivated in rehabilitation sessions	
13	Is an active participant in the rehabilitation process	
14	Stays focused while doing rehabilitation exercises	
15	Is motivated to complete rehabilitation	
16	Shows interest in the rehabilitation process	

Participant Number: Date:

Appendix G. Ethical Approval AUT Ethics Committee

AUTEC Secretariat

Auckland University of Technology
D-88, WU406 Level 4 WU Building City Campus
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

13 April 2016

Sandra Bassett
Faculty of Health and Environmental Sciences

Dear Sandra

Re Ethics Application: **16/43 A test of the structural and content validity of the Tucker Culturally Sensitive Health Care Provider Inventory Patient Form with New Zealand physiotherapy patients.**

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 13 April 2019.

As part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through http://www.aut.ac.nz/researchethics. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 13 April 2019;
- A brief report on the status of the project using form EA3, which is available online through http://www.aut.ac.nz/researchethics. This report is to be submitted either when the approval expires on 13 April 2019 or on completion of the project.

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to obtain this. If your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply there.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please do contact us at ethics@aut.ac.nz.

All the very best with your research,

Kate O'Connor
Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Tammi Wilson Uluinayau tuluinay@aut.ac.nz, Denise Wilson

Appendix H. Information Sheet

AUT
TE WĀNANGA ARONUI O TĀMAKI MAKAU RAU

PARTICIPANT INFORMATION SHEET

Date Information Sheet Produced:

02 February 2016

Project Title

A test of the structural and content validity of the Tucker Culturally Sensitive Health Care Provider Inventory Patient Form with New Zealand Physiotherapy Patients.

An Invitation

Dear Invited Participant,

Our names are Tammi Wilson Uluinayau, Sandra Bassett, and Denise Wilson and we are a research team based at the Auckland University of Technology. We are interested to see how patients, such as yourself, view your physiotherapists' cultural responsiveness (competence or awareness) to your own needs. Specifically, how your physiotherapist treats you with regard to your culture. To date, there is no known questionnaire to measure this accurately within a New Zealand context, so we are adapting a similar, international questionnaire to test its relevance within a New Zealand context.

We are inviting people of any cultural groupings who reside in New Zealand and who are currently undergoing physiotherapy rehabilitation to participate in our study. We are exploring the manner within which each physiotherapeutic treatment you have engaged in with your most recent injury has been conducted. Participation in this project is entirely voluntary and your participation or non-participation in this project will neither advantage nor disadvantage you. You may withdraw yourself and any data collected from you at any time prior to the completion of data collection if you wish.

What is the purpose of this research?

The importance of cultural competence as being essential for safe and effective practice of physiotherapy is widely accepted. The aim of this study is to adapt an existing overseas cultural compliance questionnaire and see if it measures patients' views about how their physiotherapist responds to their cultural needs within a New Zealand context. To date, there are no known assessment tools in New Zealand to accurately measure the level of a physiotherapist's cultural competence.

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

You are receiving this invitation after you were identified by the receptionist at the physiotherapy clinic as having attended at least two appointments.

What will happen in this research?

This study will collect information about your physiotherapy treatment experiences, and the importance you place on the interaction with your physiotherapist. This will be required to answer four short questionnaires, three about your treatment experiences, and one about your demographic and injury characteristics. The questionnaires will take no more than 10 minutes to complete, and will be arranged at a time and place that is convenient for you. In addition, your physiotherapist will also complete a questionnaire about the extent to which you have followed your rehabilitation programme. All of the information collected from the questionnaires will be analysed statistically.

The findings of this study will be used as the basis for the development of a questionnaire to better identify the cultural responsiveness of physiotherapists within a New Zealand context. The findings of this study will be written up for publication in an academic journal.

What are the discomforts and risks?

There are no anticipated discomforts or risks, as you will be answering questionnaires in a confidential and anonymous manner.

How will these discomforts and risks be alleviated?

In the unlikely event of experiencing any discomfort or risk, counselling services and support will be offered, should it be required.

What are the benefits?

Information gathered in this study has the potential to benefit physiotherapy patients and physiotherapists alike, by increasing awareness of the importance of cultural responsiveness in the therapeutic relationship. Any publications that result from this study may also help direct future research into the importance of cultural responsiveness of other healthcare practitioners in New Zealand. The results of the analysis of the questionnaires will contribute to a qualification of Master of Philosophy for the primary researcher.

How will my privacy be protected?

In no way will you be linked to the information you have provided in this study. The data will be kept in a secure location at all times and only accessed by the researchers involved. All data from the study will be destroyed ten years after analysis by shredding and deletion.

What are the costs of participating in this research?

The primary cost for you is your time of no more than 20 minutes to take part in this study.

What opportunity do I have to consider this invitation?

Your participation in this project is voluntary and you can withdraw from the study up at any time prior to completion of data collection. If you have any questions about this project at any time, please contact Tammi Wilson Uluinayau (contact details below).

How do I agree to participate in this research?

If you would like to participate in this study, please contact either the clinic receptionist or Tammi Wilson Uluinayau (see details below) with whom you will arrange a time and location that is convenient to you to answer the questionnaires. At this time, you will be asked to read and sign the consent form made available to you to indicate your agreement to participate in our study.

Will I receive feedback on the results of this research?

Yes, you will have the opportunity to receive a summary of the findings either by post or email.

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, Sandra Bassett, *sandra.bassett@aut.ac.nz* , 921 9999 ext 7123.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, Kate O'Connor, *ethics@aut.ac.nz* , 921 9999 ext 6038.

Whom do I contact for further information about this research?

Researcher Contact Details:

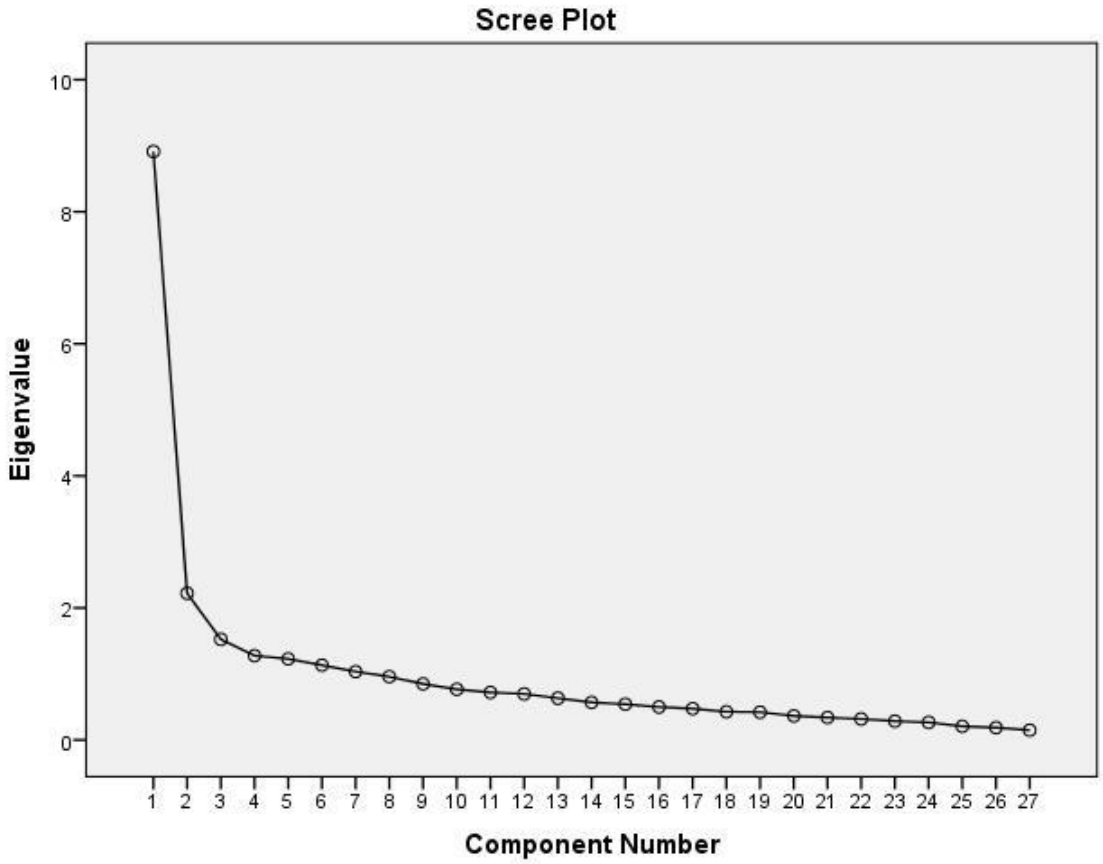
Tammi Wilson Uluinayau, Primary Researcher within the School of Clinical Sciences, Faculty of Health and Environmental Science, Auckland University of Technology. Email: tuluinay@aut.ac.nz

Project Supervisor Contact Details:

Dr Sandra Bassett, Senior Lecturer, School of Clinical Sciences (AA262), Faculty of Health and Environmental Science, Auckland University of Technology. Email: sandra.bassett@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on *13 April 2016*, AUTEC Reference number *16/43*.

Appendix I. T-CSHCPI -PF Screeplot



Appendix J. HPCCS Screeplot