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Do older people set goals?

**A study to determine the impact of a goal
facilitation tool on home based support services**

John Parsons

**A thesis submitted in fulfilment of the requirements for the degree of Doctor of
Philosophy in Health Science, The University of Auckland, 2010**

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Abstract

The primary purpose of the study was to assess the impact of a designated goal facilitation tool on health related quality of life, social support and physical function among a sample of 205 community dwelling older people referred for home based support services (HBSS). A comprehensive model was developed to consider the complex interactions inherent within the healthcare and social system within which the study occurred. One specific purpose of the model was to determine how the use of the goal facilitation tool facilitated the implementation of core components of a 'restorative model' of support for older people living in the community.

The participants were cluster randomised to either an intervention or control assessor (NASC). The intervention arm involved the participant completing the goal setting tool with a NASC. This established the aims of the rehabilitation episode. The participants in the control group received a standard assessment of needs. Following this the clients from both groups were referred to a HBSS organisation for service delivery. The NASC staff randomised to the intervention and all HBSS coordinators attended a standardised training programme prior to the start of the trial.

The main finding was a significantly greater change over time in Health Related Quality of Life (as measured by the two component scores of the Short Form 36 Survey (SF-36)) in the intervention group ($p < 0.0001$ for physical component and 0.001 for mental component). The intervention group also showed significant improvements in physical function over time, as measured by the Short Physical Performance Battery (SPPB), compared to the control group ($p = 0.003$). There was no difference in social support over time between the two groups ($p = 0.09$). The degree of trust between NASC and HBSS coordinators was measured using standardised questionnaires and shown to be of crucial importance in optimising outcomes for the participants and was included in the model of analysis of change in SPPB and the physical component score of the SF-36. There was a marked variation across HBSS providers in terms of the types of services provided to the participants and there was a difference in the ability of the different intervention group NASC to facilitate goal directed services.

The study findings contribute to a greater understanding of the factors necessary to implement improvements in the services provided to older people receiving assistance in the home and highlight the complex interaction between the client, their family / whānau, the assessment and service delivery organisations and the direction provided by local and national policies and directives.

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Chapter One: Introductions

1.1 Introduction

This thesis investigates the effect of implementation of a goal facilitation tool (TARGET¹) on home based support service provision and clinical outcomes among a sample of community dwelling older people in New Zealand. A comprehensive model is developed to allow for a consideration of the complex interactions inherent within the healthcare and social system within which the study occurred. Traditionally home based support services provided to older people often focus more on treating disease and ‘taking care’ of the older person than on helping them to regain functioning and independence. There have been numerous attempts reported in the literature to develop services that have a focus more on optimising function rather than fostering dependency¹⁻⁸. In New Zealand, such a model of service delivery is called ‘restorative support’. One specific purpose of the study is to determine how the use of TARGET facilitates the implementation of core components of a ‘restorative model’ of support for older people living in the community. One of the core components of restorative support explored is the structuring of services around what the client wants to achieve through the identification of goals and the implementation of individually tailored activities to support the attainment of those goals. The second core component that is considered is regular and coordinated reviews of the client by the health professionals and organisations involved in supporting the client. Crucial to this activity is the relationship between these different groups, at both an individual and at an organisational level and how and when these groups interact.

Chapters One and Two review the literature and integrate this into the coherent and multi-faceted model that formed the basis for analysis and discussion of the results in Chapters Four and Five. Chapters Six and Seven present the conclusions from the study and explore the implications for practice. The thesis concludes in Chapter Eight with a consideration of the key developments that occurred throughout the course of the study together with issues that arose during the research that would

¹ TARGET (Towards A Realistic Goal in Elders Tool)

require consideration in future work. The model allows for an examination of the effect of the inter-related variables on the older person's quality of life, physical function and social connectedness. This occurs through the measurement of the pertinent variables using a combination of validated measures, qualitative interviews and examination of relevant documents, policies and strategies.

As described above goal facilitation is used in the study as a strategy to implement components of a restorative model of home based support. It was anticipated that such cross sectoral improvements in the services provided to older people would enable them to maximise their functional ability and also remain integrated within their community. A recommendation of the *Assessment Processes for Older People Guidelines*⁹ is for the adoption of the process of goal setting when delivering services to older people within New Zealand. This recommendation reflects the evidence that goal setting improves older people's outcomes. In this context goal setting involves working with the older person and assisting them to take an active role in choosing and setting the goal.

However, in practice such active involvement of users of support services is often minimal. This is highlighted by recently published research to determine the views of people with disabilities using services to support them to remain in their homes in four major New Zealand centres¹⁰. The study recommended the following improvements for service delivery: client-centred, flexible services with a back-up support system; access to quality information; appropriately trained support staff who would be monitored; funding to secure the quality support required for disabled and older people to secure lives of their choice in the community¹¹. The research uncovered dissatisfaction with the way people receiving the service were treated in their own homes. People reported that they were insufficiently involved in decision-making, cultural differences were insufficiently respected and they had little control over their everyday lives¹¹. Support services are used mainly by older people and so issues relating to involvement by care recipients are relevant to 'ageing-in-place'².

² The New Zealand Positive Ageing Strategy defines ageing-in-place as an older person's option to "make choices in later life about where to live, and receive the support to do so."

This necessitates the investigation of the implementation of a service model congruent with these principles.

This introductory chapter will provide a foundation for the development of the model and will highlight areas to be explored in depth in the literature review in Chapter Two. In addition commonly used terms will be defined in this chapter to facilitate further contextualisation of the study within the available evidence.

1.2 Background

The next twenty years will see significant demographic changes within New Zealand¹²⁻¹⁵. Older people utilise up to three times the health care resources of other age groups and when linked to the real increase in the percentage of people 65 years and over (65+), it becomes apparent that there is a pressing need to utilise highly skilled health professionals in a range of different settings including the community sector. In addition, clinical and contemporary evidence demonstrate that there needs to be an increased emphasis on the best way to provide health services to those aged over 65 in order to optimise independence for the older person and maximise the cost / benefit relationship for the service provider.

There is considerable evidence to suggest that remaining at home (or ageing-in-place) allows the older person to maintain social networks and optimise quality of life, and to remain integrated within their own community. This is reflected in a marked increase in the demand for home care within New Zealand and internationally. Cornwall and Davey suggest that expenditure for disability support services (a component of which is home care) will increase by 30 per cent from 2011 to 2021¹⁶. Furthermore, although it is widely recognised that older people wish to age-in-place, it is often difficult to develop and deliver services that appropriately facilitate this desire. It is clear that most health care costs occur in the last few years of life, arising from the strong association between rising disability and increasing age. This creates a paradox for regional health authorities or District Health Boards (DHBs) and other healthcare organisations who wish to promote ageing-in-place but have few viable means to achieve this effectively. Increasingly, there is a growing awareness that what matters most to older people is not just health in its narrowest interpretation,

but a concern for choice, independence and community integration. Given that current service models are often delivered with a traditional bio-medical focus, it is not surprising that these areas, which are of high importance to the older person, are omitted.

In addition there has been an increased movement within health towards person-centred care. Person-centred care (PCC) is a philosophical approach advocated within a current Western health care culture, and has a range of definitions¹⁷⁻²⁰. These include components such as: understanding the whole person; finding common ground regarding management; sharing power and responsibility. It is suggested that these components are most effectively enabled by client involvement in the goal setting process. Kane et al.²¹ reports that the preferences of older people for home care resemble those of a younger person with a disability, but the two groups are treated differently. A younger person with a disability will have services designed to pursue the goal of social integration, whereas safety and efficiency receive undue emphasis and age-related (and / or ageist) differences prevail in the way services are provided for older people. Kane et al. suggest that in this case services are often delivered to ensure that the older person's house remains clean²¹⁻²³.

The aim of PCC is to ensure that the older person is an equal partner with health professionals in assessing, identifying options for and delivering the most appropriate package of medical care and rehabilitation for that individual across organisational boundaries¹⁷. It involves the provision of full information on all aspects of the older person's needs and available services and requires the older person to be treated with respect, courtesy and dignity at all times. This aims to ensure that the older person is at the centre of any plans that are made and that any assessment undertaken takes account of the social needs as well as medical requirements. In addition, the approach requires that plans for service provision are accessible and easily understood and reviewed and that the older person is considered as a whole person, within his/her individual situation, not just in relation to their physical condition^{20,24}.

With these factors in mind, it is imperative that services are targeted appropriately and aim to optimise the functional ability of older people facing health and or

disability issues to a point where they can be discharged from services or input lessened.

1.3 Ageing and the New Zealand context

As in other countries, the older (i.e. 65+) population is increasing. Currently, in New Zealand this age group accounts for 475,000 (12.1 per cent) of the population and is expected to number approximately 826,000 (19 per cent) in 2025 and 1.2 million (25 per cent) by 2050 ²⁵. Furthermore, the over-80-year-olds are the fastest-growing cohort (of any age group) and increasing at a rate of around five per cent each year ²⁶. It is evident the changing structure of the population along with the eventual doubling in the percentage of the population aged over-65 years is going to have an unprecedented and significant impact on all aspects of society. This demographic change will have social and economic consequences for such things as the availability of resources, community services, pensions, health care and the provision of alternative housing for older people ²⁷.

1.3.1 Health expenditure

Since health care expenditure increases with rising age, an ageing population will therefore place further pressure on health care demand and cost ^{28, 29}. A comparison of OECD nations examined age profiles of health expenditure and found, on average, per capita health expenditure for the older age group (65+) was three to five times than that for the 15 to 64 age group ³⁰. New Zealand's statistics reveal similar results: data from 2001/02 showed a strong exponential relationship between per capita health expenditure and age. For the 65-69 age group, spending was almost double the all-age per capita average, whereas for the 85+ age group it was nearly eight times the all-age average ¹³.

An ageing population also affects Gross Domestic Product (GDP). This occurs due to the declining proportion of those at 'working age', creating downward pressure on economic output ¹³. In 2001, approximately nine percent of GDP was for overall health care expenditure in OECD countries; of this forty to fifty percent was for the 65+ age group ³¹. Between 2005 and 2050, in the average OECD nation, expenditure

on public health and long term care as a share of GDP is projected to rise from 6-7 percent to approximately 10 percent ²⁸. OECD 2003 statistics reveal a positive relationship between GDP and health expenditure (as a percentage of GDP); the larger a nation's GDP per capita, the higher health care expenditure. Comparably, New Zealand shows a similar pattern of health care expenditure based on its level of GDP. In 2004, New Zealand spent 8.5 per cent of total GDP on health which was slightly lower than the OECD weighted average of 8.7% ³².

1.3.2 New Zealand Governmental strategy and policy

Despite the positive correlation between rising age and health spending, some international literature suggests age itself may not be the main determinant of increasing demand for health care and health expenditure ³³. It has been proposed that the prevalence of chronic illness, closeness to death, ¹³, health status and 'non-demographic' factors are significant drivers of health care demand and expenditure ²⁹, ³³. As more people live closer to the limits of their natural lifespan there is some anxiety, particularly at the political level, about the effect this will have on the economy. This has been addressed in the development of a number of national strategies within New Zealand. The pertinent strategies will now be discussed to provide a context within which the current study occurred.

The New Zealand Health Strategy ³⁴ (NZHS) sets the platform for the Government's action on health. It identifies the Government's present priority areas and aims to ensure the health services are directed at those areas that will produce the highest benefits for the population of New Zealand, focusing in particular on tackling inequalities in health. The strategy emphasises positive health outcomes for all, with particular attention to those groups in the lower socio-economic category. Underlying the strategy are seven fundamental principles that are required to be reflected across the health and disability sector. Of particular relevance to this study is that one of these principles states the need for active involvement of consumers, a central tenet of person centred care.

In particular, the NZHS reflects a move towards decentralising decision-making to local representative District Health Boards (DHBs) rather than government

ministries. While the NZHS is a comprehensive policy strategy, the particular needs of Māori, disabled and older people are recognised in specific strategies of their own. The New Zealand Disability Strategy³⁵ provides a long-term plan for changing New Zealand from a disabling society where people with disabilities face a range of barriers to their full participation in the community, to an inclusive society, which takes account of the impairments other people have. The strategy purports to ensure that people with disabilities have a meaningful partnership with Government, communities and support agencies, based on respect and equality. People with disabilities are to be integrated into community life on their own terms, their abilities will be valued, their diversity and interdependence will be recognised, and their human rights will be protected. Beatson³⁶ highlights that a glaring omission from the NZDS is that no mention is made of disabled people over 65.

The principal goal of the Positive Ageing Strategy³⁷ is to ensure equitable, timely, affordable and accessible health services for older people. The strategy establishes a set of principles as a framework for integrating policies and programmes across the government sector. The actions stated in the policy to achieve this goal include: promotion of holistically-based wellness throughout the life cycle and the development of health service options that allow integrated planning, funding and delivery of primary, secondary, residential care and community support services. In addition the strategy seeks to ensure the availability of multi-disciplinary comprehensive needs assessment throughout New Zealand for people over 65 years of age.

A further document integral to the development of health services for older people is 'The Health of Older People Strategy'¹². It identifies the need for significant change in the way these services are provided. It highlights the need for improved co-ordination of health and support services around the needs of older people and a greater emphasis on health promotion and disease prevention to assist older people to age positively. Of particular relevance to the current study, the strategy states that more emphasis needs to be placed on community-level health care and support services to support older people to 'age-in-place'. To support this increased emphasis on community level health care it is suggested that an Integrated Continuum of Care

needs to be developed. This would provide health and support services that are responsive to older people's varied and changing needs, enabling older people to *'access needed services at the right time, in the right place, and from the right provider'*.

The Health of Older People Strategy signalled work to assess options for intermediate-level care to bridge the gap between hospital and home-based care (action 7.3). The need for a holistic, inclusive and flexible approach in supporting older people was the fundamental message stated in both the Health of Older People Strategy ³⁸ and the Positive Ageing Strategy ³⁷. This work links closely with the Guideline for Specialist Health Services for Older People (GSHSOP) ⁹ which proposes that services require a holistic approach to the treatment and rehabilitation of older people with complex conditions. It further proposes that enhanced services need to be available to enable older people to remain at home with a good quality of life, and entry to residential care increasingly needs to be for high-level care, usually towards the end of life

In addition the GSHSOP identified service developments necessary to improve the hospital and community interface for older people. Of particular relevance to this study is that home-based services need to have a rehabilitation and empowerment focus that supports specialist health services for older people and collaborative relationships need to be developed with other health and disability support services to ensure a co-ordinated approach and continuity of care for clients.

1.3.3 Ageing of Māori and Pacific older people

While ageing processes for Māori and Pacific people may be similar to those in mainstream New Zealand society, there are issues associated with migration patterns and cultures that are likely to impact on longevity and health status. The traditional roles of older people in Māori and Pacific societies may also be undergoing changes in response to changes in family dynamics ³⁹. Older Pacific people and Māori are known to undertake practical roles such as caring for grandchildren and households whilst parents work. Traditionally, they are acknowledged as the holders of cultural knowledge and practices and are esteemed and respected within these roles. Although there is little research available about the health impact and personal and cultural outcomes of their changing roles there is increasing evidence of neglect,

social isolation and unhappiness of some Māori and Pacific older people living in New Zealand ³⁹. The Māori Health Strategy ⁴⁰ and the Pacific Disability Action Plan ⁴¹ contend that all Māori and Pacific peoples are entitled to excellent health and disability services that are coordinated, culturally competent and clinically sound.

The cultural values underpinning the concepts of health and illness vary widely across the different ethnic groups within New Zealand. Although it is important to note that not all individuals within a cultural group will share the same views of health, it can be useful to make some generalisations based on the traditional views held by that group. Evidence now points to the importance of cultural sensitivity and knowledge of the participants cultural values in developing and implementing health interventions ^{42, 43}. New Zealand Europeans are likely to share a similar understanding of health as people living in other 'Western' English-speaking countries around the world. There is generally an implicit understanding of mental and physical health as separable entities. However, Māori, Asian and the various Pacific groups have very different traditional concepts of health and disease. These concepts include key ideas that are integral to Māori, Asian and Pacific cultures such as the relation/connectedness between the individual, family, and community; and the holistic links between the mind, body, environment (social and physical) and spirituality. In a study of Pacific people's views on health and the priorities for improving the health of the community, Davison ⁴⁴ found that in answer to the question 'what is health?' Pacific people described the physical aspects of health only within the context of mental and spiritual health. In addition, the environment and ecological system was conceptualised as part of the view of health.

One of the models used to describe Māori health is Whare Tapa Wha ⁴⁵, which outlines four basic concepts: te taha tinana (a bodily or physical health component), te taha hinengaro (a psychological or mental health component), te taha wairua (a spiritual component) and te taha whānau (a family or social health component). More recently, two other elements have been added to this model: te taha tu roa (a component relating health to the integrity of the environment) and te taha rangitira (recognising the importance of language to the health of the people) ⁴⁶. The differentiation of these dimensions of Māori health does not imply separation. Durie

states that, notions of mind-body dualism are rejected⁴⁷. Te taha hinengaro and te taha tinana are inseparable aspects of growth, development and functioning. Te taha whānau, in particular, reflects the concept that health is perceived as not so much the property of the individual, but of the extended family.

1.4 Model development

Figure 1.1 shows the integration of the factors discussed above into a high level macro view of the potential effects of national and international societal and political factors on older people living in the community in New Zealand.

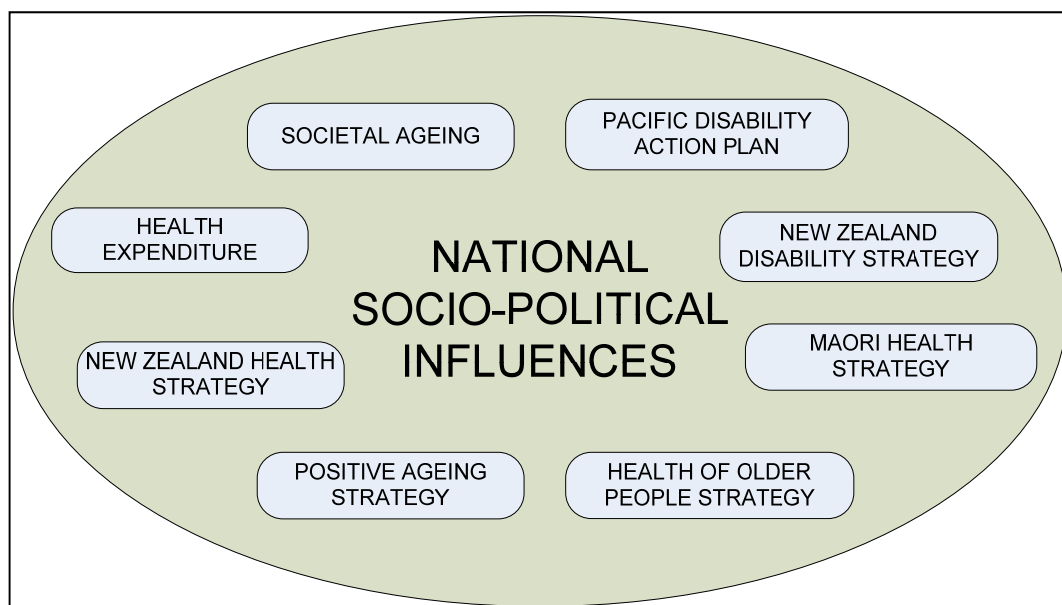


Figure 1-1: National socio-political influences on older people living in the community in New Zealand

This will form the basis of the model to be used to explore the effects of a designated goal facilitation tool on clinical outcomes for a sample of older people receiving home based support. The first level of the model is termed ‘national socio-political influences’ and needs to have a cognisance of the international and national policy and social imperatives. This includes the relevant New Zealand governmental policies. This allows for contextualization of the study and is important for understanding the study from an international perspective. Additional levels will be added throughout the following chapter.

1.5 Definition of terms

Prior to an in-depth examination of the literature relating to older people and further subsequent development of the model, it is important to define terms that will be used throughout the thesis.

Older people

The Oxford English Dictionary, defines elderly as “old or ageing”, with old defined as “having lived for a long time; no longer young”⁴⁸. Tinker⁴⁹ contends there is no agreement about a specific age when people should be deemed old. Rather, there are broad variations among older people and the changes of ageing are diverse and complex. For this study the New Zealand retirement age of 65 years has been used to define the older person, comparable to the United States (US). Similarly, in the UK, as of 2009, the State Pension age was 65 years⁵⁰.

Ageing-in-place

Internationally, the concept of ageing-in-place is increasingly used in response to an ageing population. In 1994, the OECD (pg. 97) health and social policy ministers stated that:

‘Elderly people, including those in need of care and support should, wherever possible, be enabled to continue living in their own homes, and where this is not possible, they should be enabled to live in a sheltered and supportive environment which is as close to their community as possible, in both the social and geographical sense’⁵¹.

The concept of ageing-in-place is relatively new in gerontology and has many definitions. The New Zealand Positive Ageing Strategy defines ageing-in-place as an older person’s option to “make choices in later life about where to live, and receive the support to do so”⁵².

Disability support services

In New Zealand, disability support services (DSS) provide a range of support services for people with disabilities and their families to increase independence and participation⁵³. Similarly, the UK has health and social care services, where adult social care services aim to provide equal care for all, whilst enabling people to retain

their independence, control and dignity. This includes provision of residential care and domiciliary services via the public or private sector ⁵⁴. Comparably, the USA Department of Health and Human Services is the government's principal agency for protecting the health of all and providing essential services, especially for those who are least able to help themselves ⁵⁵.

In order to access DSS in New Zealand, a person with a disability must meet the Ministry of Health's definition of disability ⁵³. A person is assessed as having either a physical, intellectual, sensory, psychiatric or age-related disability, or a combination of these, where the disability is likely to: continue for a minimum of six months; and result in a reduction of independent function to the extent that ongoing support is required.

Assessment is undertaken by a Needs Assessment Service Coordinator (NASC) who determines access to DSS and identifies and prioritises all aspects of a person's care. DSS are predominantly community-based and delivered, in most cases by private not-for-profit providers under contract ⁵⁶. In general, DSS for older people can be categorised into five main service areas:

1. Residential care: For older people and individuals with intellectual, physical or sensory disabilities. This includes rest home, continuing-care hospitals, secure facilities for people with dementia and psychogeriatrics care;
2. Assessment, treatment and rehabilitation (AT&R) services: Outreach service, usually hospital based. Involves assessment of potential for improving both physical and mental functional ability;
3. Carer support: Supports unpaid informal caregivers, for example, respite care.
4. Environmental support: Equipment, home and vehicle modifications; and
5. Home-based support services (HBSS): Provides personal care and household management ⁵³.

Needs Assessment Service Coordination

In New Zealand, support services for older people assessed as having a disability which will last longer than six months are currently accessed from a Needs Assessment and Service Co-ordination (NASC) agency. Needs Assessment Service Coordination is a community-based service which supports older adults with a disability to enable them to stay at home as safely and as independently as possible.

NASC also assists younger adults who require support services following illness or hospitalisation, or as part of a palliative care package.

The current approaches of NASC agencies to assessment are based on professional opinion regarding good practice. There is no standardised training required to be employed in a NASC role. The main professional background of NASC remains social work within New Zealand; however, there are increasing numbers of registered nurses being employed in the role⁵⁷⁻⁵⁹. Following assessment, services are allocated as considered appropriate and reviews are undertaken on a regular basis. There have been numerous reviews of NASC since its inception in 1992. Despite the clear rationale and guiding principles, there have been significant issues identified around the relative successes of NASC to provide a case management service for older people and to coordinate disability support services in a cost-effective and older person centred manner. In addition there is evidence that there has been a wide variability in assessment outcomes⁶⁰.

MacDonald⁶¹ in a review of disability support services delivered to older people in New Zealand interviewed clients, their families and NASC and HBSS staff and found that almost all provider and client representatives interviewed expressed strong concerns with the way the NASC system operated.

Home Based Support Services

Home-Based Support Services (HBSS) have traditionally involved home help to meet domestic needs. However, due to the increasingly complex needs of home-based older people, services have shifted to providing domestic, personal and health care services⁶². The overarching goal of HBSS is to “provide high quality, appropriate and cost-effective care to individuals that will enable them to maintain their independence and the highest quality of life”⁶³. Fundamentally, HBSS is viewed as having three key objectives:

1. To substitute for acute care hospitalisation;
2. To substitute for long-term care institutionalisation; or
3. To prevent the need for institutionalisation and maintain individuals in their own home and community⁶³.

In the UK, HBSS are often referred to as home care or domiciliary care agencies defined by the UK Care Standards (pg.121) ⁶⁴ as:

“an undertaking which consists of or includes arranging the provision of personal care in their own homes for persons who by reason of illness, infirmity or disability are unable to provide it for themselves without assistance”.

In the United States, HBSS are often referred to as home care or personal assistance services ⁶⁵. Globally, HBSS are commonly termed “home care.” A report prepared for the World Health Organisation (WHO) defined home care as:

“the provision of health services by formal and informal caregivers in the home in order to promote, restore and maintain a person’s maximal level of comfort, function and health including care toward a dignified death. Home care services can be classified into preventive-promotive, therapeutic, rehabilitative, long-term maintenance and palliative care categories”⁶⁶.

In New Zealand, HBSS provide personal care and household management to promote and maintain the independence of older people living at home ⁵³. A systematic review, identifying 26 studies, examined the definition of home care ⁶⁷. The reviewers found home care aims to improve quality of life, increase functional ability and/or maintain independence allowing the person to remain at home. Through assessment, support is determined by the older person’s needs and hospital care is minimised by assisting the individual at their home.

There is considerable variation within New Zealand in the organisational structure of HBSS providers. There are a number of large providers of services across the country and there are also smaller providers who deliver services in one or two of the 21 District Health Boards. In addition the providers vary in their organisational philosophies. Some are not-for-profit (A defining criterion of not-for-profit organisations is the intention of the organisation not to make profits for private gain. It is possible that such an organisation will in fact make a profit from time to time, but that is not the principal purpose for which it is organised and operated. Nor is its purpose to distribute any portion of any profit for private gain ⁶⁸), whereas others are for-profit organisations (An organisation that is established or operated with the intention of making a profit) or community trusts (An organisation funded for

educational, charitable, or other benevolent purposes in a community). However, a common feature of all is the presence of at least three levels of staff: managers, coordinators and support workers.

Management: The complexity of the ‘frontline’ level of management is dependent on the size and structure of the organisation. The effect of different management structures will be explored in this literature review. Particular attention will be paid to the organisational structures of the HBSS providers utilised in the study.

Coordinator: The second level of staff is the coordinator. These are increasingly health professionals, the greater proportion being registered nurses. However, there still exist a large number of HBSS coordinators who do not have health professional qualifications. This is particularly the case in some of the HBSS organisations examined in this study. The role of the coordinator is twofold. Firstly, to undertake a visit to the client once a NASC assessment has occurred. This is necessary to undertake a health and safety assessment of the client’s home prior to services being implemented. In addition it is an opportunity to further develop the outcome of the NASC assessment to ensure that the client’s needs will be adequately addressed by the services requested by NASC. The coordinator then monitors the client’s progress and report to NASC as necessary to amend the services provided to the client. The second role of the coordinator is to manage the support worker resource for the clients included in their caseload. The scope of this task varies across different organisations in New Zealand. Some organisations have separate roles for resource coordinators (who are tasked with staffing and rostering issues) and service coordinators (who undertake any contact with the client). The management of support workers encompasses all tasks from recruitment, training, supervision and performance management.

Support worker: The support worker role is the third level in HBSS organisations. Support workers are often untrained staff ^{58, 69-71}. However, following extensive development, there is now a New Zealand Qualifications Authority (NZQA) accredited training programme for support workers to develop the fundamental skills necessary to deliver services to older people in their homes ⁷². Support is usually

provided on a one to one basis to assist with personal support and household management. This may mean supporting a person to do the task themselves or doing the task for them if they are unable to. Personal support includes things like showering and bathing, dressing and undressing, getting up and going to bed. Household management (often referred to as home help or domestic help) assists a person to maintain and organise their home environment. This includes things like housework, laundry and shopping.

Informal carer: The New Zealand Ministry of Health definition is used for informal carers in the current study, “a person, usually a family member, who looks after a person with a disability or health problem, who is unpaid for providing this service”³⁸. At the time of the 2006 Census approximately 420,000 New Zealanders reported providing support for an individual with ill health or a disability within the previous four weeks⁷³. Thirty-eight percent of carers in New Zealand are between 45 and 64 years old, with a further 31% between the ages of 30 and 44 years. Twelve percent of carers are 65 years or older⁷⁴. The most common source of help for those being supported is from a family member. Help with household tasks, such as heavy housework and meal preparation, was most commonly given by a spouse or partner, followed by daughters, sons and parents. Women are more likely to be carers than men. Around 63% of carers in New Zealand are women. International research shows women are also more likely to be the main carers and to provide assistance for more hours⁷⁵⁻⁷⁸. Māori and Pacific peoples are more likely to provide unpaid support than other ethnic groups⁷⁴. The younger average age of Māori and Pacific carers, together with the higher rates of severe disability among Pacific people and Māori make it more likely they are caring for more than one person and across more than one generation⁷⁴.

As stated previously, this thesis will explore the use of TARGET tool within the context of health service delivery for older people residing in the community. The following chapter will use contemporary evidence to build a coherent model to examine this phenomenon. Such a complex view requires many levels of analysis and investigation and needs to consider concepts and frameworks from a variety of different paradigms such as healthcare, business, psychology and sociology. This

allows for the synthesis of perspectives important to an in-depth examination of the issues surrounding the potential benefits of the use of the TARGET tool. Following review of contemporary research from these varied areas a framework for analysis will be developed. To facilitate navigation of the diverse technical terms used throughout the text there is a glossary of terms in Appendix One.

Chapter Two: Literature review³

2.1 Introduction

Chapter One provided an understanding of the relevant strategic documents that provide direction to organisations that provide services to older people with disabilities in New Zealand together with a description of the basic structure of service provision. In addition, the macro level of the model for analysis was described. Although the focus for the current study is New Zealand, it is imperative that the study findings be placed within an international context. This will be achieved through the use of major international studies but also studies from within the New Zealand environment. The chapter is divided into four sections and throughout these the model of analysis for the study is developed in an iterative manner. These sections are shown in Figure 2.1 (page 19). Section One will explore the concepts relating to disability and the factors that moderate disability. It begins with a description of the fundamental principles of disability. Following this, disability among older people in New Zealand is considered. The supporting evidence for factors protective of disability are then reviewed. The section concludes with the introduction of the concept of ageing-in-place from an international and national perspective.

Section Two further develops the concepts identified in Section One and reviews the evidence describing successful ageing. A model of successful ageing is presented and the effects among older people of the complementary concepts of proactive coping, self regulation, motivation and engagement are critically reviewed. The section ends

³ Articles in this literature review were obtained via computer searches from a number of business, medical, nursing, psychology and allied health databases; the majority retrieved from MEDLINE, CINAHL, ABI/Inform, Ebsco Business Source Premier, EMERALD, PsychINFO and the Cochrane Library databases from the previous 30 years. The University of Auckland's General, Philson and Tamaki Libraries were utilised for manual searches. Online searches were undertaken using search engines Google (<http://www.google.co.nz>), Google Scholar (<http://scholar.google.co.nz>), the Ministry of Health webpage (<http://www.moh.govt.nz>) and Department of Health webpage (<http://www.dh.gov.uk>). Keywords in the searches included 'aged', 'elderly', 'older people', 'home-based', 'community', 'home care' and 'quality improvement'. The key inclusion criteria were that the article included 'aged', 'elderly' or 'older people' and the older people required long-term support either at home or within residential care. In addition, the reference and bibliography sections of articles / books retrieved by the above methods were also searched for relevant information.

with a summary of the evidence of the impact of goal facilitation among older people and the importance of the successful application of the key principles of goal directed care when delivering services to older people.

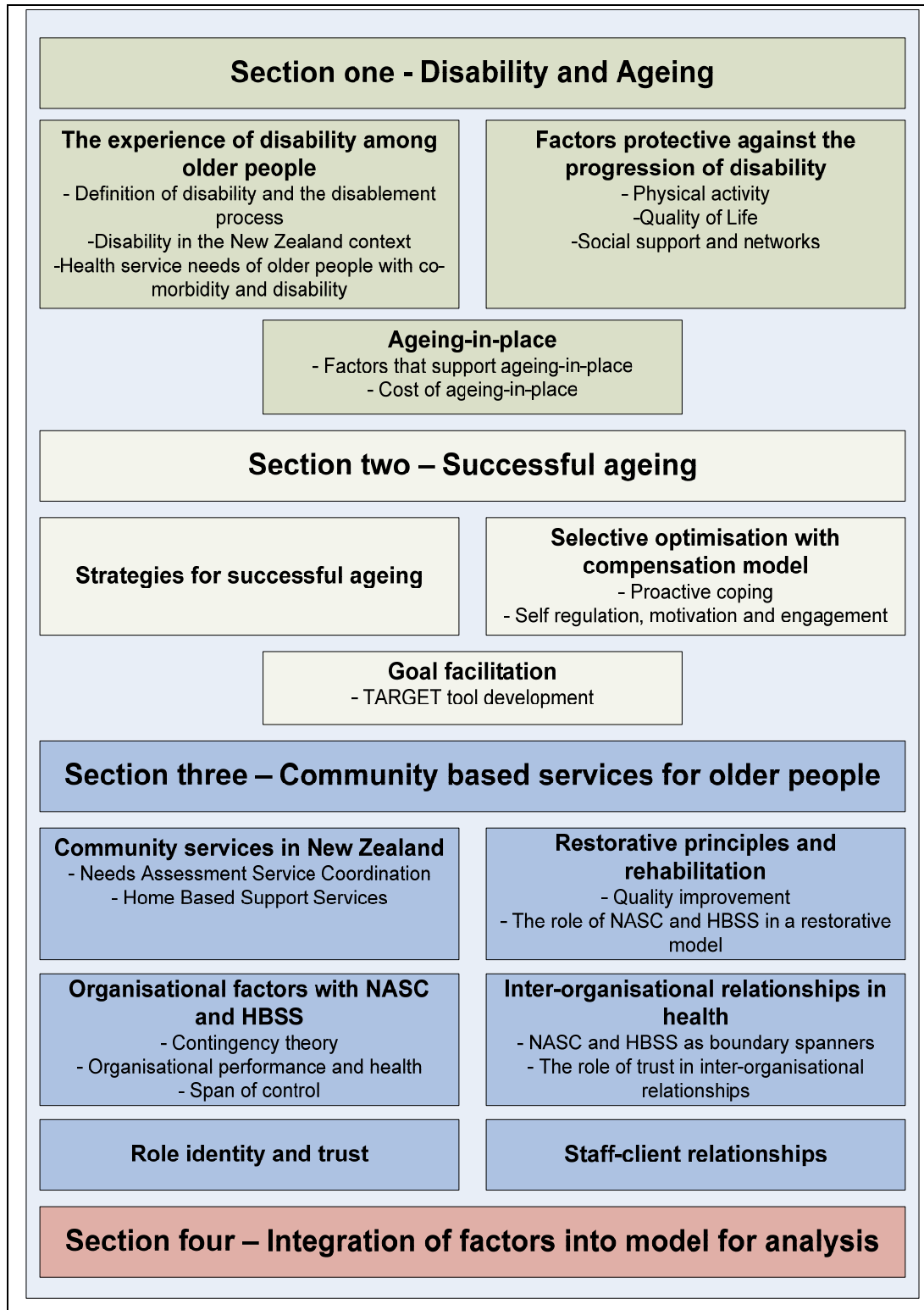


Figure 2-1: Summary of sections and main themes reviewed in literature

Section Three explores the traditional models used both internationally and within New Zealand to deliver community based services to older people. The available evidence relating to the effect of implementing restorative models of home based support services which seek to optimise an older person's level of independence is presented. Following this the impact of organisational factors on the delivery of services to clients are described and the use of contingency theory as a framework for examining organisational effectiveness is presented. Further evidence reviewing organisational performance in health is presented before the impact of different factors existing in the triadic relationship of the client, NASC and HBSS coordinator on the study outcomes are described. This exploration of the key interpersonal relationships in the current study focuses on the evidence relating to the impact of trust among the different actors.

The chapter concludes with the integration of the factors identified throughout the literature review into a comprehensive model for analysing the study outcomes.

Section I: Disability and Ageing

2.2 The experience of disability among older people

Numerous studies have presented findings citing causes of disability in older people, including age-related chronic conditions ⁷⁹⁻⁸³, hearing impairment ^{84, 85}, visual impairment ^{85, 86}, poor balance ^{87, 88}, poor muscle strength ⁸⁹⁻⁹¹, nutrition ^{92, 93}, loss of muscle mass ^{94, 95}, motor impairment ⁹⁶, pulmonary impairment ^{97, 98}, cognitive problems ^{99, 100} and socioeconomic factors ¹⁰¹⁻¹⁰⁴. However, Berg and Cassels ¹⁰⁵ claim that such data lend continuing support to the fact that ageing, in the minds of many people, is associated with disability and an inevitable loss of independence. In addition, Phillipson et al. ¹⁰⁶ suggests that old age is seen as a process of inevitable decline with a series of decrements and losses for the individual, to which the older person themselves and society, need to adapt.

2.2.1 Definition of disability and the disablement process

Disability is a challenging construct to define, as it is a multidimensional concept with medical, functional and social implications and this is further compounded by the influence of culture on an individual's conceptualisation of disability. In addition, disability is not only determined by the type and severity of impairment, but also in terms of how the individual perceives a given situation and reacts to it, and how others define that situation through their reactions and expectations. The disablement process is the (not inevitable) functional consequence of avoidable morbidity with physiological changes. After reaching a hypothetical threshold, it can diminish an older person's ability to function independently in the community.

The World Health Organization (WHO) ¹⁰⁷, in International Classification of Functioning, Disability and Health (hereafter referred to as ICF) state that disability is an umbrella term that covers the concepts of impairment and activity limitation / participation restriction. Figure 2.2 shows the important concepts surrounding this model. The example of George, a 76 year old man who has had a stroke is shown. Stroke is identified at the health condition level. The effect of the stroke is that the sensation and motor control in George's leg is impaired. This is at the body function / structure level. The effect of this impaired sensation and reduced motor control in

the leg is that he is unable to walk outside on rough terrain due to poor balance and decreased muscle strength. This is defined as an activity limitation. The impact of this inability to walk outside is that George is not able to attend his weekly pub quiz night as he cannot access the pub. This is termed a participation restriction in the model. However, both the environmental and personal factors in the model affect the body function / structure, activity and participation components. In this case George lives a long distance from the venue; however, he does have extensive social support and he lives with his daughter who is committed to assisting him to regain his independence following his stroke. George's high levels of motivation to return to participating in the quiz nights provide additional mitigation to the effects of the stroke.

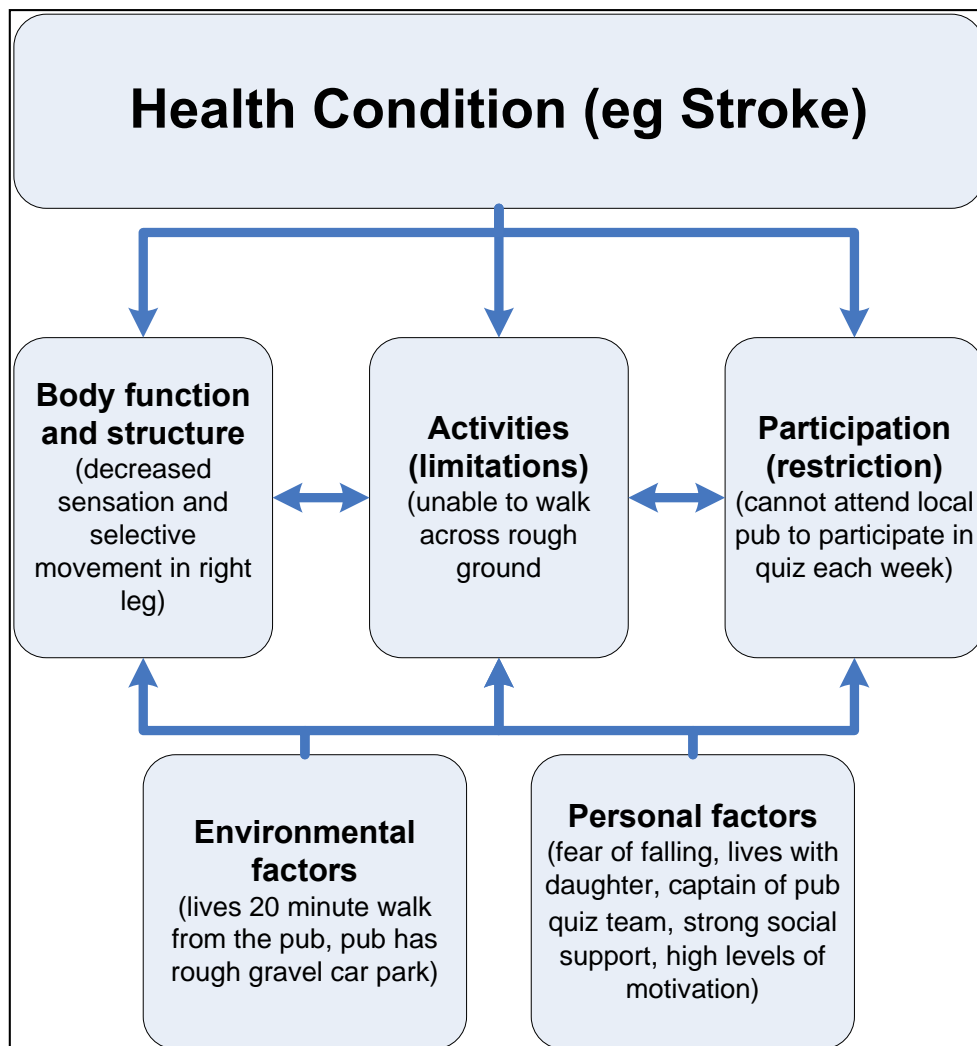


Figure 2-2: International Classification of Functioning, Disability and Health (adapted from: WHO, 2001)

There is an emphasis in the ICF classification on the importance of personal and environmental factors that influence functioning for the disabled individual. Personal factors are features of the individual that may have an impact on their experience of disability¹⁰⁸. The factors include gender, age, other health conditions, fitness, lifestyle, habits, coping styles, social background, education, past and current experience, overall behavioural patterns, individual psychological assets and other characteristics. Environmental factors refer to the physical, social and attitudinal environments in which people live and conduct their lives¹⁰⁸. These factors are extrinsic to the individual and have an external impact on body function and structure, activity and participation. Environmental factors can be modified at the level of the immediate environment (e.g. Wheel chair access) to the general environment (e.g. National and Local Government policies) and include diverse influences such as access to and quality of the health system, societal attitudes, architecture and town planning.

The use of such an all-encompassing and widely accepted model of disability throughout this thesis will ensure that the study explores the impact of the TARGET tool and associated service development initiatives within a well validated and comprehensive framework that is internationally recognised.

2.2.2 Disability in the New Zealand context

The 2001 New Zealand household disability survey and disability surveys of residential care facilities^{109, 110} reports an increase in the prevalence rate of disability with age, with 69 percent of women and 64 percent of men aged 75 years and over reporting that they have a disability. The Statistics New Zealand disability household¹⁰⁹ and residential care¹¹⁰ surveys also reported that severity of disability increases with age, with 36 percent of people aged 75 years and older experiencing a moderate disability requiring some assistance (less than daily) or special equipment and 18 percent having a severe disability requiring daily assistance. Twenty per cent of the New Zealand population report that they live with a disability that results in functional and / or role limitations. Fifteen per cent of people with disabilities are severely limited and need daily assistance¹¹¹.

2.2.3 Health service needs of older people with co-morbidity and disability

As life expectancy advances and the population ages, the proportion of older people rises, resulting in an increase in the prevalence of chronic conditions and disability¹¹²⁻¹¹⁴. Chronic illnesses and co-morbidity largely affect older people, with the likelihood of two or more concurrent conditions increasing with age, and contributing to disability, reduced quality of life and increased demand and cost for health care^{112,114}. Wiener & Tilly¹¹⁵ stated the ageing population would necessitate a shift of focus from acute illnesses to chronic diseases and provision of ongoing management will be required as disability often accompanies chronic illness.

A person with disability may require help with personal activities of daily living (PADL)⁴ and instrumental activities of daily living (IADL)⁵ inside and outside the home, may require transportation, meals provided and access to a rehabilitation programme to either regain function, prevent further decline or to minimise compromised function¹¹⁶. They may require an increased need for health services, while their ability to navigate the health service to gain access across multiple providers is diminished. The decreased activity and/or nutrition arising from the disability increase the risk of falls and the onset of co-morbidity. Co-morbidity and disability are synergistic. If both are present, then there is an increased risk of hospitalisation with an associated increase in the cost of providing health services and medications due to complex health and social needs¹¹⁶⁻¹¹⁸. This emphasises the importance of case managed and targeted care to prevent further functional decline and loss of independence for older people at risk of disability, and the need to prevent or minimise the severity of chronic diseases.

Improved longevity raises the issue of whether these projected extra years will be lived in good health. Ideally, increased life expectancy would be accompanied by decreased disability, allowing older people improved quality of life and reducing

4 The activities ordinarily performed day by day essential for everyday living (such as eating, dressing, bathing and other personal care activities).

5 The activities often performed by a person who is living independently in a community setting during the course of a normal day, such as managing money, shopping, telephone use, travel in community, housekeeping, preparing meals, and taking medications correctly.

demand for health care ¹¹³. To explore the impact of socioeconomic factors on disability in older New Zealanders, Barrett ¹¹⁹ analysed data from the Living Standards of Older New Zealanders survey. The survey involved structured interviews with a sample of 3,060 core economic units (or community dwellings), comprising 1,618 (52.9%) single-person units and 1,442 (47.1%) partnered units. The survey results included information about basic demographic characteristics, the health and disability status of individuals, their mental health status, their level of social and family support, and their economic living standard. Eight percent of the participants were classified as disabled. As expected, the prevalence of disability among those in the sample increased with age, more steeply after 80 years. There were distinctive patterns of prevalence for Māori and non-Māori. The prevalence of disability among Māori was higher than for non-Māori. Of the total non-Māori group in the survey sample, eight percent had high levels of disability compared with 11.5 percent of the Māori group. The prevalence of high levels of disability among Māori in the 65–70 years of age group was the same as that among non-Māori in the 81–84 years of age group, suggesting a ten to fifteen year difference in the onset among Māori of the conditions and functional problems. It suggests a greater proportion of Māori who survive into their mid-70s and 80s do so with a higher relative number of health conditions and functional problems.

2.3 Factors protective against the progression of disability

Decisions in relation to providing older people with choices and timely access to high-quality health care services are imperative for future ageing populations ^{113, 120}. It is important that these services are delivered with an awareness of the factors that have been shown to be linked to optimisation of function among older people. These include: (i) Physical activity; (ii) Quality of Life; and (iii) Social support and networks.

2.3.1 Physical activity

Cress et al. ¹²¹ describes physical function as an integral part of achieving and maintaining independence in activities of daily living and suggests that it is a major contributor to overall health status in older people. This recognised pattern of

declining physical fitness with age is consequent upon a number of age-related changes¹²².

Brach and van Swearingham¹²³ explored four domains of functioning which impact on an older person's ability to function independently in the community; mobility / fall risk, muscle force, co-ordination and general fitness. A total of 83 community-dwelling older men (mean age=75.5 years) were examined. Measurements of physical impairment (muscle force production, flexibility, and fitness) and physical disability (gait speed, stride length, risk for recurrent falls, and physical function) were recorded. The results indicated that walking speed, fall risk, and muscle force contributed independently to the characterisation of the activities of daily living of the community dwelling older men studied. The identification of domains of physical function may be useful in the development of interventions targeted for physical impairments and disabilities that contribute to deficits in performance of ADL. Targeting interventions for physical impairments and disabilities related to function may improve the effectiveness of interventions to minimise a loss of independence among community-dwelling older people.

Binder et al.¹²⁴ suggest that deficits in skeletal muscle strength, gait and balance are potentially reversible causes of disability. In a study of 115 (mean age 83 years) sedentary older adults with high levels of disability, Binder examined the effect of exercise training on progression to disability. The study consisted of a control group that participated in a nine month low level home exercise programme involving flexibility exercises, and an intervention group that performed three months of flexibility, light resistance and balance exercises, then three months of resistance exercises and finally three months of endurance exercises. The intervention group showed significant improvements in physical performance and activities of daily living and a reduction in the associated levels of disability.

The increased prevalence of chronic disease in an ageing population makes it difficult to know to what extent the loss of physical fitness is an inevitable accompaniment of healthy ageing¹²⁵. Furthermore, it is becoming increasingly apparent that a loss of physical fitness (i.e. deconditioning) is in itself an important factor in explaining the

functional decline with age. Many of the typically reported physiological deficits associated with the ageing process may largely be due to decreases in physical activity rather than chronological ageing alone ¹²⁶. Bortz ¹²⁷ suggests this was slow to be identified initially due to the protracted period for an individuals 'redundant function', or reserve capacity, to be lost and functional impairment to become apparent. Consequently, the effects of disuse were originally identified as inevitable and part of the 'normal' ageing process.

Sihvonen et al. ¹²⁸ define physical activity among older people as the quantity of movement a person performs including leisure activities, work related activities and housework. Galgali et al. ¹²⁹ reports that there is little information available regarding physical activity levels among older New Zealanders. However, the 'Life in New Zealand Survey ¹³⁰, a population based study, states that all study participants over 65 years had participated in some physical activity in the previous 4 weeks. Galgali et al. suggest that this could have been due to the low response rates among the participants. In a study of 910 older people (with an average age of 86 years) randomly selected from a random sample of all general practitioners in the Auckland region, Galgali et al. reports that 48.7% did not undertake any leisure time physical activity and 15.6% did not undertake any physical activity ¹³¹.

It is unclear whether a decrease in habitual activity is a normal part of the ageing process. The majority of reports that describe customary levels of physical activity among older people are cross-sectional surveys, administered to whole populations. Therefore, it is not possible to distinguish between the true effects of ageing and possible cohort effects. Furthermore, methods employed to estimate the prevalence of physical activity generally have not distinguished the age of the subject and questionnaires appropriate for young adults may not always have elicited an accurate depiction of the older person's activity level.

Contemporary evidence suggests that the majority of older people spend much of the day at very low levels of physical activity. Additionally, vigorous activities tend to be replaced by longer lasting, less demanding pursuits ^{132, 133}. Evidence that is emerging from surveys concentrating on frequency and duration of activities rather than

intensity suggests that different age groups are associated with distinct activity patterns¹³⁴. This was confirmed by a large Canadian survey that was administered to a random sample of households and completed by those aged ten years and over (approx. 22,000 people)¹³⁵. Dallosso et al.¹³⁶ used an activity inventory specifically designed for older people to look at levels of customary physical activity among the old (65 to 74 years) and the very old (75 + years) living at home. Physical activity was broken into four categories: outdoors productive activity, indoors-productive activities, leisure activities and walking. Of the 91% of subjects who reported being ambulant, indoor physical activities featured most predominantly, preceded by outdoors and leisure activities such as walking. The level of physical activity intensity tended to be light and moderate with very low participation rates in high intensity activities. They concluded that although 46% of the sample had undertaken some form of leisure pursuit, levels of regular participation in physical activity was not high.

The well-described phenomenon of a loss in mobility and functional ability in old age, has already been explored¹³⁷⁻¹³⁹. WHO define mobility as “the individual’s ability to move effectively in his surroundings.” Of particular importance is the level of mobility inside and outside the home environment, Analysis of the literature supports the notion that mobility outside the home is essential for basic daily and independent living^{140,141}.

2.3.2 Quality of Life

A further concept that has been linked to progression of disability among older people is that of Health Related Quality of Life (HRQoL). An international group of investigators suggests six fundamental dimensions of HRQoL: physical functioning, psychological functioning, social functioning, role activities, overall life satisfaction, and perceptions of health status¹⁴². Testa and Simonson¹⁴³ argue that each domain of health can be measured in objective and subjective dimensions.

Whereas the objective dimension serves to define a person’s degree of health, the person’s subjective evaluation serves to translate that health status into the actual QoL experienced. Thus, two people with identical health status may have very

different QoL depending on their subjective experiences, expectations, and perceptions regarding health. This has been shown to have significant influence on an individual's attitude and coping strategies relating to their level of disability they experience¹⁴⁴⁻¹⁴⁶.

Borg¹⁴⁷ suggests that older people who are not able to manage daily life by themselves may have a different view of their HRQoL and associated life satisfaction than those with preserved self-care capacity. Borg suggests that the transition from being independent with ADLs to having to live with reduced self-care capacity alters the view of aspects contributing to life satisfaction.

Population-based studies including mixed samples of older people have demonstrated that several factors contribute to HRQoL and life satisfaction. For instance, in a study including 105 older people, aged 90 and above, impaired health was correlated with lower life satisfaction. However, personality was more strongly related to life satisfaction and to HRQoL¹⁴⁸.

In another study of 212 persons, aged 80 years and above, including variables such as social support (contact with children, contact with siblings, contact with friends, number of close friends and satisfaction with friends), satisfaction with friends correlated significantly with life satisfaction and health (need of assistance and self-rated health) and health was found to be strongly related to life satisfaction¹⁴⁹. In that study, however, only social network and health were investigated. Other variables with an impact on life satisfaction that have been reported are financial status, which was investigated together with physical functioning, psychological and social support in a sample of 843 men and 714 women, age 70 and above¹⁵⁰. The results associated higher life satisfaction scores with higher social class and educational attainment, adequate income to meet living expenses, satisfactory living arrangement, good social support, participation in social activities and functional independence. In addition, Ho et al.¹⁵⁰ found physical function and social support to be related to HRQoL. Although the subjects in the studies described above were not selected on the basis of having reduced capacity to perform activities of daily living, the analysis showed reduced physical function to be related to life satisfaction. Furthermore health related

quality of life and life satisfaction have also been linked to goal attainment and goal striving^{144, 145}.

2.3.3 Social Support and Networks

Social support is viewed as a key component to successful ageing¹⁵¹⁻¹⁶². Remaining at home as a person reaches late-life allows the older person to access and maintain social networks. These supportive networks may be diminished once an older person enters residential care. Relationships at a personal level allow intimacy and attachment with family and friends and at a community level allow attachment to places (e.g. neighbourhood) and social institutions (e.g. clubs, churches). Perceived social support is the individual's subjective perception that they are cared and loved, esteemed and a member of a social network that is reciprocal¹⁵¹ and this perception of support appears to be an important characteristic of social support for maintaining health and well-being in old age¹⁵⁸. This section will review the role of social support in facilitating health and will discuss the importance of network maintenance despite disability and morbidity limiting active participation for the older person.

The Association between Social Support and Health Status

The first influential paper showing that people who were less socially integrated had a higher risk of mortality was by Berkman and Syme in 1979¹⁶³. A number of studies have since shown an association between social isolation or diminished social network and increased rates of all-cause mortality^{160, 164-169} and cardiovascular disease-specific mortality^{152, 154, 170-176}. Social isolation or poor social support networks have been associated with increased mortality in a systematic review of studies with an odds ratio of 2.0 to 3.0, independent of other cardiovascular risk factors¹⁵⁹.

Evidence is beginning to accumulate that suggests the need for a behavioural and/or a physiological pathway to promote the protective effects of social support on physical health outcomes especially in regard to cardiovascular function. Social support has been found to be associated with lower resting blood pressure in older people^{162, 177, 178} and with lower ambulatory blood pressure^{179, 180}.

Bisconti et al.¹⁸¹ examined the link between social support and health. They suggest that social support may be important among older people because the negative life events that often occur (for example, loss of spouse) may limit social connectedness. George¹⁸² describes the buffering effect of social support in preventing the progression of functional loss and optimising HRQoL. Measures of social support included quantity of support from family and friends and the perceived satisfaction with that support. Results indicated that perceived control mediates the support-outcome relationship in two independent samples, each comprising approximately 250 adults older than 65, primarily Caucasian and functioning independently.

Family support

When considering the impact of more generalised social support it is also important to consider the more specific support offered by family. It is important to acknowledge the impact on the family of caring for an older person. Most caregiving is provided by the spouse. If the spouse has passed away then adult children especially daughters and daughters-in-law will provide care in terms of personal care and household chores¹⁸³. There is evidence that having a spousal carer lowers the risk of mortality for an older person compared to non-spousal carers¹⁶⁰. Despite older people having a network of family and friends, most care normally is provided by one person, who is deemed the primary informal carer.

There is increasing evidence to suggest that there is considerable cultural variability in the degree to which caregiving for an older person in New Zealand is undertaken by family members. Two surveys of filial obligations were conducted in New Zealand involving 100 Chinese and 103 European families respectively. Across the 587 individuals from two generations, a widely shared obligation hierarchy emerged with social contact and respect on top of all others. Chinese scored higher than Europeans on obedience and financial support (as predicted), but also on most other obligations^{184, 185}.

Within Pacific people and Māori the reliance on family members appears to be far more prevalent than among New Zealand Europeans. Nikora¹⁸⁶ stresses the

importance of whānau⁶ as carers among disabled Māori. In a study exploring support options for Māori with disabilities it was found that over 79% of respondents had family members who lived in the same household as their main carer. This is supported by data from the New Zealand 2006 census and the findings of a report¹⁸⁷ exploring the differences between Māori and non-Māori informal caregiving. Both of these sources state that more Māori men and women spend time caring for both household and non-household members than their non-Māori counterparts⁷³.

The concept that caring for a dependent family member is stressful is well supported in the literature¹⁸⁸⁻¹⁹¹, regardless of culture. In fact, Informal caregiving is considered to be one of the more stressful social situations¹⁹². Ruppert¹⁹³ suggests that caregiving is an extremely demanding task and that the psychological aspects of caregiving are frequently overlooked. Coleman¹⁸⁹ also reports that the needs of carers are often overlooked when health professionals focus attention on the needs of the one requiring the most obvious care.

Characteristics of primary carers: Informal carers are typically unpaid and provide long-term or end-of-life care for older people at home. They normally are family members, however, it is estimated that older people receive five to ten percent of their caregiving from neighbours or friends^{194, 195}. Most older people requiring long term or palliative care wish to remain at home rather than be institutionalised¹⁹⁶⁻¹⁹⁸ and the informal carer is indispensable for palliative care at home to occur¹⁹⁹.

Caregiving can involve providing active or stand-by help in PADL and IADL activities such as: medication management; transport; housework and navigating the healthcare system. Older people who receive informal care based on data from the United States National Long-Term Care Survey (NLTC) and the Informal Caregiving Survey are on average 77.9 years old, 68% female, 39% are married and 50% are widowed. Further, in their living arrangements, 38% live alone, 31% live with a spouse only, and 21% live with a spouse and/or children. Women are more likely than men to be the primary carer, representing 67% of carers in the NLTC survey²⁰⁰ and women carers are more likely to spend more time caring than men

⁶ A Māori term with numerous meanings. In the current study the Families Commission⁽¹⁹⁵⁾ definition of “an extended family group” is used.

carers²⁰¹⁻²⁰³. In the NLTCS survey, 53% of care recipients needed help with IADLs only, 24% with 1-2 ADLs, 10% with 3-4 ADLs, and 13% with 5-6 ADL activity²⁰⁴.

Depending on the health care system's ability to deliver care into the home, the support provided to informal carers may allow older people to remain living at home. Carers reduce the risk of institutionalisation by providing a level of care that a person would receive in a residential care facility and they may facilitate access to formal services that can slow functional deterioration for the older person. However, having a carer may also increase the risk of institutionalisation, especially if the carer is not supported. Carer stress has been found to be a contributory factor in the decision to place an older person into residential care as the coping abilities of the carer are no longer effective²⁰⁵⁻²⁰⁷.

Given the risk of the process of caring to the psychological and physical health of carers and the reliance of family carers to play a critical role in the older person's care, it is critical that carer's needs are assessed and that interventions that support carers are provided. The New Zealand Guidelines Group (NZGG) recommends in their evaluation of carer support and assessment that carers have a considerable number of areas of need. These include: respite, relationship with care recipient, family relationships, physical health, basic ADLs, emotional support for the care recipient, co-ordination of services, transportation and relationships with services⁹. These issues will be considered further in the context of this study.

An important concept implicated in the adaptation and well-being of older people is that of perceived control and coping. This is explored in depth in Section 2.8.1. However, there is increasing evidence of the importance of coping among informal caregivers. Wallhagen¹⁸⁸ highlights the effect of perceived control on a sample of 60 older carers (mean age 69 years). The sample was interviewed to determine the strategies they used to cope with stress related to caregiving. Perceived control had a direct relationship with life satisfaction and depression.

2.4 Model development

Figure 2.3 summarises the factors described in Sections 2.2 to 2.3 that relate ageing and disability to older people living in the community in New Zealand. These

factors will be integrated with the other components of the model as it is developed throughout this chapter.



Figure 2-3: Client and whānau factors related to model of analysis

The following section will continue to explore the pertinent issues relating to older people living in the community and will expand on the concept of ageing-in-place.

2.5 Ageing-in-place

The majority of older people, even those with considerable disability, prefer to stay at home if they can. In general, the majority of older people prefer to age in place. Oswald ²⁰⁸ undertook interviews with 84 older people (62-92 years), living in Germany, who were healthy or suffered severe mobility impairment. He found for both groups the individuals perception of what ‘home’ meant was an important factor in why older people want to age-in-place. Structured interviews with ten older people living in their own homes also revealed the valuable familiarity of home ²⁰⁹ among a group of ten participants in a phenomenological study in America. Other studies have shown older people do not want placement in institutional care and try to avoid this. A cohort study evaluated the willingness to live permanently in institutional care of 3262 seriously ill hospitalised adults in US ²¹⁰. Findings showed 67 percent of patients were ‘somewhat unwilling to’, ‘very unwilling to’ or would ‘rather die than’ permanently live in a rest home. Furthermore, increasing age was independently related to lower levels of willingness to live permanently in aged residential care.

A recent New Zealand study explored the decision making process and level of satisfaction among 131 older people when entering residential care. Findings revealed the substantial majority of older people who moved into residential care were unhappy with their decision to move, while the vast majority of older people who remained at home were happy with their decision ²¹¹. In addition there is evidence of a shift away from institutionalisation within New Zealand. Boyd et al. ²¹² describe the findings of the Older Peoples Activity Level (OPAL) census undertaken within Auckland. The study sought to determine the rate of institutionalisation of older people in the three Auckland District Health Board regions over the preceding 20 years and to compare variations in resident demographics, length of stay, and dependency levels over this time. The authors reported that aged residential care bed numbers had increased by only three percent, despite a 43 percent increase in the population over the age of 65 years. In addition the proportion of the population over the age of 85 years living in aged residential care had declined from 40 percent to 27 percent and that the median age of residents had risen from 83 to 86 years.

In response to this trend, health policy makers and health services are developing services to improve the capacity of health systems to prevent, delay or substitute for temporary or long-term institutional care ²¹³. The same systems are trying to balance the health care needs of increasing numbers of older people against service and resource constraints. Enhanced community-based services – commonly providing a mix of home-based clinical and social care ²¹⁴, often co-ordinated or supervised by community-based medical practitioners – are becoming increasingly widespread and important.

Internationally, the concept of ageing-in-place has been the objective in a number of policies and has undergone shifts in its interpretation during this period. The first major advance occurred in 1994 when OECD ministers reached a consensus that people should be able to continue living in their own place of residence in their later years. In the event that this is no longer possible, the alternative would be for older people to live in a ‘sheltered and supportive environment which is as close to their community as possible, in both the social and geographical sense’ ⁵¹. Within New

Zealand, ageing-in-place is defined as the ability of people to “make choices in later life about where to live, and receive the support to do so” (Dalziel ³⁷, pg. 10). Despite this broad categorisation, ageing-in-place often refers to the ability of older people to remain dwelling in the community and residential care in the form of either rest homes or hospitals is specifically excluded.

2.5.1 Factors that support Ageing-in-Place

The challenge to adequately supporting an older person to age-in-place is providing the health and social assistance from both formal and informal sources. The amount of choice the individual can have available to them is dependent on personal and environmental factors. Factors such as income levels, housing, safety and security, family support, access to community-based support or social services, mobility and health, and access to appropriate and timely information can influence their perception and the range of options available to them and their families ^{215, 216}.

It is suggested that to support the decision-making process, policy must prioritise the development, implementation and evaluation of supportive community-based health and social services including access to transport and the development of a variety of housing options (e.g. home ownership, subsidised living, home modifications, assistive technology, sheltered housing, shared accommodation) ^{215, 217, 218} that maximise choice to allow an older person to age-in-place and to avoid or delay institutionalisation. The key policy documents such as the Positive Ageing Strategy and the Health of Older People Strategy provide the objectives that enable older people to remain living at home and state that a key objective of health services must be the promotion of autonomy, independence and social connectedness of the older person. It is suggested that this occur through promotion of innovative approaches to providing integrated continuum of care with a whole-person and a whole-system response and a focus on maintaining or returning the older person to independence. Several aspects are seen as key to ageing-in-place. These include: the development of flexible and integrated funding structures; provider accountability and quality indicators; informal carer support; a network of independent service providers and specialist services that deliver cost-effective care ^{52, 217}.

A study of an ageing-in-place intervention, which involved nurse coordination of a home based support service, matched 78 community dwelling older people with 78 rest home residents according to ADL performance, cognition, and age ²¹⁹. The ageing-in-place group demonstrated statistically significant improvement in all clinical outcomes (cognition, depression, ADL function and incontinence) when compared to the residential care group. Furthermore, all outcome scores deteriorated for the residential care group but stabilised or improved for the ageing-in-place group.

In most 'developed' economies, there is a strong policy stress upon older people 'staying put' or 'ageing-in-place' for as long as possible. Although often driven by financial concerns relating to the cost of residential and nursing home provision, this emphasis has also been supported and promoted through an extensive academic research literature on the preferences and priorities of older people themselves ²²⁰⁻²²². Despite the many benefits of ageing-in-place, a New Zealand study revealed a large number of older people were unnecessarily being referred for entry into residential care. The study investigated referrals requesting rest home or private hospital placement for community dwelling older people, and was undertaken over a three month period ²²³. Results demonstrated, of the total 158 patients referred for entry into residential care, 42 percent were managing in their own home at the six month follow-up. The authors concluded many older people can manage at home for longer than perceived by the referring doctor. Further support for this is provided by a longitudinal study across three New Zealand cities in which Jorgensen et al. investigated why older people with high levels of disability entered residential care and who were the major decision makers relating to the entry into care ²²⁴. Significant factors were found, which increased the likelihood of residential care entry for older people. These included: high scoring dependency on the instrumental activities of daily living (IADL) scale, and an adult child living some distance away. The evidence from the study participant groups highlighted contrasting views about who was important in the decision making about entry to residential care. Older people who had moved into residential care generally thought that doctors had played a key role, whereas family members and professionals tended to consider that the move was the caregiver's decision. The authors concluded that older people with good levels of

knowledge about services and support, and good housing, were more likely to continue to live in the community.

2.5.2 Cost of ageing-in-place

Many countries have gone on to encourage and explore specific housing initiatives designed to reduce institutional care entry. For example, the Netherlands developed the “Senior Citizen Label”, which is a quality certificate only awarded to those new housing developments which meet a large number of different requirements, several of which are intended to ensure that the older person should not have to leave their dwelling when disability occurs ²²⁵.

Davey et al. studied the accommodation options in later life in New Zealand within a context of the government policy of reducing residential care places ²²⁶. The resultant report focused heavily upon those for whom ageing-in-place is likely to be most problematic, namely the poor, those who rent, older people from the Māori and Pacific populations and those with high dependency needs. A key conclusion of the report was that ageing-in-place is clearly a favoured approach in New Zealand government policy; however, staying in a long-term family home may not be the best option in all circumstances. Nevertheless it is likely that the vast majority of older people in the future will be ‘ageing-in-place’ rather than in institutional care. The overall international picture is of a strong emphasis on ageing-in-place but a growing appreciation of the problematic nature of this for some groups and especially those in poor housing conditions ^{227, 228}.

Literature frequently claims that greater utilisation of HBSS is a more cost effective alternative to residential or hospital care for older people ageing-in-place ²²⁹. In contrast Miller & Weissert ²³⁰ report that HBSS has failed to meet expectations as a replacement for residential care. One of the reasons for this is due to the additional costs of HBSS. They state home care is provided to those who are not at risk for institutionalisation. A failure to intervene to adequately support those older people at risk of institutionalisation to the community, coupled with individuals at low-risk of institutionalisation being added to existing HBSS resulted in expanding numbers and creation of additional costs. In contrast, Hollander & Chappell’s ²³¹ review of 15

studies revealed overall ‘fairly solid’ evidence that home care services are a cost effective alternative to residential care. For home care, costs were considerably less for those who remained at the same level and type of care for six months or more, when compared to residential care. However, HBSS as an alternative to hospital care revealed mixed results in terms of cost-effectiveness. The authors stated that intuitively one would expect home care to be a cost effective alternative, however, overall results were inconclusive. A literature review of home care prepared for the WHO reported nearly all studies found HBSS correlated with a higher quality of life⁶³. A number of studies reported cost-effectiveness, although unlike Hollander & Chappell’s review, this was commonly found when HBSS replaced acute care and was less frequently found with substitution for residential care.

Pande et al.²³² claim caring for older people in the home is less costly than institutional care and expansion of home care programmes which delay institutionalisation may be an effective alternative to control rising long-term care expenses. Their large study evaluated a community long term care programme between 1995 (n=3748) and 2005 (n=9157). Results showed that in 2005, compared with 1995, older people were significantly more likely to have chronic conditions and receive specific community services (e.g. physical therapy, dialysis and oxygen). The authors concluded older people were more disabled and demonstrated greater access and utilisation of community services in 2005 than in 1995. This reflected successful efforts to delay institutionalisation and support older people to age in place. Support for this within New Zealand is provided by the findings of the OPAL study²¹² that showed that despite the increase in the number of older people the rates of aged residential care useage between 1988 and 2008 had declined.

Furthermore, in light of the positive association between health care costs and rising age²⁹ ageing-in-place may not be a cheaper alternative to residential care. A small non-randomised New Zealand study examined intensive home-based care for older people assessed as eligible for long term residential care²³³. Results demonstrated that overall the cost of home care was significantly less than residential care. However, this study, as with many others evaluating cost effectiveness, did not take into consideration indirect costs such as the impact of informal carer burden when

older people age in place. Furthermore, a New Zealand randomised control trial (RCT) compared a restorative intervention model with usual care, for 113 home-based older people with high and complex needs²³⁴. Cost analysis revealed that, the intervention cost, was on average, \$13,843 extra per person, compared with usual care, over a 12 month period.

2.6 Summary of section one

In this section the concepts introduced in chapter one have been further developed within the context of ageing and disability. The evidence to date highlights the complexity of optimising functional ability among older New Zealanders living in the community. The causes of disability described in the literature have been explored and the process of disablement has been defined using the WHO ICF model. The impact of disability and chronic conditions has been described within the context of New Zealand government strategies. In addition, the evidence supporting factors that are protective of the progression of disability among older people, such as maintenance of physical activity, social support and family support have been considered. These concepts have been integrated within the ‘client / whānau’ domain of the model. The section concluded with an examination of the concept of ageing-in-place that has been the central tenet of the policies of a number of countries (including New Zealand) responses to the ageing population. Factors supportive of ageing-in-place such as innovative approaches to promoting independence and ensuring integration of services have been elucidated. Finally the evidence examining the costs of interventions and strategies to enhance an older persons ability to age-in-place has been reported. Such inquiry is vital when considering the multifarious nature of ageing and the design of health services for older people. However, intrapersonal influences are reported in the literature, that either exacerbate or moderate the effect of the factors described to this point on an older person’s ability to ‘age successfully’. These include coping mechanisms, motivation and engagement and strategies that optimise the engagement of older people in health services provision. Low levels of such psychological resources are associated with functional decline²³⁵ and depression²³⁶ among older people. For example, in a study of instrumental behaviours of daily living in community-dwelling older people, Kempen et al.²³⁷ concluded that older individuals with fewer psychological resources are

particularly at risk for developing disability. A consideration of these influences will allow for a deeper understanding of the concepts integral to 'ageing-in-place'.

Section II: Successful ageing

2.7 Strategies for ageing well

Successful, healthy, optimal, active, productive ageing or positive ageing are concepts that have emerged within the field of ageing and are supported by longitudinal, cross sectional and quasi-experimental studies. An empirical definition of and a set of strategies for successful ageing was provided by Rowe and Kahn ²³⁸ based on the data from the MacArthur Foundation Study of Successful Aging. Furthermore, Baltes and Baltes ²³⁹ published “Successful Aging” which took a bio-psychosocial perspective and described the process of selective optimisation and compensation (SOC) for ageing with success. Consideration of the SOC model allows for the conceptualisation that ageing is a changing balance between gains and losses. The concept of successful ageing refers to the resilience of people who succeed in achieving a positive balance between gains and losses during ageing. This view is supported by studies that show that despite the difficult and often inevitable losses that result from ageing, most older people maintain a subjective feeling of well-being ²⁴⁰⁻²⁴².

2.8 Selective optimisation with compensation model

The SOC model of ageing ²³⁹ proposes a system of three adaptive processes: selection, optimization, and compensation. *Selection* denotes a restriction of involvement in activities in response to lost capacity. *Optimization* refers to efforts to augment or enrich one’s reserves in order to continue functioning (e.g., physical activity). *Compensation* involves efforts to meet goals by new means (e.g., modifying behaviours, using assistive devices). When considering the strategies employed by an older person who has an increasing degree of disability it is important to consider these three processes. Fiksebaum ²⁴³ suggests that as people age, they have to cope with regular and frequent failure in attaining the action goals they set for themselves.

In addition the SOC model suggests that with ageing, people experience an increase in stressful life changes such as loss of a spouse, retirement, or forced relocation¹⁸¹. Additional stressors common among older people include reduced income, illness, loss of a driver’s licence, and/or becoming a carer for a family member who is ill ²⁴⁴.

For many older people, stressors steadily accumulate, resulting in significant frustration in their aspirations to maintain a normal adult lifestyle and increasing their dependence on others. They may also be unable to engage in desired activities to obtain gratification in social relationships thereby resulting in dissatisfaction.

The SOC model acknowledges losses as an inevitable part of the ageing process, but suggests that the older individual is able to continue to generate positive outcomes. One of the key elements of the model is that people create environments which make success possible while effectively dealing with losses due to ageing.

To achieve congruence between actual and desired courses of development, individuals must either try to modify the course of personal development in accordance with personal goals and aspirations (assimilative mode) or adjust personal goals to constraints of development (accommodative model). Brandtstadter and Wentura^{245, 246} argued that individuals will engage in assimilative activities as long as they see a reasonable chance that such behaviour will help them achieve their goals. A further perspective in the discussion about how people cope with changes and stressful events has been put forward by Aspinwall and Taylor²⁴⁷ who introduced the concept of proactive coping.

2.8.1 Proactive coping

Schwarzer²⁴⁸ further developed the Proactive Coping Theory. This (pg. 45) suggests that;

‘the proactive individual strives for improvement in his or her life and environment instead of mainly reacting to a past or anticipated adversity’.

Proactive coping is conceptualised as the promotion of desired future outcomes and the prevention of undesired changes²⁴⁹. In this perspective, the participant defines the meaning of desired and undesired changes. The combination of preventing (threatening) losses and striving for improvement can provide a useful framework for promoting successful ageing through a deceleration of the unfavourable proportion of losses and gains in later phases of the life span.²⁵⁰ Bode²⁴⁹ contends that proactive coping can promote successful ageing by stimulating people to invest in their future, focusing on personal growth and the optimisation of life in middle and late

adulthood. The concept refers to the efforts people may make to prevent potential losses and other stressors from occurring or to minimize their consequences. Proactive coping involves setting goals and having efficacious beliefs concerning the acquisition of these goals.

There have been numerous attempts to increase an individual's proactive coping strategies through training. Bode²⁵¹ tested the effectiveness of a brief educational programme that is based on proactive coping theory. The programme entailed a four-session group intervention for people aged between 50 and 75 years and was intended to improve proactive coping competencies. A total of 158 men and women participated in the study. In a prospective randomized control trial with an experimental group and a waiting control group, questionnaire data was collected at three points (baseline, after completion of the programme, and 3 months post-intervention). The programme improved proactive coping competencies significantly. Three months after completion of the intervention, results remained stable. Demographic characteristics of participants did not predict changes in proactive competencies and participants who formulated personal goals in concrete terms also profited more from the intervention.

However, there is also considerable evidence to suggest proactive coping is an inherently stable mechanism that is present throughout life in many individuals and that individuals vary considerably in the resources they bring to stressful situations. People with effective levels of proactive coping do not wait for stress to occur; they actively set about positioning themselves and their resources in an advantageous situation.

Proactive coping is autonomous and self-determined goal setting and realisation of goals; it deals with self-regulatory goal attainment processes and explains what motivates people to strive for ambitious goals²⁴⁸. This is closely aligned to the concepts integral to goal striving and attainment discussed in detail below.

Support for the effect of proactive coping on ageing is growing. Fiksenbaum²⁴³ examined the relationship between coping, social support, functional disability⁷, and physical and psychological health status in a sample of 224 community-residing older adults. Data was collected using a confidential and anonymous questionnaire. Results of structural equation analyses indicated that proactive coping was inversely related to levels of social support and functional disability.

2.8.2 Self-regulation, motivation and engagement

Greenglass et al.²⁵²⁻²⁵⁵ proposed that the concepts of proactive coping are consistent with the SOC model of ageing. A further concept closely related to proactive coping is that of self-regulation. This refers to those internal processes that enable an individual to guide his/her goal-directed activities over time and across changing circumstances / contexts. Regulation implies modulation of thought, affect, behaviour, or attention via deliberate or automated use of specific mechanisms and supportive skills. The processes of self-regulation are initiated when routine activity is impeded or when goal-directedness is otherwise made salient (e.g. the appearance of a challenge, the failure of habitual action patterns).

In a similar vein, the basic assumption of motivational theories to well-being in personal goal research is that the successful pursuit of meaningful goals plays an important role in the development and maintenance of psychological well-being²⁵⁶. Personal goals constitute individualised and cognitively elaborated representations of what a person wants to achieve in his or her current life situation²⁵⁷. When individuals are confronted with a chronic illness, personal goals related to various domains in life, for example, career or family, may be threatened. Moreover, a chronic illness may also create new goals, for example, remaining free of acute hospitalisation for exacerbation of a chronic condition. This is especially true for chronic illnesses with a demanding self-care regimen such as asthma, diabetes and heart failure. Kuijer¹⁴⁵ suggests that the concept of adaptive tasks, such as maintaining an emotional balance and preserving autonomy, can be seen as

⁷ Functional disability addresses the extent to which an individual is able to engage in independent living and accomplish routine daily activities.

representations of what people want to achieve with respect to coping with their illness²⁵⁸⁻²⁶⁰.

Ageing appears to some individuals as an inevitable, immutable process and older people who attribute deterioration in function solely to ageing practise less effective self-care and co-operate less with health promoting activities than those who believe they have some influence over their well-being. Belief that deterioration is unavoidable and the individual has little control over the process hinders health maintenance measures in old age. Preventative strategies may well be different for those who do and those who do not feel they have some control over their future health and there would be value in knowing factors which characterize those in either group.

In an initial cross-sectional component of the Mosgiel Longitudinal Study, Campbell et al.²⁶¹ investigated factors that might be used to identify older people who feel they have considerable control over their future health. They hypothesised that those who felt they had control over health would already have better health practices reflected in better diet, greater physical activity, less smoking and lower alcohol intake. In addition they also hypothesised that their health and level of independence would be better than others in the study, possibly because of the better health practices, but also because illness and disability would be likely to lead to a feeling of loss of control.

Variables were added to a logistic regression model using a forward stepwise method until there was no further significant reduction in the value of the scaled deviance at the $p = 0.05$ level. The regression analysis showed that those with a feeling of a great deal of control over future health, took less alcohol, were more likely to be satisfied with bowel function and had a lower protein intake. In addition when compared with the other two groups, those who felt they had a great deal of control were less disabled on physical self-maintenance score and IADL score, took fewer drugs, showed less evidence of depression on the Geriatric Depression Rating scale and used fewer domiciliary services. Different perceptions of control were associated with significant differences in health practices and health status.

Riediger ²⁶² states that the concept of motivation has great relevance for the older adult because of the multiple problems that can result in functional limitations. The ability to overcome and transcend these problems is related to the individual's motivation to maintain and/or improve function ²⁶³⁻²⁶⁶. Dishman and Ickes ²⁶⁷ conceptualised motivation as intrinsic to the individual, and defined self-motivation as a general disposition to persevere. However, rehabilitation professionals have long known that a person's motivation plays an important role in determining the outcome of therapy, despite the lack of a clear definition of the phenomenon ²⁶⁸.

Current developmental theories acknowledge the importance of motivational and volitional processes for understanding human development in general and successful ageing in particular. These theories share the assumption that people, within limits given by social, cultural, and biological constraints, actively shape their own development ^{246, 269-272}.

Research on self-regulation, motivation and adaptive human behaviour often emphasises the role played by goal formation and attainment, along with the attendant processes and variables that support the attainment of goals, such as persistence, self-efficacy, or optimism ²⁷³⁻²⁷⁵. Indeed, being optimistic, believing in one's own competencies and ongoing persistence have been shown to be related to subjective well-being and good health ²⁷⁶⁻²⁸⁰.

2.9 Goal facilitation

Goal-setting theory ^{281, 282} was developed inductively within industrial/organisational psychology over a 25-year period, based on some 400 laboratory and field studies. These studies showed that specific, high (hard) goals lead to a higher level of task performance than do easy goals or vague, abstract goals such as the exhortation to "do one's best." So long as a person is committed to the goal, has the requisite ability to attain it, and does not have conflicting goals, there is a positive, linear relationship between goal difficulty and task performance. Goals are defined as "future states that are desired and / or expected" ²⁸³. Goal directed activity is a distinctive feature of human behaviour and occurs across the lifespan.

Empirical evidence has linked goal setting to improved performance, especially when goals are specific, difficult and challenging^{284, 285}. Locke and Latham²⁸² state that goals affect a person's actions by focussing and energising effort, influencing performance and effecting action. Goals are usually hierarchical with broad, higher order goals at the top (distal goals) and sub-goals represented underneath²⁸⁶. The use of sub goals (or proximal goals) has been shown to facilitate performance on new, complex tasks. Bandura²⁸⁷ suggests this is because proximal goals offer clear markers of progress and reduce the risk of becoming demoralised when current accomplishments are viewed against a distal goal.

However, Locke and Latham highlight a number of goal moderators which mediate performance. These include a person's commitment to the goal, the feedback received and the complexity of the task. In health, goal-setting theory is limited, despite goal setting being heralded as an essential component of person centred care. Goal setting opportunities are often not exploited²⁸⁸ and when they are, health professionals view goal setting as a foreign process for clients. This often results in goals being set by the health professional for the client^{283, 289, 290} which is contrary to the principles of person-centred care. However, goal setting with older people requires skill. The increased prevalence of cognitive impairment, communication difficulties and multiple co-morbidities provide added complexity to the process.

A recommendation of the *Assessment Processes for Older People Guidelines*⁹ is for the adoption of the process of goal-setting. This recommendation reflects the evidence that goal setting improves older people's outcomes. In this context goal setting involves working with the older person and facilitating them to take an active role in choosing and setting the goal. Key steps in the process include goal identification, discussion and negotiation; and the articulation of goals that are attainable, measurable, achievable and time-bound. This all requires focusing on the goals of the older person rather than simply functional goals that are often the main driver of the multidisciplinary health teams. To this end, a refocus of current thought and practice is required, from solving of problems to focusing on the older person and the attainment of goals.

In contrast, Powell ²⁹¹ reports that ‘Goal-orientated approaches have been used by many professional groups working in a range of health and social care settings for many years, and are widely seen as valuable in promoting greater involvement of service users in decision-making’. Central to this process of greater involvement was the emphasis on goals rather than problems, and the participation of the service user in the process of goal-setting. To date the literature indicates that goal setting has typically been driven by health professionals and has rarely involved the participation of the older client. Bogardus, Bradley, Williams, van Doorn and Inouye found that agreement between an older person’s, their carer’s and physician’s goals were low (kappa 0.19-0.28) ²⁹².

In addition, clinical experience highlights the tension between person centred care, the wishes of the older person’s family / carers and the ability of a service provider to impact on an older person’s goals. There needs to be increased emphasis on the best way to provide health services to older people to optimise independence for the older person and maximise cost benefit for the service provider. More recently, the use of goal setting with older people in a rehabilitative setting has been argued persuasively by Rockwood and Stolee ²⁹³. Given the multiple problems frequently encountered in working with older people, a focus on their aspirations and goals can be a means of attending to the active role older people can take in shaping their own futures ^{294, 295}. Attention has also been drawn to the benefits of goal setting in providing the means of allowing judgements to be made about the effectiveness of service provision ²⁹³.

An RCT investigated health-related quality of life for patients with end-stage renal disease ²⁹⁶. The intervention comprised goal setting with interdisciplinary collaboration and support. The intervention group produced statistically significant improvement for role-physical and role-emotional elements of the Short Form -36 survey tool (SF-36). The SF-36 health survey is a widely used health status questionnaire comprising 36 items selected from a larger pool of items used in the Medical Outcomes Study ²⁹⁷. Such a change in component scores of the SF-36 suggests a positive influence on patient perceptions of their health status. In addition, 87 percent of those in the intervention group stated progress was made toward

achieving their identified goal. Similarly, an RCT of patients with knee osteoarthritis involved an eight week supportive patient education and supervised fitness programme incorporating goal setting by patients^{298, 299}. The intervention group demonstrated significant functional status improvements during the programme; however, these benefits were not maintained at one-year follow-up. The authors concluded that the process of goal setting, in which the client was allowed to tell his/her whole story and the health care professional came to an understanding of the clients experience, built partnership and demonstrated respect of the client and his/her viewpoint. All these factors contributed to an increase in client trust of the professional, which has been shown by Thom to be associated with increased continuity of care and self-reported adherence to treatment by clients³⁰⁰.

The prominence of client/person/whānau-centred care is evident in the Health of Older Persons strategy¹². The WHO (pg. 13) states that that

“goal setting should be one strategy to encourage active rather than passive decision making”³⁰¹.

This WHO statement generally reflects worldwide trends which clearly acknowledge the importance of using a holistic, person centred approach that promotes wellness and active participation by clients themselves in decisions made about their care. Client (or person) centred care is recognised as good practice internationally. In New Zealand this is further expanded to incorporate the whānau (whānau-centred care) with Māori clients^{40, 302-307}.

Goal-setting is now being recognised as an integral part of rehabilitation and it has been suggested that clear concise goal setting will lessen the impact and residual effects of the disability/handicap³⁰⁸. Rehabilitation is achieved by relearning skills formerly mastered and by learning new ways to do activities one no longer can accomplish with previously learned skills. This suggests that the process of rehabilitation must be an iterative and active problem solving process that focuses on a client’s disability.

Person-centred care is a philosophical approach advocated within current Western health care culture, and has a range of definitions. These include such components as

where the physician tries to enter the patient's world, to see the illness through the patient's eyes, understanding the whole person, finding common ground regarding management, enhancing the doctor-client relationship ³⁰⁹, being realistic about personal limitations and availability of time and resources, sharing power and responsibility, developing a therapeutic alliance ³¹⁰. By definition then, these components are enabled by client involvement in the goal setting process. As Lewin et al (pg. 64). conclude in their systematic review:

'Within our definition, shared treatment decision making is effectively a sufficient indicator of patient-centred care' ³¹¹.

Whether person centredness has positive effects on client health care behaviours or health status is, however, unclear, and further research on this is needed ³¹¹.

One difficulty with person centred care is that it is the other end of a continuum from healthcare professional centred care and healthcare staff may believe that they are using a person centred approach when they are only partway removed from professional centred care. Wressle et al. found that using a structured model and tool, such as the Canadian Occupational Performance Measure, enhanced person centredness of care ^{308, 312}.

Bradley ²⁸⁹ suggests that the topic of goal-setting has received relatively little attention in the medical literature, however evidence from the social sciences suggests that the articulation of goals may be fundamental to planning appropriate medical care and achieving desired clinical outcomes. This view is supported by a survey of 1020 clients and 400 doctors which found that patients of person-centred doctors were more satisfied than patients of doctors with more traditional communication styles.

Goal setting may enhance both the process and outcome of clinical care in several ways. Firstly, goals may help clinicians link recommended plans of care to desired outcomes ^{313, 314}. Outcomes-based plans of care can help ensure the relevance of both diagnostic and therapeutic interventions ³¹⁵. Secondly, explicit linking of plans of care with desired outcomes may clarify for patients and family members the purpose of various recommendations. If patients and family members understand the purpose of recommendations, they may be more likely to accept and adhere to recommended

plans for care^{316, 317}. Thirdly, explicit discussion and articulation of goals may help resolve conflicts among clinicians, family members, and patients about desired outcomes¹⁴⁶. Conflicts about goals, both among clinicians and between clinicians and patients or families, may be especially prevalent in cases of chronic illness when multiple parties are often involved in a patient's care, and the goals of care are not always obvious since 'cure' is not feasible. In such cases, discussions of goals of care may expedite the identification of sources of disagreement and the negotiation of shared goals, resulting in improved patient and family satisfaction with care^{318, 319}. By promoting outcomes-based plans of care, enhancing acceptance of clinical recommendations, and facilitating the resolution of conflicting goals, a clear statement of goals may increase the chances of achieving desired outcomes, a result valued by clinicians, patients, and families.

Counsell et al. hypothesised that a multi-component intervention, called Acute Care for Elders (ACE), would improve functional outcomes and the process of care in hospitalised older patients. ACE included a specially designed environment (with, for example, carpeting and uncluttered hallways); person-centred care, including care plans for prevention of disability and rehabilitation; planning for patient discharge to home; and review of medical care. The study recruited 1,531 community-dwelling patients, aged 70 or older, admitted to hospital for an acute medical illness. There were no significant group differences in hospital length of stay and costs, home healthcare visits, or readmissions. Nursing care plans to promote independent function were more often implemented in the intervention group (79% vs. 50%; $P = .001$), physical therapy consults were obtained more frequently (42% vs. 36%; $P = .027$), and restraints were applied to fewer patients (2% vs. 6%; $P = 0.001$). Satisfaction with care was higher for the intervention group than the usual care group among patients, caregivers, physicians, and nurses ($P < 0.05$)³²⁰.

Beyond the hypothesised functional benefits resulting from planning individually meaningful goals (as evaluated by standardised outcome measurement) is a belief that client autonomy should ultimately direct clinical decision-making³²¹⁻³²³. Kuczewski and Fiedler³²¹ wrote that 'the ultimate value of a proposed treatment (is) a subjective judgement, based on how they accord with the patients values, goals and preferences'

(p. 849). Goal planning therefore may have a purpose related to enhancing client autonomy that is distinct from maximising achievement on a standardised outcome measure. The belief in the value of goal planning to enhance client autonomy is reflected in observational studies of levels of client participation in goal planning²⁸⁸ and experimental studies that evaluated the effect of goal planning approaches on objective and subjective measures of client participation in rehabilitation planning^{312, 324-326}.

Furthermore, in the UK, current inpatient rehabilitation guidelines promote collaborative goal setting, with patient family/carer involvement³²⁷. A review of controlled trials evaluating goal setting in the area of rehabilitation identified the significance of client input when setting goals. It highlighted that behavioural change is more likely to occur when goal setting with clients, compared with no goal setting³²⁸. However, a recent survey of inpatient and community rehabilitation found many patients received limited information regarding goal setting³²⁹. The authors concluded, in general, during treatment sessions, potential goals were discussed with patients with subsequent goals formulated but that there is scope for patients to have more involvement in the goal setting process.

Despite the positive outcomes of goal setting, some studies report that older people are less likely to prefer an active role in clinical decision making when compared to younger age groups^{330, 331}. Bastiaens et al.³³² explored the views of people aged over 70 years on involvement in their primary health care in 11 different European countries. Four hundred and six primary care patients aged between 70 and 96 years were interviewed about their views on patient involvement in a face-to-face interview. The findings suggested that older people over 70 did want to be involved in their care but their definition of involvement was more focussed on the 'caring relationship', 'person-centred approach' and 'receiving information' than on 'active participation in decision making'. However, the authors concluded that the desire for involvement in decision making is highly heterogeneous so an individual approach for each patient in the ageing population is needed.

McKinstry et al.³³³ determined preferences for a shared or directed style of consultation in the decision making part of the general practice consultation in 410

adults. Multiple regression analysis showed that patients' preferences were found to be independently predicted by a number of variables including their age (patients aged 61 or older were more likely to prefer the directed approach to consultation).

Further support is provided by a population-based survey of 2,765 of English-speaking adults conducted in US³³⁴. Respondents expressed preferences ranging from patient-directed to physician-directed styles on each of 3 aspects of decision making (seeking information, discussing options, making the final decision). Logistic regression was used to assess the relationships of demographic variables and health status to preferences. It was shown that preferences for an active role increased with age up to 45 years, but then declined.

This observed pattern could be due to cohort effects among the participants. It may be that the observed behaviour of those over 65 years in relation to goal setting and patient directed services may be cohort specific. However, Baltes and Mayer³³⁵ report findings from the Berlin Aging Study⁸ that show that older people continue to have multifaceted and dynamic goals that drive their behaviour in the same way as when they were younger.

2.9.1 TARGET tool development

As described above, clinical experience highlights the tensions between person centred care, the wishes of the older person's family / carers and the ability of a service provider to impact on an older person's goals. This tension and the increased prominence of empowerment and participation of clients in their rehabilitation necessitate the development of a goal facilitation tool for use with older people within New Zealand. Various attempts have been made to standardise goal setting in rehabilitation. The commonly used tools utilised with older people are the Goal Attainment Scale (GAS) and the Canadian Occupational Performance Measure (COPM).

⁸ The Berlin Ageing Study is a multidisciplinary investigation of old people aged 70 to over 100 years who live in former West Berlin. In the main study (1990-1993), a core sample of 516 individuals was assessed in relation to mental and physical health, their psychological functioning, and their social and economic situation. Since then, the study has been continued as a longitudinal study.

The GAS is one of the most commonly used scale. It was initially developed for use in mental health settings but has been applied in many different health care settings including older person's rehabilitation.^{144, 293, 336-341} Use of the GAS involves open ended exploration of self-identified goals in an interview process. The main strength of the GAS is its responsiveness to clinically significant changes in goal attainment³³⁶. The main limitation of GAS is the difficulty in implementation – intensive training is required to enable clinicians to select precise treatment goals and to define realistic and distinct levels of outcome³⁴².

The COPM³⁴³ uses an interview process to elicit open ended patient identified goals. COPM focuses on occupational performance problems in self-care, productivity and leisure. However, it does not examine which occupations are rewarding to the client or what support systems are needed for the client to carry out these occupations³⁴⁴.

With these limitations in mind, there was significant potential to develop a new structured goal facilitation tool that addresses these issues. Towards A Realistic Goal in Elders Tool (TARGET)³⁴⁵ has been developed by clinicians with an in-depth knowledge of the above tools and has been used clinically in a number of organisations within New Zealand to allow services in the community to be structured around the goals identified by older people^{57, 58}. It is a way to ensure that the principles of PCC are integrated within the delivery of services. To enable a more developed cognisance of the issues surrounding these services it is important to consider the factors relating to community services in New Zealand.

2.10 Model development

The factors elucidated above contribute further to a potential model of analysis of the effect of ageing on older people in the community. These are shown below in Figure 2.4. Proactive coping, which has been shown to be an important strategy indicative of successful ageing and components of person centred care such as engagement and involvement of the client in planning services, will be included in this phase of the model. These are included as they have been shown to have the most influence on goal directed behaviour. It is acknowledged that there are a

considerable number of other client factors that influence clinical outcomes in older people.

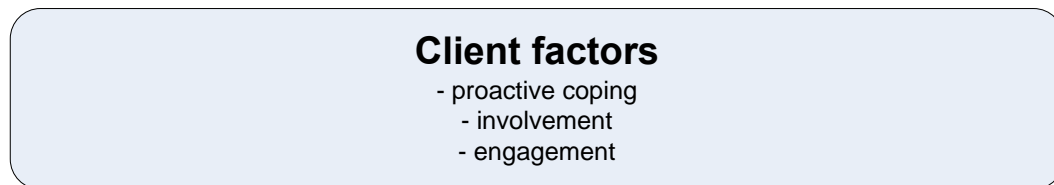


Figure 2-4: Client factors to be included in a model of analysis of the effect of TARGET on clinical outcomes among older New Zealanders

2.11 Summary of Section Two

This section has described the evidence relating to factors supportive of successful ageing. The Selective Optimisation Compensation model of ageing has been presented together with the concepts of proactive coping, self-regulation, motivation and engagement in service planning and delivery. The evidence supporting the critical role of these concepts in successful ageing has been explored. A brief review of goal theory followed and key aspects of goal facilitation were placed within the paradigm of person centred care. The section continued with a description of the development of TARGET within New Zealand before an elaboration of the client factors phase of the model of analysis utilised in this study. The third section of this review will continue to contextualise the factors previously explored within health service provision in general. Following this, research focussing on home based support service provision will be explored with particular emphasis on factors that are related to maximising the quality of those services. This will allow for further elaboration of the role of TARGET in the implementation of the core components of restorative support services for older people.

Section III: Community based services for older people

2.12 Introduction

The concepts of ageing and disability within New Zealand have been explored and the moderating effects of physical activity, social support and intrapersonal factors such as control, self-regulation and coping strategies have been described with reference to literature exploring models of successful ageing. The importance of goal directed services for older people has been demonstrated along with the reported difficulties in implementing such services. The following section will allow for exploration of the contemporary international and national literature that utilises these concepts to design effective services for older people in the community that maximise cost effectiveness and health outcomes. Following this evidence for organisational that contribute to optimal delivery of services will be discussed. This will allow for the factors discussed in sections one and two of this review of the literature to be contextualised. Following this the comprehensive and multivariate model for analysis of the critical factors necessary for implementing home based support based on an older person's goals will be developed further.

2.13 Community services in New Zealand

The evidence relating to the impact of implementing ageing-in-place has been described previously. A further factor for ensuring that older people can continue to age in place is that of timely access to quality health services. It is believed this will enhance health and wellbeing and facilitate improved quality of life; resulting in reduced overall cost of health care ³⁴⁶. Despite the clear benefits of ageing-in-place, the ageing of New Zealand's population will inevitably place increased pressure on HBSS. The effective development and provision of these services has been inherently difficult both within New Zealand and internationally. It is important to describe these difficulties to develop an understanding of how the quality of these services can be maximised. Within New Zealand the current process of HBSS for people over 65 is shown in Figure 2.5 on page 58.

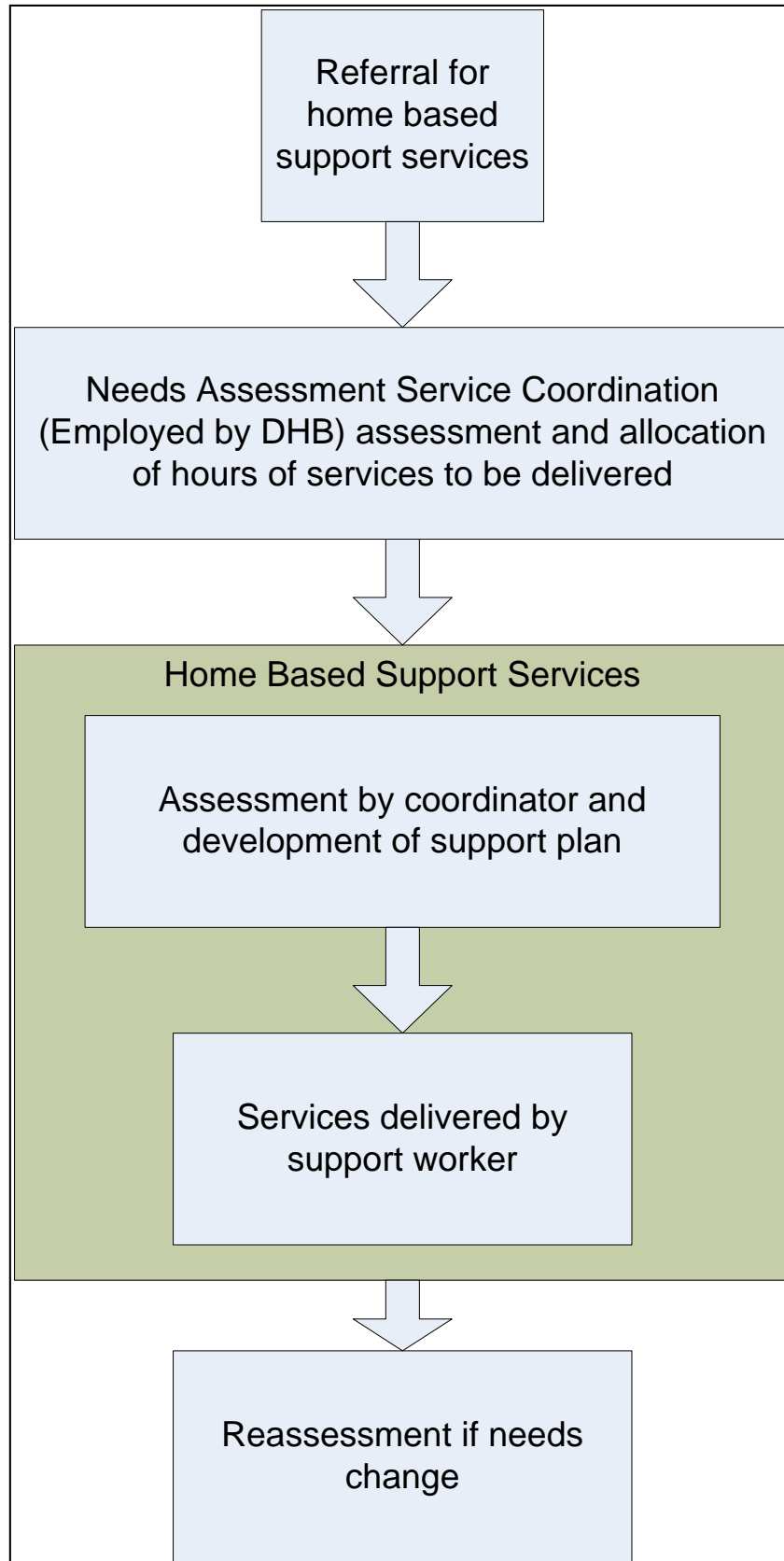


Figure 2-5: New Zealand model for older people accessing funded home based support services

2.13.1 Needs Assessment Service Coordination

It is well-recognised that coordinating services or care packages in response to the assessed needs of older people and their carers is a core part of delivering integrated, person-centred care. Care co-ordination is a role or individual position either within a hospital setting. Good, comprehensive assessment and care planning; undertaken in a way that properly engages with the older person and their carer and involves them in decisions about their care plan is crucial in ensuring that the most appropriate services are provided³⁴⁷. Co-ordinating these processes and services has the potential to avoid unnecessary duplication and promote good continuity of care. Challis states “The impact of services upon well-being is much greater when those services are planned and co-ordinated in an integrated fashion”³⁴⁸.

In New Zealand, a person’s level of need is determined using a standardised assessment procedure by the Needs Assessment and Service Co-ordination (NASC) agency if they are deemed to have a disability that will last greater than 6 months and result in a reduction in independent function requiring ongoing support³⁴⁹. If required, NASC can refer them for specialised assessments. The agency also develops a support plan to co-ordinate the health services such as primary care, specialised medical care, district-nursing and home based support services required to meet the identified needs of the older person and their family, and they may allocate resources from the Disability Support Services funds to contract HBSS providers³⁴⁹. The current approaches of NASC agencies to assessment are based on professional opinion regarding good practice³⁴⁹. However, currently the professional background of NASC assessors shows considerable variability across New Zealand. In an analysis of NASC agencies across five district health boards Gunderson-Reid et al.⁵⁷ found that: 24 percent were registered nurses; nine percent were registered occupational therapists or physiotherapists; 43 percent were social workers and five percent identified themselves as medically trained. The remaining 19 percent were not health professionals.

Following assessment, services are allocated as considered appropriate and reviews are undertaken on a regular basis. For older people, support package allocations are based on the level of support needs, and are designated as being very low, low,

medium, high and very high. The level of funding ranges from zero to \$50 per week for a person with low needs to zero to \$600 per week for a person with very high health and social needs ³⁴⁹. At the higher levels of need there is additional flexible funding available.

There have been numerous reviews of NASC since its inception in 1992. Despite the clear rationale and guiding principles, there have been significant issues identified around the relative successes of NASC to provide a case management service for older people and to coordinate disability support services in a cost-effective and older person-centred manner.

MacDonald ⁶¹ in a review of disability support services delivered to older people in New Zealand interviewed clients, their families and NASC and HBSS staff and found that almost all provider and client representatives interviewed expressed strong concerns with the way the NASC system operated. The transparency of the NASC system in practice was questioned by many providers and client advocacy representatives interviewed. Several felt that the outcomes of needs assessments were influenced by the availability of resources to meet the need in the area at the time. Almost all people interviewed expressed a concern at the lack of consistency around the country for NASC, and reported that this has been informally recognised for many years. This is supported by subsequent studies that have shown a high variability in the assessments undertaken by NASC ^{60, 350-352}.

Some people felt that the needs assessment component over-emphasised the focus on ongoing social support needs of disabled people, overlooking the need for intervention and attempting reversibility. The focus of NASC was described as entry assessment, with little provision for follow up assessments, and thus more suited to the needs of younger disabled people (who were perceived as having more stability in their needs) than the changing needs of older people (who tended to be more unstable).

2.13.2 Home Based Support Services

As shown in Figure 2.5, in New Zealand, following assessment by NASC a client is then referred to HBSS providers for implementation of the services deemed appropriate. Terminology and provision of HBSS varies between countries. In most countries of the European Union (EU), HBSS are provided by government agencies based on the individual needs of clients ³⁵³.

In the UK, HBSS can be provided by government social services or outsourced from the independent sector. Traditionally, standard long-term HBSS for older people has been provided by social services. More recently, there has been a shift, with the independent sector increasingly being sourced to provide this type of care and social services providing more specialised HBSS care ³⁵⁴⁻³⁵⁶. In the USA, public funding for HBSS is provided via Medicare or Medicaid programmes. Medicare is a federal health insurance programme for people aged 65 or older, some disabled people under 65 years and people of all ages with end-stage renal disease. This is an entitlement programme rather than one based on need. Most are automatically eligible when turning 65 years because the individual or spouse has paid via employment taxes. Medicaid is a joint federal and state programme available to certain individuals and families with limited income and resources. Each state sets its own guidelines regarding eligibility and services. Medicaid makes payments directly to health care providers rather than the individual ³⁵⁷. For eligible individuals, Medicaid is the primary source of public funding for HBSS ^{65, 358}. As previously mentioned, in New Zealand, HBSS are largely provided via government DSS for those meeting eligibility criteria. A number of private agencies also provide assistance.

An extensive literature review of HBSS found, both internationally and within New Zealand, similar issues currently exist with regard to the sustainability and effectiveness of HBSS ³⁵⁹. Arguably, the most significant issue with current HBSS relates to the workforce. A review of international literature on home care prepared for the WHO highlighted a number of problems ^{63, 66}, including high support worker turnover rates and use of sick leave and requests for shift changes, claiming these findings indicated inadequate or complete absence of support for support workers by the HBSS organisation. A lack of employment stability was evident, contributing to

reduced continuity of care which affected both service users and providers. The report emphasised that current staffing issues are largely related to inadequate training.

A recent cross-sectional observational study comprised 4007 randomly selected older people receiving home care services in 11 European countries ³⁶⁰. Quality indicators for home care were explored. Across Europe, the most common quality problems identified were “failure to action rehabilitation potential in ADLs”, “no therapies [occupational therapy and physiotherapy] involved in service delivery” and “inadequate pain control.” The Czech Republic, Italy and Germany demonstrated the greatest prevalence of undesirable outcomes. The authors commented on the issue of “rehabilitation potential”, stating this reflected many European home care agencies which do not provide exercise or physical therapies to clients.

Fleming & Taylor ⁶² state HBSS in the UK are under increased pressure due to growing numbers of older people combined with limited resources and financial restraints. Home-based older people have increasingly complex health and care needs. Fleming & Taylor ⁶² suggest that despite the cost implications associated with changing HBSS, transformation is required to provide a quality service that meets the needs of older people in a timely manner. National Minimum Standards for home care were developed in response to government policy objectives in the UK to support people with complex health and personal care needs to live in their own home, and rapidly evolving HBSS ³⁶¹. The standards require HBSS to adhere to numerous indicators concerning person-centred care, protection of users and workers and providers operating within defined standards ³⁶². Following development of these standards, a study in North West England investigated the quality of generic HBSS via postal surveys of providers ³⁶². Results showed HBSS were often inflexible and at times unavailable. In addition, support workers were often unqualified and had not received specialist training. Overall, there was little evidence of HBSS adopting the National Minimum Standards.

Patmore & McNulty³⁶³ undertook a study in England about person-centred flexible HBSS which comprised three stages:

1. A review of international literature;
2. Telephone interviews with managers of home care providers from independent agencies and social services providers; and
3. An in-depth study of six home care providers.

The literature review argued the need for client-centred HBSS, as older people differ considerably in their preferences and values³⁶⁴. Therefore, HBSS need to be flexible in order to identify and meet older people's preferences. Findings from the telephone interviews revealed various problems contributing to the quality of service delivery³⁶⁵. A number of independent agencies could not guarantee hours and pay rates were low for support workers, resulting in unreliable and irregular visits due to difficulties with staffing. Continuity of support workers and the relationship which subsequently developed between the older person and worker, appeared accepted by many providers as a key element of high quality HBSS³⁶³. The in-depth interviews revealed, for older people, the most common type of extra help sought was for assistance to get out of their home and to access the community to undertake social activities, and this need was often unmet³⁶³. As part of their official service some providers would assist older people to go outside their homes, other providers prohibited or discouraged this³⁶³.

In the USA, HBSS have been criticised for primarily working in the best interests of the agency as opposed to the consumer. There is a lack of continuity between support workers and clients, compounded by inflexible service provision and inadequate staffing³⁶⁶. In addition, Government funded Medicaid HBSS often have financial caps, eligibility restrictions and limitations on the amount of care provided. Such strategies limit users' choice of services and may result in unnecessary institutionalisation or unmet needs^{65, 367}. An American study found that, compared with individuals whose needs were met by HBSS, those with unmet needs were more likely to experience adverse consequences including falls, discomfort, weight loss, dehydration, burns and dissatisfaction with assistance received³⁶⁸.

Following a series of focus groups, expert interviews and public consultation, a New Zealand Discussion Paper of HBSS identified limitations with the responsiveness of these services within the Auckland region ³⁶⁹. These included: delays in accessing services and inability to respond to the individually tailored needs of older people; HBSS were perceived as inflexible, not person centred and overlapping, with older people having to relay their situation several times before receiving care and the combined effect of current HBSS delivery was creating dependency and contributing to reducing the level of independence for older people. This would appear to be supported by a study undertaken by Hansen et al. ³⁷⁰. Using regression analysis on a set of Danish longitudinal data featuring people aged 67–77 they estimated the effect of home care while controlling for initial health, including initial ADL ability and well-being, along with demographic and socioeconomic conditions. They concluded that traditional models of HBSS either have no effect, or actually have a detrimental effect, on a person's functional ability and long term outcome. For women they found no significant relation between the frequency of home help visits and subsequent ADL abilities, while for men the results indicated a negative association between the frequency of home help visits and subsequent ADL ability, especially when initial ADL ability is low ($p < 0.001$). However, given the relatively young age of the sample the applicability within the context of the current study is questionable.

2.14 Restorative principles and rehabilitation

Nadesh ³⁷¹ identifies a further issue that commonly arises when the home based support services are explored in contemporary literature. There is extensive support for the view that health services delivered in an older person's home are often delivered at a critical juncture in an individual's functional status. The prevalence of disability and concurrent chronic diseases among community dwelling older people has already been explored. Between 25 percent and 50 percent of older people who are hospitalised lose some of their functional abilities during their hospital stay ^{372, 373}. Furthermore three months after a hospitalisation, 66 percent have not regained their previous level of functioning ^{374, 375}. However, Boyd et al. ³⁷⁶ analysed a subset of the Women's Health Study in US ($n=457$) to determine the rates and predictors of functional decline, the probability and time course of subsequent functional recovery and predictors of functional recovery. In line with the previously described studies,

they found that thirty-three percent of hospitalised women experienced functional decline at the first visit after hospitalisation. However, 50 percent fully recovered over the subsequent 3 months, with 33 percent recovering within 6 months and an additional 14 percent over the following 6 months. Boyd concluded that although most recovery of function occurred by six months after the first visit after a hospitalisation, a substantial proportion of disabled community-dwelling women recover over the following two years.

Although home care has the potential to improve this situation, it often focuses more on treating disease and “taking care” of the client than on helping clients to regain functioning and independence. In Australia such a model of HBSS is often called the “Active Service Model”; in UK it is called “Re-ablement”; within New Zealand and US it is called “Restorative Home Support”.

There is strong evidence that older people have considerable ongoing potential to recover fitness and therefore services provided to them should invariably integrate physical activity into the day-to-day delivery of services. As discussed, physical inactivity and disuse play a major role in the well-reported age-related conditions, such as diabetes, sarcopaenia (muscle loss) and heart disease. The recognition that old age is often associated with unnecessary poor fitness and deconditioning forms the rationale for restorative home support.

Within New Zealand development of restorative home based support has been informed by the findings of the ASPIRE (Assessment Of Services Promoting Independence And Recovery In Elders) project^{345,350}. ASPIRE was set up in 2004 to evaluate the effectiveness of three of the significant ageing-in-place programmes within New Zealand: (1) The Coordination of Services for the Elderly (COSE). This was a community-based needs assessment and service co-ordination initiative. The aim was to avoid duplication in service provision. A key worker was assigned to several general practice teams and identified resources within communities. This offered older people a greater choice of service support and facilitates safely staying in the community. COSE represented an evolution of the NASC role. (2) The Promoting Independence Programme (PIP). The programme was for people who

would not be able to maximise their potential for recovery within the average hospital stay. Referrals to the programme were made by medical consultants, general practitioners, NASC and other similar agencies. A key worker was assigned to each older person and they initiated and co-ordinated the person's rehabilitation process. The process also involved a team of healthcare workers including registered nurses, occupational therapists, physiotherapists and speech therapists. Older people received up to 8 weeks of facility based rehabilitation or, if able to receive services in the community, up to one year of rehabilitation from the time of the health event. Hand over to home care providers occurred after that period. PIP did not replace NASC; instead it integrated with current practice. (3) Community FIRST (Flexible Integrated Restorative Support Team). This offered a different approach in the form of restorative home support, which usually involved the integration of physical activity into the routine delivery of services. It used a multidisciplinary team (primarily registered nurse, physiotherapist and occupational therapist) and delivery was based on several levels of support depending on the needs of the older person. It offered a replacement for current home care provision.

The objectives of ASPIRE included: assessing the effectiveness of the ageing-in place initiatives as compared to usual care in preventing (or delaying) the time before a community-based older person requires permanent residential care; determining the impact of the ageing-in-place initiatives on an older person's independence and health related quality of life compared to similar measures in those receiving usual care.

The researchers conducted randomised control trials of a sample of older people using the three ageing-in-place initiatives, compared to the usual care resulting from NASC assessment. There were 569 participants in the trial. Initial interviews were conducted before people participated in the trials. Interviews were repeated at three months, six months and then every six months to an average of 18 months.

There was a significant effect of a 31 percent relative risk reduction ($RR^9 = 0.69$, 95% CI 0.53, 0.91) of improved survival over two years. Furthermore, older people who used one of the three initiatives experienced a significant 34 percent (95% CI¹⁰ 0.47, 0.92) risk reduction in residential care placement³⁷⁷. Predictive modelling using the same data set identified a number of factors that increase the likelihood of older people being hospitalised or entering residential care. Factors associated with increased risk of residential care included functional decline, social isolation, negative mood, caregiver stress, inadequate meals or dehydration. Factors associated with increased risk of hospitalisation included a lack of medication review, negative mood and previous hospitalisation.

At an international level a number of studies on restorative care in the institutional setting report positive outcomes for older people and support workers. Such gains for the older person can include maintaining or improving functional outcomes, psychological gains, improved quality of life and independence^{5, 7, 378}. Support workers can demonstrate improvement in outcome expectations, increased satisfaction and knowledge of restorative care³⁷⁸⁻³⁸¹. Fewer studies have researched restorative care in the home-based setting.

A large controlled clinical trial in the USA compared a restorative home care model with usual home care for older people^{382, 383}. A sample of 1424 community dwelling older people over 65 who were identified to be at risk of functional decline after acute illness or hospitalisation were studied. The participants had to have potential to maintain or improve their function and not have any severe cognitive impairment that would impede their ability to participate.

Several key components of the restorative model were identified. Firstly, there needs to be involvement of the older person, their family and home care staff in setting goals and reaching agreement on the process for reaching the goals. This needs to

9 Relative Risk - is a ratio of the probability of the event occurring in the exposed group versus a non-exposed group.

10 Confidence Interval - an estimated range of values which is likely to include an unknown population parameter.

encompass the use of a self-care progress report to clarify goals, establish a baseline, standardise the assessment of clients, clarify care responsibility across the multiple providers, and track clients' progress toward their goals. Secondly, training needs to be provided for home care nurses, therapists and support workers in rehabilitation and in geriatric medicine, and goal attainment was highlighted. In addition there needs to be a reorientation of the focus of the home care team from primarily treating disease and 'taking care' of clients, to maximising function and comfort and working as an integrated inter-professional team with shared goals. Finally there needs to be a comprehensive assessment, diagnosis and development of a multifaceted treatment plan that included various combinations of exercise; behavioural changes; environmental adjustments and adaptive equipment; counselling and support; training and education of the older person, family and friends.

The results of the study revealed restorative home care was associated with an increased likelihood of remaining at home (82 percent vs. 71 percent; OR¹¹, 1.99; 95% CI, 1.47-2.69), reduced possibility of visiting an emergency department (10 percent vs. 20 percent; OR, 0.44; 95% CI, 0.32-0.61), improved self care home management and mobility scores ($p=0.05$).

A UK RCT compared implementation of a Home Treatment Team (HTT) incorporating restorative care elements ($n=29$), with conventional community services ($n=25$) for older people at risk of failing to manage at home post acute medical treatment and rehabilitation³. The HTT included a qualified nurse manager and specially trained health care assistants. Compared to the control group, the HTT had fewer patients readmitted to hospital at 6 and 12 weeks, higher numbers were still at home at 6 weeks, 12 weeks and 12 months ($p < 0.05$). The intervention group had less days in hospital over the 12 weeks post discharge and more days at home over 12 months ($p < 0.05$). Significant changes in functional abilities and mental state were not found between groups. An Australian study evaluated implementing a

¹¹ Odds Ratio – this shows the strength of association between a predictor and the response of interest. It can vary from 0 to infinity. If the odds ratio is one, there is no association.

restorative care model via numerous service providers in the community, reporting positive results for service providers and older people ³⁸⁴.

Despite limited evidence of trials utilising all elements of restorative care in the home-based setting, there is evidence to support each of the various components, as demonstrated below. Nadesh ³⁷¹ identified key issues in traditional models of HBSS which should be the focus of restorative models. The first of these was the belief systems among the various members of the HBSS team. This view is supported by Baker ⁴ who reported that members of the HBSS team can inadvertently work at cross purposes in their efforts to simultaneously manage disease, provide personal care, and rehabilitate older adults. Without careful communication, providers can find themselves giving conflicting advice to older patients. This was identified as a widespread problem while working with clients in 27 home care agencies in a home-based rehabilitation clinical trial designed to help participants gain independence in ADLs through behavioural or environmental changes ³⁸⁵. For example, a nurse might assign a home support worker to bathe and dress an older woman post stroke at the same time as the rehabilitation therapists are encouraging her to build endurance and regain independence by performing those self-care tasks. Barnes ³⁸⁶ supports this view and provides a rationale for the crucial role of rehabilitation therapists in HBSS. Home Based Support Service agencies must consider treatment options that have traditionally been a part of therapist practice in hospitals, outpatient clinics, and skilled nursing facilities as well as the use of therapists in the role of case manager. By maximizing the practice of their therapists, agencies may reduce the cost of providing care to their clients by reducing unnecessary visits by other disciplines. Thus, agencies would provide more efficient care to their clients while maximizing their reimbursement. Traditional intervention, unfortunately, found the occupational therapists (OT), physiotherapists (PT) at cross-purposes with the support worker. Whereas the support worker provided ADL services for the client, the OT and PT were determined to have the client perform these tasks as independently as possible. The tendency has been for nurses and support workers to be nurturing and to “do for” the client. This conflicts with the rehabilitation focus of maximizing the client’s independence. This often led to competition rather than cooperation between the disciplines, as well as confusion and frustration for the client and family. A

restorative model of HBSS necessitates collaboration between OTs, PTs, registered nurses and support workers in all areas of functioning within the home as well as getting in and out of the home and in home exercise programme follow-through.

In addition, Nadesh ³⁷¹ identified that some clients did not want to perform their own ADLs for fear of losing their support workers; others stated they would start learning self-care only when support worker care was ending ³⁸⁷. These attitudes and behaviours proved counterproductive to effective and efficient rehabilitation. There was a lack of clear, mutually agreed upon goals for client care. Other barriers included shared beliefs about limited resources for care: Clients were thought to be too ill to be cared for within the constraints of the agency, and medication regimens were seen as beyond clients' cognitive and financial means. In addition, professional staff felt they had little information and few resources to rely upon. Individualising care was seen as too time consuming and there was thought to be too much pressure to stabilise a client's medical condition. The support workers within the HBSS system identified that they did not feel empowered to take the initiative in improving client function for several reasons:

- They saw their role as helping clients with a list of specified tasks outlined in the formal care plan and noted that clients, misunderstanding their role, often asked them to do things unrelated to client care.
- They feared negative evaluations if they did anything inappropriate to their perceived role.
- They felt they lacked authority to encourage client efforts toward self-care, and so they ended up “doing for” clients.

Finally, the clients also expressed a lack of understanding of the goal of home care, often seeing the support worker as a maid. They did not understand that activity was important to recuperation and were often unwilling to try new ways of performing ADLs.

Within New Zealand the restorative model is seen as a method to improve the quality and of HBSS ³⁶⁹. The Assessment Processes for Older People Guidelines ⁹ reported that a major barrier to the effectiveness of programmes of assessment and support for older people is the incomplete implementation of the recommendations

from the assessment by the older people themselves and by health professionals. The report stated strongly that to be effective, an assessment programme must operate on the principle of working together, or concordance, where the older person being assessed, their family/whānau, their carers and all professionals involved in their care and support are actively involved. One of the key factors identified for this mismatch between the recommendations of the treatment or care programme and implementation was a lack of understanding by the health care professional and the older person of the difference in their priorities and beliefs about health care issues. Working together is based on the idea that the work of the health practitioner and the older person is a negotiation between equals, and that the aim is a therapeutic alliance between them. The strength of this alliance lies in an assumption of respect for the older person's concerns and aims.

As described above, restorative HBSS focuses on restoration and maintenance of older people's physical function, aiding compensation for impairments, so that the highest level of function is achieved. The model integrates principles from medicine, nursing, goal facilitation and rehabilitation to improve functional outcomes for older people. It is anticipated that through the use of progressive restorative programmes, relevant goals are facilitated with exposure to appropriate services and support workers engage older people to help achieve the goals. Thus the crucial role of TARGET in facilitating the implementation of a restorative model in the current study can clearly be seen. In order to develop goals that are client-centred, there needs to be some mutuality between the health professional and client when identifying goals. Participation of the older person in the goal setting process is essential to enhance adherence to and achievement of the goal. Client involvement in goal setting is about consciously adopting the client perspective and including dimensions such as respecting clients' values and expressed needs. If older people are the focus and the centre of the decision making process, the sharing of information is the first step towards participating in the process of goal setting. Empirical evidence suggests that the client's preferences for participation in the decisions to set goals are not always strong. It is important therefore to recognise that the characteristics of effective decision making for many older people may in fact be shared interaction. As a part of this process it is important to consider the context

for the older person, for example a person's goals may change rapidly from when they are in an acute hospital setting to when they have been back home for a couple of weeks.

The aim of restorative HBSS is to change the philosophy from one where delivery of care may create dependency to provision of care which maximises independence, improves self-esteem, self-image, quality of life and reduces the level of care required ^{6, 383, 388, 389}. Based on the evidence reported above and the developments across a number of DHBs within New Zealand over the past five years ^{39, 57, 58, 345, 350, 390, 391}, Table 2.1 summarises the key elements of restorative care. These elements concur with the essential elements of the Re-ablement concept in UK ³⁹²⁻³⁹⁵ and the concept of restorative support in US ^{1, 4, 371}.

Table 2-1: Key elements of restorative care

Restorative care element	Explanation
Goal facilitation	A key concept of restorative care is to base a support programme around the goals and aspirations of the older person.
Functional and repetitive ADL exercises	Functional exercises involve working on muscle groups used in every day activities. Restorative home support incorporates this approach into all programmes and the support worker motivates the older person to undertake the exercises ³⁹⁶⁻⁴⁰⁰ .
Support worker training and enhanced supervision	Restorative home support relies on support workers to collaborate with older people to maximise their independence, which is a shift from the current home care model which focuses on providing care. In addition, restorative home support adopts enhanced health professional integrated supervision via coordinators ⁴⁰¹⁻⁴⁰⁴ .
Health Professional training	The role and competencies of the coordinator change greatly with the evolution of restorative home support. Roles and duties may include: delegation and supervision of non-regulated staff; comprehensive assessment; care management; goal activity analysis and grading, expertise surrounding community integration for older people ^{1, 4, 371} .
Care management	Restorative care utilises care management where the intensity varies according to the level of service input ^{358, 405-409} . This includes regular three-monthly reviews to enact required changes to service delivery ⁴¹⁰ ; and developing management plans with the client ⁴¹¹

It is important to consider the individual client factors when the elements of a restorative model of HBSS (as shown above) are implemented. In addition an understanding of other variables inherent within the organisations that provide HBSS to older people is necessary. Dansky⁴¹² in a study of referrals to home health agencies in US (the equivalent of HBSS in New Zealand) states that such a multivariate analysis of individual client, organisational and environmental factors is imperative to determine underlying factors for successful outcomes.

It is apparent from the review of the literature regarding HBSS that the implementation of a restorative model within New Zealand requires improvements in the quality of the services. As previously described this current study explores the role of goal facilitation (using TARGET) as a means to implement core components of restorative HBSS. These components include aspects of all the key elements shown in Table 2.1 and relate to: structuring of services around what the client wants to achieve and the implementation of individually tailored activities to support the client to attain the identified goals; together with the completion of regular and coordinated reviews of the client by the health professionals and organisations involved in supporting the client.

The concept of quality improvement in health care has become increasingly important in recent years. With the burgeoning number of older people and those with long term conditions it is imperative that health care costs are optimised. Internationally, in light of current provision, coupled with the predicted continued rise in demand for home care, future sustainability has been questioned^{62, 413}. It is suggested that quality improvement of home care is imperative to transform home care services^{392, 414-416}. Furthermore, quality HBSS services can aid restored function and prolonged independence in the community^{1, 4, 371, 395}.

2.14.1 Quality improvement

Quality improvement has often been said to refer to (pg. 17):

“a structured organisational process for involving personnel in planning and executing a continuous flow of improvements to provide quality health care that meets or exceeds expectations”⁴¹⁷.

Applebaum⁴¹⁸ suggests that in the past a quality assurance model has largely relied on an inspection paradigm, with an emphasis on identifying and correcting mistakes after they happen. The inspection model has a long history, both nationally and internationally. Currently within New Zealand all HBSS providers are audited every three years against Health and Disability Sector Standards. The origins of these standards lie in the passing of the Health and Disability Services (Safety) Act in 2001⁴¹⁹. The overarching goal of these standards is to bring sector-wide improvement, to establish consistently safe and reasonable levels of care for consumers and provide a framework for the continuous development of quality improvement systems across the health sector.

Critics of the inspection approach argue that it simply has not worked, but perhaps the biggest flaw with this model in the home-care context is that a proportion of clients receive care that is below the required standard, even when the inspection model is working well. The shift to quality improvement requires providers to develop a strategy in which they use data on a continual basis to constantly modify and improve the services being delivered^{420, 421}.

Under the quality-improvement model, the search for quality is less adversarial and more cooperative, involving the major stakeholders in the development and review of the service⁴¹⁸. In the case of HBSS, this means that both consumers and the in-home service provider must be active participants in the quality-improvement model.

2.14.2 The role of NASC and HBSS in a restorative model

From the studies described previously, it can be seen that NASC and HBSS providers are integral to the implementation of a restorative care approach and an improvement in the quality of services. One of the NASC roles is to enter into a partnership with the older person (and their family) to identify the older person's concerns and aims, and then to work with them to develop a package of support that will assist them to feel relaxed about their concerns and achieve their aims. One of the mechanisms being used by NASC to enable them to achieve a partnership with the older person is goal facilitation to assist assessors and home based support providers to have a dialogue with the older person about what they want from the

rest of their life. From the “goals” established in this dialogue, the NASC then puts in place a number of therapy and support programmes for the older person. However, that should not be the end of the NASC role. The ASPIRE study showed very clearly that coordination of the services an older person receives is very important to stop duplication of services ³⁴⁵. Someone needs to take a care management role for people who are interacting with a number of health professionals and service providers, to ensure that the agreed plan is being actioned efficiently and effectively. NASC may need to take this role, either at the beginning of the delivery of services or ongoing, unless the role is also shared with other providers. This interaction between NASC and HBSS providers is pivotal in successful implementation of a restorative model. This is due to the crucial nature of enhanced care management and the necessity for increased flexibility in service provision to allow for individually tailored service delivery. The evidence supporting this view will be explored with reference to the relationship between NASC and HBSS providers and the factors considered necessary for this relationship to be optimally effective.

2.15 Organisational factors within NASC and HBSS

To examine the influence of NASC and HBSS on the outcomes for older people receiving a restorative model of home based support it is essential to first consider the organisational structures and the anticipated effect of these, based on contemporary research. These include an exploration of the NASC and HBSS organisations in light of current theories of management and the interaction of various inter-related concepts. Patmore ³⁶⁴ highlights this in a review of person centred home care in UK. He identified that a key variable for any home care service is the respective balance of power between care manager (NASC) and provider manager (HBSS coordinator) to modify services.

Similar support for this analysis of the organisational processes and structures is provided by Schmid ^{422, 423} who examined the behaviour and function of for-profit (FPO) and not-for-profit (NPO) HBSS organisations providing home based support for older people in Israel. This situation is similar to many DHBs in New Zealand where there is a mix of these organisational types among HBSS providers. In a ten

year longitudinal study Schmid examined a number of organisational issues with particular reference to the distinction between organisational type. Schmid surveyed 41 Israeli home care organisations, mostly independent sector agencies of varying sizes - roughly 80% of their work paid from public funds. Interviews were held with service users, with management representatives, and with home care staff. For around a third of the 317 clients interviewed, efforts were made to interview the staff who actually served them. Questions covered management control and supervision of staff, adaptation of services to individual clients' needs, the equity and fairness of management policies from the viewpoint of both staff and clients, and client satisfaction. Working conditions and training for staff were also investigated.

Results included the following. Clients were more likely to be satisfied the more they felt an agency gave them a say in their services and the more they felt it treated them fairly. Furthermore, staff training seemed to have large positive effects on the satisfaction of both staff and their clients. However, there was no evidence of any effect on service quality from the amount of control exercised by management over staff. On balance there seemed a case that services benefit from clients and staff being given greater leeway to decide themselves how services should be provided. Another finding was that clients had clear, strong perceptions concerning the actual staff who served them but only a hazy image of the organisation which employed these staff. Of particular interest is that the authors found that the type of organisation (FPO versus NPO) had little effect on client or staff satisfaction. Of far greater impact was the way in which services were delivered. The issues reported by Schmid that are pertinent for the current study are:

- Financing of services (the rising costs of providing services to the growing number of older people);
- Organisational structure (degree of formalisation and centralisation of authority in the organisation);
- The administrative processes related to service delivery and mechanisms for supervision and control of service quality; and
- Functioning of the human resources (training of staff, proportion of health professionals employed and employee turnover).

These will be explored in depth in the light of current evidence. However, there are numerous organisational frameworks available in the literature to explore these concepts and use as a theoretical basis to build an analytical structure. Two frameworks that appear related to this research are systems theory and contingency theory.

Yoon ⁴²⁴ states that the systems theory has been a useful theoretical framework for examining the complexities of organisations over the past 50 years. Many studies have utilised this theory to examine a diverse number of concepts including organisational culture ^{425, 426}, trust ⁴²⁷, organisational behaviour ⁴²⁸ and organisational change ^{429, 430}. Systems theory originated from biology, economics and engineering ⁴³¹. It explores principles and laws that can be generalised across various systems. It proposes that a system has subsystems with inter-relationships and interdependence that constantly move towards equilibrium within the larger system. Research using the theory as a model investigates components and functions of the system to determine their causes ⁴²⁴. This concept has been summarised as a knowledge framework that focuses on structures, relationships and interdependence between elements ⁴³².

Two major types of systems are applied to organisations: closed and open systems. However, modern organisations are affected by industry and consumer markets ⁴²⁴. Therefore, considering an organisation as an open system is a more useful approach to understanding how it can better obtain resources such as raw materials and information, transform resources by making use of its social and technological components, and produce the best results ⁴³³. Cummings and Worley further identify the following key properties of an open system: boundaries between different components; feedback on the performance of the system; alignment or fit between the components, the system, and the environment; and the idea that multiple solutions exist for the same goal.

Studies of organisations often use open systems theory to investigate the repeated cycles of inputs, transformation and outputs that comprise organisational systems. In open-systems theory, it is assumed that boundaries between organisations input and

output are distinct. Accordingly, the goal of transformation is to improve the fit between the overall organisation design and its external environment. This is an interesting concept when the HBSS and NASC structures are considered in the light of the current study. However, current understandings of organisational practices challenge the notion of constant fit⁴³⁴⁻⁴³⁶. Business environments change too fast for any organisation to achieve lasting stability without change. In addition, work practices also defy clear distinctions between the three levels of individuals, groups, and the whole organisation; individual workers often perform many tasks that are not articulated in job descriptions and may work across organisational boundaries. This is definitely the case with NASC and HBSS coordinators and is an issue that will be explored further. Sometimes, goals and task structures need to be abruptly changed and adjusted to reflect changing market needs. Differentiating boundaries and transformation are not always easy when companies have multiple nodes of interactions and communication lines⁴³⁷. In other words, when the environment rapidly changes and tasks and group compositions become intermingled, open-systems theory does not provide immediate answers to how organisations need to address such complex situations⁴³⁸.

2.15.1 Contingency theory

Contingency theory was developed partly to address this perceived flaw in the open systems approach⁴³⁹. Contingency Theory is a branch of systems theory and shares a common understanding of the organisation as a structural system in which individuals fulfil functional roles⁴³⁹. A Systems Theory understanding views the organisation as possessing a relatively simple exchange relationship with the external environment and that organisational form is determined independently. Contingency Theory, however rejects this and argues that organisational structure is determined by the external pressures on the organisation and that the pressures that organisations face vary depending upon the size of the organisation, its strategy for operation and the external environment itself⁴⁴⁰. Under a Contingency Theory approach, the successful organisation matches its form and strategy to the contingency pressures facing it. The model attempts to explain why organisations can differ in basic characteristics such as centralisation of authority and formalisation of employee responsibilities⁴⁴¹. Furthermore for Contingency Theory the environment is seen as

the defining force upon the organisation and the organisation is involved in a process of “...mutual influence and interdependence” (Burrell and Morgan, ⁴⁴² p 168.) In other words, organisations are shaped by the environment but as the environment is composed of other organisations, organisations themselves shape the environment through their actions. Young et al. ⁴⁴³ utilised contingency theory as a conceptual lens to explore the factors determining integration of health services in US. They placed an emphasis on the importance of local market conditions as a crucial factor in the effectiveness of integration of services. Further examples of the use of contingency theory as a basis for studying health systems are: Zinn et al. ⁴⁴⁴ who examined the effect of organisational structure on the delivery of primary health care in US; and Mitchell and Shortell ⁴⁴⁵ who used the theory as a framework for determining the effectiveness of community health partnerships. It would appear that using a contingency model as a conceptual framework to examine the influence of various organisational factors on individual client outcomes is a pragmatic method that is well supported by evidence.

2.15.2 Organisational performance and health

Organisational researchers have long sought to establish the impact of organisational structures and managerial processes on outcomes such as profitability ⁴⁴⁶, effectiveness ⁴⁴⁷, performance ⁴⁴⁸ and organisational growth and survival ⁴⁴⁹. However, there has been a development in the understanding of the effect of different organisational and managerial factors on outcomes for users of health services focused on the public sector, particularly hospitals, in an effort to link organisational characteristics to a number of important outcomes for clients and staff ⁴⁵⁰⁻⁴⁵². There is increasing evidence ⁴⁵³⁻⁴⁵⁵ for the impact of a number of organisational and managerial factors that are related to organisational performance in both the public and private sectors. These are summarised in Table 2.2.

Table 2-2: Organisational and managerial factors related to organisational performance (Adapted from Collins and Porras⁽³¹⁹⁾)

Descriptor	
1.	Leadership and management skills
2.	Clear organisational objectives and strategies for achieving them
3.	The “fit” between organisational objectives, external environment, and strategy
4.	Change management processes
5.	An organisational culture that is receptive to change and good working relationships among key actors
6.	Use of performance management, supported by good information systems, to drive change
7.	Recognition that “good performance” is multidimensional and that the components of performance, such as quality of care and financial success, are not necessarily competitive

West⁴⁵⁶ explored the organisational elements that have been shown to influence quality of services provided to clients within health services. The model developed is shown in Figure 2.6.

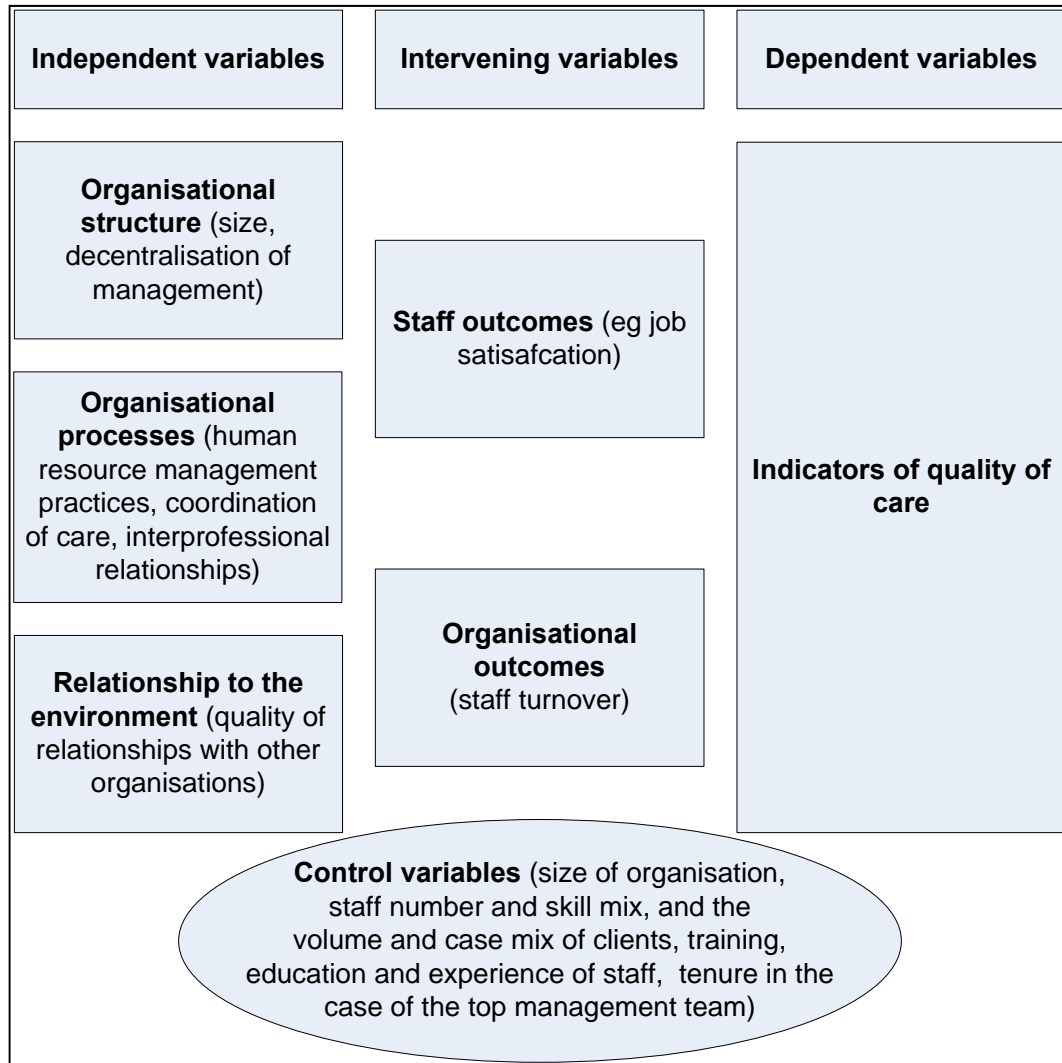


Figure 2-6: Proposed model of the organisational impacts on quality of client care (Adapted from West⁽⁴⁷²⁾)

A more comprehensive analysis of a number of these factors follows with particular reference to the inter-organisational relationships and role identity.

2.16 Model development

The concepts explored to this point in this section have examined the potential effect of organisational factors on the implementation of a restorative model of home based support. These have been placed alongside the client / whānau factors described in Figure 2.3 to form the clinical interaction sphere. These are summarised in Figure 2.7.

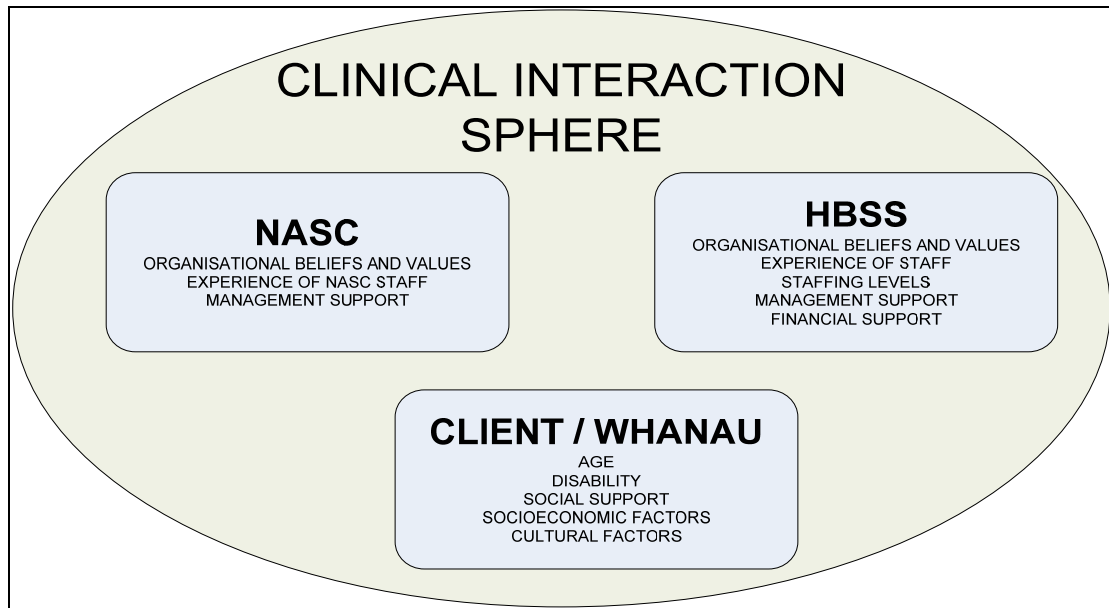


Figure 2-7: Clinical interaction sphere of a model of analysis of the effect of the TARGET tool on clinical outcomes

2.17 Inter-organisational relationships in health

Integration and continuum of care is the overriding key concept put forward within the Specialist Health Services for Older People guidelines⁴⁵⁷. International trends as well as scientific and policy literature suggest that effective and appropriate treatment of older people with chronic and complex illness is best provided through integrated health care and community support, across all settings of care: hospital, community, home and residential facility. The key objective of integrated care of older people is to match funding and service systems arrangements. It is also important that service providers are skilled and committed to providing seamless transitions between services for their clients. Responsiveness (and the necessary importance of linkages) are stressed in the World Class Care discussion document for the National Strategy for an Ageing Population⁴⁵⁸. The document explicitly recognises the need for more effective partnerships and greater communication and coordination between aged and community care services. Gething⁴⁵⁹ stresses the need for closer communication between services, the optimization of the effectiveness of relationships between staff in the collaborating organisations and integration and removal of boundaries.

Lindemann⁴⁶⁰ explored the Australian equivalent of the New Zealand HBSS system and concluded that community care is delivered in an increasingly complex funding

and programme environment with fragmentation and poor communication characterising the system ^{461, 462}. Within Australia good collaboration is hampered due to structural or funding issues which contribute to a lack of cohesion and integration in the service system ⁴⁶³.

An exploration of research examining relationships between organisations shows that there is no consolidated body of inter-organisational theory. Huxham (pg. 73) ⁴⁶⁴ supports this view by stating;

'A striking characteristic of research on inter-organisational relations is the astonishing variety of disciplines, research paradigms, theoretical perspectives and sectoral focuses within which it is researched'

Williams suggests that the evidence from a wide variety of differing organisational systems shows that a necessary part of inter-organisational working involves building and sustaining effective personal relationships ⁴⁶⁵. Relationship building is described as a process that occurs over time – an interaction that seeks to illuminate the roles, styles and values of prospective partners ⁴⁶⁵. Lindemann ⁴⁶⁰ suggests that within community health service provision, the need for collaboration and cooperative working relationships is undermined by the (negative) experiences of clients trying to negotiate a complex and confusing system. Collaboration at this level requires organisations to negotiate categories and meanings of data, develop practical systems and protocols, and consider the various ethical and 'professional boundary' issues that inevitably arise ⁴⁶⁶. Organisations can have significant influence on formalising collaborative relationships, and varying degrees of commitment to doing so.

Allison and Ewens ⁴⁶⁶ describes the development of collaboration in community services in the UK. They suggest that an emphasis on inter-professional collaboration emerged as a direct response to health and social care policy in the late 1980s, requiring various agencies to work more closely together in providing needs-led services. They describe a change in the health and social models of service provision which led to the creation of a more client-led, needs-orientated service, with choice, user empowerment and working in partnership as central features ⁴⁶⁷. This philosophy therefore became the driving force behind the demand for increased

professional co-operation in care delivery. The general consensus from the policy makers was that, in order to create this new environment within health and social services, the different professional groups would need to work together more co-operatively. The sharing of information between professional groups is an essential feature of achieving collaborative working. A study examining communication between doctors and other health professional groups undertaken by Smith et al.⁴⁶⁸ supports this view. They concentrated on the barriers to effective communications as experienced and perceived by the groups of health professionals involved¹², and on ways to improve morale, performance and client care by overcoming these barriers. The study found that the issues influencing the relationship were: communication; organisational issues (such as role identity and blurring of professional boundaries); trust and power; training and resources. These are issues that are congruent with the current study and will be explored further to provide increased depth to developing the model.

2.17.1 Needs Assessment Service Coordination and Home Based Support Services as boundary spanners

Inter-organisational work, like inter-professional work is characterised by power relationships that are more contested and dispersed than is often the case in traditional bureaucracies where power, authority and control over resources are often exercised by individuals drawing on their position and status in the hierarchy⁴³⁹. Individuals who work across organisational boundaries are often referred to by a variety of terms including Boundary Role Person or Boundary Spanners⁴⁶⁹⁻⁴⁷². NASC and HBSS coordinators are classic examples of this concept. The literature on boundary spanners is by no means extensive or consolidated. But it is possible to identify themes and perspectives that permeate the research that are available from a range of different disciplines and traditions. In terms of their relationship with the external environment, contingency theory suggests that organisations must interact with this environment in order to secure the resources necessary for continued operation⁴⁷³ (in this case funds are provided by NASC to HBSS and HBSS provide NASC with services to clients). These resources are controlled by other organisations

¹² Medical doctors, nurses and professions allied to medicine (occupational therapy, physiotherapy, speech-language therapy, social work, dietician)

and the prevailing uncertainty regarding the continued stability of supply forms a major contingency pressure upon the organisation. In order to deal with these contingencies organisations must develop linkages with other organisations and to do this they must employ boundary spanning personnel.

Huxham and Vangen ⁴⁶⁴ identify key themes in collaborative practice such as trust, leadership, accountability and power. In addition, Ebers ⁴⁷⁴ identifies three key themes in optimising the role of boundary spanners. These are:

- Resource flow and activity links;
- Information flows, especially to address issues of complexity and uncertainty. The role of boundary spanners is considered to be highly influential in shaping and facilitating effective interactions through the fostering of co-operation and exchange; and
- Mutual expectations between individuals. The primary component of this is identified as trust. There is consensus that trust must underpin effective relationships at both an individual and organisational level.

An analysis of the role of HBSS and NASC in optimising functional ability of older people receiving a restorative model of home based support needs to consider all of these factors. The evidence seems to suggest that trust is of particular importance in determining that inter-organisational relationships are effective ⁴⁷⁵ and attitudes of mistrust and suspicion are a primary barrier to co-operation between organisations and professional boundaries: collaborative behaviour is hardly conceivable where trusting attitudes are absent ⁴⁷⁶. Rowe ⁴⁷⁷ conducted a review of the literature of trust relations in health care that highlighted that most empirical research has addressed threats to client-provider relationships and trust in health care systems from the client's perspective. Notwithstanding this, studies in the organisational literature suggest that trust relations in the workforce, between providers and between providers and managers, may also influence client-provider relationships and levels of trust ⁴⁷⁸⁻⁴⁸⁶.

2.17.2 The role of trust in inter-organisational relationships

Trust has been defined as the reliance of one person, group or firm upon a voluntarily accepted duty on the part of another person, group or firm to recognize

and protect the rights and interests of all others engaged in a joint endeavour or economic exchange ⁴⁸⁷. Various models of trust implicate the concept with faith, predictability, goodwill and risk taking ⁴⁷⁵. Bachmann ⁴⁷⁸ refers to trust as a mechanism for coping with uncertainty and complexity, and there are theories that position trust at both a personal and system level. In addition the formation and sustaining of trust is of interest when considering inter-organisational relationships. Vangen and Huxham ⁴⁸⁸ single out expectation forming and risk taking as the main determinants of a model that envisages a cyclic process because ‘each time partners act together they take a risk and form expectations about the intended outcome and the way others will contribute to achieving it. Each time an outcome meets expectations, trusting attitudes are reinforced. The outcome becomes part of the history of the relationship, so increasing the chance that partners will have positive expectations about joint actions in the future’ (Vangen and Huxham ⁴⁸⁸, pg. 8).

Trust between organisations has been said to depend primarily on the interactions between individuals (Walker & Adam, p.7 ⁴⁸⁹). This, in turn, is influenced both by the “psychology of individuals” employed within the different agencies, and the degree of competitiveness of the system of funding in which the organisation is operating (Walker & Adam, ⁴⁸⁹, p.3). Having “confidence in what others are doing and the recommendations they make” (in relation to assessment decisions) may be required to establish trust in the practice of other organisations (National Ageing Research Institute, ⁴⁹⁰, p.61). Many service system reforms to encourage greater collaboration and service system improvement require individuals and organisations to engage in a learning process, which in turn is reliant on “respect, trust and openness (to) enable learning to take place” (Helling, ⁴⁹¹, pg. 98).

Interpersonal trust in work relationships has been consistently shown to positively relate to a range of productivity related behaviours and outcomes, such as organisational citizenship behaviours, individual job performance, and group level performance, as well as work-place attitudes and cognitions, such as job satisfaction, commitment and acceptance of decisions and goals ⁴⁹². The effect of trust on the viability of the NASC-HBSS relationship is of vital importance. As described previously NASC contract HBSS services to deliver services to clients to meet their

needs. Where levels of trust are low and the relationship is poor there is more chance of the HBSS provider not being contracted to deliver services to the client. Support for this view is provided by Mannion ⁴⁹³ who examined the purchasing decisions of GPs in Scotland. The results of their study showed that GP referral patterns are largely based on trusting relationships rather than harder performance data and indicators. Thus, a reputation for trustworthiness may be a source of competitive advantage for HBSS providers seeking to receive funding from NASC. As an important strategy, providers may seek various ways to establish a reputation. These include marketing strategies, but they may also aim to establish a reputation by delivering high quality services.

Hosmer ⁴⁸⁷ proposes that trust is seen as particularly relevant when several conditions apply. Firstly, when there is a relationship of interdependence and obligation between parties and where a party has the freedom not to trust another. A relationship where an individual has no choice but to enter into a risky relationship (i.e. when no alternatives are available) is not so much a trusting relationship as one of dependency ⁴⁹⁴.

Secondly, when there is ignorance or uncertainty (and therefore risk) over the motives and behaviour of others. Here trust is a coping mechanism in response to “the limits of our foresight” ⁴⁹⁵. Where trust exists behavioural uncertainty can be reduced and the likelihood is increased that promises are honoured. Trust assumes great significance within health and social care where the health and social welfare of individuals is concerned because many of the characteristics of conventional markets, such as product failure, and the associated disruption for clients, may be unacceptable. For example research has shown that local authorities are highly risk averse regarding the possible abuse of older clients in nursing homes, and so the previous record of providers, most notably their trustworthiness for providing high quality care plays a crucial part in determining how contracts are placed ⁴⁸⁵.

2.18 Role identity and trust

The previous section explored the potential impact of trust on the relative success of the relationship between individual NASC and HBSS coordinators and the

subsequent effect this may have on outcomes for individual clients of home based support services. It is also important to consider other mitigating factors on this relationship. These factors include the structures, processes, and culture of an organisation which all shape the behaviour of its members and influence their interactions⁴⁹⁶. Perrone⁴⁹⁶ proposes that assessing the trustworthiness of individual organisational members involves considering the effects of organisational context on individual behaviour. One way that organisational context affects individual behaviour is through roles⁴⁹⁷. Since roles constrain behaviour, there is reason to believe that roles may influence the degree of trust placed in agents performing roles. The precise effect of roles on trust remains unclear, however. From one perspective, organisationally defined role constraints may make the behaviour of agents more consistent and consequently more trustworthy⁴⁹⁸. From another perspective, role constraints make it more difficult to ascertain the trustworthiness of organisational agents because role constraints limit the ability to make attributions about the motives and intentions of an agent *outside* of their role⁴⁹⁹. For staff in both NASC and HBSS coordinator roles there is a shift in their responsibilities and the tasks involved in their roles when moving from a traditional model of home based support to one that utilises restorative principles. This would suggest that any exploration of the factors important in delivering restorative home based support should examine the perception of roles among these agents. An important concept to consider here is that of agency theory⁵⁰⁰⁻⁵⁰². This theory is directed at the typical business relationship, in which the principal (NASC) delegates work to another (the agent, HBSS), who performs that work. Agency theory is concerned with resolving the problem that arises when (a) the desires or goals of NASC and the HBSS provider conflict and (b) it is difficult for NASC to verify what the HBSS provider is actually doing.

However, the perspectives described above are premised on the assumption that agent behaviour is fully dictated by the role. In contrast, Perrone⁴⁹⁶ argues that roles should be viewed as emergent and malleable. Consequently, it is not possible to predict trust merely based on formal role definition because organisational agents are neither completely constrained nor completely free to be trusted. Despite this it would appear that consideration of the role identity of both NASC and HBSS

coordinators is necessary in exploring the implementation of a restorative model of home based support.

2.19 Staff-Client relationships

It is apparent that there is a need to consider factors other than the NASC-HBSS coordinator relationship in the development of a conceptual framework for analysis. An examination of the NASC-client and HBSS-client relationship is also imperative. The crucial effect of trust on relationships has already been explored and it can be surmised that this effect is as important in the relationship of the client to service providers as it is between NASC and HBSS coordinators.

Support for the need to examine the staff-client relationship within home based support is provided by Olsson and Ingvad⁵⁰³. They conducted a study of perceived emotional atmospheres in staff-client and staff-staff relationships in home care. This supplies some noteworthy messages for how services are organised and managed. Olsson and Ingvad interviewed clients and staff from home care teams which served people aged over 65 in seven varied home care units in Sweden. Clients and the staff who served them were separately asked to choose adjectives to describe their relationship, drawing from a list of supplied adjectives. Staff were also asked to comment in the same way on the atmosphere within the team where they worked. The results showed that homecare workers were more likely to describe the climate in terms of emotions. There was symmetry between the parties in the perception of a negative climate. The organisational processes, especially the group climate of the work team, principally influenced the home-care recipients' perceptions. The workers' perceptions were principally influenced by age and gender of the recipients and the workers' own age.

Sinclair et al.⁵⁰⁴ supports the work of Olsson and Ingvad. They studied a sample of HBSS providers within four English local authorities. A key aim was to identify differences between services' performance, as judged by clients and staff, and to then find explanations for these differences. A combination of postal surveys and interviews with clients and staff was used. One hundred and three different home

care organisers, 1,389 other staff and some 750 service users participated in the study at some level.

Sinclair made two distinctions. First ‘service performance’, which embraces issues like the suitability of the amount of HBSS time supplied, of the timing of service delivery, or of the number of different staff who serve an individual. ‘Service performance’ was appreciably higher in some HBSS organisations than in others and this seemed to reflect management practices. Second, ‘staff performance’ as a separate element - that involves the personal qualities which staff show to clients, the skill with which they perform caring tasks, and their sensitivity to clients’ needs. This aspect of home care service was generally independent of organisational style and managers’ practices, being more to do with the personal qualities of certain staff, rather than being something which managers develop. However, it did require some conditions which reflect a service’s organisation - adequate time spent with clients, good communication and teamwork among staff, and systems which allowed staff enough repeated contact with the same clients to get to know them.

Patmore ³⁶⁴ suggests that appreciation of the staff-client relationship is crucial when examining the organisational aspects of HBSS. The strong perception of personal qualities of support workers are a major influence on clients’ evaluations of their services and that this may sometimes outweigh benefits from well-crafted management systems. Very notably, Sinclair et al. ⁵⁰⁵ point out that sometimes such staff took action in their own, unpaid time to counter what they saw as shortcomings of their service’s official limits to provision - for instance doing clients’ laundry in staff members’ home washing machines, contrary to a common rule. The authors comment: “The more the staff perceived the organisation as not working in the interests of clients, the more they were prepared to work for them in their own time”.

Another key issue raised by Sinclair and colleagues ⁵⁰⁵ is whether HBSS staff should be used for more complex and ambitious purposes than common at present and their work somewhat modified to fit this. When the study was undertaken HBSS services in UK were commonly used in what Sinclair calls a “practical/bureaucratic

model” which focuses on the delivery of practical services like meals and personal care. This is very similar to the traditional model of HBSS described earlier in this review. However, Sinclair et al. see evidence that some home care staff are well-equipped to play a more complex role as key workers for older people, who monitor all aspects of a client’s well-being, liaise and co-work with health and social services staff when necessary, and provide emotional support. This reflects their vantage point of frequent, intimate contacts with older people and their capacity for forging good relationships with them. Sinclair names such aims for the service a “professional/integrated model”. He sees it as entailing a generally more professional role for some home care staff, involving more training, more autonomy of action, and closer links with occupational therapists, social workers, nurses and doctors - and more supervision in view of the greater demands of this expanded role. This is congruent with the development of restorative home based support in New Zealand.

2.20 Model development

The potential effect of the relationship existing between NASC and HBSS staff and the degree to which trust exists between these two boundary spanning roles is included in the model of analysis shown in Figure 2.8. As can be seen these have been combined with the client factors described in Figure 2.4 on page 56.

The interpersonal and service factors encompass some of the core competencies of a restorative model as they will explore the interaction between the NASC and HBSS in addition to an analysis of the composition of the services delivered to the client. It is imperative that the relative contribution of these two factors in changing the clinical outcome for the clients be determined in addition to the degree to which the use of TARGET changed the interpersonal and service factors. This will provide evidence for the effect of TARGET as a driver for implementing these two components of restorative support.

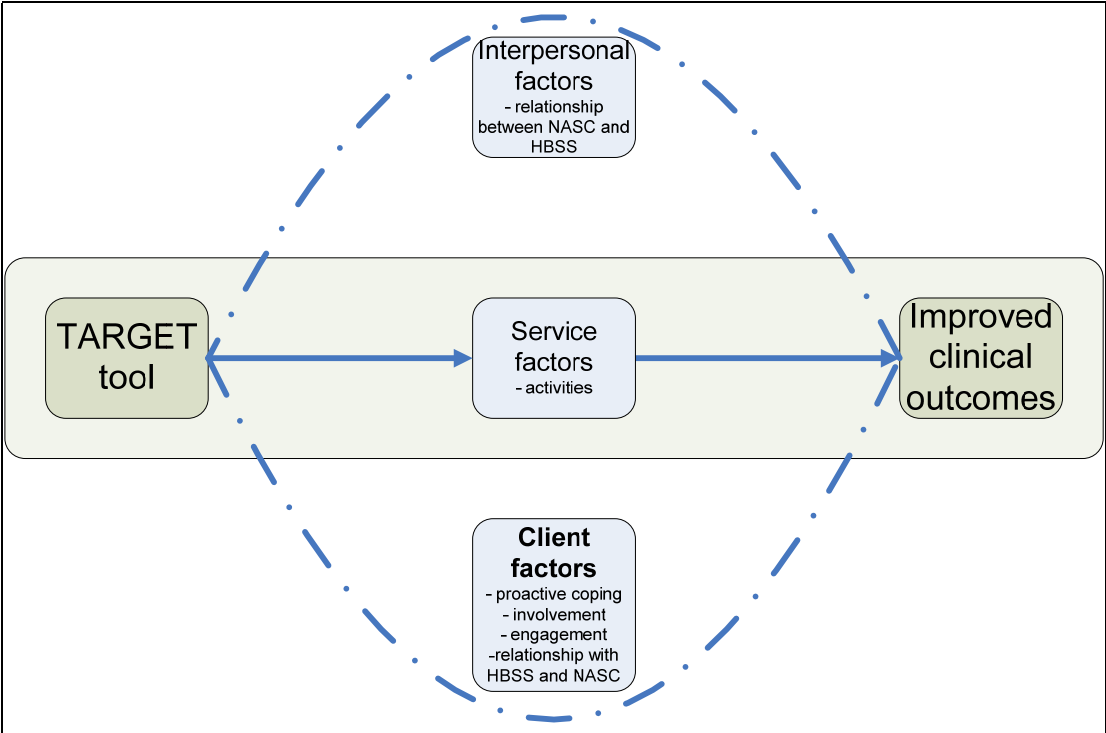


Figure 2-8: Client interaction level of analysis of the effect of TARGET tool on clinical outcomes

Section IV: Integration of factors into a model of analysis

2.21 Summary of evidence

This review has explored the diverse variables reported in the literature that could influence health related health outcomes for older people who are recipients of restorative home based support service in New Zealand. These variables (described in Figures: 1.1 on page 10; 2.7 on page 82 and 2.8 on page 92), have been compiled into a cohesive and comprehensive model with three inter-related levels, shown in Figure 2.9 on page 95. It uses a contingency model perspective, which will be employed to examine the effect of the relative effects of the diverse variables on a sample of older people accessing HBSS via NASC in South Auckland.

The review has described the evidence relating to disability among older people. The importance of maintaining quality of life, optimising function and remaining active within social networks with adequate social support were shown to be protective against the progression of disability and so they were chosen as the clinical outcomes to be examined in this study.

The first level of the model explores three factors at an individual client level that could influence the clinical outcomes for the client receiving services. The first of these relates to the client factors. These include the level of self-regulation, motivation and engagement. These concepts were described in the review and the evidence describing factors related to successful ageing were examined. This allowed for the introduction of the effect of motivation and engagement on successful ageing. In the model these will be determined using the SOC model of ageing and the principles of proactive coping. The impact of the relationship existing between the client and the NASC/HBSS was also shown to be important and so consideration of this was considered necessary within the model as client factors.

The service inputs considered in the model formed the second of the factors at a client level. These were determined from the evidence reviewed concerning effective community services. These included the level of input provided, the involvement of

allied health in a coordinated fashion and the content of the services provided. This allows for consideration of the principles of restorative home based support.

The third of the factors integrated into the model at a client level related to the relationship between the NASC and HBSS with an emphasis on the level of trust and the role identity inherent in the relationship. This explores a further key component of restorative home based support.

The second level of the model explores the effect of other factors relating to the client, NASC and HBSS. For the NASC and HBSS this includes consideration of the organisational beliefs and values; experience and background of the staff members; staffing levels (including an emphasis on span of control); and management support. The client factors include: gender; age; level of disability; informal social support and socio-economic and cultural factors.

The final level of the model needs to have cognisance of the international and national policy and social imperatives and is called the national socio-political influences. This includes the relevant New Zealand governmental policies discussed in section one. This allows for contextualization of the study and is important for understanding the study from an international perspective.

The three levels of the model provide a framework for the subsequent chapters. In the next chapter the design and methods used within the study are described and the different layers of influence on the effectiveness of TARGET are elucidated and rationalised.

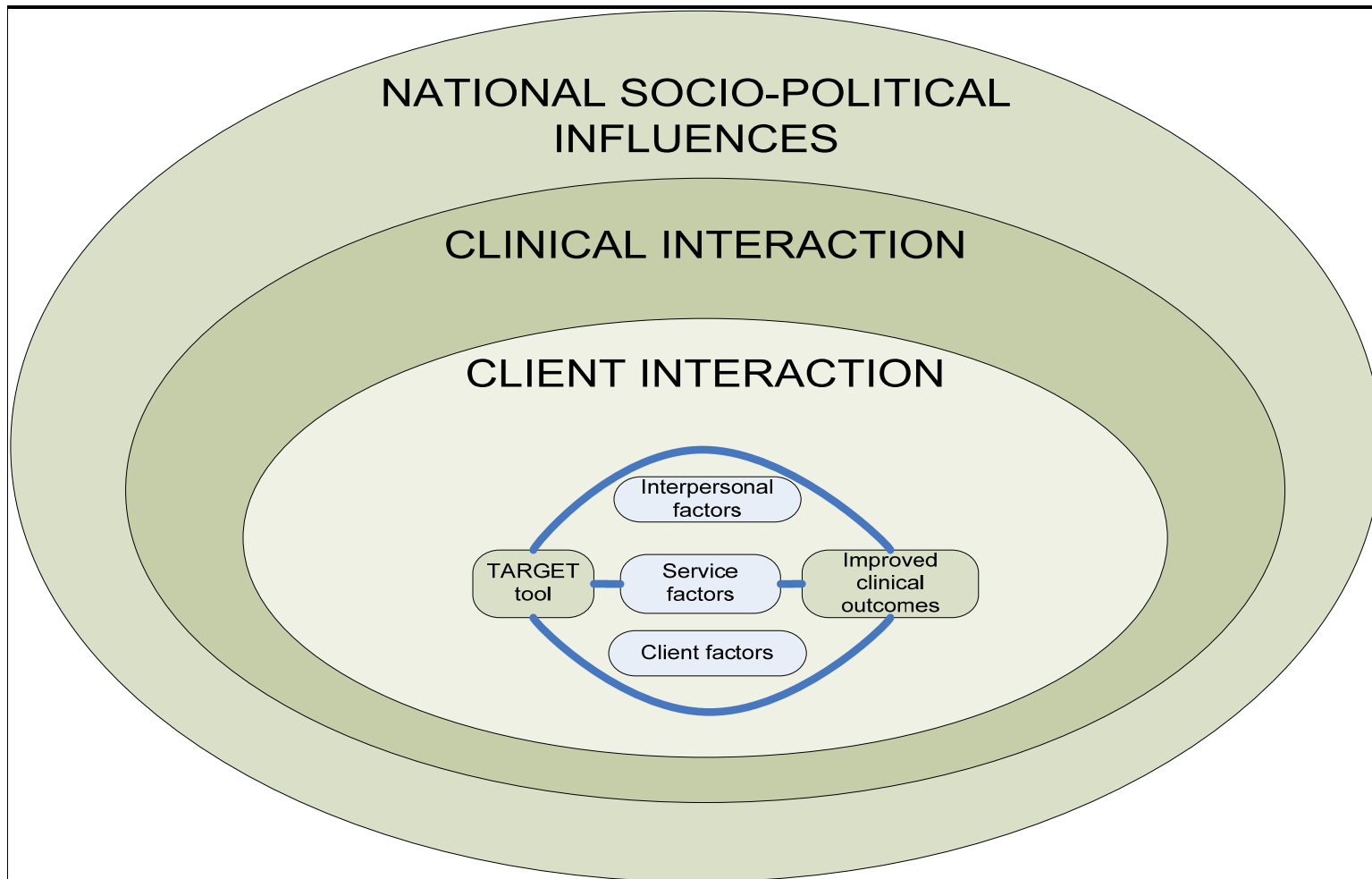


Figure 2-9: Conceptual model for exploration of the variables influencing the effect of a goal facilitation tool on clinical outcomes of older people receiving home based support service

Chapter Three: Methods

3.1 Introduction

This study was designed with cognisance of the multiple layers of possible relationships that could impact on the effect of the goal facilitation tool on older people receiving home based support services. The chapter begins by outlining the objectives of the study, prior to an elaboration of the methods used for sampling and randomisation. The model for determining the effect of the tool on clinical outcomes among the sample of older people, shown in Figure 2.9 (page 95), is used as a framework to describe the measures used within the study. In addition the measures utilised to determine the relative effect of each of the components of the model are described and a critical review of the validity of their use in the population to be studied is presented. Following this, justification is provided for the selection of interviews as the empirical method to examine the factors influencing the effect of the tool, including a description of how interviews and other methods of data collection were used and how research rigour (trustworthiness) was established. This is followed by an elaboration of the structure of the study and a rationale is provided for the various features of the design of the study. The justification for the use of a mixed methodology is explored and expounded, and the research methodology and methods used in the study are described.

3.2 Objectives

The evaluation of the TARGET tool (and the associated systemic changes to align with a restorative model of HBSS) was organised around the following four objectives. The first two relate to the clinical variables shown in Figure 2.9 (reproduced in Figure 3.3, page 105).

1. Assess the impact of the TARGET tool (a designated goal facilitation tool) on health related quality of life, social support and physical function among older people aged over 65 years (Māori / Pacific Islanders over 55 years of age) referred to NASC for home based support in CMDHB.

2. Determine the relationship between the following factors and the relative effectiveness of TARGET:
 - interpersonal factors between NASC and HBSS coordinators¹³;
 - services provided to the client following NASC assessment;
 - client factors such as involvement, motivation and engagement; and
 - the relationship between the client and HBSS / NASC .

The third objective relates to the clinical interaction sphere shown in Figure 2.8 (reproduced in Figure 3.5 on page 119).

3. Explore the contribution of the following organisational and family variables to the effectiveness of TARGET:
 - Needs Assessment Service Coordination, including: organisational beliefs and values; experience of NASC staff; staffing levels and management support;
 - Home Based Support Services, including organisational beliefs and values; experience of NASC staff; staffing levels; management support and the proportion of different types of support workers within the organisation;
 - Clients' social factors. This includes: age and gender of client; clients level of functional disability; socioeconomic factors and cultural factors; and
 - Explore the contribution of national socio-political variables on the effectiveness of TARGET. These are reproduced in Figures 3.6 (page 123) and 3.7 (page 126).

3.3 Participants

Community dwelling people over the age of 65 years (55 years if Māori or Pacific Islander) were candidates for inclusion in the study if they were new referrals to Counties Manukau District Health Board (CMDHB) NASC for HBSS. The lower age criteria for Māori and Pacific people is in line with the recommendations from the New Zealand Guidelines Group for assessment of older people with complex needs⁹.

Ethical approval was gained on 20 December 2006 from the Northern Y Regional Ethics Committee (NTY/06/12/132) and the study was registered with the Australian New Zealand Clinical Trials Registry (ACTRN12608000027314).

¹³ A key component of restorative support

The following criteria excluded those who were unlikely to complete the study intervention and follow-up:

- Severe cognitive impairment that may have compromised adherence to the intervention, defined as Abbreviated Mental Test score⁵⁰⁶ of less than 7/10.
- Referred to NASC for assessment for admission to a residential facility; carer support or short term services. In CMDHB these clients would be seen only once by NASC and would have no involvement with HBSS.

Eligible clients were contacted by telephone by NASC administrative staff. The purpose of the study was explained and the client was asked whether they would agree to be contacted by the research team.

The national health identifier (NHI) of all new referrals was recorded together with whether they agreed to be contacted. At the end of each week this list was collected by the research team. Those who agreed to be contacted were contacted by phone by the principal researcher. Following this they were visited at home. At this point the study was explained to them in greater depth and, where appropriate, consent for inclusion was obtained. All potential participants had their cognition tested using the Abbreviated Mental Test Score. Those scoring less than 7/10 were excluded from the trial. Written consent was obtained from all participants. A copy of the signed consent was left in the participants care.

The contact details of those clients who gave consent to enter the study were then provided to the blinded assessors.

The trial process is summarised in Figure 3.1 on page 99.

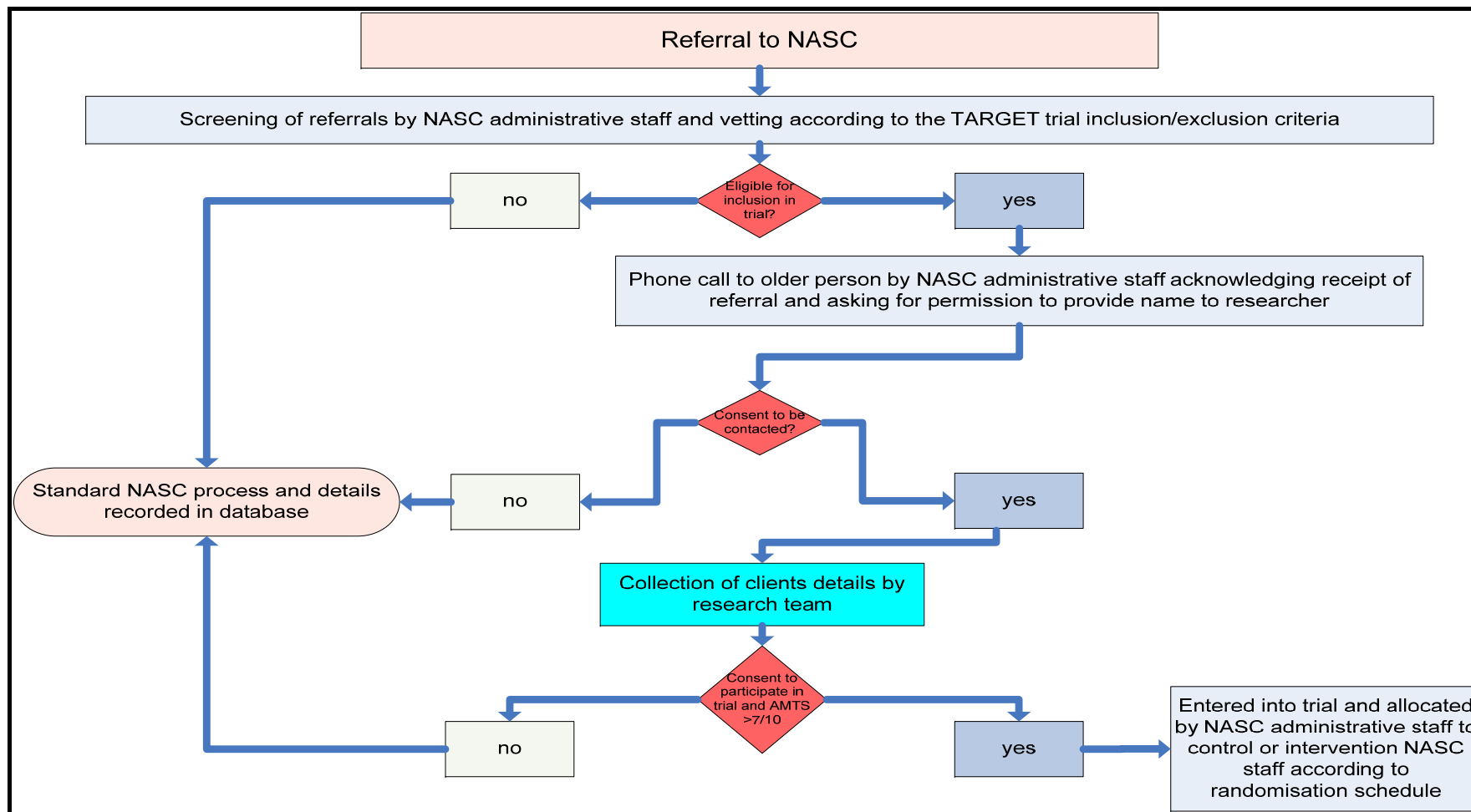


Figure 3-1: The process for recruiting clients into a trial exploring the impact the effect of TARGET on clinical outcomes among a group of older people referred for home based support in CMDHB

3.4 Interventions

The study was a prospective randomised controlled trial with two arms: The active arm involved the participant completing the 'TARGET' goal setting tool with a designated member of the NASC team. This established the aims of the rehabilitation episode. The participants in the control group received a standard NASC assessment of needs. This involved the completion of the Support Needs Assessment form. Following this the clients from both groups were referred to a Home Based Support Service (HBSS) organisation. The services implemented by the HBSS were based on the TARGET findings for those participants in the active group and the standard NASC assessment for those in the control group. The outline of these services was documented in the HBSS service delivery plan. This plan formed the basis for all subsequent interactions by the HBSS support worker with the client.

3.4.1 TARGET process

The TARGET process is summarised below in Figure 3.2 on page 102. This formed the basis of the training outlined in Section 3.4.2. The assessment phase incorporated two outcome tools, namely, Nottingham Extended Activities of Daily Living scale (NEADL)⁵⁰⁷ and EuroQoL⁵⁰⁸ (EQ-5D) into the standard NASC Support Needs Assessment Form (SNAF)⁵⁰⁹. The NEADL is used to quantify an individual's level of functioning and the EQ-5D is a descriptive tool, measuring health status, which features mental health and pain in the questionnaire. There are three scoring levels of for each of the five dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression). The SNAF is a tool developed within New Zealand. It has traditionally been used by NASC to determine an older person's level of need and to direct the required input of HBSS to meet that need. It examines a number of areas including cognition, informal caregiver stress, safety and nutrition. As previously stated a number of studies have questioned the use of SNAF in the assessment of older people referred to NASC^{60, 350-352}.

Following this the areas of deficit identified using the SNAF, NEADL and EQ-5D were listed and areas of importance (ranking) and areas that the participant wished to

change (change score) were scored on a scale of 1-3 in the ‘issues list’. This allowed for the development of a distal goal¹⁴ that was specific, measurable, attainable, realistic and time oriented. In the example below this is, “to attend grand-daughters baptism at St Cuthbert’s church on 22nd January”. Following this the distal goal was broken into proximal goals¹⁵ through a process of activity breakdown. This may include addressing of areas of deficit that would prevent the older person from attaining their goal (for example: falls risk; decreased muscle strength; difficulty with showering and other personal cares).

¹⁴ Long term or primary goal

¹⁵ Short term goals that need to be attained in order to progress towards the distal goal

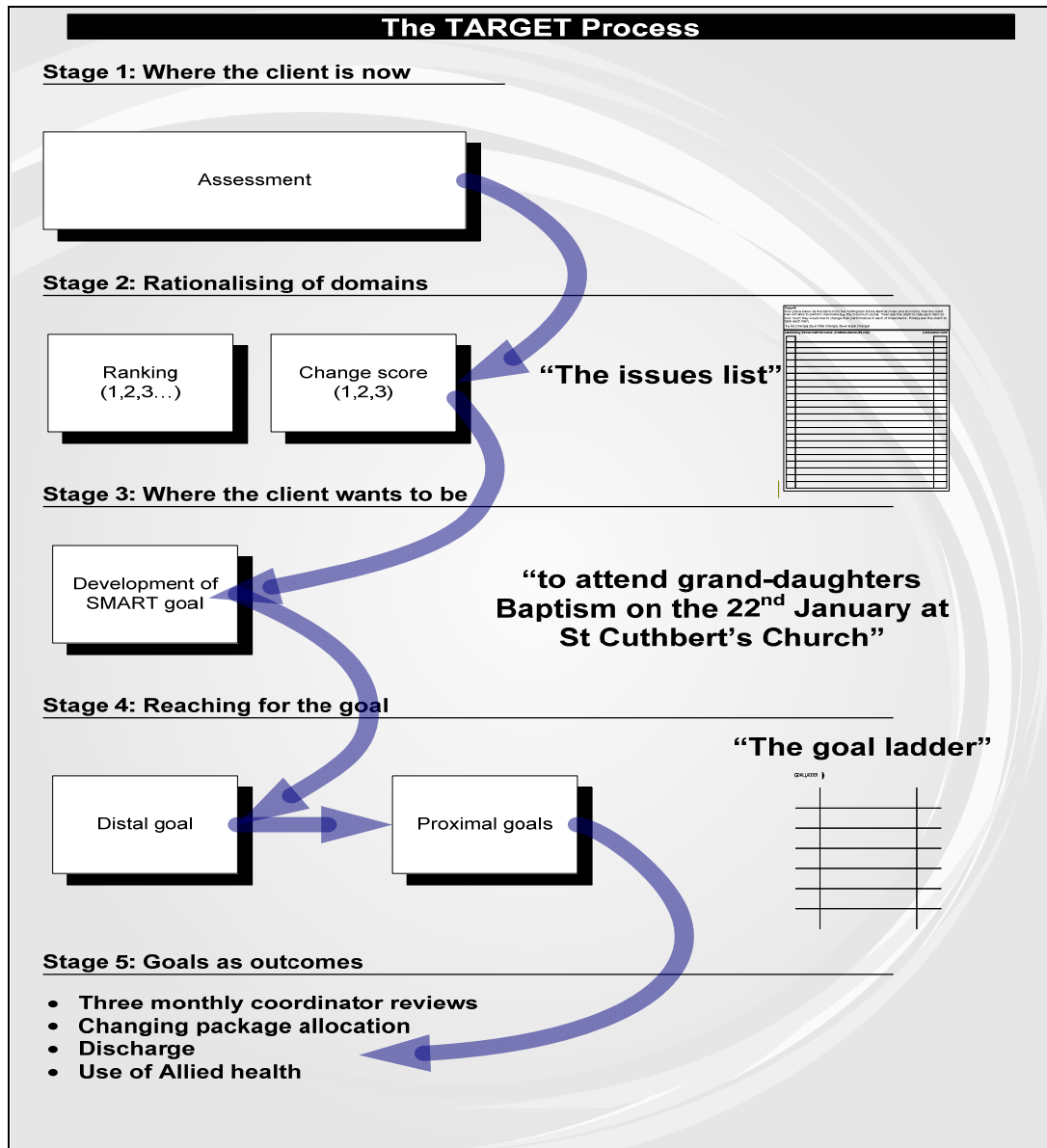


Figure 3-1: The TARGET process

The subsequent step was for the goal ladder to be passed from the NASC to the HBSS organisation. The NASC determined the number of hours of HBSS service to be provided and the HBSS coordinator then operationalised the process into concrete instructions to the HBSS support worker in the form of the support plan. The support plan included the distal goal and goal ladder and a detailed description of the tasks to be undertaken. This may have included the use of allied health (occupational therapy, physiotherapy, speech language therapy or dietician) to provide expert guidance into the tasks required to attain a participants goals.

Three months after services were implemented to address the issues identified in the goal ladder the HBSS coordinator reviewed the goal ladder and distal goal with the client. The results of the review were then provided to the NASC with a recommendation for either discharge from the service, an increase in hours or maintenance of the current level of service provision. If services were to continue then additional goals were identified with the client.

3.4.2 TARGET training

The NASC staff utilising TARGET and all HBSS coordinators attended a standardised training programme prior to the start of the trial. This consisted of 2 ½ days of direct facilitated training. Initially, the sessions explored the contemporary understanding of the concept of goal facilitation among older people. Following this there was intensive case study based coaching in the use of TARGET and the implementation of the goal ladder by HBSS into a service delivery plan. At completion of the structured training sessions the NASC and HBSS had successfully completed five TARGET forms with clients. The components of this training are shown in Appendix 4.

The intervention NASC and the HBSS coordinators then continued to meet monthly for facilitated peer review sessions. These consisted of the presentation of completed TARGETs and discussion around the implementation of the service delivery plan.

3.4.3 Control group process

The control group process utilised the SNAF undertaken by the NASC. Following this the NASC identified with the participant the services that would be provided and how many hours were required. This information was then passed to the HBSS provider contracted to deliver services as per standard practice. There was no identified process for reviewing the services required by the participant. This was due to the service specifications that describe the anticipated structure of the services provided to clients of HBSS organisations⁵¹⁰. These form the basis for traditional models of HBSS and specify that the client will be reviewed annually. As the duration of follow up for clients in this study was only six months it was not anticipated that reviews would be undertaken.

The decision was made to provide the control group with standard care rather than attempt to frequency match the anticipated increased interactions with the NASC and HBSS in the intervention group. This was primarily to ensure that the intervention was being compared to models of care currently being delivered with New Zealand and so maximise the opportunities for finding differences between the two groups. Previous studies exploring the effect of new models of care on functional ability of older people have utilised active control groups where the control group were provided with a frequency matched programme that was expected to have no effect on the outcomes of the trial⁵¹¹⁻⁵¹³. However the authors all acknowledge that the control programme had a positive effect on the study outcomes.

3.5 Outcomes

The outcomes for the study were aligned to the objectives outlined above. The model for analysis will be described by considering Figure 3.3 (page 105), 3.4 (page 114) and 3.5 (page 119). As can be seen in Figure 3.3 the interaction between the TARGET tool and clinical outcomes for individual clients will be considered. In addition the effect of interpersonal interactions between the NASC and HBSS coordinators, the services provided to the client and client factors such as motivation, involvement and their relationship with NASC and HBSS will be considered.

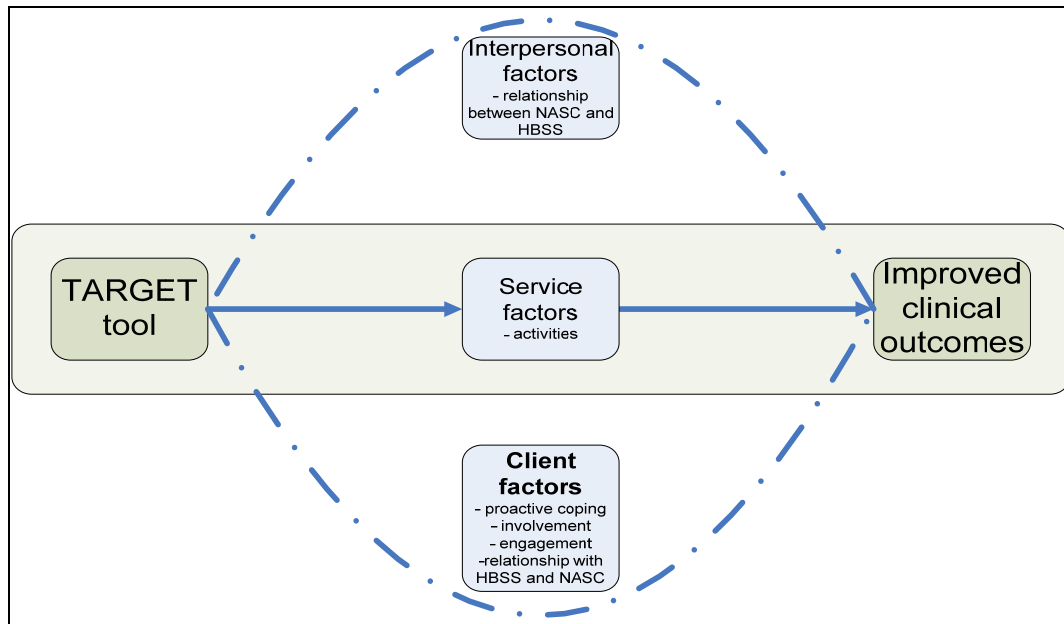


Figure 3-2: The potential clinical factors that influence the effect of TARGET on clinical outcomes among a group of older people referred for Home Based Support Services in CMDHB

3.5.1 Clinical effectiveness outcomes

Among the sample of older people participating in the trial, the following measures were used to examine a diverse series of effects of the tool on clinical outcomes; health related quality of life (HRQoL), physical function and social support. These clinical outcomes were assessed at a participant's entry into the study (baseline) and at six months after entry into the study. The assessments were undertaken by experienced researchers who were blinded to the participants' allocation to the control or intervention groups.

Health related quality of life: The World Health Organization (WHO) defines quality of life as (pg. 4):

“Individuals’ perceptions of their position in life in the context of the culture and value systems where they lived and in relation to their goals, expectations, standards and concerns...coloured by physical health, psychological state, level of independence, social relationships, environmental factors and personal beliefs⁵¹⁴”.

Health Related Quality of Life (HRQoL) is considered a sub-division of quality of life which (pg. 16),

*“includes the physical, psychological, and social functioning associated with an illness or its treatment”*⁵¹⁵.

Due to the global ageing population and associated rise in chronic illness, HRQoL is recognised as an increasingly important area for older people^{516, 517}. In this study health related quality of life was determined by the Short Form -36 survey tool (SF-36) (QualityMetric Inc, Lincoln, US, for licence details see Appendix 3). The SF-36 health survey is a widely used health status questionnaire comprising of 36 items selected from a larger pool of items used in the Medical Outcomes Study (MOS)²⁹⁷. The MOS was a large-scale multiyear survey of patients with prevalent and treatable chronic health conditions in United States. The study employed a variety of assessment instruments, such as self-administered questionnaires for patients and clinicians, face-to-face interviews, telephone interviews, clinical reports, and health examinations. The SF-36 health survey was administered longitudinally to measure important health and functioning domains. The MOS was the first large-scale study in which patients with different medical and psychiatric conditions completed the same self-administered questionnaires. The MOS included both cross-sectional and longitudinal components. Due to the need to screen a large number of patients to identify those with the MOS-targeted conditions, a very brief HR-QOL survey was used in the cross-sectional study. This 20-item short form health survey (SF-20) consisted of 18 items used in a 1984 US national survey^{518, 519} plus single items measuring social functioning and bodily pain²⁹⁷.

Following this the more robust SF-36 was developed. The SF-36 health survey explores eight health concepts. It also includes a single item that provides an indication of perceived change in health. These are shown in Table 3.1.

Table 3-1: The health domains of the Short Form 36 survey tool with the factor coefficients used for calculating the two component scores

Descriptor	Physical Component	Mental Component
Physical functioning	0.42402	-0.22999
Role limitations due to physical problems	0.35119	-0.12329
Bodily pain	0.31754	-0.09731
General health perceptions	0.24954	-0.01571
Vitality	0.02877	0.23534
Social functioning	-0.00753	0.26876
Role limitations due to emotional problems	-0.19206	0.43407
Mental health	-0.22069	0.48581
Health transition	0	0

Factor analyses of the SF-36 health survey provides strong support for a 2-factor model of health, with physical health reflected primarily by measures of physical functioning, pain and role limitations due to physical health problems, and mental health reflected primarily by measures of emotional well-being and role limitations caused by emotional problems^{520, 521}. Physical (PCS) and mental (MCS) component summary scales for the SF-36 health survey scales have been derived. The contribution of the health domains toward determination of these scores are also shown in Table 3.1. The component scores were calculated using the QualityMetric scoring software (see Appendix 3 for licensing information). The first step in this process is to take the raw health domain scores and subtract population normative values and divide by the standard deviation of the normative value to determine a z-score. Following this the z-score for each domain score is multiplied by the factor coefficients shown in Table 3.1. Finally the converted z-scores are summed to produce the component score.

Lyons et al.⁵²² determined the construct validity¹⁶ of the tool by interviewing a random sample of 827 adults from Wales. Among the 216 adults aged 65 and over the data were 98.8% complete. The evidence was satisfactory with the SF-36 distinguishing between those with and without markers of poorer health. They concluded that the SF-36 is suitable for use with an older population when used in an interview setting.

Cronbach alpha estimates (a measure of internal consistency reliability) for all of the SF-36 health survey scales were 0.78 or higher in the MOS⁵²⁰. This measure refers to the ability of the tool to return the same results on different occasions⁵²³. Reliability coefficients ranged from a low of 0.65 to a high of 0.94 in subgroups differing in age, gender, ethnicity, education, socioeconomic status, diagnosis and disease severity⁵²⁴. Similar reliability estimates have been achieved in a variety of other samples including older adults⁵²⁵, patients undergoing haemodialysis^{526, 527}, patients with osteoarthritis⁵²⁸ and patients who have epilepsy⁵²⁹.

However, in a culturally heterogeneous population such as South Auckland any tool used to examine quality of life needs to be culturally appropriate. Scott et al.⁵³⁰ explored the validity of the tool within New Zealand. They concluded that the construct validity of the tool was of a high level. However, questions have been raised about the appropriateness of using SF-36 in Māori populations⁵³⁰. In Māori and Pacific models of health, mental and physical dimensions are not generally seen as separable, or independently functioning⁵³¹⁻⁵³⁶. Scott et al.⁵³⁷ contend that while Māori and Pacific people's views of health are diverse, some common themes emerge. They suggest that health is not differentiated from well-being and it reflects environmental, social, spiritual, psychological and physical dimensions and that no separation of mind from body is recognised. Moreover, health is quintessentially a social phenomenon or state, a property of family or even of community, rather than of the individual. This raises the possibility that the questionnaire's hypothesised structural model would not be supported among Māori and Pacific ethnic groups. Scott⁵³⁸ examined the results of the 1996/97 New Zealand Health Survey and found

¹⁶ Construct validity measures the extent to which a measurement covers all aspects of the topic it purports to measure.

a similar factor structure among New Zealand Europeans, and younger Māori (<45 years) to that reported by Ware et al.^{539, 540} for Western European countries. Among Pacific people and older Māori (45 years and over), however, the factor structure did not clearly differentiate physical and mental health components.

However, the SF-36 has purportedly been successfully applied to Māori populations⁵⁴¹. Durie also states that more than any other readily available scale, SF-36 is capable of reflecting a Māori view of health without being so broad that it is unmanageable⁵³¹. With a cognisance of the reported unproven ability of SF36 to capture wairuatanga¹⁷, the baseline and follow-up assessments of participants identified as Māori also incorporated the community support portion of 'Hua Oranga'⁵⁴², a tool developed by Dr Te Kani Kingi and Mason Durie to measure mental health for Māori. Hua Oranga consists of three sets of 16 questions. One set was answered by the kaumatua¹⁷ or kuia¹⁸ participants in the study, the second set by their whānau and the third by the NASC. The questions were administered to the Māori participants; their whānau and the NASC involved in their care at follow-up assessment and related the effect of services provided by HBSS to the aspects of the tool these include whānau ora (health of the whānau) and wairuatanga (spirituality) and mental well being. The questions are rated on a 5 point scale from -2 (much less able to participate) to +2 (much more able to participate). The items included are shown below in Table 3.2. The results obtained from asking the same questions of the three stakeholders (client, whānau and NASC) are then combined for each participant and divided by three to obtain an overall score. This is the standard method of scoring Hua Oranga described by Kingi⁵⁴², it results in a final score for each participant ranging from -32 to +32.

17 Māori Spirituality

18 Respected tribal elders in a Māori community who have been involved with their whānau for a number of years

Table 3-2: Components of Hua Oranga

As a result of the community support do you / does your relative / does the client feel:	As a result of the community support do you / does your relative / does the client feel:	As a result of the community support do you / does your relative / does the client feel:	As a result of the community support do you / does your relative / does the client feel:
1. more valued as a person	1. more able to set goals by yourself	1. more able to move without pain or distress	1. more able to communicate with your whānau
2. stronger in yourself as a Māori	2. more able to think, feel and act in a positive manner	2. more committed to having good physical health	2. more confident in your relationships with other people
3. more content within yourself	3. more able to manage unwelcome thoughts and feelings	3. more able to understand how physical health improves mental wellbeing	3. clearer about your relationship with your whānau
4. healthier from a spiritual point of view	4. more able to understand how to deal with your health problem	4. physically healthier	5. more able to participate in your community

Physical function: This was measured using the Short Physical Performance Battery⁵⁴³⁻⁵⁴⁶. The battery consists of an assessment of standing balance, a timed 2.4 metre walk test and a timed test of five repetitions of rising from a chair and sitting down. Timed results from each test were categorised into 5-level variables ranging from 0 (worst performers) to 4 (best performers) according to well-established cut-points. The cutoff points for the SPPB are based on a series of performance-based normative data developed from previous community-based population studies⁵⁴⁴. The sum of the results from the three categorised tests (ranging from 0 to 12) was used for the present analyses.

The scoring system for the three tests is summarised in Table 3.3. Participants unable to complete the task relating to a particular test were scored 0. Walking speed was evaluated measuring the participants usual gait speed over a four metre course. The time needed to complete the task was recorded. To assess the chair stand test, participants were asked to stand up from a chair with their arms folded across the chest five times in a row as quickly as possible. Once again, the time needed to complete the task was recorded. To assess the balance test, participants were asked to perform three increasingly challenging standing positions: side-by-side position, semi-tandem position, and tandem position. Participants were asked to hold each position for 10 seconds.

Table 3-3: Scoring system for Short Physical Performance Battery component scales

Score	0	1	2	3	4
Walking test (time taken to walk 4 metres in seconds)	Unable to complete	More than 6.53	4.66 to 6.52	3.62 to 4.65	Less than 3.62
Chair stand test (time taken to complete five sit to stands in seconds)	Unable to complete	More than 16.7	13.7 to 16.6	13.6 to 11.2	Less than 11.1
Balance test (time in seconds they are able to maintain each position)	Unable to complete	Able to hold side by side position for 10 seconds but unable to hold semi tandem position	Able to hold semi-tandem for more than 10 seconds but unable to hold tandem position	Able to hold tandem position for 3 to 9.99 seconds	Able to hold tandem position for more than 10 seconds

These tools were used due their high levels of validity and reliability in the assessment of older people reported in the literature^{544, 546}. In addition, they are tools that are commonly used in studies of functional ability and so will allow direct comparisons with other studies within New Zealand and internationally. The tasks

involved are all fundamental to undertaking personal activities of daily living and have been shown to be appropriate across cultures and diverse socioeconomic populations⁵⁴⁷⁻⁵⁵³.

Social support: This dimension was measured using the Duke Social Support Index⁵⁵⁴. The 35-item Duke Social Support Index (DSSI) measures multiple dimensions of social support and has been used extensively in cross-sectional and longitudinal studies of ageing^{157, 161, 555-557}. The DSSI, shown in Table 3.4, comprises 11 items with two subscale scores. The social interaction subscale has four items (D1-D4) and the satisfaction subscale has seven items (D5-D11). The total score ranges from 11-47 with increased values indicating higher levels of support^{558, 559}.

The DSSI version used in the current study was condensed from the original 35 item DSSI which had widespread use in studies of ageing⁵⁵⁹. This latest adaptation has been successfully tested for reliability and validity on the Australian older adult population^{558, 560}.

Table 3-4: The Duke Social Support Index (DSSI)

Question		Scoring	
1	Other than members of your family how many person's in your local area do you feel you can depend on or feel very close to? (number of people)	Zero people	1
		One or two people	2
		Three + people	3
2	How many times during the past week did you spend some time with someone who does not live with you, that is, you went to see them or they came to visit you or you went out together?	None	1
		One or two	2
		Three times +	3
3	How many times did you talk to someone, friends, relatives or others on the telephone in the past week (either they called you, or you called them)?	None or one time	1
		Two to five times	2
		Six times +	3
5	Does it seem that your family and friends (i.e. people who are important to you) understand you?	None of the time	1
		Hardly ever	2
6	Do you feel useful to your family and friends?	Some of the time	3
7	Do you know what is going on with your family and friends?	Most of the time	4
		All of the time	5
8	When you are talking with your family and friends, do you feel you are being listened to?		
9	Do you feel you have a definite role (place) in your family and among your friends?		
10	Can you talk about your deepest problems with at least one of your family and friends?		
11	How satisfied are you with the kinds of relationships you have with your family and friends?	Extremely dissatisfied	1
		Very dissatisfied	2
		Somewhat dissatisfied	3
		Satisfied most of the time	4
		Satisfied all of the time	5

3.5.2 Interpersonal, service and client factors

The exploration of interpersonal factors, service factors and client factors considered the effect of the interaction between the client, NASC and HBSS coordinators, the effect of the different level of service provided to clients and the individual client factors that impact on their willingness to participate in an active rehabilitation episode. These included motivation, engagement and their relationship with the NASC and HBSS staff. These are summarised in Figure 3.3 on page 105.

Interpersonal factors: This explored the relationship existing between individual NASC and HBSS staff members and also between their respective organisations. A number of methods were utilised to measure this relationship. These are shown in Figure 3.4.

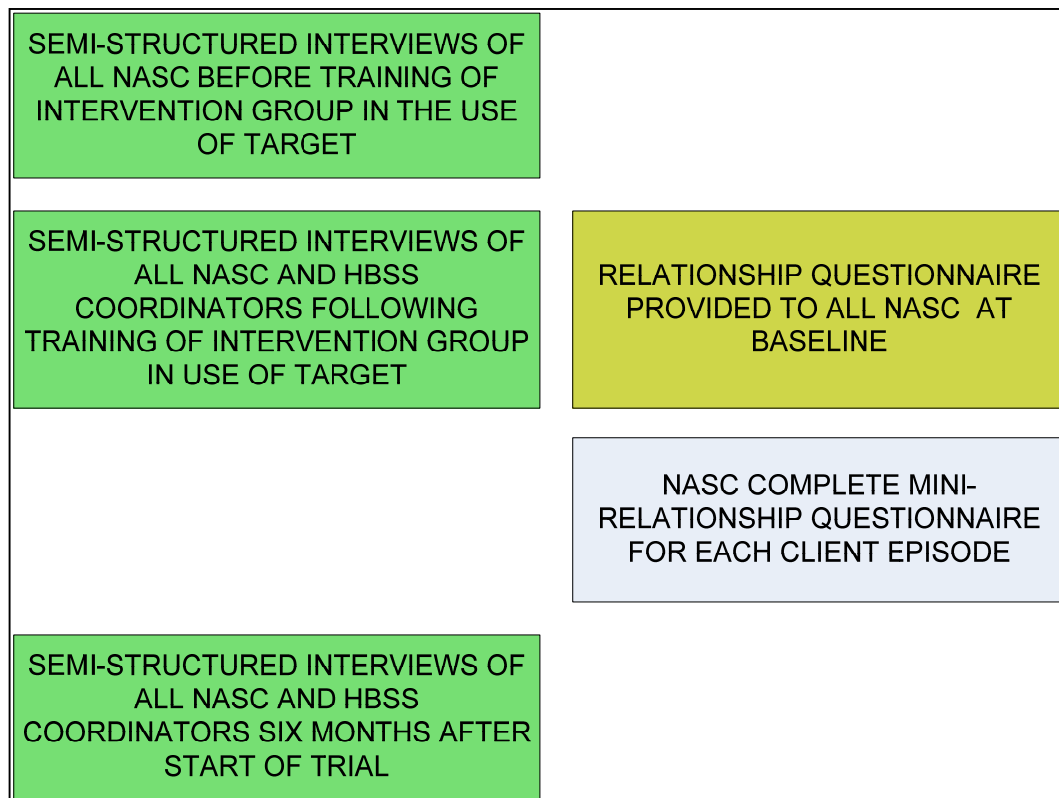


Figure 3-3: The methods used to explore the impact of interpersonal factors on the effect of TARGET on clinical outcomes among a group of older people referred for home based support in CMDHB

The semi-structured interviews occurred at the NASC (n=14) or HBSS coordinators (n=19) place of work or at a site decided on by the researcher and interviewee. They were face to face semi-structured interviews which were used to determine common themes around their work environment, role, organisational culture, values and beliefs and relationships with other agencies. The interviews were undertaken by the principal researcher and sought to explore components of both the second and third objective. Specifically it focussed on the relationship between NASC and HBSS coordinators and the factors relating to the NASC and HBSS organisations.

The relationship questionnaire was adapted from a questionnaire developed by Currall et al. ⁴⁸⁰ and was administered at baseline and six months after the commencement of the trial. This tool assesses trust among the individuals who provide the linking mechanism across organisational boundaries, namely, boundary role person's. Areas of the questionnaire that aligned with the themes arising from the semi-structured interviews were included in the adapted questionnaire. The relationship questionnaire is referred to as Trust 4 in Chapter 4.

The mini-relationship questionnaire was completed by NASC at the completion of their referral of each client to an HBSS organisation. This tool consisted of three questions. Firstly, a 0-10 rating of the perceived effectiveness of the interaction between NASC and HBSS coordinator for that client (referred to as Trust 1 in chapter 4). Following this the NASC rated their responses to the following questions using the same scale: "I felt confident about asking the HBSS provider to fulfil the tasks I outlined" (referred to as Trust 2) and "I will keep surveillance over the HBSS provider after asking them to do something" (referred to as Trust 3). In addition there was space for any relevant comments relating to that particular clients episode of care. The items were compiled from the larger adapted questionnaire.

Service products: The analysis of the service factors involved examination of the number and frequency of the hours of assistance requested by NASC for each client together with information relating to reviews undertaken of the services provided to the participants. This included any change in the number of hours of support provided. In addition the HBSS service delivery plan for each client was analysed to determine the tasks implemented by the HBSS support worker. Any referrals to allied health (Occupational Therapy, Physiotherapy, Dietetics or Speech Language Therapy) made by NASC in relation to a participants service delivery were also recorded. Finally the goals set by the participants with the intervention group NASC were analysed and coded using the International Classification of Functioning, Disability and Health (ICF). The ICF provides a standard language and framework for the description of health and health-related states. ICF is a multipurpose classification intended for a wide range of uses in different sectors. It is a classification of health and health-related domains that help to describe changes in

body function and structure, what a person with a health condition can do in a standard environment (their level of capacity), as well as what they actually do in their usual environment (their level of performance).

These domains are classified from body, individual and societal perspectives by means of two lists: a list of body functions and structure, and a list of domains of activity and participation. In ICF, the term *functioning* refers to all body functions, activities and participation, while *disability* is similarly an umbrella term for impairments, activity limitations and participation restrictions. ICF also lists environmental factors that interact with all these components.

Client characteristics: The consideration of the client characteristics is vital in exploring the complexity of the effect of the TARGET tool on clinical outcomes. The measurement of the impact of the client on the process involved numerous methods and allowed for examination of the effect of the concepts of motivation and engagement. In addition the relationship between the client and the NASC, HBSS coordinator and the HBSS support worker were examined.

Motivation and engagement were determined by the use of the Proactive Coping Inventory²⁵³ (PCI). The PCI has been used extensively in studies examining coping, motivation and engagement of older people^{243, 561, 562}. The measure was constructed to assess different dimensions of a proactive approach to coping and consists of six subscales:

1. The Proactive Coping Scale. This scale, consisting of 14 items, combines autonomous goal setting with self-regulatory goal attainment cognitions and behaviour.
2. The Reflective Coping Scale. This scale, with 11 items, describes simulation and contemplation about a variety of possible behavioural alternatives by comparing their imagined effectiveness and includes brainstorming, analysing problems and resources, and generating hypothetical plans of action.
3. Strategic Planning. This 4-item scale focuses on the process of generating a goal-oriented schedule of action in which extensive tasks are broken down into manageable components
4. Instrumental Support Seeking. This scale (8 items) focuses on obtaining advice, information and feedback from people in one's social network when dealing with stressors.

5. Emotional Support Seeking. This 5-item scale is aimed at regulating temporary emotional distress by disclosing to others feelings, evoking empathy and seeking companionship from one's social network.
6. Avoidance Coping. Avoidance Coping, measured by a 3-item scale, eludes action in a demanding situation by delaying action.

The subscales of the PCI have been shown to have a high internal consistency (Cronbach alphas from 0.71 to 0.85 for all six scales) and good item-total correlations and acceptable skewness as an indicator of symmetry around the mean^{249, 251, 253, 563}. The questionnaire was sent by post at baseline to all participants. If the questionnaire was not returned in the prepaid envelope after a week then the participant was telephoned by the principal researcher. At this point they were asked whether they required any assistance in completing and returning the questionnaire.

The clients relationship with NASC, HBSS coordinator and HBSS support workers was measured using the Home Care Satisfaction Measure (HCSM)^{564, 565}. The HCSM is a 60-item questionnaire based on consumer-defined notions of satisfaction. It examines five main services (homemaker, health aide, case management, meal service and grocery service) and provides a score of 0-100 for each. For the purposes of this study the health aide and case management scales were used as these aligned most closely with the services delivered in the area to be studied. Although developed to measure satisfaction of homecare within the American system the HCSM has been extensively utilised in other countries⁵⁶⁶⁻⁵⁶⁸. However, the current study is the first time the tool has been used in New Zealand. The wording / terminology were modified where necessary to suit a New Zealand context. These modifications were validated by a reference group of older consumers of services within CMDHB (n=12, mean age=78 years).

The HCSM was administered at three months post randomisation using the same method as the PCI questionnaire. In addition a sample of older people from the two arms of the study was interviewed. These interviews were semi-structured and explored the relationship between the older person and the NASC, HBSS coordinators and the HBSS support workers. The interview guide was informed by the available literature. The sub-sample interviewed was determined by randomly

selecting seven participants recruited to each of the two arms of the study through the use of numbers randomly generated using Microsoft Excel. The sample was stratified to ensure that there was representation from clients of each of the NASC. In addition at the time the HCSM was administered the participants were asked why they had chosen the HBSS provider. The decision of which HBSS provider will deliver services to clients is meant to be made solely by the client with no input from the NASC staff.

Finally, a sub-sample of participants (n=14) were interviewed to ascertain their views and attitudes towards the process of goal directed services implemented as part of the trial. In addition, they were asked for their views on the level of quality of the home based support services they received. The sub-sample was purposive in nature and were chosen on the basis of NASC assessor, HBSS organisation, age, gender and ethnicity. The interviews aimed to explore aspects relating to the second study objective. Specifically they focussed on client factors such as involvement, motivation and engagement and the relationship between the client and HBSS / NASC.

3.5.3 Group interaction factors

As stated previously an understanding of the impact of the relationship existing between individual NASC and HBSS coordinators required consideration of several systems and processes within these organisations. These systems are summarised in Figure 3.5 on page 119 and explored the organisational and group influences rather than individual staff influences.

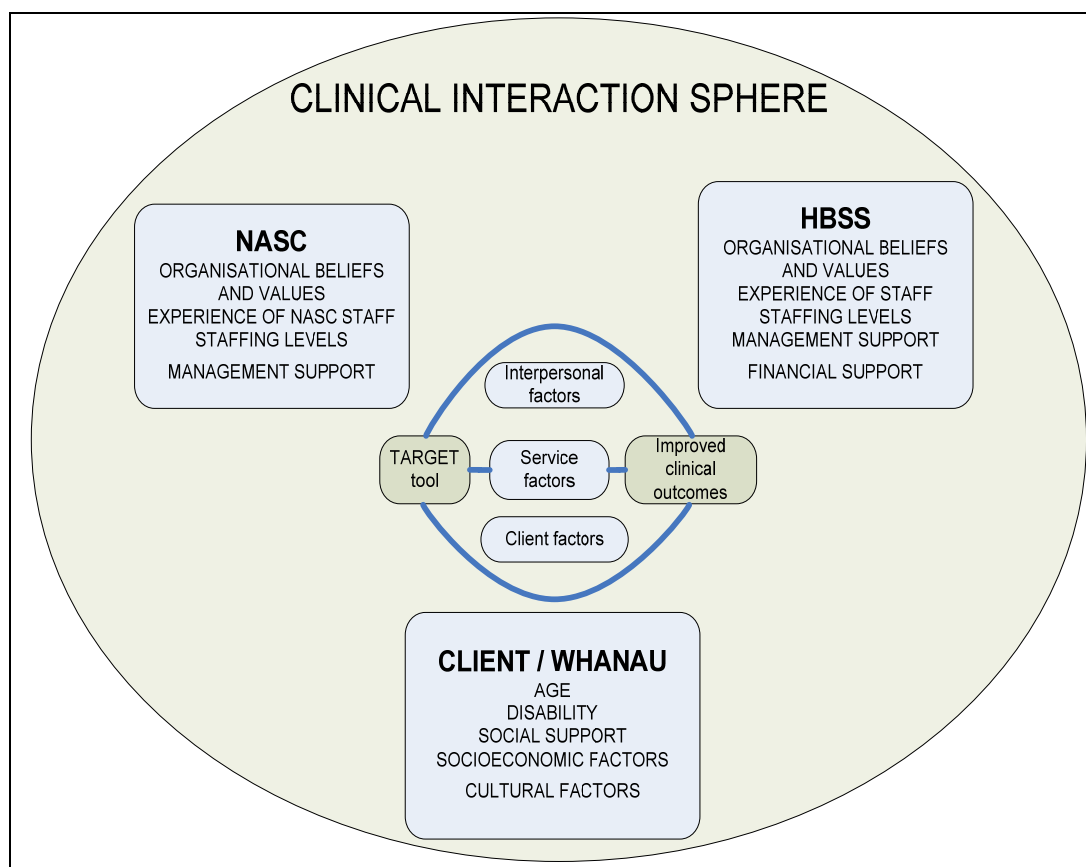


Figure 3-4: The potential group interaction factors that influence the effect of TARGET on clinical outcomes among a group of older people referred for home based support in CMDHB

Needs Assessment Service Coordination: Within NASC these influences included the beliefs and values of Counties Manukau District Health Board (CMDHB) and also the NASC service. In addition the level of management support for implementation of the TARGET tool was explored. This was ascertained by several means. Firstly during the interviews of individual NASC, (at baseline, after completion of TARGET training and six months after the start of the trial), there were questions directed at their individual understanding of their corporate and organisational beliefs and values. Secondly documentation relating to home based support services and NASC within CMDHB (such as District Annual Plan and Strategic Plans) were examined. These three sources of information were analysed using General Inductive Methodology (GIM) ⁵⁶⁹ and themes and categories were ascertained. The purpose of using an inductive approach is to: condense raw textual data into a brief, summary format; establish clear links between the evaluation or research objectives and the summary findings derived from the raw data; and develop

a framework of the underlying structure of experiences or processes that are evident in the raw data. Other factors considered were the experience of the NASC staff and NASC staffing levels. The experience of the staff was determined by the number of years they had been working as NASC within CMDHB and also the number of years working as NASC in other areas.

Home Based Support Services: A similar approach was applied to the HBSS organisations and their possible effect as variables in the study allowed for exploration of the beliefs and values of each of the organisations. In addition experience of the staff, management support for the implementation of the tool, staffing levels and financial support were determined. HBSS coordinators and their managers were interviewed to determine their understanding of their organisations beliefs and values. GIM was used to determine themes among the different organisations. The experience of the HBSS coordinators was obtained at the initial interview. Details of the financial support provided by CMDHB to HBSS providers as part of the implementation of TARGET was obtained from interviewing the Funding and Planning representative and available documentation.

Client / whānau: Characteristics including the age and level of disability of participants in the trial, together with the level of informal social support and cultural, socioeconomic and environmental factors were collected. The age and level of disability were collected at the baseline interview. Informal social support related to any support provided to the client by family and friends who were not paid for these services. This was collected as part of the standard NASC assessment. Information relating to clients cultural, socio-economic and geographical factors was obtained by recording their ethnicity and also the geographical location of their main place of residence. This was then rated according to the 'Atlas of Socioeconomic Deprivation in New Zealand' (NZDep)⁵⁷⁰. The effect of the TARGET tool on these informal carers was ascertained by the use of the Caregiver Reaction Assessment (CRA)⁵⁷¹. The CRA is a 24-item instrument designed to measure the reactions of family members to caring for older relatives with a variety of illnesses. The scale is designed to assess specific aspects of the caregiving situation, including both negative and positive dimensions of caregiving reactions. In 141 partners of

patients with colorectal cancer in Netherlands, Nijboer identified five dimensions of caregiver reactions were identified through exploratory factor analysis ⁵⁷²:

- Caregiver's esteem assesses the value or worth attributed to caregiving as a result of the experience being rewarding or causing resentment (7 items);
- Lack of family support assesses the carer's perception of being left with most of the caregiving responsibility or of family members working together (5 items);
- Impact on finances assesses the adequacy, difficulty, and strain of finances on the carer and family (3 items);
- Impact on schedule assesses the extent to which caregiving interrupts or interferes with the carer's regular activities (5 items); and
- Impact on health assesses the carer's capability to provide care and health in relation to caregiving (4 items).

These subscales indicate several of the attributes of caregiving appraisal, including needs of care receiver placed above needs of caregiver, imbalanced relationship, observable and perceived costs, chronic or repeated stressors, increased role expectations, and the transactional process between caregiver and environment. This instrument has been used in New Zealand, United States, the Netherlands, and Australia ⁵⁷³. Reliability analyses showed that standardized Cronbach's alpha varied between 0.62 and 0.83 for the separate subscales, indicating sufficient internal consistencies ⁵⁷².

The scale consists of 24 items ranging from a score of 1 (strongly agree) to 5 (strongly disagree); with obtainable scores ranging from 24-120. Low scores indicate high levels of carer burden, and high scores indicate low levels of burden.

Table 3.5 on page 122 summarises the methods of data collection for each of the perspectives and levels explored in determining the effectiveness of the TARGET tool.

Table 3-5: The methods used for data collection to examine the influence of interpersonal, service and client factors on the effect of TARGET on clinical outcomes among a group of older people referred for Home Based Support Services in CMDHB

	Face to face with client	Face to face semi-structured interviews with frontline staff	Face to face semi-structured interviews with managers	Self-completed questionnaire	Analysis of related documents
Clinical outcomes					
SF-36, SPPB and DSSI	✓				
Interpersonal, service and client factors					
NASC / HBSS coordinator relationship		✓		✓	
Service provision					
Client motivation and engagement				✓	
Client relationship with NASC / HBSS coordinator and HBSS support worker	✓			✓	
Group interactions					
NASC					
Organisational beliefs and values		✓			
Experience of NASC staff					✓
Staffing levels					✓
Management support		✓			
HBSS					
Organisational beliefs and values		✓			
Experience of HBSS staff					✓
Staffing levels					✓
Management support			✓		
Financial support					✓
Proportion of different types of support workers within the organisation					✓
Client / whānau					
Age of client					✓
Clients level of disability, Socioeconomic factors, Cultural factors					✓
Carer stress				✓	

3.5.4 National socio-political factors

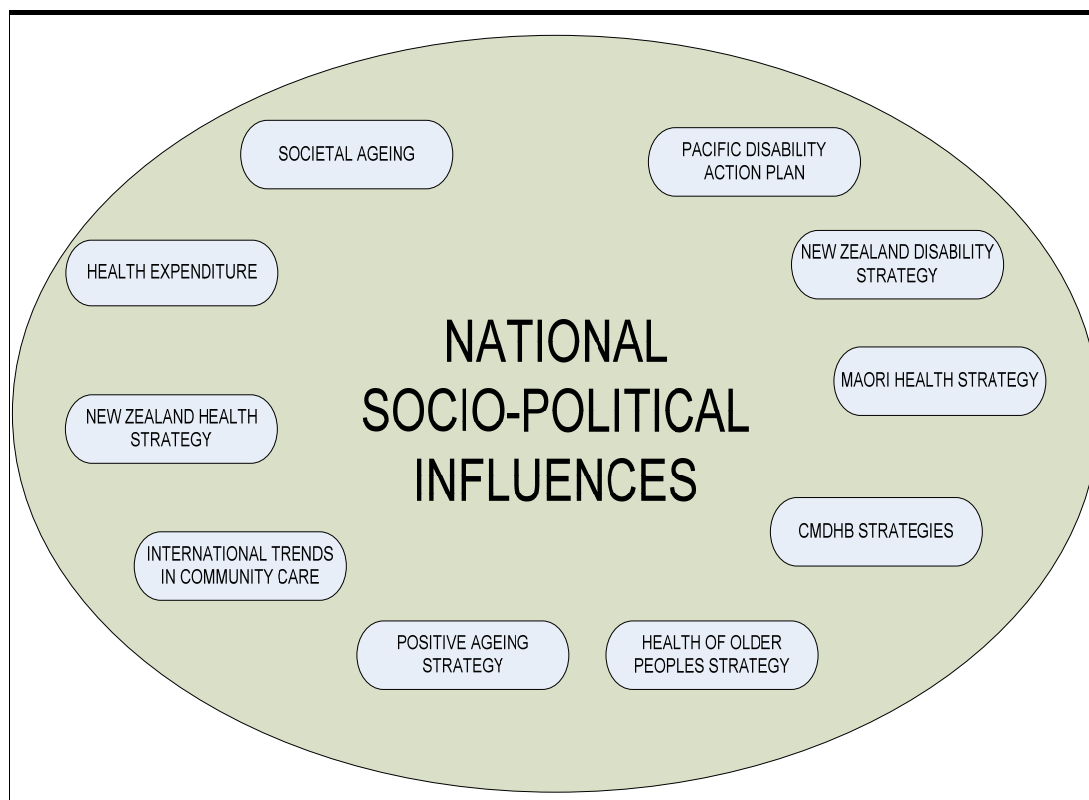


Figure 3-5: The potential national socio-political factors that influence the effect of TARGET on clinical outcomes among a group of older people referred for Home Based Support Services in CMDHB

For completeness, Figure 3.6 depicts the various national socio-political factors that could potentially influence the three systems described. These were not measured at an individual level. However, cognisance of their impact was important to further conceptualise the findings of the study. Analysis of national policies and CMDHB specific documents was undertaken using General Inductive Method to determine themes, categories and meaning.

3.6 Sample size

An objective of this trial was to compare self-reported quality of life between two groups. Advice from an experienced biostatistician at the School of Population Health, The University of Auckland estimated that a total sample size using the mean SF-36 Physical Component score from a similar population of community dwelling older people⁵⁷⁴ for the control group (36.33) and SD of 11.11 and a power of 90%

and alpha of 5%. A plausible 10% improvement in self-reported quality of life, from 36.33 to 39.93 would need 110 (55 per group) people with 10% dropout if the participants were randomised individually. However, since the sample was cluster randomised it was necessary to determine the design effect to ascertain the final number of participants required.

In statistical terms, observations within a cluster are correlated and this lack of independence must be taken into account when it comes to analysing the data. This is commonly referred to as a design effect (DEFF) and will almost always be greater than 1 indicating that more clients are required to effectively achieve the same sample size as that from the standard trial, which randomises at the client level. As explained above, the DEFF increases as the within-cluster correlation and the number of participants within a cluster increase. For example when Design Effect equal 2, has double the variance and half the effective sample size compared to the study without clustering.

The formula for Design Effect is:

$$\text{DEFF} = 1 + (m-1) * \text{ICC}$$

where m is the cluster size and ICC is Intra-cluster-correlation

As can be seen from the formula above if the cluster size is large, even a small value of ICC can have a large effect on sample size. The sample size required for a cluster-randomised study is the sample size for individual randomised study times DEFF.

Determination of the ICC for the current study used information from similar cluster randomised studies undertaken and The University of Auckland with older community dwelling older people^{575, 576}. Analysis of the variance components from these published models were determined and the ratio of the variance between subjects over the total variance was calculated to give an ICC of 0.036. In addition, the average anticipated cluster size (n=14) was determined following analysis of GP

referrals to NASC (described in Section 3.7). This allowed the determination of a conservative design effect of 1.5. This gives a sample size of 166 (83 in each group).

3.7 Randomisation

3.7.1 Sequence generation

The five steps in the randomisation process are summarised in Figure 3.7 on page 126. Step one involved collection of all referrals to NASC for HBSS from GP practices within CMDHB from February to June 2006. Following this the referrals were separated into the four geographical pods in which the NASC team worked. Step three involved the allocation of GP practices to blocks within each pod. The number of blocks within each pod corresponded to the number and full time equivalent of NASC staff within each pod. The allocation was stratified in an attempt to ensure that there was parity across the blocks in relation to numbers of referrals received. In step four the blocks within each pod were randomly assigned as either control or intervention. This activity was undertaken at a pod level to ensure that there were equal numbers of each allocation within pods. Step five then involved the allocation of individual NASC to either study group through the use of a numeric list randomly generated within Microsoft Excel. Prior to the start of the trial the clusters were trialled by the NASC team to determine whether the stratification was successful and that the use of the clusters would not affect operational efficiency within NASC. The result of this was that individual older people had their randomisation status pre-assigned according to whether or not they were registered with a GP allocated to the NASC staff utilising the 'TARGET' tool (active) or a GP allocated to NASC staff using usual processes for assessing the older person (control). The participants GP was included in the mixed model of analysis (described in Section 3.8.1 on page 130). This allowed for consideration of the effect of the GP on participant outcomes.

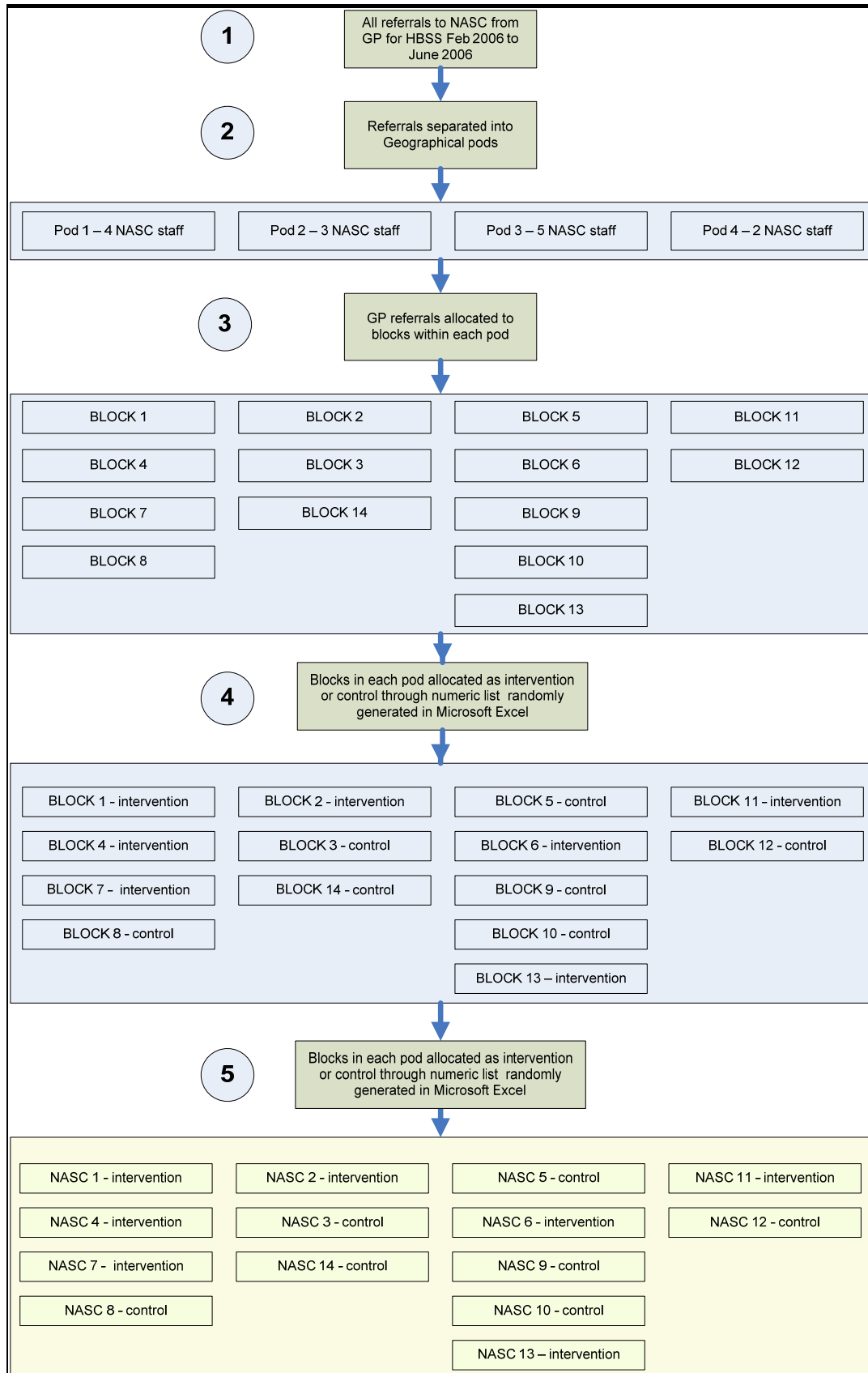


Figure 3-6: Process of randomisation utilised in TARGET trial

3.7.2 Implementation

The cluster randomisation of participants into control or intervention groups according to the GP surgery to which they were registered reduced the risk of contamination among NASC staff as it was possible to effectively separate the operational client contacts undertaken by the intervention and control NASC staff. During the course of the trial the allocation of participants to the two groups was undertaken by the NASC administration staff and the allocation was not revealed to the principal researcher until after consent had been obtained. This reduced the risk of randomisation bias.

3.8 A mixed methods approach

Social research methodologies are often presented as either quantitative or qualitative, and essentially belonging to one of two opposing paradigms. Quantitative methodologies generally belong to the positivist paradigm⁵⁷⁷ (although qualitative methods are also used by researchers working from positivist standpoints). The positivist paradigm proposes that to study the impact of an intervention it is necessary to undertake a study where individuals are selected and allocated to treatment and control groups; the two or more groups are provided alternative "treatments" and their progress (or decline) on one or more "dependent variables" is recorded; finally, a statistical evaluation of the results is conducted aimed at assessing whether a difference between the results in the two groups may be caused by chance. Qualitative research encompasses many different methods of inquiry. The one thing they all have in common is an interpretive, naturalistic approach to subject matter; in other words that things are studied "in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them"⁵⁷⁸.

The blending of qualitative and quantitative data in a single project, through mixed method research can be advantageous in developing an evidence base for clinical practice⁵⁷⁹. Quantitative studies are often strong on generalisability, precision and control over extraneous variables but the tight controls associated with this approach and the reduction of human experiences, characteristics and behaviour to numbers is criticised for 'failing to capture' the human context of the situation⁵⁷⁹. Qualitative

studies are flexible and have the potential to explore insights into complex phenomena but are usually of small, unrepresentative samples and use analytic procedures that rely on subjective judgements⁵⁷⁹. Therefore qualitative studies can be criticised around problems of reliability and generalisability⁵⁷⁹.

Perhaps most importantly, while quantitative methods often demonstrate that variables are related to one another they are often unable to explain why there may be a relationship⁵⁷⁹. Qualitative method data collection may be especially useful in the evaluation of complex interventions to inform the results of quantitative data by placing it into real social contexts and enhancing understanding of social processes⁵⁸⁰. The integration of quantitative and qualitative design can provide insight into why and how variables are related through the analysis of qualitative material⁵⁷⁹. Using both quantitative and qualitative components allows data from one component to be used to inform findings in other components allowing researchers to gain multiple insights into complex phenomena⁵⁸¹. In evaluation of health care interventions this can inform the research, suggesting reasons why an intervention was successful or unsuccessful and what the intervention was like in practice for the participants⁵⁸¹.

In this study, the multidimensional nature of exploring the effect of the goal facilitation tool on clinical outcomes among the participants suggested that an integrated mixed method study with quantitative and qualitative data collection would provide insight into the causal processes and relationships that influenced the services implemented.

3.8.1 Quantitative analysis

The data analysis involved examining both the quantitative and qualitative data. Quantitative data, obtained from older people, informal carers and examination of documents, was initially entered into an Excel spreadsheet (Microsoft[®] Corporation, 2003). These were later transported into the Statistical Analysis System SAS (SAS Institute Inc. Cary NC) for analysis. All statistical tests were two-tailed and a five percent significance level was maintained throughout the analyses. All treatment evaluations were undertaken on the principle of 'Intention to Treat'. No adjustments

for multiplicity were used for the secondary endpoints, adverse events or other endpoints. Missing data and outlying observations were identified and investigated with sensitivity analysis completed in order to assess the impact of such observations. Consultation with biostatistician Elizabeth Robinson (School of Population Health, The University of Auckland) was performed and subsequent data analysis methods derived.

Wojdyla⁵⁸² states that when analysing cluster randomised studies it is important to use sophisticated statistical techniques as application of standard statistical methods (for example, linear regression) will tend to bias p-values downward, risking a spurious claim of statistical significance. This is due to a potential lack of independence among members of the same cluster.

To allow for this the effect of the use of the TARGET tool on the clinical outcomes (HRQoL, physical function and social support) was examined using a linear mixed model⁵⁸³. The use of Structural Equation Modelling (SEM) was considered as an adjunct to the development of a mixed model. However, SEM encourages confirmatory rather than exploratory modelling; thus, it is suited to theory testing rather than theory development. With an accepted theory or otherwise confirmed model, SEM can also be used inductively by specifying the model and using data to estimate the values of free parameters. Often the initial hypothesis requires adjustment in light of model evidence, but SEM is rarely used purely for exploration. Mixed models (also known as hierarchical linear models, generalized linear mixed models or random-effects models) are statistical models of parameters that vary at more than one level. These models can be seen as more advanced forms of simple linear regression and multiple linear regression, although they can also extend non-linear models. They allow variance in outcome variables to be analysed at multiple hierarchical levels, whereas in simple linear and multiple linear regression all effects are modelled to occur at a single level.

Fox⁵⁸⁴ states that mixed models include additional random-effect terms, and are often appropriate for representing clustered, and therefore dependent, data – arising, for example, when data are collected hierarchically, when observations are taken on

related individuals or when data are gathered over time on the same individuals. Classical statistical methods assume that observations are independent and identically distributed. Applied to clustered data, this assumption may lead to false results⁵⁸⁵. In contrast, the mixed effects model treats clustered data adequately and assumes two sources of variation, within cluster and between clusters. Two types of coefficients are distinguished in the mixed model: population-averaged and cluster (or subject) - specific. The former have the same meaning as in classical statistics, but the latter are random and are estimated as posteriori means.

Study outcomes: The primary outcome for analysis was the physical and mental health of older people measured by a change in the SF-36 component scores. A generalised linear mixed model for repeated measures and clustered data was used to allow estimation of the treatment effect on the primary outcome and also on physical function and social support.

The linear mixed model is expressed as:

$$\mathbf{Y} = \mathbf{X}\boldsymbol{\beta} + \mathbf{Z}\boldsymbol{\gamma} + \boldsymbol{\varepsilon}$$

Where:

\mathbf{Y} is $n \times 1$ vector of observations (Y_1, Y_2, \dots, Y_n);

\mathbf{X} is an $n \times p$ fixed effects design matrix $\begin{pmatrix} X_{ii} & \dots & X_{in} \\ X_{ni} & \dots & X_{ip} \end{pmatrix}$;

and \mathbf{Z} is an $n \times g$ random effects design matrix $\begin{pmatrix} Z_{ii} & \dots & Z_{in} \\ Z_{ni} & \dots & Z_{ip} \end{pmatrix}$.

For secondary outcomes with repeated measures and cluster data, a generalised linear mixed model was used to allow estimation of the treatment effect. Where the outcome was not normally distributed either the variable was transformed using logarithms to better satisfy the assumptions of normality, or the appropriate link for Poisson or binary data were used. To allow for correlation between measurements at different time periods on the same participant, a covariance structure was modelled. Appropriate demographics and clinical variables were included in the model. In order to investigate whether changes over time differed for the intervention and comparison groups, the interaction between treatment and time was also assessed in

the model. It is acknowledged that the decision to determine the level of change over time meant that including the baseline measures as a baseline variable and concentrating on the final outcome was not performed. This has been reported to increase the chance of regression to the mean⁵⁸⁶; a concept explored in Section 5.4.1. However, residual analysis was performed to assess the impact of this.

The variables considered for use as classification variables and fixed effects are shown in Table 3.6.

Table 3-6: Variables considered for use as classification variables and fixed effects in a mixed model analysis of the effect of a designated goal facilitation tool on clinical outcomes

Classification variables	Fixed effects
Clinical effectiveness outcomes	
	Client factors Proactive coping inventory score Home Care Satisfaction Measure score Caregiver Reaction Assessment score Service factors Hours of HBSS package Interpersonal factors NASC trust questionnaires score
Group interaction sphere	
Client factors Age Sex Ethnicity	Client factors Socioeconomic status (NZDEP) NASC Level of experience Staffing levels HBSS Level of experience Coordinator staffing levels Ratio of coordinators to support workers
Local environmental factors	
	Other support received by the client from formal and informal services

The model entered into SAS 9.1 to determine this result is shown in Table 3.7. it was acknowledged that the determination of the most appropriate model is both an art and a science⁵⁸⁷. To compile the most parsimonious model a multi level approach

was utilised on the basis of biostatistical advice. Firstly, variables were included that were shown from the literature to be related to the outcome. Following this variables were included in a stepwise manner with a cognisance of the F- and p- values. Finally the goodness of fit measures (BIC and AIC) and the residual variance were examined.

Table 3-7: Mixed model entered into SAS 9.1 to ascertain the effect of TARGET on SF-36

Programme	Line number
proc mixed data= <i>datafile</i> ;	1
Classification variables;	2
Model sf36pcs= <i>fixed effect variables</i> /ddfm = kr residual;	3
random int / subject = <i>random effect variable</i> ;	4
repeated ntime / type = ar(1) subject = id*gp;	5
lsmeans i_c*ntime;	6
run;	7

The DDFM=KR option (line 3) performs the degrees-of-freedom calculations detailed by Kenward and Roger ⁵⁸⁸. This approximation involves inflating the estimated variance-covariance matrix of the fixed and random effects by the method proposed by Prasad and Rao ⁵⁸⁹ and Harville and Jeske ⁵⁹⁰. Satterthwaite-type degrees of freedom are then computed based on this adjustment. By default, the observed information matrix of the covariance parameter estimates is used in the calculations.

For correlation between measurements at different time periods on the same older person participant, an autoregressive covariance structure was used to model the correlation. The covariance structure for the model is specified as ar(1) and is shown on line 5. This refers to first order autoregressive. Cnaan ⁵⁹¹ suggests that in cases where the observations have a clear ordering or structure, some investigators alternatively assume that correlation among the covariance matrix *is* non-zero, and varies in a systematic way. However the effect of clustering within groups was also considered using the SAS default variance component option.

The randomisation unit (NASC clusters) was included as a random effect. Appropriate demographics and clinical variables were included in the model. In order to investigate whether changes over time differed for the intervention and comparison groups, the interaction between treatment and time was also assessed in the model. Means were adjusted for the other variables in the model with the appropriate standard errors presented.

An obvious question when examining the results presented above relates to the size of residual variation within the model. In the commonly used linear univariate model, the sample squared multiple correlation coefficient, R^2 , measures the maximum overall linear association of a single-dependent variable with several independent variables. In the multivariate model, R^2 corresponds to comparing two models: (1) a full model that consists of $p-1$ independent predictors and an intercept; (2) a null model that has only the intercept. It also measures the overall linear association of one (dependent) variable Y with several other (independent) variables X_1, X_2, \dots, X_{p-1} , which corresponds to adding $p-1$ predictors to an intercept-only model. Most linear regression and ANOVA software packages provide the model (overall) R^2 . However, little attention has been given to developing an R^2 statistic for the linear mixed model.

The linear mixed model utilised in this study explicitly specifies not only the mean structure but also the covariance structure. Hence three types of model comparisons can occur: (i) Compare mean models with the same covariance structure. Nested mean models are the most common. (ii) Compare covariance models with the same mean structure. Two linear mixed models may be nested or non-nested in the covariance models. (iii) Compare linear mixed models with different mean and different covariance structures. Consequently any definition of an R^2 statistic for the linear mixed model must account for the distinction between the proportion of variation in the response explained by the fixed effects (in the mean model) and the proportion explained by the random effects (in the covariance model). The same distinction arises in measuring the degree of association between the repeated outcomes and the fixed effects.

This necessitates the use of other means to ascertain the size of residual variation inherent in the model. Residuals are differences between the observed values and the corresponding values that are predicted by the model and thus they represent the variance that is not explained by the model. As such, the residuals can be regarded as the result of drawing random samples from a distribution. The better the fit of the model, the smaller the values of residuals.

The crucial assumption of regression analysis is that the residual errors, the deviations of the observed values of the response from their predictions, are independent and identically distributed with a mean of zero. Studentised residuals were used rather than raw residual values. These are the quotient resulting from division of a residual by an estimate of its standard deviation. This is advocated by Smythe⁵⁹² and Bates⁵⁹³ as typically the standard deviations of raw residuals in a sample vary greatly from one data point to another even when the errors all have the same standard deviation, particularly in regression analysis; thus it does not make sense to compare residuals at different data points without first Studentising.

The presentation of residuals within the analysis is shown in Table 3.7 as the ‘residual’ statement on line 3. This option provides an estimation of the following:

- Residual-by-predicted plot

A residual-by-predicted plot is commonly used to diagnose nonlinearity or nonconstant error variance. It is also used to find outliers.

- Residual normal Q-Q plot

The normal quantile of the i th ordered residual is computed as

$$\Phi^{-1} \left(\frac{i - 0.375}{n + 0.25} \right)$$

Where Φ^{-1} is the inverse standard cumulative normal distribution.

If the residuals are normally distributed, the points on the residual normal quantile-quantile plot should lie approximately on a straight line with residual mean as the intercept and residual standard deviation as the slope.

- Residual histogram
- Residual statistics

This includes information on the measures of fit statistics and compares the fitted function value calculated for the model (also called the objective function) with the values calculated as residuals.

A further method for comparing models explores the goodness of fit of the model. Measures of goodness of fit typically summarise the discrepancy between observed values and the values expected under the model in question. This is determined by calculating the Bayesian information criterion (BIC) and Akaike's information criterion (AIC). The goodness of fit of a statistical model describes how well it fits a set of observations. The technique involves comparison of the values generated for AIC and BIC across models with different covariates included. The model that is chosen is the one with the smallest values of AIC and BIC.

Statistical interpretation: The current study sought to investigate the impact of the restorative intervention at the traditional five percent level of significance, although, p values will be presented in the results of this study to allow for reader's interpretation of the strength of evidence. Additionally, clinical interpretation will be explored where appropriate. Bland and Altman^{594, 595} highlight many trials undertake multiple significance tests, therefore, a solitary statistically significant result should be interpreted with caution as this may be the one in 20 result we would expect to find by chance alone. For this reason, adjustment for multiple tests has been discussed extensively in literature. The renowned Bonferroni method multiplies the observed p value from significance tests by the number of tests. This technique is correct when all tests are independent of one another. However, this method has been discredited by Bland and Altman^{596, 597} who state multiple outcome measurement tests are not independent of one another. Rather, they are highly correlated and use of the Bonferroni method is inappropriate and may result in failure to find real differences. In corroboration, Rothman⁵⁹⁸ refuted the use of adjustments for multiple tests as it "mechanizes and thereby trivializes the interpretive problem." Consequently, it is most important to recognise that p values have not been adjusted in the current study so that the results can be interpreted within the context of the number of tests undertaken.

3.8.1 Qualitative analysis

Rationale: Qualitative research is about examining meanings, experiences and practices of people within the social context in which they exist⁵⁹⁹. Interpretive research offers an understanding of roles and relationships, exploring the what, how and why of phenomena⁶⁰⁰. While quantitative research seeks to examine causal relationships between variables it is in qualitative approaches that researchers seek to describe, understand and give meaning to social experiences⁶⁰¹. Researchers recognise the complexity of human behaviour and the social world where the emphasis is placed upon multiple, interacting realities that can only be studied as a whole⁶⁰². Qualitative research has developed a variety of theoretical traditions but all qualitative studies share the goal of describing this complexity of human experience within its context and learning from informants⁶⁰³. The process of qualitative data analysis takes many forms, but is essentially a nonmathematical analytical procedure that involves the examination of the meaning of people's words and actions⁶⁰⁴. The use of interviewing and examining relevant documentation within the current study was integral to exploring the mode of action for the TARGET tool on the clinical outcomes. Such contextualisation of the data increases the ability to inform future development of services in environments other than the one used in the current study.

The interviews and documentary evidence (summarised in Table 3.8) were examined to determine the effect of the tool on service provision. The interview guides are shown in Appendix 5. The interview transcripts / documents were analysed using a general inductive approach as this is a commonly used systematic procedure used for analysing qualitative data⁵⁶⁹. The use of an inductive approach is common in several types of qualitative data analyses, especially grounded theory⁶⁰⁵. It is consistent with the general patterns of qualitative data analysis described by other authors^{606 607}. Three broad tasks for qualitative data analysis were described by Miles and Huberman⁶⁰⁶ (pp. 10-11): data reduction, data display, and conclusion drawing or verification. Although the general inductive approach is consistent with Miles and Huberman's analytic framework, it differs in providing a more detailed set of

procedures for analysing and reporting qualitative data (data reduction and display) than is provided in their description.

The process of using this approach began with transcription of the interviews. These transcripts were analysed for apparent themes by an independent researcher experienced in general inductive approach. Analysis of the transcripts was performed and themes were identified by a process of repeated review. The data was then organised into initial codes. Following this, higher codes were developed that encompassed these initial codes and provided insight into the identified themes. Appropriate text segments were then assigned to each category.

Following the development of the categories, the research objectives, categories and the descriptions of each category were provided to an independent coder together with a sample of the raw text. The coder was then asked to assign the text to the categories developed.

Throughout the process there was continuous revision and refinement of the categories and themes. This was undertaken using constant comparison as advocated by Pope, Ziebland and Mays⁶⁰⁷ and involved each item being checked and compared with the rest of the data to establish analytical categories.

Table 3-8: Sources of qualitative data

Source	n=
Relevant national and local policies and strategy documents	6
Funding and Planning manager	1
HBSS managers	5
NASC	14
HBSS coordinators	19
Older participants	14

3.9 Reliability and validity

Reliability is defined as consistency, both over time and internally. Consistency over time relates to whether the same instrument administered to the same people, but at a different time would produce the same results. Internal consistency indicates the

extent to which the items within the instrument are consistent with each other ⁶⁰⁸. Validity is defined as the extent to which the instrument administered measures what it is intended to measure ⁶⁰⁸. For this research, a number of measures have been undertaken to increase the reliability and validity of the study.

Firstly, the two data collectors were highly experienced health professionals who had extensive previous experience conducting research interviews with older people. This study was a single-blinded RCT where the assessor (at baseline and follow-up) was unaware of the treatment assignment; this reduced bias during the data collection process ⁶⁰⁹. The study design incorporated cluster randomisation which involves a group being allocated to treatments rather than randomisation of the individual ⁶¹⁰. For this study, cluster randomisation was used for practical reasons and to minimise treatment contamination between participants in the intervention and control groups ⁶¹¹. Furthermore, a number of scale measurements were used to examine the participants' physical, mental and social wellbeing. Repeated measures of these assessments were conducted at baseline and at six months after entry into the study.

3.10 Adverse events reporting

The incidence of adverse events was monitored throughout the study. A distinction was drawn between side effects that are distressing and unpleasant, but not harmful to the participant, and adverse effects that were potentially harmful to the participant and required discontinuation of the intervention.

When an event occurred the researcher was alerted to this through consultation with the relevant HBSS provider and NASC within one week. The date, effect of the event, any alteration to service provision and details of what had occurred were recorded.

3.11 Summary

This chapter has illustrated the methods utilised to examine the effect of a designated goal facilitation tool on clinical outcomes among a sample of older people referred for home based support services in New Zealand. The model developed to allow for consideration of the different variables that could potentially affect health related

quality of life, social support and physical function among the participants has been described. The rationale for the choice of tools used to assess the various outcomes of interest has been explained, together with issues relating to methodology and the preferred techniques to be used to analyse the data arising from the study. The following chapter will describe the findings. Once more the model developed in Chapters One and Two will be used as a framework to present the data obtained.

Chapter Four: Results

4.1 Introduction

This chapter will report the data arising from the examination of the effect of the TARGET tool on clinical outcomes among a sample of older people referred for home based support. The degree of alignment of services to incorporate aspects of a restorative model of HBSS resulting from the use of TARGET is also described. The hierarchical model developed in the preceding chapters will be utilised to explore the effects of the different variables on the Health Related Quality of Life (HRQoL), physical function and social support among the sample. The chapter begins with a description of the recruitment and randomisation of the sample, followed by an examination of the potential effect of the ‘national socio-political’ influences. This data was obtained by analysis of policy documents at both a local DHB and a national New Zealand wide context. Following this the findings from the clinical interaction component of the model will be described. Initially the client / whānau baseline characteristics of the sample will be described. This includes: age; gender, level of social support; socio-economic factors; ethnicity and environmental factors. The NASC and HBSS components of the clinical interaction sphere will then be presented. This includes examination of the level of management support within each organisation together with the span of control. Available documents relating to each organisation will be described to further contextualise each HBSS organisations alignment to the concepts of restorative home based support described in the literature review. The level of expertise and professional background of the NASC or HBSS coordinator will also be described. Findings from the interviews undertaken with NASC, NASC managers, funding and planning staff, HBSS managers and HBSS coordinators will be presented to complement the data obtained.

The client interaction level will describe the interpersonal, service and client factors relating to effectiveness of the TARGET tool. The interpersonal factors will allow for presentation of the level of perceived trust between NASC and HBSS organisations. In addition themes arising from interviews conducted with NASC and HBSS coordinators relating to the relationship will be described. Consideration of the service factors will include description of the level and type of services provided

to clients by HBSS as a result of NASC assessment. The types of services provided were classified as described in the previous chapter (Section 3.5.2.2, page 115). The description of the client factors will consist of analysis of the level of proactive coping for each participant. In addition the level of satisfaction of the client relating to the NASC and HBSS organisation will be presented. Themes arising from interviews with a sample of the clients will be presented.

4.2 Recruitment

The recruitment period for participants lasted eight months (September 2007 – May 2008). The breakdown of older people recruited to the study is presented in Figure 4.1. Of the 4234 clients screened 69.5 % (2944) were previously known to NASC and so were excluded. A large proportion of new clients referred to NASC were ineligible. Of the remaining 1290 clients 1027 were ineligible for inclusion in the trial due to inappropriate referral to NASC, referral for other services or cognitive impairment. This left 263 clients eligible for inclusion in the study. A total of 47 people declined to enter the trial at initial contact by CMDHB staff and a further 11 declined to enter the trial during the consenting process. Of note, 205 older people were registered and randomised to the trial; eight participants withdrew from the study (six from the control group and two from the intervention group).

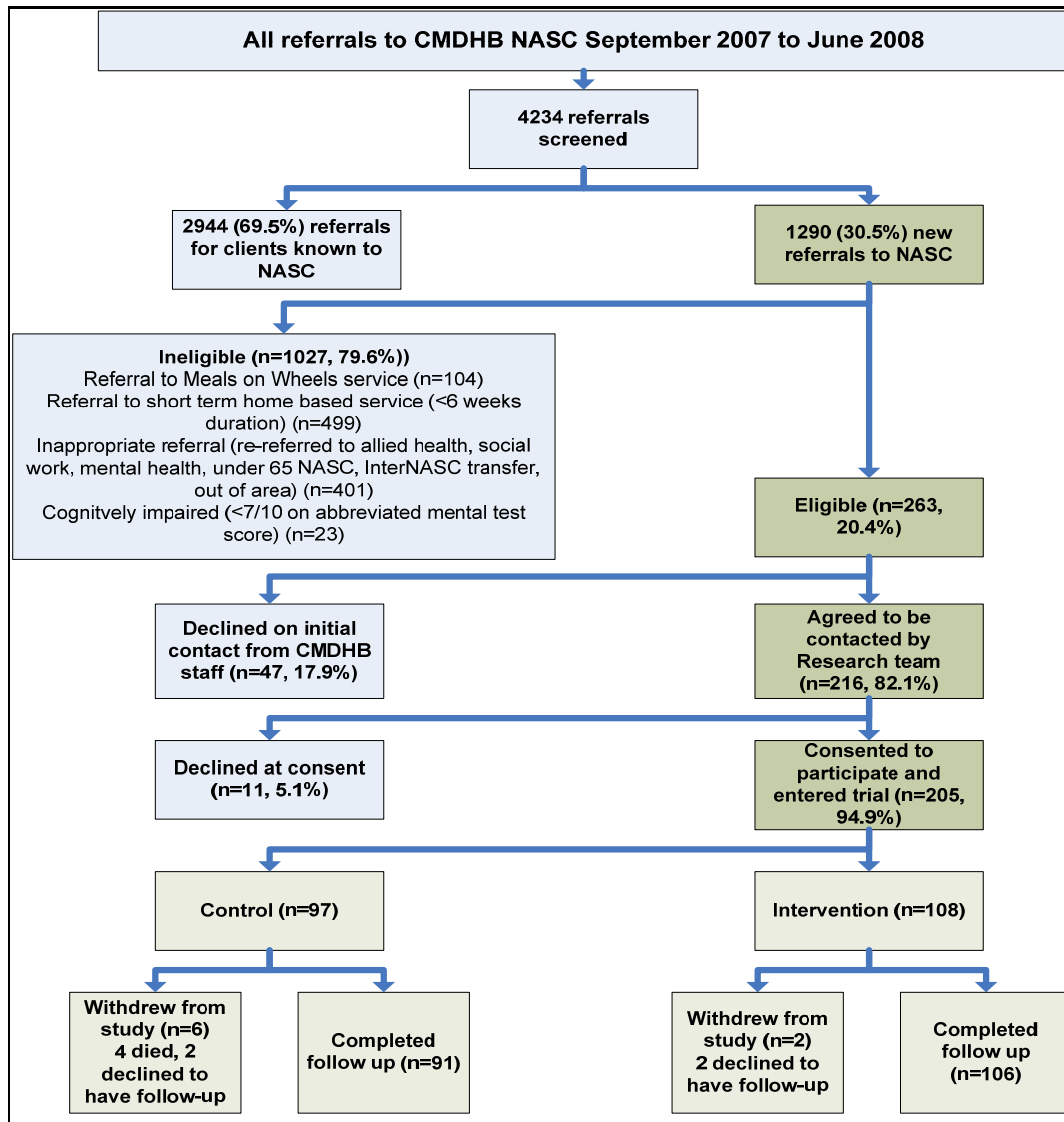


Figure 4-1: Recruitment for a trial exploring the impact the effect of TARGET on clinical outcomes among a group of older people referred for home based support in CMDHB

At randomisation, the participants were allocated to one of the seven intervention or seven control NASC for assessment of their need. Table 4.1 shows the number of participants randomised to each cluster. The clusters varied in size from ten participants (cluster 7) to 19 (clusters 11 and 13). Such variation in cluster size was unexpected and was due to the number of referrals to the GP practices allocated to each of the NASC.

Table 4-1: Number of participants in each cluster

Cluster number	Intervention/control	Number of participants
1	Intervention	15
2	Intervention	15
3	Control	13
4	Intervention	13
5	Control	14
6	Intervention	17
7	Intervention	10
8	Control	15
9	Control	14
10	Control	12
11	Intervention	19
12	Control	13
13	Intervention	19
14	Control	16

4.3 National socio-political influences

This section will present the findings of analysis of the national socio-political influences. This will include a description of the themes and categories arising from analysis of policy documents produced by CMDHB in response to the national policies relating to older people. These national policies are described in chapter one. The local CMDHB documents were the: CMDHB District Strategic Plan (DSP), CMDHB District Annual Plan (DAP), the CMDHB Health of Older Peoples Action Plan (HOPAP) and the Whānau Ora Plan (WOP). The DAP describes the DHBs intentions to continue to advance the strategic direction described in the DSP including the DHB resources required and how the DHB will measure progress in achieving these intentions. The HOPAP describes the planned actions by CMDHB from 2006 through to 2010 in order to meet the health and disability needs of older people in Counties Manukau. The WOP describes the strategy within the DHB to

drive initiatives that improve Māori Health and Disability, including services to older Māori. The themes and categories are shown in Figure 4.2.

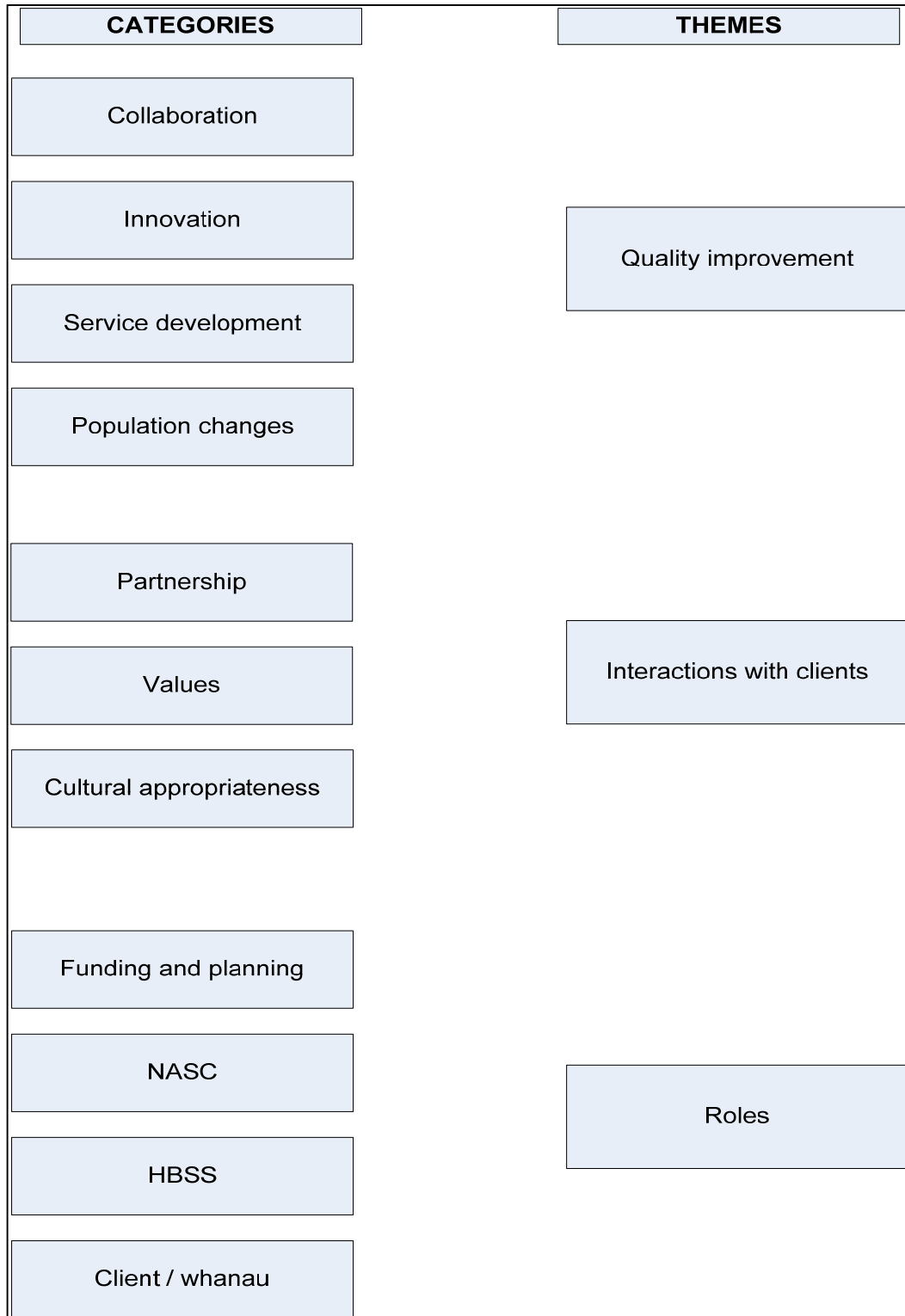


Figure 4-2: Categories and themes from analysis of relevant CMDHB policy documents

Quality improvement: The theme of quality improvement was apparent across all the documents examined. Four categories comprised this theme. The first was collaboration. The DSP and DAP both described this as imperative to the continued improvement to services provided within the region.

“To work in partnership with our communities to improve the health status of all, with particular emphasis on Māori and Pacific peoples and other communities with health disparities” (DAP and DSP).

“Achieving success by working together and valuing each other’s skills and contributions” (DAP).

The DAP continues to describe the need for continued development of collaboration between services.

“Working alongside and encouraging others in health and related sectors to ensure a common focus” (DAP).

The HOPAP explores the need for collaboration across sectors to ensure that services are appropriate for the client.

“Working together to provide an integrated continuum of care so that an older person is able to access needed services at the right time, in the right place and from the right provider” (HOPAP).

The second category related to the ongoing need for innovation in service planning and delivery.

“We will need a more radical approach to quality, one that is very much focussed on patients; it will require re-thinking and redesigning to ensure that care provided is of the highest quality and better placed to meet the needs of patients regardless of cultural background” (DAP).

“[There is a need to] constantly seeking and striving for new ideas and solutions” (DSP).

The category of service development was evident across a number of the sources.

“Begun investment in home-based and community services for older people, to support ‘ageing-in-place” (DAP).

“[Within HBSS] currently work on the assessment tools, funding models, care provision models and capacity building is underway” (HOPAP).

“[There is a need to] develop a range of health and disability support services to provide flexible, coordinated support for older people to age in place” (HOPAP).

The final category related to population changes within the DHB that were driving the need to develop more flexible services.

“Our population has high deprivation, is ethnically diverse with high health needs, and is growing faster than anywhere else in New Zealand” (DSP).

Interactions with clients: The second theme concerned interactions with clients and their family/whānau. The concept of partnership was advocated strongly across the data sources.

“Involve older people, and their families/whānau and carers where appropriate, in service planning and decisions about their care and support” (HOPAP).

“Working alongside older people as members of families, whānau and the community” (DSP).

In addition a need for a recognition of client values and cultural beliefs was reinforced across the documents examined.

“Treating people with respect and dignity: valuing individual and cultural differences and diversity” (DSP).

“Planning for culturally appropriate services to meet the increasing diversity of older people” (HOPAP).

Roles: Lastly, the theme of increased definition of roles in the proposed services was apparent. This related to the Funding and Planning¹⁹ within the DHB, NASC, HBSS and the client.

“The NASC service has recognised the need for diversity of skills for assessors to respond to the increasing demand for clinical and social evaluation in the needs

¹⁹ Since 2001/02 funding responsibility has been progressively devolved to CMDHB for health and disability support services within South Auckland. These services include personal health (i.e. primary, secondary and tertiary care services, Māori health, Pacific health, primary referred services and oral health), mental health, and services for older people. The Ministry of Health retains funding responsibility for the remaining health and disability services including the balance of the primary maternity services, disability services for those under 65 years of age, (except for those clinically assessed by CMDHB geriatricians as close in age and interest), public health and national personal health contracts.

Where services have been devolved to the DHB, the Funding and Planning arm’s responsibilities encompass: (i) payment of providers; (ii) monitoring and audit of provider performance; (iii) management of relationships with providers; (iv) re-negotiation of service agreements that expire; and (v) identification of where the agreements fit into the district’s priorities.

assessment for the older person. A review is underway to explore the future workforce and skills needs of the NASC agency” (HOPAP).

“The importance of HBSS in supporting ageing-in-place people at home is recognised by CMDHB. The existing service model has been reviewed” (HOPAP).

This section has allowed for contextualisation of the study within the local CMDHB environment. The following section will explore the clinical interaction sphere of the model to be used for analysis.

4.4 Clinical interaction sphere

The client / whānau influences on the effectiveness of the TARGET tool together with the NASC and HBSS related factors are considered in the next section. These influences are summarised in Figure 4.3.

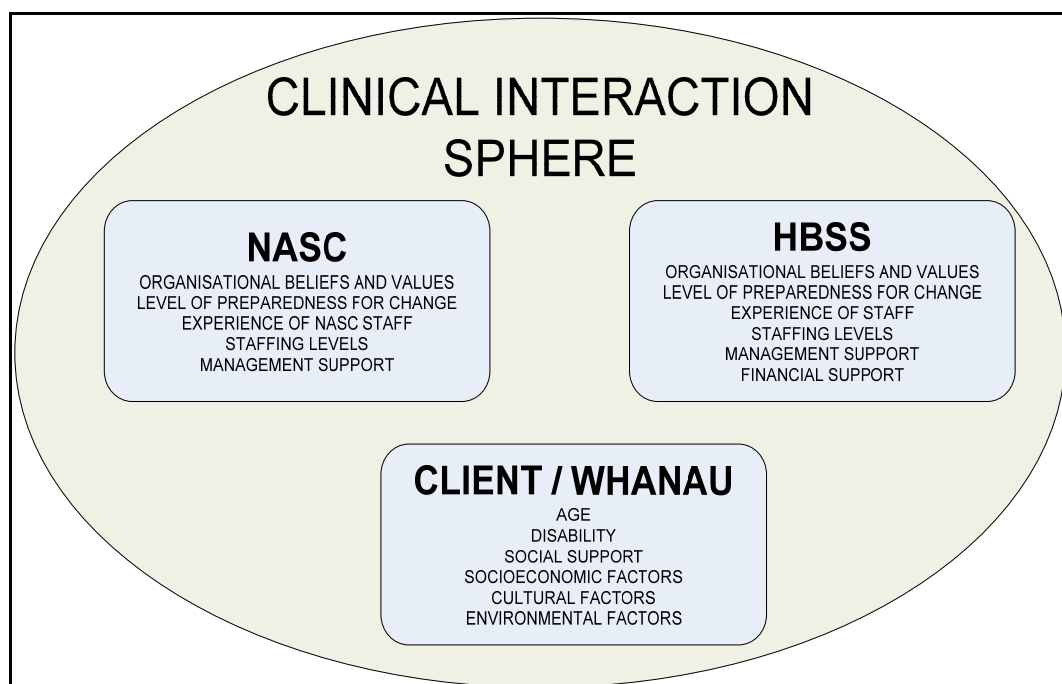


Figure 4-3: The clinical interaction component of a model utilised to examine the effect of the TARGET tool on clinical outcomes

4.4.1 Client / whānau

This section considers the impact of age, physical performance, living arrangement and environmental factors together with cultural influences and informal support

among the participants randomised to the intervention and control groups. Table 4.2 (page 149) shows the demographic information for the participants in the two groups. Information is shown for gender, ethnicity and the living arrangement of the participants in the two groups. In addition the percentage of participants classified in each NZDep rating is listed to describe the socioeconomic status of the sample. The participants in the intervention group had a greater mean age, with a higher proportion of females and people of New Zealand European ethnicity. The control group had a higher number of participants of Asian ethnicity (n=7) than the intervention group (n=1). There appeared to be little difference between the two groups in terms of the living arrangement reported at baseline data collection. In addition the NZDep rating of participants in the two groups did not appear to be different²⁰.

²⁰ Statistical testing on the level of difference between the two groups in relation to these variables was not undertaken. The rationale for this is described in Chapter 5.

Table 4-2: Client / whānau characteristics for participants in intervention and control groups

Descriptors	Intervention group (n=108)	Control Group (n=97)
Age (mean years, [standard deviation])	79.08, [6.93]	76.90, [7.61]
Gender (% , [n=])		
Male	28.7, [31]	39.2, [38]
Female	71.3, [77]	60.8, [59]
Ethnicity (% , [n=])		
New Zealand European	81.5, [88]	73.2, [71]
Māori	7.4, [8]	8.3, [8]
Pacific Island	10.2, [11]	11.3, [11]
Asian	0.9, [1]	7.2, [7]
Living arrangement (% , [n=])		
lives alone	63.9, [69]	61.9, [60]
lives with partner	15.7, [17]	14.4, [14]
lives with other family	17.6, [19]	19.6, [19]
lives with people other than family	0, [0]	1.0, [1]
lives in retirement village	2.8, [3]	3.1, [3]
NZDep rating (% , [n=])		
1 (least deprived)	0.9, [1]	0, [0]
2	17.6, [19]	9.3, [9]
3	1.0, [1]	5.2, [5]
4	6.5, [7]	9.3, [9]
5	6.5, [7]	6.2, [6]
6	15.7, [17]	16.5, [16]
7	0, [0]	0, [0]
8	19.4, [21]	14.4, [14]
9	19.4, [21]	24.7, [24]
10 (most deprived)	12.0, [13]	14.4, [14]

Baseline characteristics: Table 4.3 (page 151) shows the baseline characteristics for the participants randomised to the control and intervention groups. The mean scores

for the primary outcome of HRQoL (as determined by the two SF-36 component scores) are presented. The remainder of the table shows the mean scores for the physical performance measure (short physical performance battery (SPPB) and the components comprising that score (chair stand test, gait speed and balance). Lastly the mean score for the measure of social support (Dukes Social Support Index) is shown. Standard deviation values are shown for all the variables.

Of particular note are the lower baseline values for the SF-36 MCS and PCS in the intervention group. This shows that, in comparison to the control group, the intervention group had lower average estimates of their HRQoL at entry into the study. The remaining variables are similar across the two groups. The baseline characteristics are only included as covariates in the statistical analysis presented in Section 4.6.1 (page 202) if the model of analysis showed a significant relationship with the dependent variable.

Table 4-3: Baseline characteristics for intervention and control groups

Descriptor	Intervention group (n=108)	Control Group (n=97)
Mean SF-36 PCS (score, [sd] , 95% CI)	34.16 (9.56), 32.34-35.96	36.33 (11.11), 34.09-38.57
Mean SF-36 MCS (score, [sd], 95% CI)	51.70 (10.58), 49.65-53.72	52.34 (9.35), 50.46-54.23
Mean SPPB total (score, [sd] , 95% CI) ²¹	6.11, [3.17], 5.51-6.72	6.36, [3.18], 5.72-7.00
Mean SPPB balance component(score, [sd], 95% CI) ²²	2.61, [1.45], 2.34-2.89	2.72, [1.35], 2.45-2.99
Mean SPPB gait speed component (score, [sd] , 95% CI) ²³	2.24, [1.16], 2.02-2.46	2.33, [1.28], 2.07-2.59
Mean time to walk three metres (seconds, [sd] , 95% CI)	12.09, [7.27], 10.65-13.53	12.57, [9.28], 10.66-14.48
Mean SPPB chair stand test component (score, [sd] , 95% CI) ²⁴	1.26, [1.09], 1.05-1.47	1.27, [1.05], 1.06-1.48
Mean time to complete repeated chair stand test (seconds, [sd] , 95% CI) ²⁵	21.14, [8.86], 19.18-23.10	19.98, [8.18], 18.07-21.89
Mean Dukes Social Support Index (score, [sd] , 95% CI)	38.60, [4.21], 37.80-39.40	38.12, [5.39], 37.04-39.21

The next section will describe the distribution and characteristics of informal caregivers for the participants in the two groups. This will further contextualise the apparent difference in health related quality of life across the intervention and control groups.

Informal carers: Table 4.4 (page 152) shows the percentage of participants in the two study groups who identified a designated informal caregiver. In addition the living arrangement of the caregiver is presented. Finally the mean values and standard

²¹ Maximum score =12

²² Maximum score =4

²³ Maximum score =4

²⁴ Maximum score =4

²⁵ Sit to stand five times

deviations are shown for the baseline Caregiver Reaction Assessment (CRA) scores across the intervention and control groups. A total of 33 of the participants (68.98%) in the intervention group had a designated informal caregiver, as opposed to 41 participants in the control group (57.22%). The proportion of participants with an identified caregiver who lived alone was higher in the intervention group, whereas a higher proportion of participants lived with other family members in the control group. The mean CRA scores showed similar levels of caregiver stress between the informal caregivers of participants in the two groups (77.76 vs. 78.23).

Table 4-4: Characteristics and baseline caregiver stress levels across intervention and control groups

Descriptor	Intervention group (n=75)	Control Group (n=56)
Proportion of participants with informal caregiver identified (% , [n=])	69.0, [52]	57.2, [32]
Participant living arrangement where informal caregiver identified (% , [n=])		
lives alone	53.0, [27]	41.4, [13]
lives with partner	20.1, [11]	22.5, [7]
lives with other family	25.5, [13]	32.4, [10]
lives with people other than family	0	1.8, [1]
lives in retirement village	1.4, [1]	1.8, [1]
Caregiver Reaction Assessment Scale (mean score, [sd], 95% CI) ²⁶	77.76, [13.61]	78.23, [16.62]

Table 4.5 shows the mean SF-36 PCS and MCS scores for participants with no informal caregiver identified at baseline. The difference between the intervention and control groups in the mean SF-36 component scores is similar in the total sample and this subsample. Similar trends are observed in the component scores. In addition the physical performance measure (SPPB) is higher in this subsample of the intervention group than in the control group (7.12 vs. 6.83) showing that the participants in the intervention group with no informal caregiver had higher levels of functional ability but had a lower ratings of HRQoL than those in the control group.

²⁶ Out of a total of 120, higher scores indicate greater levels of carer stress

Table 4-5: Baseline SPPB and SF36 scores in participants with no informal caregiver identified

Descriptor	Intervention group (n=33)	Control Group (n=41)
Mean SPPB total (/12), [sd], 95% CI	7.12, [2.73], 5.82-7.26	6.83, [2.98], 4.66-6.57
Mean Baseline SF-36 PCS Score, [sd], 95% CI	36.38, [8.72], 33.29-39.48	34.86, [10.84], 31.44-38.28
Mean Baseline SF-36 MCS Score, [sd], 95% CI	52.02, [9.86], 48.53-55.52	54.52, [8.01], 51.99-57.05

Table 4.6 (page 154) shows the HRQoL and physical function at baseline assessment for participants who had an identified informal caregiver. Of particular interest is the minimal difference between the sub samples of the two study groups.

An examination of the baseline scores for physical function (as measured by Short Physical Performance Battery) shows that the participants with no identified informal carer had a higher functional capacity across both control and intervention groups. These are shown in Tables 4.6 and 4.7. The potential effect of this discrepancy on the study outcomes will be explored fully in chapter five. However, a potential reason for this difference between the two subgroups could be due to the point at which the need for an informal caregiver arises in the progression of an older person's level of disability. In the group where there was no identified informal caregiver it may be that the participants had a higher functional capacity (evidenced by higher SPPB scores) and also higher HRQoL. In contrast, in the group of participants where an informal caregiver was identified it is reasonable to assume that these older people had reached a point where their level of disability had necessitated the need for an informal caregiver. Often this would appear to coincide with the participant collocating with family. This is shown clearly in comparing the proportions of participants in the general sample who lived with family (17.59% in the intervention group and 19.59% in the control group, see Table 4.2) with the proportion of those participants with an identified informal caregiver who reported living with family (25.50% in the intervention group ($t[108] = -3.38, p=0.0009$) and 32.44% in the control group ($t[97] = -5.19, p< 0.0001$), see Table 4.4).

Table 4-6: Baseline SF-36 in participants with informal caregiver identified

Descriptor	Intervention group (n=75)	Control Group (n=56)
Mean SPPB total (/12), [sd], 95% CI	5.65, [3.26], 4.89-6.39	6.02, [3.31], 5.13-6.90
Mean Baseline SF-36 PCS Score, [sd], 95% CI	33.18, [9.79], 30.92-35.43	37.41, [11.29], 34.39-40.43
Mean Baseline SF-36 MCS Score, [sd], 95% CI	51.56, [10.94], 49.04-54.08	50.75, [9.99], 48.07-53.42

It is important to consider the effect of the study on change in caregiver stress levels. This was examined using a mixed linear model. This model was developed in the same way as the model utilised in Section 4.6.1 (page 202). As described above only 131 of the participants had an identified caregiver and so were included in the model. The model used the following as fixed effect covariates: trust questionnaire 1 scores, and the strategic planning scale portion of the proactive coping inventory. Table 4.7 (page 155) shows that there was no significant difference observed in the degree of change between the two groups over time at baseline and follow-up (86.65 vs. 82.54 in the intervention group and 83.55 vs. 81.57 in the control group, $p=0.32$). This relates to the interaction between time and the study group. However, the decrease in caregiver stress levels observed across both groups (1.98 in the control group and 4.01 in the intervention group) is of interest as it would appear to suggest that the provision of HBSS may alleviate caregiver stress levels. This is discussed more fully in section 5.5.1.2 (page 270).

Table 4-7: Results of linear mixed model examining the change in Caregiver Reaction Assessment at baseline and follow-up

Scale measurement	Baseline	Follow-up	P value
	Least Mean Square (SE), 95% CI	Least Mean Square (SE)	
Control	83.55 (3.59), 76.45-90.65	81.57 (3.59), 74.46-88.67	
Intervention	86.65 (3.69), 79.35-93.94	82.54 (3.69), 75.24-89.84	0.32

4.4.2 Needs Assessment Service Coordination

The following section will present the findings relating to the NASC staff. This component of the clinical interaction sphere includes support from management and factors relating to the NASC staff themselves, both collectively and at an individual level. The findings are a combination of quantitative data, arising from questionnaires, relevant CMDHB documents and structured interviews, and qualitative data obtained through semi-structured interviews. These interviews were undertaken with individual NASC staff and with their direct manager. The experience and professional background of each NASC will be presented. In addition, the organisational beliefs and values, level of preparedness for change and level of management support arising from analysis of interviews will be shown.

Tables 4.8 and 4.9 (page 156) show the professional background, ethnicity and years of experience of the NASC staff randomised to the control and intervention groups. Of particular interest is the almost universal trend for the intervention group NASC to be trained social workers, whereas the control group had a far more diverse professional background. In addition the control group were far more likely to be New Zealand born (5/7) and had a mean 5.71 years of experience as opposed to the intervention group where only two of the NASC were New Zealand born and the mean number of years of experience was considerably higher (9.86 years). However, the randomisation process (shown in Figure 3.8) by which NASC were assigned to intervention or control was robust and the mixed model used to analyse the effect of the intervention on the study outcomes included NASC as a variable when indicated.

In addition the geographical pod in which each NASC worked is listed. These pods represent four areas within the CMDHB region. The four pods have markedly different socioeconomic, environmental and demographic structures. However, where the effect of these factors is significant they are included within any model of analysis of the effect of the TARGET tool on the defined clinical outcomes as described in Section 4.4.2. The HBSS providers described in Section 4.4.3 often provide services to clients across these areas.

Table 4-8: Demographic information for control group Needs Assessment Service Coordinators

NASC ID	3	5	8	9	10	12	14
Professional background	OT	RN	RN	SW	OT	RN	SW
Ethnicity	NZE*	NZE*	NZE*	NZE*	Asian	SA*	Māori
Years of experience	1	1	1	15	5	1	10
Geographical pod	2	3	1	3	3	4	2

Table 4-9: Demographic information for intervention group Needs Assessment Service Coordinators

NASC ID	1	2	4	6	7	11	13
Professional background	SW	SW	SW	SW	SW	SW	Dr
Ethnicity	Māori /PI	SA*	EN*	NZE*	EN*	SA*	Asian
Years of experience	2	8	15	15	12	15	2
Geographical pod	1	2	1	3	1	4	3

*NZE is New Zealand European, PI is Pacific Islander, SA is South African and EN is English

The relevant information obtained from the coordinators and managers within the HBSS organisations involved in the study will be presented in the next section. In addition a short description of each of the six providers is given. These were obtained through analysis of published material and information collected through interviewing the manager of the organisation.

4.4.3 Home Based Support Service providers

As previously stated the potential impact of the HBSS organisation on services delivered to older people who had been referred for home based support services is considerable. This section begins with a description of each of the six providers of home based support services to older people within CMDHB. This provides a context relating to the size of the organisation and its structure. Following this results obtained through interviews with the managers of the organisations will be presented. The demographic information relating to the coordinators will then be provided together with information relating to their workload and span of control. This information is summarised in Table 4.10 (page 160).

HBSS provider A

Within the New Zealand context provider A is a medium sized for-profit organisation that is part of a larger group committed to providing services for older people across a spectrum of need, from low levels of homecare through daycare centres to aged residential care within rest homes and private hospitals. They reported delivering over 111,000 hours of DHB funded home support in 2007-08. It has a manager who reports to the CEO of the organisation and three coordinators. It provides services to clients within the geographical region covered by NASC staff in pod 3. Fifteen percent of the support workers are reported as being trained to level II on the Careerforce framework.

HBSS provider B

Provider B is a community trust managed by three elected board members. It has been operating for over 15 years and many of the staff at all levels of the organisation (board member, coordinator and support worker) have worked there in their current positions since the trust's formation. It has three experienced coordinators and provides services to clients within the geographical regions covered by NASC staff in pods 1 and 4. In 2007-08 provider B reported delivering over 65,500 hours of DHB funded home support and thirteen percent of the support workers are trained to level II on the Careerforce framework.

HBSS provider C

Provider C is a provider of home based support services to clients referred to NASC in pod 4. It is a marae based community trust that is dependant on the support from local Marae and accountable to them for its performance. Other components of the trust provide services to meet a wide range of Māori health, social and educational needs. These include youth justice, Kiwi social services, education and training, housing and farming activities. The provider has two coordinators who report to an elected board member. The number of hours delivered in 2007-08 and the percentage of support workers trained to level II on the Careerforce framework were not available.

HBSS provider D

Provider D is a component of a community trust within pod two. The trust was set up in 1981 to provide adult and early childhood educational programmes and youth counselling to the local community, in addition to home care services. It predominantly provides services to Pacific People and employs a large number of Pacific staff at board, coordinator and support worker levels. They predominantly work with clients within pod 2 but also report clients within the geographical regions covered by NASC staff in pods one and three. The number of hours delivered in 2007-08 and the percentage of support workers trained to level II on the Careerforce framework were not available.

HBSS provider E

Provider E is part of a large not-for-profit national organisation that provides health and social support to people of any age. In 2002 the organisation decided, at a national level, to brand a new home and community-based support services for older people and sold their residential aged care facilities, having earlier made the decision to focus on 'ageing-in-place' services. The organisation has considerable resources available and offers in-house New Zealand Qualifications Authority (NZQA) level II accredited training for all its support workers in place of Careerforce training; eighty percent were trained at the time of the study. In 2007-08 they delivered over 83,000 hours of DHB funded home based support across the geographical regions covered by NASC staff in pods 1, 2 and 3.

HBSS provider F

Provider F is an Incorporated Society, comprising fifteen society members and six sub-committee members - 'the working committee'. The administrative staff consists of a full-time administrator, two co-ordinators and a Manager. The provider is Marae based and delivered 34,700 hours of DHB funded home based support services in 2007-08. Forty three percent of the support workers are reported as having attained level two on the Careerforce training framework. They delivered services to clients within the geographical regions covered by NASC staff in pods 2 and 3.

Table 4-10: Summary of organisational characteristics for HBSS providers

HBSS Provider ID	A	B	C	D	E	F
Organisational structure	For Profit	CT	CT	CT	NFP	For Profit
Geographical pods covered	3	1 and 4	1 and 4	1, 2 and 3	1, 2 and 3	2 and 3
Number of coordinators	3	3	2	3	6	2
Professional background						
Registered Nurse	2	1			5	
Enrolled Nurse	1	1				
Physiotherapist					1	
Occupational Therapist						
Other		1		1		
None			2	2		2
Median average HBSS coordinator experience (years)	18.0	23.5	7.5	5.0	7.5	10.5
Median average number of clients per coordinator	300	375	190	200	200	250
Proportion of support workers trained to level II on NZQA framework (%)	15	13	Not available	Not available	80	43
Number of intervention participants referred (n=108)	26	36	0	5	39	2
Number of control participants referred (n=97)	13	36	0	3	39	6

CT – Community Trust, NFP – Not for Profit

Table 4.10 also shows the number of coordinators within each of the six HBSS organisations. In addition the professional background of the coordinators is shown. Providers A and E have both adopted a policy of employing only registered health professionals as coordinators and this is apparent in the results shown. Providers C, D and F had two coordinators each who identified themselves as support workers

who had been promoted to their current coordinator positions. The median number of years of experience working as a coordinator is shown. Finally the median number of clients per coordinator is listed. This is a measure of both the workload for the coordinator and also a measure of the span of control (as discussed in section 2.13). As can be seen there was a wide range of experience across the providers with provider B have the most experienced staff. Of additional note is the high degree of variability in the median number of clients per coordinator, with provider B having almost double the number of provider C.

The number of participants in the control and intervention groups who were referred to each of the six providers for home based support service provision is shown in Table 4.10. This is a decision made by the client at the time of assessment by NASC (as described in Section 3.5.2.3, page 116). The large difference between the numbers referred to each provider will be discussed in chapter five. However, the HBSS provider was included as a covariate in the model of analysis if it had a significant effect on clinical outcome for the participant. This is presented in Section 4.6.1 on page 202.

4.5 Client interaction level

This section will present the findings relating to the client interaction level. This is summarised in Figure 4.4 (page 162). It begins with presenting data relating to the effect of the interaction between NASC and HBSS coordinators. This comprises questionnaire data examining the perceived level of trust between the two parties and also themes arising from analysis of semi-structured interviews with the NASC and coordinators.

Following this, the findings relating to the effect of service factors will be presented. These comprise consideration of the number of hours of home based support provided to participants, the content of the activities that the contracted services provided and a breakdown of the goals for the interaction as defined by the client.

Finally, the findings relating to the client factors will be presented. This will begin with a description of the levels of proactive coping of the participants in the two study groups. Following this, the perceived quality of the relationships existing between the client and the NASC and between the client and the HBSS, as determined by the Homecare Satisfaction Measure, will be presented. These findings will be further developed through the presentation of themes arising from interviews with a sample of the participants randomised to each of the NASC.

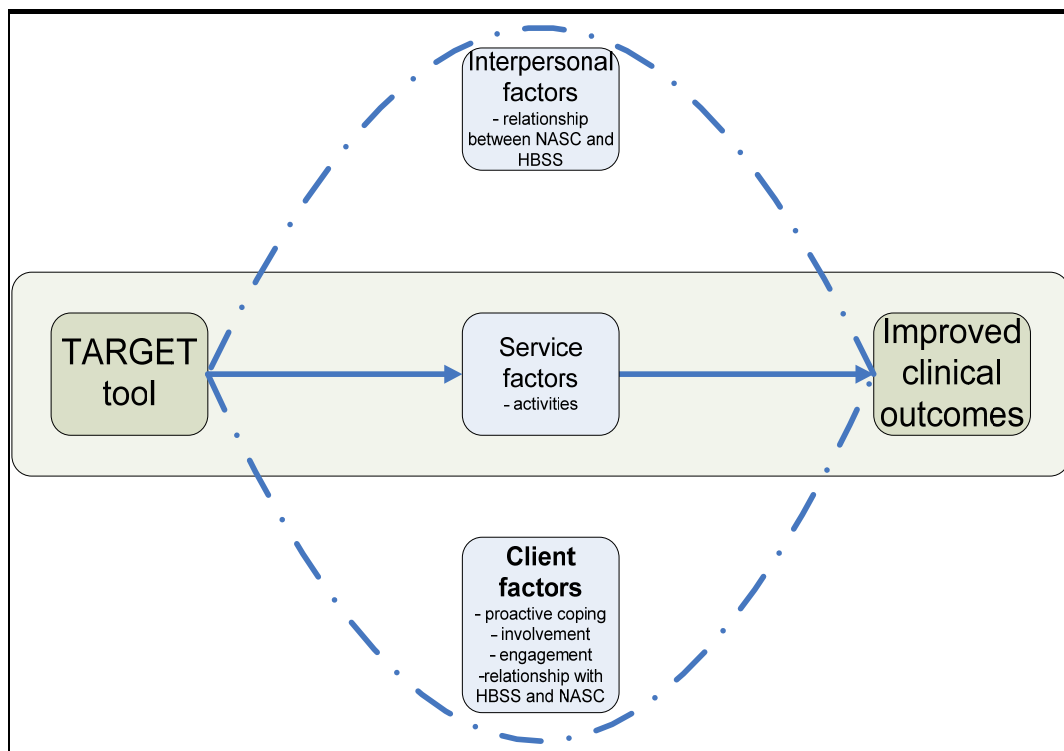


Figure 4-4: The client interaction component of a model utilised to examine the effect of the TARGET tool on clinical outcomes

4.5.1 Interpersonal factors: interaction between NASC and HBSS providers

The level of trust, as perceived by NASC, as existing between themselves and HBSS coordinators is presented in this section, together with a rating of the interaction in relation to each client episode. The level of trust was seen as a crucial component of implementing flexible services aligned to a restorative model. Tables 4.11 to 4.15 show the results obtained from analysis of the mini questionnaires administered to NASC staff following each participant's entry into the trial and the NASC interaction

with the HBSS provider delivering services to that participant. For all the measures of trust there was a significantly higher score across the providers for the intervention group when compared to the control group ($p < 0.0001$). This highlights the higher level of trust existing between the intervention group NASC and HBSS providers in comparison to the control group NASC's interactions. This indicates that as a group the intervention NASC rated their interactions with HBSS providers far more positively than their control group colleagues. This highly relevant issue is described further in Section 4.5.1.1 (page 167).

Table 4.11 (page 164) shows the mean scores for the NASC in the intervention and control groups when asked to rate the interaction between themselves and the HBSS provider in relation to each client. The rating was on a one to ten scale, where '10' was perfect and '1' was very bad. This question is referred to as the 'Trust 1' questionnaire. An independent samples T-test was undertaken. The results obtained are also shown in the table. There was a significant difference in the rating of providers B and E and in the overall rating ($p=0.0001$). This indicated that in the intervention group the NASC rated their interactions with the HBSS provider in a more positive manner than the control group NASC. There were no statistical differences between the ratings relating to NASC/HBSS interactions for participants serviced by other providers. For HBSS providers C, D and F no individual statistical analysis was possible due to the small number of participants in the sub-sample, however, the data from these providers were included in the 'all' analysis.

Table 4-11: Mean score on a 10 point scale in answer to; ‘how would you rate the interaction between yourself and the HBSS provider in relation to this client?’ (Trust 1)

HBSS Provider ID	Mean score /10 for intervention group (sd)	Mean score /10 for control group (sd)	Difference (I-II) mean (s.d)	T statistic	P value
A	9.00 (1.15)	8.53 (0.86)	0.46 (1.07)	1.8	0.08
B	9.25 (0.84)	7.97 (1.02)	1.28 (0.93)	8.22	0.0001
C	n/a	n/a	n/a	n/a	n/a
D	7.60 (1.08)	6.67 (1.03)	*	*	*
E	9.13 (0.80)	8.23 (1.06)	0.90 (0.85)	6.62	0.0001
F	7.00 (0.00)	6.83 (0.39)	*	*	*
All	8.85 (1.02)	8.01 (0.99)	0.50 (1.01)	7.01	0.0001

* analysis by individual provider was not possible due to the small numbers of participants in the study group being referred to this HBSS provider. However, they were included in the all analysis.

Table 4.12 (page 165) shows the mean score out of ten across the intervention group and control group NASC staff when asked the second of the three mini questionnaire items (Trust 2), “I felt confident about asking the HBSS provider to fulfil the tasks I outlined”. Where ‘10’ was extremely likely and ‘1’ was extremely unlikely. The data reports the responses relating to coordinators from each HBSS organisation. An independent samples T-test was undertaken. There was a significant difference in the rating of providers B and E ($p=0.0001$ and 0.0002 respectively) for participants in the intervention and control groups and in the ‘all’ analysis ($p=0.0001$). This suggests the presence of a high degree of trust between the intervention NASC and the HBSS providers when compared to the control group. Interestingly the mean scores across the two groups for provider A were very similar and showed no statistical difference ($p=0.35$). This is in contrast to the pattern described above for this provider in relation to the question “how would you rate the interaction between yourself and the HBSS provider in relation to this client” (Trust

1). For HBSS providers C, D and F no statistical analysis was possible due to the small number of participants in the sub-sample, however, the data from these providers were included in the 'all' analysis.

Table 4-12: Mean score on a 10 point scale in answer to the question 'I felt confident about asking the HBSS provider to fulfil the tasks I outlined' (Trust 2)

HBSS Provider ID	Mean score /10 for intervention group (sd)	Mean score /10 for control group (sd)	Difference (I-II) mean (s.d)	T statistic	P value
A	8.85 (1.03)	8.62 (1.03)	0.23 (1.03)	0.93	0.35
B	8.97 (0.73)	7.89 (0.99)	1.08 (0.83)	7.86	0.0001
C	n/a	n/a	n/a	n/a	n/a
D	7.40 (1.27)	7.00 (1.12)	*	*	*
E	9.05 (0.88)	8.54 (0.87)	0.51 (0.83)	3.84	0.0002
F	6.50 (1.73)	6.83 (0.85)	*	*	*
All	9.03 (1.01)	8.04 (1.02)	0.99 (1.02)	9.86	0.0001

* analysis was not possible by individual provider due to the small numbers of participants in the study group being referred to this HBSS provider. However, they were included in the all analysis.

Table 4.13 shows the mean rating by NASC on a scale of one to ten for their answer to the final mini questionnaire item, 'I will keep surveillance over the HBSS provider after asking them to do something' (Trust 3), where one was extremely likely and ten was extremely unlikely. An independent samples T-test was undertaken. The results obtained are also shown in the table. Similar patterns were observed for this question to those described above for Trust 1 and 2. Once again there was a significant difference observed in the rating of providers B and E ($p=0.0001$ and 0.002 respectively) for participants in the intervention and control groups and between the groups in the 'all' analysis ($p=0.0001$). This provides further support for an increased level of trust between the intervention NASC and the coordinators working for these

two providers. There was no difference observed between the two groups for HBSS provider A.

Table 4-13: Mean score on a 10 point scale in answer to; 'I will keep surveillance over the HBSS provider after asking them to do something '(Trust 3)

HBSS Provider ID	Mean score /10 for intervention group (sd)	Mean score /10 for control group (sd)	Difference (I-II) mean (s.d)	T statistic	P value
A	9.31 (1.21)	8.85 (0.97)	0.46 (1.14)	1.69	0.10
B	9.53 (0.77)	8.86 (1.01)	0.67 (0.90)	4.45	0.0001
C	n/a	n/a	n/a	n/a	n/a
D	7.60 (1.27)	7.00 (0.00)	*	*	*
E	9.62 (0.59)	9.21 (0.97)	0.41 (0.90)	3.19	0.002
F	8.50 (1.73)	8.00 (1.04)	*	*	*
All	9.40 (0.98)	8.89 (1.07)	0.51 (1.02)	5.05	0.0001

* analysis was not possible by individual provider due to the small numbers of participants in the study group being referred to this HBSS provider. However, they were included in the all analysis.

Table 4.14 shows the mean score obtained when intervention group and control group NASC completed the trust questionnaire (Trust 4) measuring their perceived level of trust relating to each of the six providers. Higher scores indicate higher levels of trust. An independent samples T-test was undertaken. The results obtained are also shown in the table. There is a significant difference in the rating of providers A, B and E ($p=0.0001$, 0.0001 , 0.002 and 0.0001 respectively) for participants in the intervention and control groups and between the groups in the 'all' analysis ($p=0.0001$). This shows again the higher levels of trust between the intervention NASC and the HBSS providers.

Table 4-14: Mean Trust Questionnaire score for intervention and control groups NASC in relation to HBSS service providers

HBSS Provider ID	Mean score /100 for intervention group (sd)	Mean score /100 for control group (sd)	Difference (I-II) mean (s.d)	T statistic	P value
A	67.31 (1.18)	59.77 (1.51)	7.54 (1.30)	24.21	0.0001
B	62.64 (2.51)	55.25 (1.78)	7.39 (2.18)	20.35	0.0001
C	n/a	n/a	n/a	n/a	n/a
D	51.20 (3.80)	46.67 (2.07)	*	*	*
E	64.33 (1.48)	58.56 (1.67)	5.77 (1.58)	22.8	0.0001
F	50.00 (0.00)	48.83 (2.37)	*	*	*
All	63.04 (4.27)	56.53 (4.07)	7.09 (3.99)	17.94	0.001

* analysis was not possible by individual provider due to the small numbers of participants in the study group being referred to this HBSS provider. However, they were included in the all analysis.

Interviews with NASC

This section will allow for contextualisation of the quantitative data described later in this chapter through the interpretation of interviews conducted at baseline, post-training and at six months post commencement of the trial with NASC. The interviews ascertained their views concerning their role and the any changes that occurred throughout the duration of the trial. Figure 4.5 shows the codes, themes and categories resulting from analysis of the transcripts of the interviews. As can be seen only one theme was apparent and so the interpretation of the results is organised under the categories.

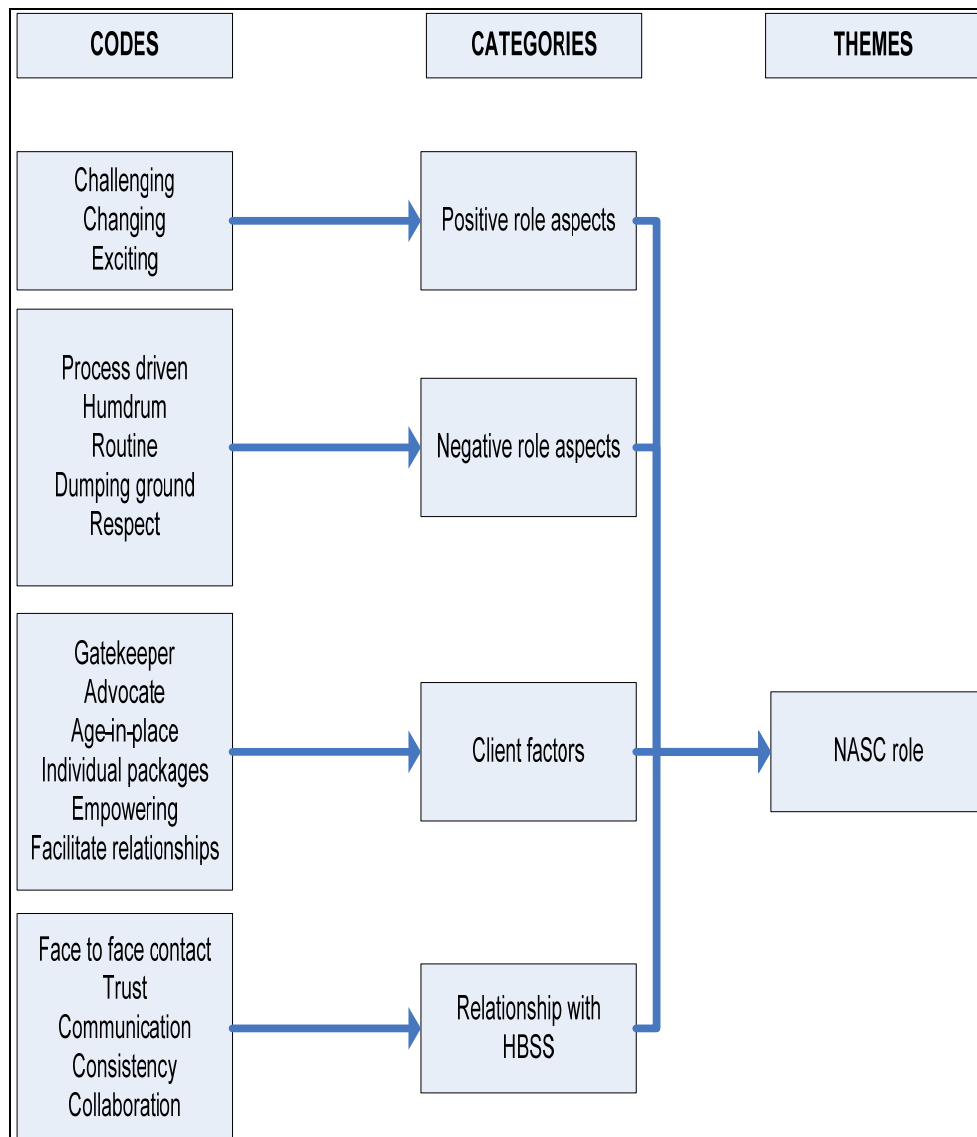


Figure 4-5: Codes categories and themes for NASC qualitative data

Positive and negative role aspects: There were both positive and negative aspects relating to the role that were apparent. Many of the NASC reported high satisfaction with their role and felt that the constant changes resulting from both national and DHB policies were impacting on the complexity of the role.

“A changing role. Older people are changing. Their expectations are changing”.
(NASC 10, control, baseline interview).

“Job itself is changed a lot in lots of ways. Clients a lot older and more complex. Staying at home a lot longer and need tweaking a lot more”. (NASC 2, intervention, post-training interview).

“Carers more stressed and they are busier. More complex and pressured”. (NASC 4, intervention, baseline interview).

Overall the intervention group saw TARGET as a way to move away from the often routine nature of the role and enable a more innovative and flexible approach to providing services.

“With the TARGET tool I can work outside the box. Put in walking and physio plans and social interaction. I like that. A good direction to go in”. (NASC 1, intervention, follow-up interview).

However, there were some issues identified with the use of the TARGET tool that related to a need to develop skills and competency.

“Main issues with TARGET- not all clients would fit in. With practice it got a lot easier. Feel I have the hang of it”. (NASC 6, intervention, follow-up interview).

Finally, there was a conception among one member of the intervention group NASC staff that the TARGET did not foster person centred care and led to services being determined without meaningful input from the client.

“I feel I can't impose my goals on them. It is not their goals I am looking at it is mine. It is not client centred. Not how I understand the concept”. (NASC 7, intervention, post-training interview).

The negative factors relating to the role of NASC were often related to the way the role was viewed by other health professionals and the often routine nature of the role. There was often frustration shown over the lack of flexibility available in service provision.

“People refer to us to tick a box or to get rid of a client”. (NASC 12, control, post-training interview).

“People do not understand what I do. The GPs don't know and the nurses I used to work with think I am mad to leave nursing and come and do this”. (NASC 8, control, baseline interview).

“The [HBSS] providers don't understand what we are about”. (NASC 10, control, post-training interview).

“The role could be so much more but often we are just rubber stamping things. You don't need to be skilled to do that. Sometimes it is like a conveyor belt and all I do is rubber stamp the same services. It is a one size fits all”. (NASC 5, control, post-training interview).

Client factors: All the NASC interviewed identified their role as being crucial in facilitating older people to remain at their optimal level of independence. The role of being a gatekeeper to services provided by the DHB was also firmly entrenched and was described on a number of occasions. The effect of the role in empowering older people to make well reasoned choices with the NASC working as an advocate was apparent across the interviews undertaken.

The role of NASC was described by all interviewees as being to facilitate independence for older clients and their families. The major factor in the success or failure of their ability to undertake this role was seen by all interviewees as being the quality of their relationship with the HBSS coordinator.

“The relationship between NASC and HBSS is crucial. Where it is bad then it is not possible to get the best for the client”. (NASC 6, intervention, baseline interview).

Relationship with HBSS: It was strongly apparent that there was a wide variety in the quality of the relationship between individual NASC and individual HBSS coordinators and between the NASC team and HBSS organisations.

“[Provider E and B] are the best and they are more adaptive and feed back more. [Provider B] and to a certain extent [provider E] feedback and complain a lot but then go and do it anyway. A lot more difficult to work with the other providers. Used to be the case with [Provider A]”. (NASC 4, intervention, post-training interview).

“Trust with some providers but not so good with others”. (NASC 3, control, Baseline interview).

“Some agencies have a limited approach. Not all created equal”. (NASC 5, control, follow-up interview).

“There is definitely a very wide spectrum in the providers”. (NASC 14, control, baseline interview).

There were many examples of the NASC reporting a lack of trust in the ability of the HBSS providers to deliver services that met the clients need and comply with the services requested by the NASC.

“Often at the review I find that the requested level has not been provided”. (NASC 7, intervention, follow-up interview).

“I am often contacted by the client or their family and told that the care is not to the right level”. (NASC 10, control, baseline interview).

“I don’t think that the providers are ready to be flexible”. (NASC 4, intervention, baseline interview).

“What I offer the client is totally at the whim of the providers over whom I have no control”. (NASC 14, control, baseline interview).

The training provided to the intervention group NASC and HBSS providers in the use of the TARGET was seen as having a very positive effect on the relationship between the two parties. This was attributed to increased exposure and the development of a more personal relationship. Once more the theme of trust was apparent, whereby there was a degree of heightened trust by the intervention NASC towards the HBSS coordinators following the training.

“SMART training has had an effect as the HBSS now know who I am. The edginess is not there. There is more of a chance to come to a resolution than before”. (NASC 1, intervention, post-training interview).

“More of a trusting relationship after SMART training. More respect and understanding of what each of our jobs entail. It is about building rapport”. (NASC 2, intervention, Post-training interview).

“All about that knowing other peoples personality. Gets the job done quicker and better. Also it improved the relationship and also helps to get people pulling in the same direction”. (NASC 13, intervention, post-training interview).

Interviews with HBSS coordinators

To provide further insight and depth regarding the findings from the study interviews were also conducted with HBSS coordinators at baseline, following training and six months after commencement of the trial. The following section describes the themes arising from these interviews. Figure 4.6 (page 172) shows the codes, categories and themes generated from analysis of the interview transcripts. The description of the results will be organised under the themes identified.

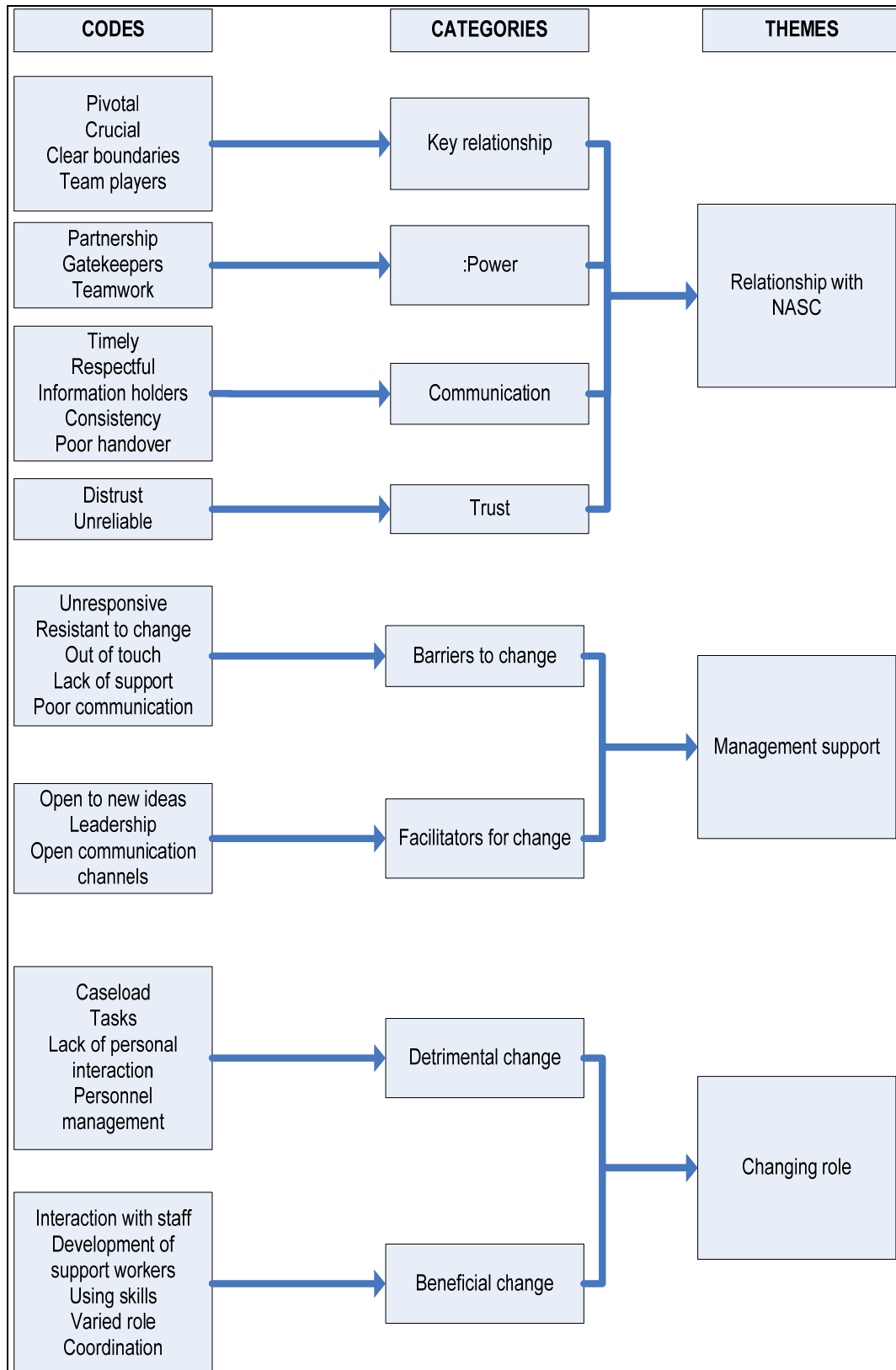


Figure 4-6: Codes categories and themes for HBSS coordinator qualitative data

Relationship with NASC: The key theme that was apparent on analysis concerned the relationship with NASC staff. This was divided between recognition of the pivotal nature of this relationship, the perception of the interactions with an emphasis on the dynamics and power within the relationship, the success or failure of communication between the two parties and the level of trust inherent within the relationship.

The emphasis on the integral nature of the relationship was universal across all the HBSS coordinators interviewed. However, there was a variation in the perceived quality of the interactions.

“Relationship with NASC is pivotal. I have worked hard on making it work but some of them [NASC] put in the effort and that works well”. (Provider B, baseline interview).

“When the interaction is not good it is down to the individual. The care is entirely down to the personal relationship with the NASC and provider”. (Provider A, post-training interview).

“They are crucial really. The interaction with the NASC is heaps better than it was. Getting to know them at the training has helped. You know to put a face to a name”. (Provider D, post-training interview).

The importance of knowing the boundaries of the two respective roles was seen as important. However, it was also seen as imperative that there was the ability to work across such boundaries for both roles.

“When NASC are clear of what the expectations for our service is about at the start that works well. I know what they do and what they want and I try to respect that. When I want to make a change that is good where they listen to me and trust me”. (Provider E, follow-up interview).

“We need to be flexible across the board. We need to be able to respond. It comes down to them respecting us and visa versa I guess”. (Provider A, post-training interview).

“People do their job and send onto the next person in the line. We are left to pick up the pieces. More often it is not ideal and it is a two way thing. I get referred a client and then it stops for them. We are not a team, especially the more complex ones”. (Provider B, baseline interview).

“We stepped out of the boundaries of what NASC was used to. We spoke to their manager but other than that the next tier down got upset. It is all political. There were reactive calls. Are you trying to do my job?” (Provider E, baseline interview).

There was a consistent theme across the interviews conducted that there was a power imbalance in the relationship, with the NASC, as the contracting agency, dictating inputs to a degree to which the HBSS coordinators resented.

“It is as if we are second cousins and there is no respect. But that is not the same across the board. We know the client much better than they do. Sometimes the NASC don’t want to listen to us whereas the others basically want us to review the clients ourselves”. (Provider B, post-training interview).

The communication between NASC and HBSS showed similar trends to those apparent in the NASC interviews. There was a perceived improvement in the communication with the NASC in the intervention group post-training.

“There is never any rationale given to me for any changes by NASC in services. There is not good two way feedback. I think the feedback I give to NASC is not as good as it could be. I think we need to work as a team and we don't do that”. (Provider A, baseline interview).

“Just sitting in the same room has made a difference. I think we understand each other more now and feel we can talk a lot easier to each other”. (Provider A, follow-up interview).

The final aspect considered integral to the quality of the relationship related to the perceived trust existing between the two parties. This was often stated as being sub-optimal and an area that was of concern.

“I think I deserve respect. I feel that is not there with a lot of the NASC. They think I am trying to pull a fast one. They think I am trying to screw the system. They should appreciate that we know the client better than they do and they should listen to what we say and believe it”. (Provider F, baseline interview).

Management support: A further aspect that was perceived to impact significantly on the role of the coordinator was the support provided by the management of the HBSS organisations. There was a marked variation in the perception of support provided to the coordinators by leaders within their respective organisations to implement services that aligned with the principles inherent within the restorative model of home based support.

“The DHB want to change the ratio for clients to coordinator but the management are not keen. The [provider] board does not know what goes on. They don’t like

change. We are beating our heads against a brickwall". (Provider B, follow-up interview).

"We have always been lucky here. We have had managers that have been passionate about improving our services. They have always been supportive and have pushed things through when we met obstacles". (Provider E, baseline interview).

"I don't know how much the management will support us to implement what we need". (Provider A, post-training interview).

Changing role: Finally the coordinators universally expressed positive comments about the proposed direction of services within the DHB. The more experienced interviewees expressed dissatisfaction around the loss of personal contact with clients and support workers that had occurred over the previous five years. The model proposed in the training, which utilised the TARGET tool, was seen as a way to address that. In addition the closer relationship with NASC that was deemed as necessary for the model to be operationalised was seen as a beneficial move. The main area of concern was the potential increase in workload and the need to modify the high ratio of clients to coordinators. This was often exacerbated by a lack of support by management.

The following section will examine service factors, the second of the potential influences on clinical outcomes for individual participants in the trial.

4.5.2 Service factors

This section will describe the content and size of the packages of home based support implemented for the participants randomised to the control and intervention arms of the trial. The effect of TARGET in effecting changes in the content of services to reflect more individually tailored responses to a clients needs will be explored. It will begin with an examination of the number of hours per week of services across the two groups, as determined by NASC at initial assessment. Following this the allied health referrals made as a result of the NASC assessment will be presented, together with the outcome for clients at six months in regards to the level of ongoing HBSS input. The number of hours of services across the fourteen clusters will then be presented and a breakdown of the goals identified by

the participants at initial assessment by NASC will then be described, using the World Health Organisation International Classification of Functioning (ICF) as a framework. Finally, the results obtained from analysis of the support plans completed by HBSS coordinators will be described.

Hours of HBSS

Table 4.15 shows the mean number of hours per week of home based support services allocated by NASC at initial assessment in the intervention and control groups. An independent samples T-test was undertaken. The results obtained are also shown in the table. There is a significant difference in the size of the HBSS package delivered (at a $p=0.05$ level) with the participants in the intervention group receiving a higher mean number of hours of HBSS support. However, it is important to view this finding together with the analysis of the content of the support provided to participants across the two groups. This is shown in Figure 4.10 on page 187.

Table 4-15: Mean number of hours per week of Home Based Support Services allocated in control and intervention groups

Descriptor	Intervention (n=108) mean (s.d.)	Control (n=97) mean (s.d.)	Difference (I-II) mean (s.d.)	T statistic	P value
Mean number of hours allocated (hours per week, [sd])	2.99, [2.02]	2.62, [1.81]	0.37 (1.93)	1.95	0.05

Allied Health involvement

Figure 4.7 shows the referral rates from the NASC to allied health for both the intervention and control groups. Allied health referrals are made where the NASC feels that either occupational therapy or physiotherapy expertise is required to facilitate a client's return to an optimal level of function. A total of ten referrals were made to allied health from the intervention group and only one from the control group. This data is converted to referral rates per 100 clients as this is a common method of presenting referral rates and will allow in the next chapter comparison of the data arising from this study with other published studies.

As can be seen there was a large variation in the referral rates across the intervention group. The mean value of 9.26 referrals per 100 clients of HBSS was exceeded by NASC 1 and 4. NASC 7 and 11 made no referrals to allied health. This impact of such low rates of referrals to allied health was further investigated. In the intervention group there was no significant relationship between referral to allied health and the successful identification of participant goals, $\chi^2 (1, N = 108) = 1.38, p = 0.24$. In addition there were no significant relationships observed between allied health referral and changes in HRQoL ($t [106] = 0.12, p = 0.90$), and social support ($t [106] = -1.52, p = 0.13$). Of particular note is the finding that referral to allied health did have a significant effect on change in physical function ($t [72] = -2.12, p = 0.04$) but the negative t-values show that those participants referred to allied health had smaller positive changes in physical function. This is counterintuitive as it would be expected that allied health input would be associated with improvements in physical function. A possible explanation could be that those participants referred for allied health input were more functionally disabled and so it would have been less likely that they would be able to show meaningful changes in functional ability. The small number of allied health referrals within the current study preclude analysis to determine the efficacy of this explanation.

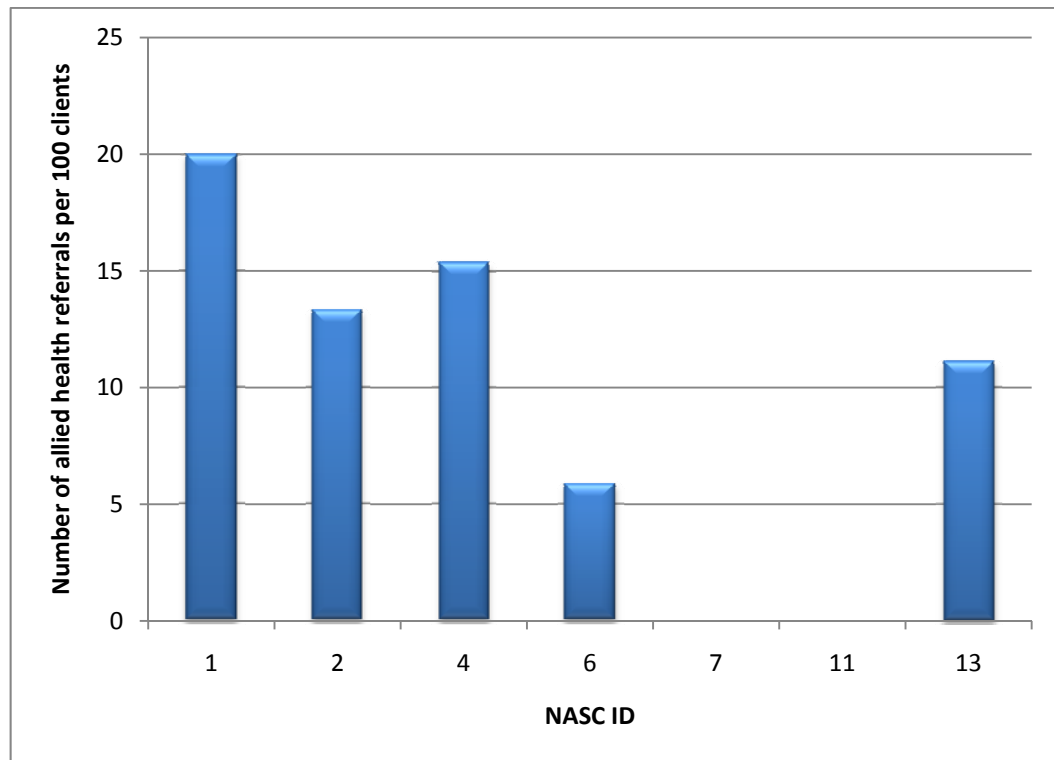


Figure 4-7: Number of allied health referrals by NASC in the intervention group per 100 clients

Participant Review

Table 4.16 shows the number of reviews undertaken by HBSS providers six months after service provision commenced. This process is described in chapter 3 and formed an integral component for reviewing of goals and the required services. Only one participant in the control group was reviewed by HBSS provider 5 but is not included in Table 4.16. In addition to the number of reviews undertaken, the table also shows the number of discharges from HBSS that resulted from the review. As can be seen there was considerable variation in the number of reviews undertaken by HBSS providers. The small number of participants referred to providers D and F negate the formulation of any strong conclusions relating to the high proportion of reviews undertaken. However, the higher numbers available for providers A, B and E provide more readily analysable data. The smaller proportion of reviews undertaken by provider B and the absence of any resultant discharges is obvious. Furthermore the small number of reviews undertaken by these three providers is of interest given the importance placed on the process in the training provided to the coordinators.

The effect of such a small proportion of participants being reviewed will be described in the next chapter.

Table 4-16: Number of reviews and discharges three months after HBSS services commenced for participants in the intervention group

HBSS provider	n=	number of reviews	Proportion of participants reviewed (%)	number of discharges
A	26	9	35	2
B	36	4	11	0
C	0	0	0	0
D	5	3	60	0
E	39	13	33	4
F	2	2	100	0

However, the figures presented in Table 4.16 only represent the formal reviews undertaken by HBSS coordinators with information supplied to NASC. There were a large number of discharges from HBSS that did not have a corresponding review. This can be seen in Table 4.17. In the intervention group there were ten participants who were discharged without a review being provided to NASC by HBSS. Six of the intervention group participants were assessed by NASC for entry to aged residential care (two for rest home placement and four for private hospital placement). In the control group, without a formal review process for HBSS there were five participants discharged. There were seven participants admitted to aged residential care (one for private hospital level and six for rest home level of care).

Table 4-17: Participant outcomes at six month follow-up assessment

Descriptor	Intervention	Control
Continue HBSS	86	83
Discharge from HBSS	16	5
Rest Home	2	6
Private Hospital	4	1
Died	0	2

The participants in the intervention group discharged from HBSS showed a significantly greater improvement in HRQoL over time (measured by the SF-36 scores at baseline and six months, ($t [100] = 2.13, p=0.04$) compared to those who continued with HBSS. Conversely, in the control group, no significant difference was observed in HRQoL between those discharged and those who continued to receive services ($t [86] = 0.97, p=0.34$). In addition there was a significant improvement observed in both intervention and control groups in terms of physical function (as measured by SPPB) in those discharged from HBSS (intervention group ($t [100] = 6.18, p=0.0001$), control group ($t [86] = 3.02, p=0.003$). In relation to social support (measured by DSSI), no differences were observed in either the control or intervention group among those who were discharged and those who continued to receive HBSS.

Goal setting

In the intervention group, a total of 90 older people identified goals in collaboration with the NASC (84%). Figure 4.8 on page 181 shows the proportion of participants in each of the intervention clusters who did not identify a goal at initial assessment. It is clear that cluster 2 identified goals in 100% of cases, whereas clusters 6 and 7 were unable to identify goals in a significant proportion of cases (18% and 30% respectively). This data, together with other information collected in the study, both quantitative and qualitative, at both a clinical interaction level (experience of NASC) and a client interaction level (relationship with HBSS, personal beliefs of NASC worker) will be interpreted further in the next chapter. This allows for further contextualisation of a NASC workers' influence in maximising successful outcomes for clients.

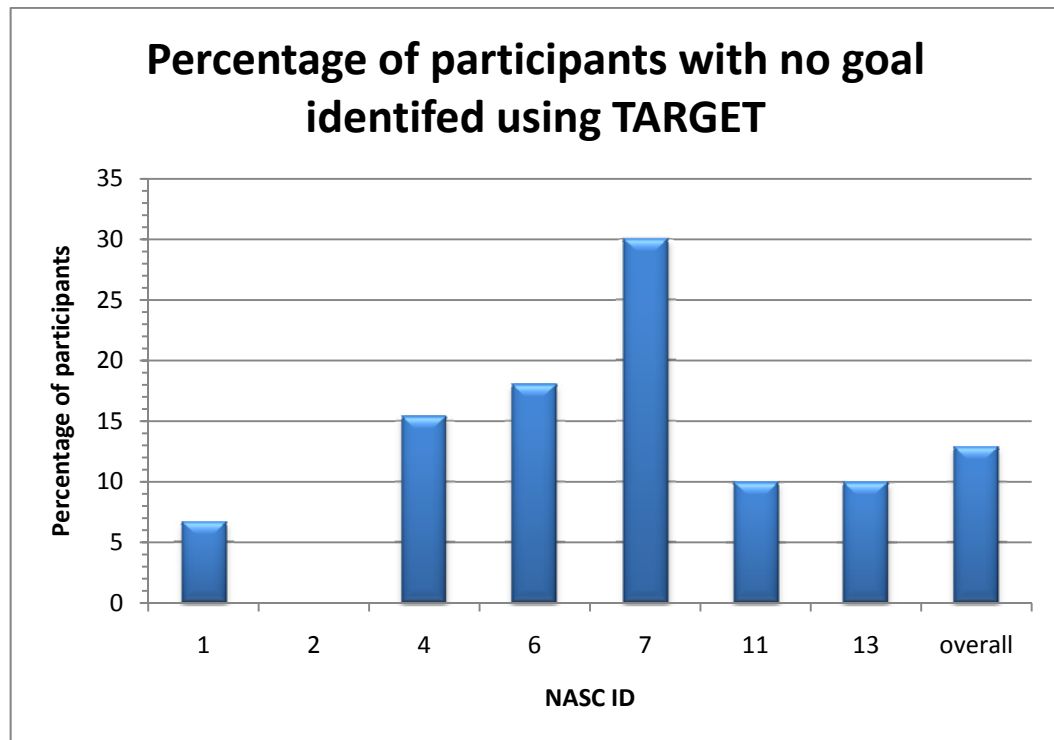


Figure 4-8: Percentage of participants with no goal identified using TARGET

Analysis of the interaction between successful goal identification and referral to allied health ($t [105] = 0.26, p=0.80$) and formal review during the course of the study ($t [105] = 0.78, p=0.44$) showed no significant relationship among participants in the intervention group. This would suggest that the successful identification of a goal using TARGET was not associated with these two activities that are important components of a restorative model and that other factors influence referral to allied health and review of the client. This view is supported by the other findings of the study and also by the complexity of the model of analysis that shows the multiple influences on clinical outcomes. In addition it is of note that the small numbers of referrals, discharges and reviews among the sample would have had an effect on this analysis.

Figure 4.9 on page 182 highlights the type of goals identified, coded using the International Classification of Functioning, Disability and Health (ICF). As described in chapter 3, the ICF is a classification of health and health-related domains. These domains are classified from body, individual and societal perspectives by means of two lists: a list of body functions and structure, and a list of domains of activity and

participation. To ensure reliability, a blinded researcher independent of this study classified 20 older people goals, determining the same categories for 100 percent. Figure 4.9 shows that the goal of 'looking after ones health' was the most common category (24%), this included goals such as 'to return to living back at my own home in three months' (participant 60, cluster 2). The second largest grouping of goals was 'transportation' (17%), an example of which was 'to get on a plane and visit son in Sydney by May 2008', (participant 36, cluster 13). Following this were goals aimed at improving mobility (16%), an example of which was 'to be able to walk to town in six months' (participant 20, cluster 11).

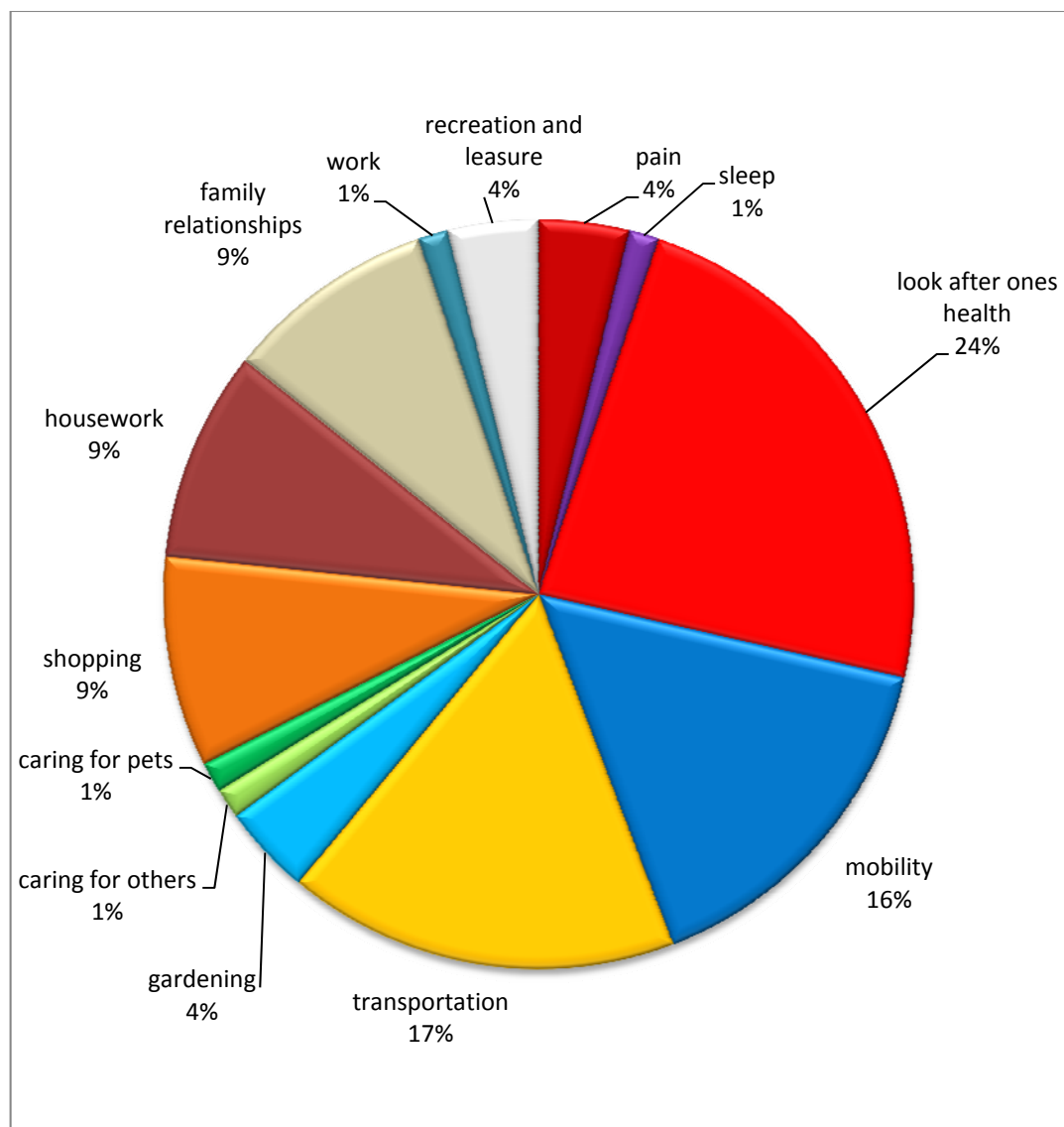


Figure 4-9: Proportion of goals (%) classified according to WHO ICF classification of functioning for older people in the intervention group

However, this large variation of identified goals was not universal across the clusters. This is shown in Table 4.18 on page 184, where the intervention group participants are separated according to cluster. Of particular note is the large degree of variation in the domains used across some of the clusters where goals are classified across six or seven domains of ICF whereas there is only a small degree of variation in the goals set in cluster 7 (only two of the 13 domains are used, relating only to transportation and shopping). Once again it is important to consider this with other information relating to this cluster. Not only were there a large number of participants that did not set a goal for their HBSS services, but also those that did set generic goals with little variation across the participants. In addition it is apparent that there were a large proportion of mobility and transportation goals set by participants in cluster 11. This could be due to the location of this cluster in the most rural area of the study and the resultant need for participants to remain functionally mobile if they were to remain at home. This is in marked contrast to participants in cluster 4 who set a smaller proportion of goals that related to transportation and mobility. This cluster was of a far more urban nature.

Table 4-18: Proportion of goals (%) classified according to WHO ICF classification of functioning and the spread of goals across the 13 domains for older people across the seven clusters

ICF domain	Cluster						
	1	2	4	6	7	11	13
pain	0	0	0	5	0	0	20
sleep	0	0	0	0	0	0	10
look after ones health	25	20	25	42	0	0	0
mobility	0	20	13	16	0	31	20
transportation	38	20	13	5	50	23	20
caring for pets	0	0	13	0	0	0	0
caring for others	0	0	0	0	0	8	0
shopping	0	20	13	11	50	0	10
housework	0	0	13	16	0	0	0
gardening	13	0	0	0	0	8	10
family relationships	13	10	13	5	0	15	10
work	0	0	0	0	0	8	0
recreation and leisure	13	10	0	0	0	8	0
Spread of goals across 13 ICF domains (n=)	5	6	7	7	2	7	7

HBSS support plans

Once the participant goals were identified by NASC through the use of TARGET the participant was referred to HBSS. The first task of HBSS provision was a detailed description of how the services were to be implemented (called the support plan). This was undertaken by the HBSS coordinator and formed the basis of all the

activities performed by the HBSS support worker. This support plan was informed by the goals described in the TARGET.

Table 4.19 on page 186 shows the percentage of HBSS support plans that included each of the four main categories of services across the participants in the two study groups. These were domestic chores (vacuuming, cleaning and dusting); personal cares (showering assistance, dressing assistance), shopping (including shopping with and without the older person) and individualised activities (activities identified specifically for the individual older person). The individualised activities predominantly focussed on assisting the participant to access the community and so were often concerned with increasing their function outside of the home. The table shows how all the providers delivered services that focussed predominantly on domestic chores. The percentages reported for providers D and F need to be viewed with caution due to small numbers of participants involved. Provider E showed an interesting trend in the individualised activities category. They were the only provider to have a majority of participants receive individualised activities as part of their services, across both the intervention and control groups. For the remainder of the providers there were a high number of participants in the intervention arm who received such services, whereas the control participants did not. Provider C is not listed as they had no participants enrolled in the trial.

Table 4-19: Percentage of HBSS support plans including the main categories of services for intervention and control participants

HBSS provider	A		B		D		E		F		All	
	I	C	I	C	I	C	I	C	I	C	I	C
Trial group												
n=	26	13	36	36	5	3	39	39	2	6	107	98
domestic chores	96	92	92	100	100	100	92	95	100	100	96	97
personal cares	15	23	14	19	20	33	15	18	0	17	13	22
shopping	23	23	17	22	20	33	18	21	50	17	26	23
individualised activities	69	0	75	3	60	0	77	67	50	0	66	14

Figure 4.10 shows the mean percentages across the five HBSS providers in terms of the four categories of services delivered to participants in the intervention and control groups. Once more it is apparent that there was little difference between the two groups in relation to domestic chores, personal cares or shopping. The main difference in services related to the individualised activities ($t [205] = 334, p < 0.001$). These were often individualised walking or exercise programmes or other activities related to improving functional ability. This increased use of individualised activities in the support plans of participants in the intervention group was a major component in producing the improvements in study outcomes described in Section 4.6 on page 202.

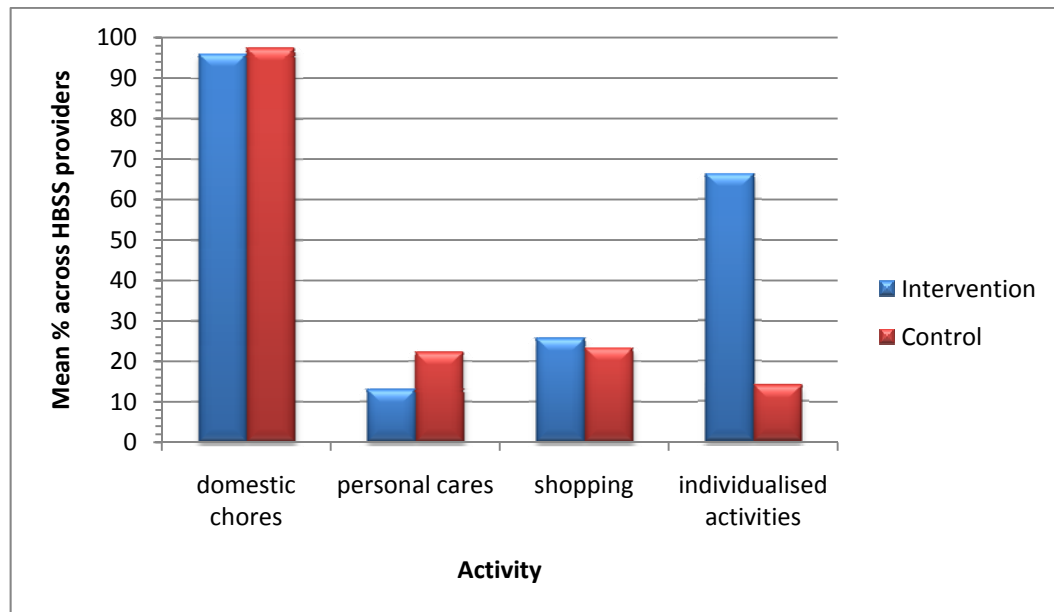


Figure 4-10: Percentage of HBSS support plans incorporating the four major categories of services for intervention and control groups

4.5.3 Client factors

The final aspect considered under the client interaction sphere is the client factors. These relate to the level of coping of the client with everyday stressors. As described in chapter two this concept of proactive coping has been closely linked to self-regulation, a strong indicator of goal directed behaviour. This was measured using the Proactive Coping Inventory. Following this the participants' perception of their level of satisfaction with both the NASC and HBSS provider will be presented. This was measured utilising two scales of the Home Case Satisfaction Measure. In addition the participants' rationale for their choice of HBSS organisation and their views on the goals for their HBSS episode of care are presented. Finally the data arising from analysis of interviews with a sub-sample of the participants will be described.

Proactive coping

Table 4.20 shows the mean scores for the Proactive Coping Inventory (PCI), together with the component scales of the tool. These consist of the Proactive Coping Scale, (with a maximum score of 56), the Reflective Coping Scale (a maximum value of 44), the Strategic Planning Scale (maximum of 16), the Instrumental Support Seeking Scale (a maximum of 32), the Emotional Support

Seeking Scale (a maximum of 20) and the Avoidance Coping Scale (with a maximum of 12).

Table 4-20: Mean Proactive Coping Inventory total scores and component scores for intervention and control groups

Descriptor	Intervention group (n=108)	Control Group (n=97)
Proactive Coping Scale ²⁷ (score, [sd], 95% CI)	33.76, [9.53], 31.95-35.89	31.61, [8.82], 29.82-33.39
Reflective Coping Scale ²⁸ (score, [sd], 95% CI)	28.19, [7.82], 26.69-29.68	28.19, [7.87], 26.59-29.78
Strategic planning Scale ²⁹ (score, [sd], 95% CI)	10.32, [2.73], 9.80-10.84	10.19, [2.75], 9.63-10.74
Instrumental Support Seeking Scale ³⁰ (score, [sd], 95% CI)	20.19, [5.95], 19.06-21.33	20.53, [5.29], 19.46-21.59
Emotional Support Seeking Scale ³¹ (score, [sd], 95% CI)	13.56, [4.20], 12.76-14.37	13.27, [3.81], 12.50-14.04
Avoidance Coping Scale ³² (score, [sd], 95% CI)	7.76, [2.61], 7.27-8.27	8.40, [2.44], 7.91-8.90
Proactive Coping Inventory (score, [sd], 95% CI)	113.81, [24.4], 109.13-118.48	112.17, [22.64], 107.60-116.75

There were no statistical differences in the mean total scores for the PCI or its component scores across the two study groups, showing that there were comparable levels of coping. Further analysis was undertaken to examine the interaction between

²⁷ This scale, combines autonomous goal setting with self-regulatory goal attainment cognitions and behaviour

²⁸ This scale, describes simulation and contemplation about a variety of possible behavioural alternatives by comparing their imagined effectiveness and includes brainstorming, analysing problems and resources, and generating hypothetical plans of action

²⁹ This scale focuses on the process of generating a goal-oriented schedule of action in which extensive tasks are broken down into manageable components

³⁰ This scale focuses on obtaining advice, information and feedback from people in one's social network when dealing with stressors

³¹ This scale is aimed at regulating temporary emotional distress by disclosing to others feelings, evoking empathy and seeking companionship from one's social network

³² This scale measures avoidance coping, in which an individual eludes action in a demanding situation by delaying action

the sub-scales of PCI and the other variables included under the clinical interaction, client interaction and service factors levels of the model. The proactive coping scale showed a significant relationship with the homecare satisfaction scores (HCSM) for both NASC ($r=0.30$, $p < 0.001$) and HBSS ($r=0.30$, $p < 0.001$), suggesting that participants with higher levels of proactive coping perceived their interactions with both NASC and HBSS in a more positive manner. A higher level of proactive coping did not show a relationship with the successful identification of a goal by the participant. Of particular note was that higher levels of strategic planning did have a significant relationship with goal identification ($z=-2.53$, $p=0.006$) using a Wilcoxon-Mann Whitney test.

Higher scores on the avoidance coping scale were also correlated with a higher level of satisfaction with both NASC ($r=0.148$, $p=0.001$) and HBSS HCSM ($r=0.150$, $p=0.001$) scores. This was investigated further to determine if this varied across the two study groups. It was important to ascertain if the more proactive approach to implementing services, that was highlighted by the increased number of individualised activities in the intervention group, was a related factor in this observed phenomenon. However, the level of correlations did not differ across the two groups. None of the variables showed significant relationships with the other sub-scales of the PCI.

Participant relationship with NASC and HBSS

Another variable relating to the client factors level of the model related to the effect of the participants' perception of the quality of their relationship with the NASC and HBSS involved in the provision of services. This was measured using the Homecare Satisfaction Measure (HCSM), higher scores on HCSM are indicative of higher levels of satisfaction for the participant.

Tables 4.21 to 4.23 (page 190) show that the HCSM scores rating the participant's relationship with the NASC worker assigned to them. An independent samples T-Test was performed to determine the level of significance of the difference between the satisfaction levels perceived by the participants. The results are shown in Table 4.21, as can be seen the result was highly significant ($p=0.0002$). This indicates

significantly higher levels of participant satisfaction with the services provided by NASC in the intervention group.

Table 4-21: Independent T-Test analysis of intervention and control group NASC Home Care Satisfaction Measure Scores

Descriptor	Intervention (n=108) mean (sd), 95% CI	Control (n=97) mean (sd), 95% CI	Difference (I-II) mean (sd)	T statistic	P value
Mean NASC HCSM score	43.72 (11.12), 41.76-46.64	39.85 (9.99), 39.28-41.61	3.88 (10.6)	3.70	0.0002

Tables 4.22 and 4.23 show the mean scores determined by participants in the two study groups, in relation to the NASC staff allocated to their case. Table 4.23 reports the scores for NASC in the intervention group. Participants assessed by NASC 7 showed the lowest mean levels of satisfaction (35.40), however, this was not significantly different from the scores for the other NASC in the intervention group ($p=0.11$). There were no significant differences between the scores obtained for the control group NASC, shown in Table 4.22.

Table 4-22: Mean Home Care Satisfaction Measure scores for control group NASC

NASC ID	3	5	8	9	10	12	14
Mean HCSM score [sd], 95% CI	41.23, [9.46], 37.49- 44.98	41.71, [10.76], 37.62- 45.81	36.33, [9.27], 32.93- 39.73	40.21, [11.04], 36.01- 44.41	35.75, [5.75], 33.37- 38.13	42.08, [11.62], 37.48- 46.67	41.31, [10.71], 37.51- 45.11

Table 4-23: Mean Home Care Satisfaction Measure scores for intervention group NASC

NASC ID	1	2	4	6	7	11	13
Mean HCSM score [sd], 95% CI	44.00, [10.88], 40.01- 47.99	43.40, [10.71], 39.47- 47.33	46.54, [10.49], 42.39- 50.69	42.94, [13.60], 38.27- 47.61	35.40, [6.82], 32.29- 38.51	45.37, [10.48], 41.97- 48.77	45.26, [11.66], 41.48- 49.04

It is important to also consider the relationship between the participant and HBSS. The differences in participant satisfaction with HBSS were considered across the two

study groups. Table 4.24 shows the results of an independent T-test undertaken on the mean total scores for HCSM scores for HBSS providers across the two study groups. There are significantly higher HCSM scores (indicating higher satisfaction with services) among participants randomised to the intervention group ($p=0.0007$).

Table 4-24: Independent T-Test analysis of intervention and control group HBSS Home Care Satisfaction Measure Scores

Descriptor	Intervention (n=108) mean (sd), 95% CI	Control (n=97) mean (sd), 95% CI	Difference (I-II) mean (sd)	T statistic	P value
Mean HBSS HCSM score	44.68 [12.18], 42.75-45.98	40.76 [10.72], 39.12-41.26	3.91	3.44	0.0007

Table 4.25 shows the median scores for intervention and control groups obtained for each of the six providers for the Home Care Satisfaction Measure. Due to the lack of any participants allocated to Provider C there are no data available for that provider. In addition the small numbers of participants allocated to providers D (n=8) and F (n=8) mean that definitive conclusions can not be made regarding these providers. However, for the remaining providers it is interesting to note the significantly higher levels of satisfaction for participants with service delivered by provider A ($z=2.46$, $p=0.007$) and provider B ($z=2.39$, $p=0.008$) but there was no difference for provider E. Furthermore the remaining providers (A, B and E) had the same median HCSM score of 39 for participants in the control group, however, the intervention group scores varied considerably among participants with services delivered by provider E remaining constant across the two study groups. It is unlikely that this was due to the content of the services provided. As described in section 4.5.2.5 (on page 184) the only major difference in analysis of the service plans for provider E and provider A and B related to the increased level of individualisation of those in the provider E control group. The effect of this discrepancy was accounted for in the analysis undertaken relating to the study outcomes through the inclusion of HBSS as a covariate if its effect was shown to be significant in the construction of the mixed model.

Table 4-25: Median average Home Care Satisfaction Measure scores for HBSS providers and Wilcoxon-Mann-Whitney Test analysis

HBSS Provider ID	A	B	C	D	E	F
Median HCSM score for intervention group participants (score, [sd])	48.5	42.5	n/a	39	39	44
Median HCSM score for control group participants (score, [sd])	39	39	n/a	36	39	38
Z statistic	2.46	2.39	n/a	-1.29	0.39	0.92
P value	0.007	0.008	n/a	0.10	0.34	0.18

The effect of this increased level of satisfaction among the intervention group participants on the study outcomes is of interest. However, as stated above the HCSM scores were only included in the mixed model if they were shown to have a significant effect. Of greater interest are the potential reasons for the increased levels of satisfaction. Is it due to the content of the services provided to participants in the intervention group? The trend observed for the HCSM scores obtained for provider E, as described above, would suggest not. Alternatively, is it due to the services implemented by the provider being structured around the participant's goals? A further alternative is that the higher level of satisfaction is due to differences between the groups that have been described previously, such as age, ethnicity or coping behaviours. To provide further insight into this and other issues arising from the study interviews were conducted with a sub-sample of participants.

Interviews with participants

The random sub-sample of participants (n=14) were interviewed to ascertain their views and attitudes towards the process of goal directed services implemented as part of the trial. In addition, they were asked for their views on the level of quality of the home based support services they received. A negative change in SPPB, SF-36 or DSSI shows a detrimental change in that variable over time. The following section will describe the themes arising from the interviews, with quotes where relevant, to further contextualise the findings. To allow for a deeper understanding of the sub-sample interviewed it is useful to develop the information presented in Table 4.26 (page 198) to encompass additional information relating to the participants.

Intervention group participants: Participant 121 was a 72 year old New Zealand European woman who lived with her husband. She had just returned home from hospital following a stroke. She was assessed by NASC 11 and following this received 1.5 hours per week of HBSS from provider A. She set a goal of “to go for a walk each day” and the services provided assisted with this. The support workers visited three times per week to supervise her exercise programme (prescribed by the community physiotherapist) and to assist her to increase the distance walked. At follow-up assessment she had a large decrease in HRQoL, however, given her diagnosis of stroke this could be evidence of stroke related depression. Reports of the prevalence of depression post stroke vary in the literature from sixteen to thirty eight percent ⁶¹²⁻⁶¹⁴, with women reporting higher rates than men ^{615, 616}. There were similar changes in both component scores of the tool. There was no change in physical function and a small change in social support. She partially attained her goal and was averaging a walk with the support worker two to three times per week at the time of the interview.

Participant 170 was a 76 year old woman who lived alone. She presented with arthritis and a history of falls. She was assessed by NASC 6 and identified that she wished to “return to playing nine holes of golf in six months time”, which she achieved. She received two hours of support from HBSS provider B in order to achieve this. The support consisted of activities to improve her fitness and balance which were supported by the support worker. She showed high levels of proactive coping. At follow-up assessment she reported a large improvement in HRQoL. There was no change in physical function (10/12 on SPPB); however, her social support, as measured by DSSI had improved slightly. She attained her goal and returned to playing golf once per week, although she did report that it was harder than previously and she still was scared of falling.

Participant 198 was a 65 year old woman who lived with her partner. She presented with a history of osteoarthritis and increasing pain and was assessed by NASC 11. She identified that she wished to “return to gardening in 6 months”. She received six hours of assistance per week from provider B to assist with this and also to enable her to return to undertaking more of the housework herself. At follow-up there were

improvements in HRQoL, physical function and social support. At the time of the interview she was able to undertake light gardening tasks but still wanted to improve further.

Participant 189 was an 88 year old Māori woman who lived with her extended family. She was reported a history of osteoarthritis, heart disease, pain and increasing shortness of breath. She assessed by NASC 2 and identified a goal of, “to walk to the dairy each day” and received six hours of HBSS support each week from provider D. This consisted of exercises to improve her balance, strength and fitness, together with personal care assistance twice per week. She scored highly on the proactive coping scale (44/56) and the reflective coping scale (33/44), suggesting that she was a goal driven person. At follow-up she showed a large improvement in HRQoL which was driven by a large change (26.6) in the physical component score. However, there was a decrease in the Hua Oranga score, this was driven by a perceived decrease in the score by her whānau (see Table 4.29). There were improvements in both social support and physical function at follow-up. She attained her goal and at the time of the interview she was walking to the dairy with a family member each day.

Participant 155 was a 78 year old Māori woman who also lived with her extended family. She was recently discharged home from hospital following a stroke. This had left her unable to mobilise outside of her home. She was assessed by NASC 1 and received 11 hours per week of support from provider E. She identified that she wanted to “To be able to get in and out of car and walk to club each week”. The services provided involved activities to assist with attainment of this goal (balance, strengthening, and fitness) and also assistance with personal cares with a view to her regaining independence with these activities. At follow-up assessment she showed a large change in HRQoL (SF-36 and Hua Oranga), physical function (SPPB) and social support (DSSI). At the time of the interview she was independent transferring in and out of the car and was able to walk with a walking frame to the club.

Participant 8 was a 66 year old woman with chronic pain who lived alone. She was assessed by NASC 7 and received 3.5 hours per week of assistance. She identified a

goal (to return to shopping independently) and the services delivered by HBSS provider F attempted to facilitate attainment of this goal through assistance to manage her housework (within the limits of her pain) and to improve her fitness and her confidence with her walking. She had low levels of proactive coping and at follow-up assessment she had a large decrease in her HRQoL and decreases in both physical function and social support. She did not reach her goal due to an increase in the level of her pain and an associated reduction in her mobility.

Participant 154 was an 86 year old man who lived alone and reported an increased number of falls over the past twelve months. He was assessed by NASC 4 and identified that he wished to “be able to remain independent”. He received three hours per week of HBSS from provider F. At follow-up assessment he had a small increase in SF-36 component scores and social support and a small decrease in his physical function. Due to the non-specific nature of the goal it was hard to determine whether the goal had been attained. His mobility had improved and he felt less prone to falling.

Control group: Participant 168 was a 75 year old New Zealand European man who lived with his wife. He had a history of arthritis and diabetes. He was assessed by NASC 12 and following assessment received two hours of HBSS, which was delivered by HBSS A. No goals were recorded for this episode of service provision and the services were structured around shopping assistance and housework. He showed a high degree of proactive coping (124 out of a maximum of 180). At follow-up assessment he showed a decline in HRQoL measured on the SF-36 with no change in social support or physical function.

Participant 162 was a 75 year old New Zealand European woman who presented with a history of increasing pain due to arthritis in her hips and knees. She lived in an annex on her daughter’s property. She was assessed by NASC 10 and following this HBSS provider B delivered two hours per week of HBSS services. Once again there was no identified goal for these services which also involved housework and shopping assistance. Her proactive coping inventory score was low (79/180). She showed a small decline in HRQoL at follow-up assessment and a small decline in

social support and a small increase in physical function. This related to small improvements in balance and gait speed.

Participant 185 was a 94 year old male who lived alone and reported an increase in his falls over the previous six months. He was assessed by NASC 3 and referred to HBSS provider B. He received two hours per week of HBSS, consisting of assistance with housework and shopping. He showed a very small improvement in HRQoL at follow-up assessment and in social support. There was no change in physical function. He showed very high levels of proactive coping (160/180).

Participant 188 was a 66 year old New Zealand European man who lived alone in a small local council owned flat. He had mild respiratory disease and diet controlled diabetes and was assessed by NASC 9. He received two hours of HBSS from provider B to assist with shopping and housework. He scored 101 out of a maximum 180 in PCI. At follow-up assessment there was a slight decrease in HRQoL, with no change in physical function and a large decrease in social support. This change was predominantly due to a decrease in the domains of the DSSI relating to communication he had with family members and also the perceived role that these family members had in supporting him.

Participant 187 was an 80 year old woman who lived alone. However, she had strong social support at initial assessment. She described increased levels of pain due to severe arthritis in her hips and knees. She was assessed by NASC 5 and following this received two hours of HBSS from provider E for assistance with housework. She reported an improvement in HRQoL at follow-up with no change in physical function. The decline in social support was due to small detrimental changes in all items of the DSSI.

Participant 94 was a 91 year old man who lived with his nephew and niece. His mobility was very poor and he reported that this was primarily due to his chronic obstructive respiratory disease. He was assessed by NASC 8 and received two hours of home based support from provider F. This involved assistance with personal cares. He had high levels of proactive coping and at follow-up assessment reported a

large improvement in HRQoL. This was primarily driven by the physical component score. The small increase in physical function was driven by improvements in gait speed and chair stand. The large improvement in social support was due to changes across all items of the tool.

Participant 191 was an 82 year old Tongan woman who lived with her extended family. She received two hours of assistance from HBSS provider F following assessment by NASC 14. On assessment she reported severe pain and a diagnosis of diabetes. This was to assist her with shopping. At follow-up assessment she had a large improvement in HRQoL and in physical function. The decrease in social support was due to a small change across many of the items of the DSSI.

Table 4-26: Characteristics of the sub-sample of participants interviewed

Study ID	Age	Gender	LA*	NZ Dep	Eth*	NASC ID	HBSS*	I/C *	Hours *	Change in SF-36	Change in Hua Oranga	Change in SPPB	Change in DSSI	PCI score
121	72	Female	With partner	2	NZE	13	B	I	1.5	-25.7	-	0	-2	149
170	76	Female	Alone	2	NZE	6	B	I	2	+29.7	-	0	+2	133
198	65	Female	With partner	6	NZE	11	B	I	6	+9.8	-	+2	+5	118
189	88	Female	With other family	8	Māori	2	D	I	6	+21.8	-1.7	+2	+4	139
155	78	Female	With other family	8	Māori	1	E	I	11	+38.7	25.0	+4	+4	126
8	66	Female	Alone	8	NZE	7	F	I	3.5	-15.5	-	-2	-2	76
154	86	Male	Alone	8	NZE	4	F	I	3	+6.7	-	-1	+1	126
168	75	Male	With partner	6	NZE	12	A	C	2	-16.8	-	0	0	124
162	75	Female	With other family	4	NZE	10	B	C	2	-4.8	-	+2	-1	79
185	94	Male	Alone	4	NZE	3	B	C	2	+2.1	-	0	+1	160
188	66	Male	Alone	10	NZE	9	B	C	2	-4.9	-	0	-10	101
187	80	Female	Alone	8	NZE	5	E	C	2	+15.5	-	0	-6	94
94	91	Male	With other family	6	NZE	8	F	C	2	+26.5	-	+2	+13	101
191	82	Female	With other family	9	PI	14	F	C	2	+10.75	-	+3	-6	105

*LA =living arrangement, Eth = ethnicity, HBSS = HBSS provider, I/C = study group. + scores for SF-36, SPPB and DSSI show improvements over time for those outcomes

Development of themes from reviewing and coding older people’s qualitative transcripts is outlined in Figure 4.11.

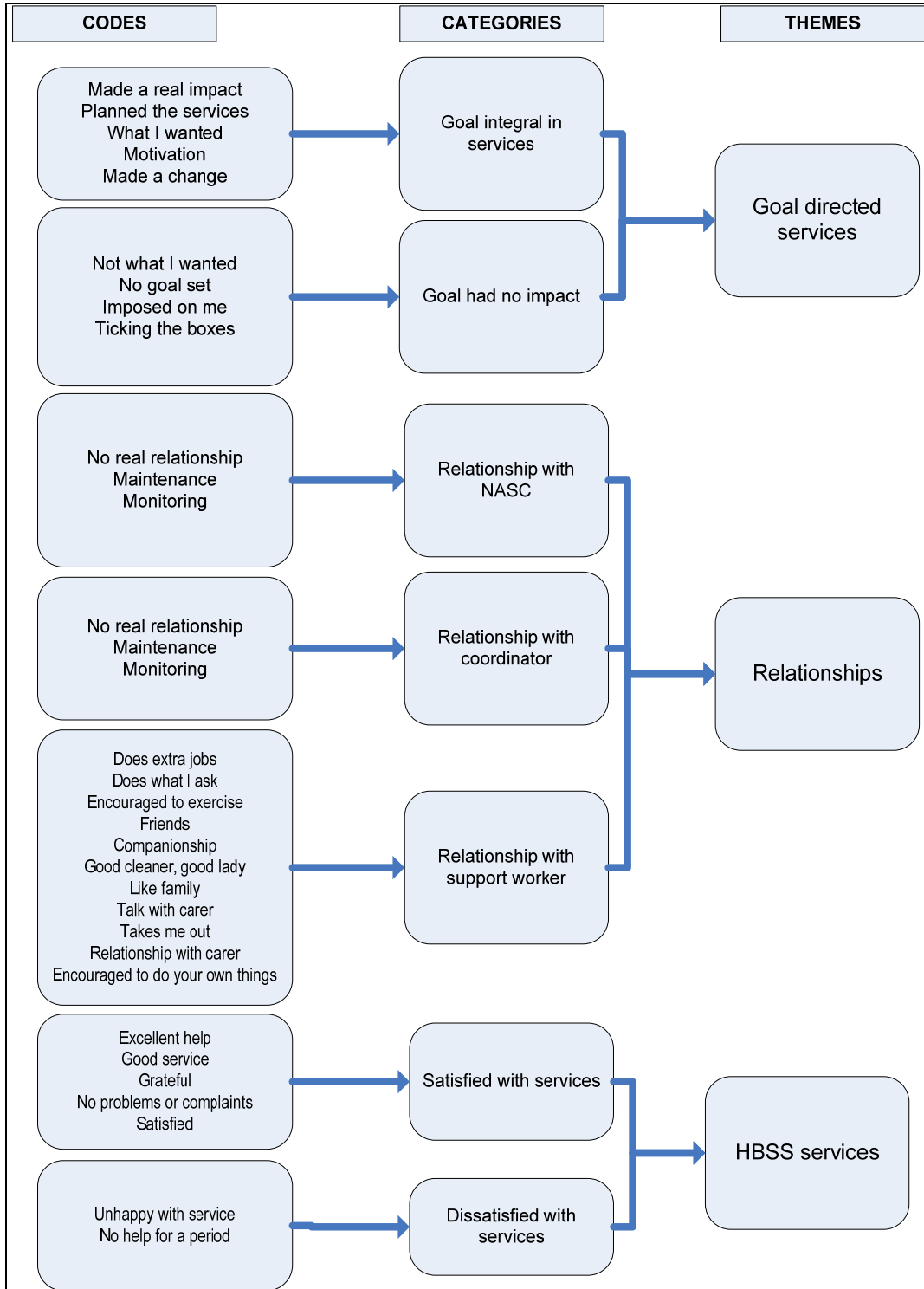


Figure 4-11: Codes categories and themes for older people qualitative data

Goal directed services: There was a marked difference between the participants randomised to the two study groups in relation to this question. The majority of participants in the intervention group were able to identify the goal they set with the NASC and many actively pursued this through the assistance of the HBSS services.

“I have been in hospital a lot this year and hate sitting around. To have a goal to get walking again and help to do it was good for me” (155).

“I am walking a lot more now than I was and I think without the help from the home help that would not have happened. They have really helped me along” (008).

Furthermore, the control group participants were not able to identify goals as bearing any relation to the services implemented.

“I had no goals set other than the ones the hospital set for me and that doesn’t really matter to me. I just want to stay here with my whānau” (168).

However, some of the intervention group participants did express an opinion that their goal was imposed on them.

“It was not my goal really. I just agreed to it to get the services” (170).

Relationships: This theme summarised the participant’s relationship with the NASC, HBSS coordinator and the support worker. The majority of participants identified positive experiences with both the support worker allocated to them and the coordinator. Often it was stated that the support worker had exceeded their expectations.

“They go above and beyond the call of duty and do so much for me” (094).

“Lizzie [the coordinator] seems to keep a close eye on me which helps, the girl who comes in [the support worker] always lets her know how I am doing each day. That is good” (168).

Most commonly the participants referred to the support worker as friendly and nice. In addition, a few participants felt their support worker was reliable and trustworthy. Many made positive comments about the relationship they had with their support worker and a number commented they were like friends or family. The vast majority

reported they were happy or their support worker was good. Several participants commented about companionship and being able to talk with their support worker as significant.

“I like the companionship...I think it is very essential for those like myself who are living on their own to have because I don't have much contact with anybody except my family. It is lovely to sit and have a cup of tea after they finish their work and have a talk with us” (154).

The relationship with NASC was often identified as confusing and in most cases had little impact on their experiences with the home based support services.

“They came to see me and asked me all these questions. I just needed some help in the house and they asked me about going to the toilet. I don't know why they had to ask me all that” (185).

However, some of the participants saw the role of NASC very clearly and felt that it was integral to the improvements they had seen in themselves.

“They came to see me and it went well after that. We talked about what I was to do and how to do it and then they took it from there” (198).

“They talked to me and my family and did that well. I think the way things have been put into my house has really helped me right for that first time she came to see me” (121).

HBSS services: This theme related to both positive and negative comments the older people participants made about the home based support service delivered to them. For all participants there were some comments providing positive feedback about the home care agency and reporting they were thankful for what they received.

“I don't know how I would manage without her, we are very grateful for all their help because my husband is not able to do it either” (191).

However, across both groups a small number of older people reported dissatisfaction. The main reason for this was due to a lack of consistency in staffing. A number of complaints also referred to staff shortages and participants not receiving care for periods of time.

“I feel it is not as reliable as it should be. Often I get a different one each week. They are irregular when they come and sometimes no-one will come for a week if one of them is sick” (187).

4.6 Clinical outcomes

The final section presents the data obtained for the clinical outcomes collected at baseline and follow-up. These outcomes were Health Related Quality of Life (SF-36³³), physical function (SPPB³⁴) and Social Support (DSSI³⁵). In addition the Caregiver Reaction Assessment scores obtained at the two data collection points will be presented. The variables used in the mixed model of analysis to determine the variance between the two study groups over time are described.

4.6.1 Health Related Quality of life

SF-36 component scales

Prior to presenting the results obtained from the mixed modelling of the data it is important to determine the simple summaries of the two component scales of SF-36. These are shown in Table 4.27. As can be seen there was an apparent improvement in the mean component scores in the intervention group over time with a mean decrease in the control group over the same period. However, no significance can be attached to this observation and so Table 4.28 shows the results obtained from modelling of the data.

³³ Short Form 36 Health Survey

³⁴ Short Physical Performance Battery

³⁵ Dukes Social Support Index

Table 4-27: Summary statistics for SF36 component scores for baseline and follow-up

Scale measurement	Baseline	Follow-up
	Mean average (SD), <i>95% CI</i>	Mean average (SD), <i>95% CI</i>
SF36 Physical		
Control	36.33 (11.11), <i>34.09-38.57</i>	33.25 (10.07), <i>33.22-35.28</i>
Intervention	34.16 (9.56), <i>32.34-35.96</i>	41.19 (9.97), <i>39.29-43.09</i>
SF36 Mental		
Control	52.34 (9.35), <i>50.46-54.23</i>	51.37 (9.36), <i>49.48-53.25</i>
Intervention	51.70 (10.58), <i>49.65-53.72</i>	57.36 (9.51), <i>55.45-59.18</i>

The model of analysis for determining the variance in the SF-36 component scores across the two study groups was built in a stepwise manner and only those variables that showed a significant effect were included as fixed effects.

Analysis of the residuals in the linear mixed model showed that outliers in the model had minimal effect on the least mean square values generated. In addition the residual statistics generated by the model were analysed in relation to the fitted (objective) function values described in chapter three. Finally, the model chosen utilised the lowest Akaike Information Criterion and Bayesian Information Criterion values.

Table 4.28 on page 205 shows the baseline and follow up least mean square values for the two component scales of the SF-36, namely the physical and mental scales. The modelling for the physical scale included: strategic coping scale ($F=6.42$, $p=0.01$), age ($F=12.47$, $p=0.0005$), living arrangement ($F=3.24$, $p=0.01$) and the perceived relationship between NASC and HBSS ($F=4.97$, $p=0.01$). As can be seen there was a significant difference in the change in SF-36 physical component scores in the intervention group compared to the control group (34.01 to 41.04 in the intervention group vs. 36.50 to 33.42 in the control group, $p<0.0001$). This would suggest that the intervention group showed an improvement in the physical

components of the HRQoL scale whereas the control group actually deteriorated in this scale.

The fixed effects used in constructing the model for analysis of the mental component of the SF-36 were: perceived relationship between NASC and HBSS, age, gender, ethnicity, living arrangement, the strategic planning scale scores and the number of hours of home support allocated to the client. The model showed a significant difference in the change observed over time between the two groups ($p=0.001$) with the control group showing a decrease in the mental HRQoL and the intervention group showing an improvement (50.67 to 50.85 in the control group vs. 51.11 to 56.57 in the intervention group). Classification factors included in both of the models were: gender, NZDep rating, living arrangement, HBSS provider and ethnicity.

Table 4.29 shows the least mean squares values, standard error and 95% confidence intervals for an unadjusted model to determine change over time in the two SF36 component scores.

Table 4-28: Results of linear mixed model examining the change in Physical and Mental components of the Short Form (SF36) Health Survey at baseline and follow-up adjusted for co-variates

Scale measurement	Baseline			Follow-up			P value
	Adjusted Square	Least Mean (SE), 95% CI	Mean	Adjusted Square	Least Mean (SE), 95% CI	Mean	
SF36 Physical³⁶							
Control	36.50 (1.03), 34.48-38.53			33.42 (1.03), 31.39-35.44			<0.0001
Intervention	34.01 (0.97), 32.09-35.92			41.04 (0.97), 39.12-42.96			
SF36 Mental³⁷							
Control	50.67 (1.03) 52.70-52.87			50.85 (1.09), 48.82-52.87			0.001
Intervention	51.11 (1.01), 49.11-53.10			56.57 (1.05), 54.58-58.57			

SE = Standard Error
 SF36 = Short Form 36 Health Survey

Table 4-29: Results of unadjusted linear mixed model examining the change in Physical and Mental Components of the Short Form (SF36) Health Survey at baseline and follow-up

Scale measurement	Baseline			Follow-up			P value
	Unadjusted Square	Least Mean (SE), 95% CI	Mean	Unadjusted Square	Least Mean (SE), 95% CI	Mean	
SF36 Physical							
Control	36.33 (1.03), 34.30-38.37			34.16 (0.98), 32.23-36.09			<0.0001
Intervention	33.25 (1.03), 31.21-35.28			41.19 (0.98), 39.26-43.12			
SF36 Mental							
Control	51.04 (0.99), 49.08-53.00			51.21 (0.99), 49.25-53.17			0.001
Intervention	50.82 (0.97), 48.91-52.73			56.29 (0.99), 54.38-58.20			

³⁶ Modelling included strategic coping scale (F=6.42, p=0.01), age (F=12.47, p=0.0005), living arrangement (F=3.24, p=0.01) and the perceived relationship between NASC and HBSS (F=4.97, p=0.01)

³⁷ Modelling included perceived relationship between NASC and HBSS, age, gender, ethnicity, living arrangement, the strategic planning scale scores and the number of hours of home support allocated to the client.

This section has described the statistically significant improvement in HRQoL, measured by the two SF-36 component scales, observed in the intervention group compared to the control group across the sample of 210 participants. The potential modes of action for such a change have been described over the course of this chapter. However, the reported issues relating to the validity of SF-36 as a measure of HRQoL in Māori have previously been described. To counter this effect the Hua Oranga tool was administered to the Māori participants.

Hua Oranga

The data obtained from the sixteen participants who identified as Māori (nine control and seven intervention) to whom the Hua Oranga tool were administered was analysed. In addition the data arising from their whānau and NASC were collated. The separate scores are shown below in Table 4.30. The possible scores for the tool ranged from -48 indicating the maximum deterioration in HRQoL to +48 indicating a maximum improvement in HRQoL. The client scores range from -8 for participant 59, showing a slight deterioration in HRQoL to +32 in participant 148. With the small numbers of participants statistical analysis to determine if there is any difference in Hua Oranga scores between the two study groups is questionable. However, a t-test did show that the intervention group had significantly higher scores than the control ($p=0.002$), indicating higher rating of quality of life. Figure 4.14 on page 208 shows the mean and standard deviations for Hua Oranga scores across the two study groups. The larger mean change in HRQoL can be seen in the intervention group. In addition it is interesting to note the difference in the scores obtained from the participant, their whānau (family members) and the NASC involved in the provision of HBSS services in Table 4.30 and that the pattern observed with lower scores by whānau members in comparison to the participant scores is similar across the intervention and control groups, as shown in Figure 4.14 on page 208. The trend towards the NASC scores and participant scores being more closely aligned in the intervention group in comparison to the control group is also of interest. A potential explanation could be the higher levels of satisfaction among the intervention group participants in relation to the NASC worker assigned to them and the concomitant better relationship. However, as stated the small numbers involved preclude any definitive conclusions concerning this observed trend.

Table 4-30: Client, whānau, NASC and total scores obtained for Hua Oranga tool

ID		Client score	Whānau score	NASC score	Total score
32	C	5	2	9	5.33
42	C	27	23	23	24.33
49	I	13	0	16	9.67
54	C	18	11	16	15.00
59	C	-8	-4	-9	-7.00
88	I	23	17	20	20.00
97	I	9	10	7	8.67
107	C	16	0	20	12.00
123	I	16	16	26	19.33
141	C	16	0	9	8.33
148	I	32	22	22	25.33
155	I	26	23	26	25.00
156	I	9	16	12	12.33
157	C	9	3	-10	0.67
189	I	1	-6	0	-1.67
203	C	-6	-5	-7	-6.00

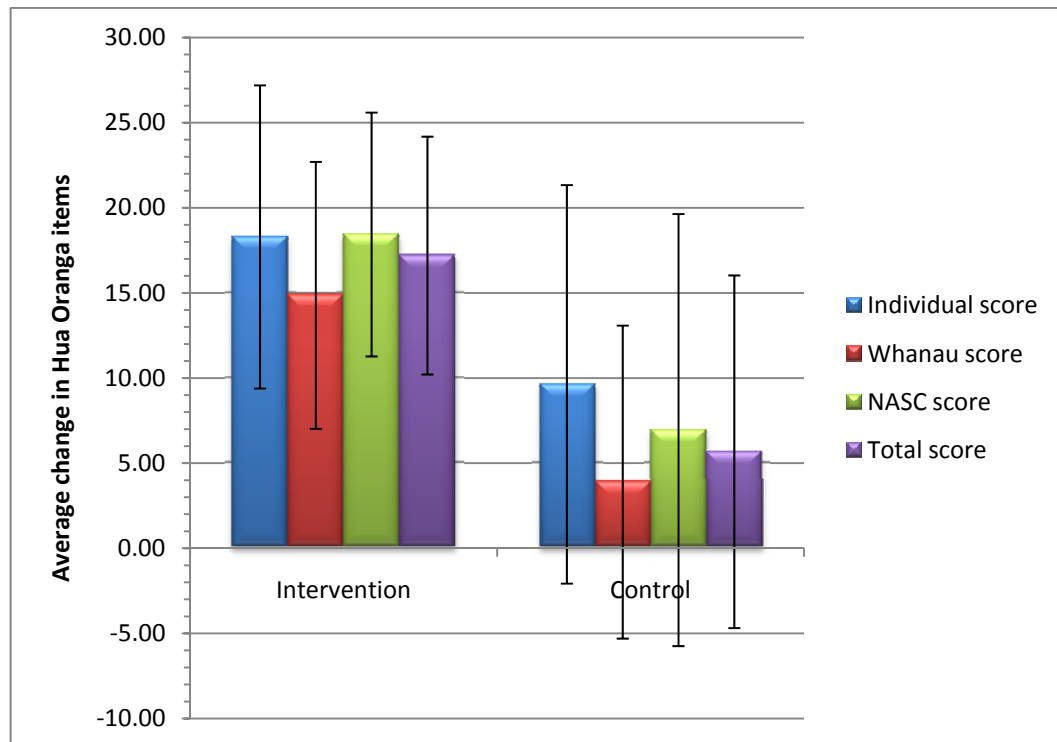


Figure 4-12: Individual, whānau, NASC and total mean Hua Oranga scores across intervention and control groups

4.6.2 Other measures

The following section will present the results from analysis of data arising from the Short Physical Performance Battery and Dukes Social Support Index.

Physical function

In addition to HRQoL the study also sought to determine the effect of the intervention on physical function. Table 4.31 shows the simple summary statistics at baseline and follow-up for the Short Physical Performance Battery (SPPB).

Table 4.33 shows the results of unadjusted models exploring the changes over time observed in SPBB total and component scores.

Table 4-31: Summary statistics for SPPB scores for baseline and follow-up

Scale measurement	Baseline	Follow-up
	Mean average (SD), <i>95% CI</i>	Mean average (SD), <i>95% CI</i>
SPPB		
Control	6.36 (3.18), 5.71-7.00	5.98 (3.27), 5.32-6.64
Intervention	6.11 (3.17), 5.51-6.72	6.76 (3.02), 6.18-7.34
SPPB Balance Test		
Control	2.72 (1.35), 2.44-2.99	2.48 (1.42), 2.19-2.77
Intervention	2.61 (1.45), 2.34-2.89	2.73 (1.32), 2.48-2.98
SPPB Gait Speed Test		
Control	2.32 (1.28), 2.07-2.58	2.24 (1.31), 1.97-2.50
Intervention	2.24 (1.15), 2.02-2.46	2.57 (1.14) 2.36-2.79
SPPB Chair Stand Test		
Control	1.27 (1.04), 1.06-1.48	1.24 (0.95), 1.04-1.43
Intervention	1.26 (1.09), 1.05-1.47	1.42 (1.06), 1.21-1.62

Table 4-32: Results of adjusted linear mixed model examining the change in Short Physical Performance Battery total scores and component scores at baseline and follow-up

Scale measurement	Baseline	Follow-up	P value
	Least Mean Square (SE), 95% CI	Least Mean Square (SE), 95% CI	
SPPB ³⁸			
Control	6.48 (0.52), 5.45-7.18	6.14 (0.52), 5.60-7.33	
Intervention	6.00 (0.44), 5.26-6.29	6.68 (0.44), 6.36-7.69	0.003
SPPB Balance Test			
Control	2.06 (0.37), 1.30-2.86	1.82 (0.37), 0.98-2.54	
Intervention	2.05 (0.40), 1.33-2.70	2.22 (0.40), 1.80-3.06	0.03
SPPB Gait speed Test			
Control	2.42 (0.13), 2.18-2.68	2.35 (0.13), 2.26-2.76	
Intervention	2.18 (0.12), 1.93-2.42	2.52 (0.12), 2.09-2.58	0.002
SPPB Chair Stand Test			
Control	1.18 (0.16), 0.78-1.35	1.19 (0.16), 0.94-1.50	
Intervention	1.06 (0.14), 0.88-1.49	1.22 (0.14), 0.85-1.46	0.25

SE = Standard Error

SPPB = Short Physical Performance Battery

The model of analysis included variables as fixed effects if they had a significant influence on the model. These were: ethnicity, perceived relationship between NASC and HBSS, emotional support seeking scale (a component of the Proactive Coping Inventory) and the number of hours of home based support allocated by NASC. Table 4.32 shows the results obtained for the adjusted model.

³⁸ Modelling included ethnicity, perceived relationship between NASC and HBSS, emotional support seeking scale (a component of the Proactive Coping Inventory) and the number of hours of home based support allocated by NASC.

In the adjusted model there were significant differences in the overall change in SPPB score between the two groups ($F=8.30$, $p=0.003$) and in the gait speed component of the SPPB ($F=3.74$, $p=0.002$). In addition there was a significant difference between the two groups in relation to the balance component ($F=9.74$, $p=0.03$). There was no difference between the two groups in the chair stand test component ($F=2.10$, $p=0.25$). This suggests that the use of TARGET and the associated change in the model of HBSS provision significantly improved physical function among the intervention group participants. However, these improvements were observed in walking (gait) speed and in balance. There was no significant difference between the two groups in the change over time in the ability of the participants to stand from a chair repeatedly. This latter component of the SPPB is an excellent measure of functional ability and fitness among older people and so it is interesting to note that there was no significant change across the two groups. Possible reasons for this will be discussed further in the next chapter. However, examination of the correlation between the SPPB and its component scales (balance, gait speed and chair stand) and the variables forming the client and clinical interaction levels of the model for analysis may inform any formulation of the rationale for explaining this finding.

Table 4-33: Results of unadjusted linear mixed model examining the change in Short Physical Performance Battery total scores and component scores at baseline and follow-up

Scale measurement	Baseline	Follow-up	P value
	Least Mean Square (SE), 95% CI	Least Mean Square (SE), 95% CI	
SPPB			
Control	6.36 (0.32), 5.72-6.99	5.97 (0.32), 5.34-6.61	
Intervention	6.10 (0.31), 5.49-6.72	6.75 (0.31), 6.14-7.37	0.004
SPPB Balance Test			
Control	2.72 (0.14), 2.44-3.00	2.49 (0.14), 2.21-2.76	
Intervention	2.61 (0.13), 2.35-2.87	2.73 (0.13), 2.47-2.99	0.05
SPPB Gait speed Test			
Control	2.33 (0.13), 2.07-2.57	2.23 (0.13), 1.99-2.48	
Intervention	2.23 (0.12), 1.99-2.47	2.57 (0.12), 2.33-2.81	0.02
SPPB Chair Stand Test			
Control	1.27 (0.11), 1.06-1.48	1.24 (.011), 1.03-1.45	
Intervention	1.26 (0.10), 1.05-1.46	1.41 (0.10), 1.21-1.62	0.14

At the clinical interaction level both socioeconomic status (as defined by New Zealand Dep rating) ($F=2.18$, $p=0.03$) and age ($F=1.58$, $p=0.04$) had significant relationships with a change in total SPPB score. The data shows that those with lower NZDep ratings, and so from less socially deprived areas and younger participants, showed greater changes in physical function.

At a client interaction level there were significant correlations between change in SPPB total score and trust 1³⁹ ($F=3.79$, $p=0.05$) and hours per week of HBSS

³⁹ How would you rate the interaction between yourself and the HBSS provider in relation to this client?

services ($F=4.79$, $p=0.03$). This suggests that a more highly rated and trusting relationship between NASC and HBSS was important in improving a participant's physical function. Due to the negative correlation observed between the hours per week of HBSS and physical function ($r=-0.14$, $p=0.01$) it was important to explore further as this appeared counterintuitive. This was undertaken by determining the correlations between hours of HBSS and physical function for the two study groups separately. It was anticipated that providing more hours of support that encouraged dependency on HBSS through the provision of a traditional model of HBSS may have negatively influenced physical function. However, the converse was true. The intervention group showed higher levels of negative correlation with changes in physical function as determined by SPPB total scores ($r=-0.26$, $p=0.01$). There were no accompanying correlations observed in participants randomised to the control group in relation to these variables. This would suggest that although the intervention did improve physical function among the sample it was those participants who received less hours of individualised HBSS that benefitted most and showed greater changes in physical function. A potential explanation for this finding is that participants who received less hours of support may also have been less functionally impaired and so had the potential to improve their physical function. Conversely those who received more hours of support may have been more functionally impaired and so may have had less potential to reverse their level of disability.

Social support

The final outcome to be presented is that of social support, as determined by Dukes Social Support Index. Table 4.34 shows the summary statistics for the scale at baseline and follow-up for the intervention and control groups.

Table 4-34: Summary statistics for Dukes Social Support Index at Baseline and Follow-up

Scale measurement	Baseline	Follow-up
	Mean average (SD), 95% CI	Mean average (SD), 95% CI
Control	38.12 (5.39), 37.04-39.21	37.56 (5.38), 36.47-38.64
Intervention	38.60 (4.20), 37.80-39.40	38.99 (5.39), 38.17-39.82

Table 4.35 shows the baseline and follow-up least mean square values across the intervention and control groups for the Dukes Social Support Index. The model of analysis included the following as fixed effect factors: living arrangement, HBSS provider and the avoidance coping scale (a component of the Proactive Coping Inventory). With the improvements in physical function and HRQoL observed in the intervention group when compared to the control group it would be expected that such a pattern would be reflected in the social support measure. However, there was no significant difference over time between the two groups ($p=0.09$).

Table 4-35: Results of adjusted linear mixed model examining the change in Dukes Social Support scores at baseline and follow-up⁴⁰

Scale measurement	Baseline	Follow-up	P value
	Least Mean Square (SE), 95% CI	Least Mean Square (SE), 95% CI	
Control	36.64 (1.10), 34.47-38.79	36.05 (1.10), 33.90-38.23	
Intervention	36.93 (1.14), 34.65-39.14	37.35 (1.14), 35.04-39.53	0.09

SE = Standard Error

⁴⁰ Adjusted for living arrangement, HBSS provider and the avoidance coping scale

Table 4-36: Results of unadjusted linear mixed model examining the change in Dukes Social Support scores at baseline and follow-up

Scale measurement	Baseline		Follow-up		P value
	Least Square (SE), 95% CI	Mean	Least Square (SE), 95% CI	Mean	
Control	38.15 (0.50), 37.17-39.13		37.58 (0.50), 36.60-38.56		
Intervention	38.56 (0.48), 37.61-39.52		38.95 (0.48), 38.00-39.90		0.11

Closer examination of the correlation between the variables in the model of analysis and the social support measure showed that the only significant correlation ($p < 0.001$) related to which HBSS provider was used ($r = -0.42$). This suggests that having provider A had the greatest effect on improving social support, whereas having provider F had the least beneficial effect.

4.7 Summary

This chapter has reported the findings of a study investigating the effect of a goal facilitation tool on clinical outcomes among a sample of older people referred for home based support in South Auckland. Utilising a predetermined model of analysis which was informed by contemporary evidence the potential variables that could influence the effect of the tool have been described. A more detailed description of these results will be presented in Chapter Five. Notwithstanding, some key findings are summarised in Table 4.37.

Table 4-37: Key study findings

Level of model	Variable	Finding
Clinical outcome	SF-36	Change over time in SF-36 was significantly greater in the intervention group for the PCS ($p < 0.0001$) and MCS ($p = 0.001$)
	Hua Oranga	Significantly higher scores in intervention group ($p = 0.002$)
	SPPB	Change over time in physical function was significantly greater in the intervention group ($p = 0.003$) No statistical difference in change over time in chair stand component of SPPB
	DSSI	No statistical difference in change over time between the two groups ($p = 0.09$)
Client interaction level	Relationship between NASC-HBSS	Level of trust had a significant effect on change in physical function over time Role aspects, client factors and relationship with HBSS were seen as pivotal by NASC in optimising outcomes for clients Relationship with NASC, management support and changing roles were seen as important for HBSS providers in optimising client outcomes
	Proactive Coping Inventory	SPS scores had a significant effect on change in HRQoL over time ESSS scores had a significant effect on change in physical function over time ACS scores had a significant effect on change in social support over time PCI scores had a significant effect on Caregiver Reaction Assessment scores
	Interaction between participants and NASC / HBSS	Significantly higher HCSM scores for NASC in intervention group when compared to control ($p = 0.0002$) No significant difference in intra-group HCSM scores across NASC for control or intervention Significantly higher HCSM scores for HBSS in intervention group when compared to control ($p = 0.0002$) Significantly higher HCSM scores for participants in the intervention group receiving services from provider A ($p = 0.007$) and provider B ($p = 0.008$) Goal directed services, relationships with HBSS support worker, coordinator and NASC and issues relating to HBSS provision were identified by participants as important in optimising service delivery
	Level of service input	Significantly higher number of hours of services in intervention group ($p = 0.05$) Hours of service provision had a significant effect on change in physical function over time Very low rates of allied health referral and formal reviews undertaken across both study groups A high level of variation in rates of successful goal identification across the intervention NASC Higher rates of individualised activities incorporated into participant support plans in intervention group (73.2%) compared to control group (27.8%) ($p < 0.0001$)
Clinical interaction sphere	HBSS provider	Had a significant effect on change in social support over time
	Client / whānau	Age and living arrangement had a significant effect on change in HRQoL over time Age and socioeconomic status had a significant effect on change in physical function over time Living arrangement had no significant effect on change in social support over time

NOTE - *Qualitative findings shown in italics*; Quantitative findings in plain text.

4.7.1 Clinical outcomes

The main findings were that the statistical differences observed between the two study groups in relation to change in Health Related Quality of Life over time. The change in the two component scales of the SF-36 scale, physical component scale ($p < 0.0001$) and mental component scale ($p = 0.001$) were both significantly different across the two groups. Age, living arrangement and the perceived relationship between NASC and HBSS were included in the linear mixed model for PCS. Age, gender, ethnicity, living arrangement, the strategic planning scale scores and the number of hours of home support allocated to the client were included in the linear mixed model for MCS.

The intervention group also showed significant improvements in physical function over time, measured by the Short Physical Performance Battery, compared to the control group ($p = 0.003$) and in the gait speed component of the SPPB ($p = 0.002$). In addition there was a significant difference between the two groups in relation to the balance component ($p = 0.03$). There was no difference between the two groups in the chair stand test component ($p = 0.25$).

4.7.2 Client interaction level

At the client interaction level, the effect of the interpersonal relationship between NASC and HBSS coordinators has been reported and the degree of trust existing between these two parties was a significant fixed effect in the model of analysis of physical performance as measured by SPPB and the physical component score of the SF36. It did not appear to have a significant effect on the total SF36 score or the mental component score of the SF36 or social support. The themes arising from the interviews conducted with HBSS and NASC show that the intervention would appear to have positively impacted on the relationship between the two groups.

The client factors of proactive coping and the relationship with the NASC and HBSS organisations were described. The participant's level of proactive coping was shown to be a significant fixed effect in the model examining the effect of the study intervention on caregiver stress. In addition, elements of proactive coping were

included in the mixed model examining HRQoL, physical function and social support.

The perceived relationship between the participant and the NASC and HBSS as measured by the HCSM was not included in the models examining the study outcomes as it was not a significant effect. The interviews undertaken with a sub-sample of the participants highlighted a number of themes that will allow for continued contextualisation of the study findings in the subsequent chapters.

The service factors included in the analysis consisted of the number of hours of support provided to the participant, the goal determined for the episode of HBSS provision, the number of referrals to allied health made, the number of discharges and reviews and an analysis of the type of services provided.

The number of hours of support was a fixed effect in the model examining the effect of the intervention on the physical component score of the SF36. It was not included in any of the other models. There was a marked variation across HBSS providers in terms of the types of services provided to the participants and there was a difference in the ability of the different intervention group NASC to facilitate goal directed services. Further discussion of the service factors will continue in the next chapter.

4.7.3 Clinical interaction level

The effect of the HBSS organisation on clinical outcomes was a significant fixed effect in the mixed model of analysis for the mental component score of the SF36 and for social support. The different organisational described will be elaborated on in the next chapter to explore their relative effects.

At the client / whānau level the effect of age, informal carer support, living arrangement, ethnicity, gender and socioeconomic status have all been described and it was apparent that these were often of crucial importance to the relative success of the intervention. These factors were included in the mixed models examining the effect of the intervention on the study outcomes where appropriate.

4.7.4 National socio-political influences

The impact of national strategies, international trends and local policy were all considered and the imperative of HBSS quality improvement, innovation, collaboration and improving interactions with clients were seen as imperative.

The influence of these different factors comprising the model of analysis on the three clinical outcomes will further developed in the following chapter within the context of national and international evidence to further synthesise the findings.

Chapter Five: Discussion

5.1 Introduction

The current study sought to explore the effect of an innovative approach to home based support service for older people within a defined region of New Zealand. This discussion centres on relating the impact of the implementation of a designated goal facilitation tool on health related quality of life, physical function and social support among a sample of older New Zealanders referred for home based support services. The study determined the relative effects of different inter-related factors on these outcomes and whether the use of TARGET had an effect on the implementation of core components of a restorative model of HBSS. The model developed through the course of this thesis describes these factors in terms of client, clinical interaction and socio-political influences. The previous chapter presented the findings in relation to this model and also the resultant significant improvements in HRQoL and some aspects of physical function and social support. This chapter will conceptualise the study findings within the available contemporary literature and will discuss this evidence within the framework developed and utilised within the study to date.

5.2 Interpreting the findings

The results of the intervention are best explored by dividing the current chapter into three sections. The discussion will relate the findings concerning the research questions to the different levels of the model of analysis with reference to the study findings as shown in Figure 5.1. The issues explored in this study are, by their very nature are complex and are often difficult to interpret. Many of the variables explored within the current study are inter-related and the relationships require consideration and debate. With this in mind, links between the variables will be highlighted throughout the following chapter.

Section I focuses on the first of the research questions posed in Chapter Three and examines any identified changes in the clinical outcomes within the intervention and control groups. Section II interprets the findings relating to the client interaction sphere of the model within the context of the contemporary literature. This

considers the second of the research questions. Sections III of this chapter completes the elucidation of the study findings in order to answer the research questions relating to the clinical interaction. Discussion relating to the national socio-political spheres of the model will occur throughout the three sections.

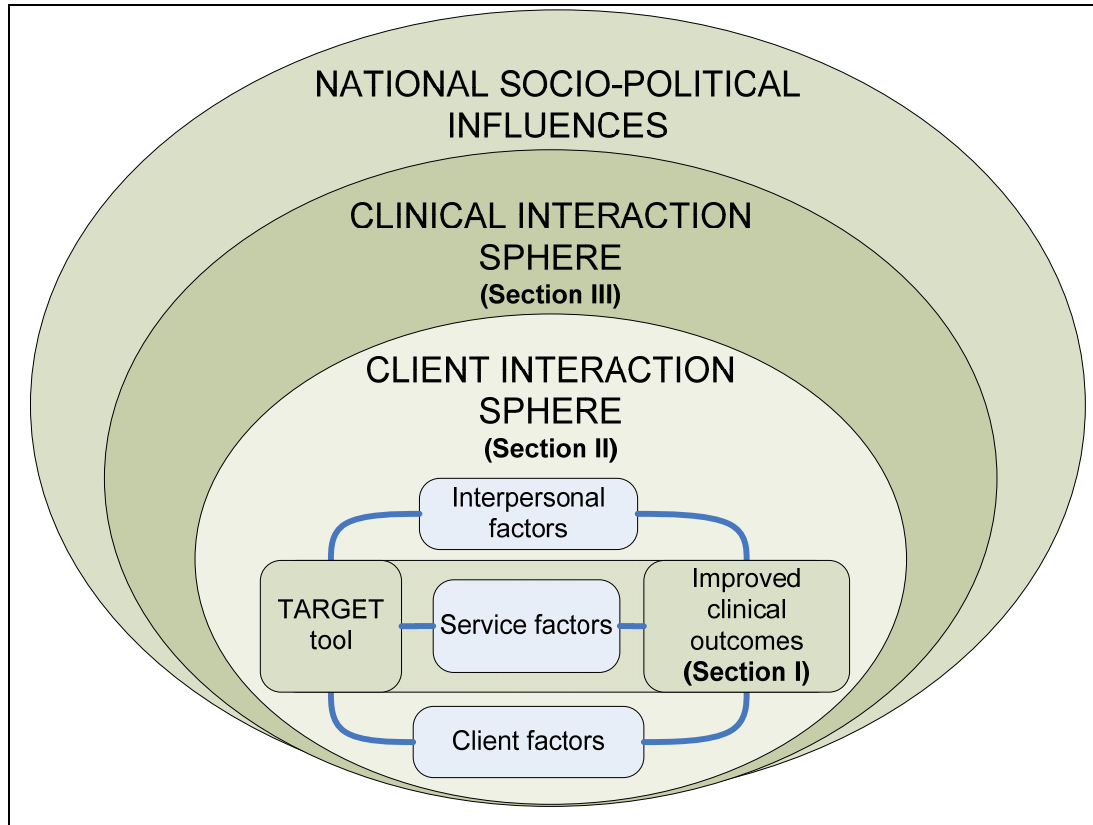


Figure 5-1: Conceptual model for exploration of the variables influencing the effect of a goal facilitation tool on clinical outcomes of older people receiving home based support service

Section I - Study outcomes

5.3 Introduction

The variables that were entered into the mixed model of analysis examining each of the clinical outcomes are summarised in Table 5.1 on page 223. The following section will consider the interaction of these components in relation to the clinical outcomes and describe the evidence supporting the inclusion and exclusion of these components in the mixed models used. The first outcome to be considered is that of health related quality of life.

Prior to consideration of the study findings it is important to discuss the rationale for statistical testing of baseline characteristics not being undertaken within the current study. In Tables 4.2 to 4.6 (pages 149 to 154) there are differences between the two study groups in terms of client / whānau characteristics, caregiver stress levels, physical function, HRQoL and physical function at baseline. Indeed if statistical testing of these baseline characteristics is undertaken the p-values would have shown a difference between the mean age of the two groups ($p=0.03$), the gender ($p=0.02$) and the ethnicity ($p=0.009$). However, statistical testing of baseline variables to assess the effect of imbalance, although common, has been criticised⁶¹⁷⁻⁶¹⁹. Berger⁶²⁰ reports that *'significance tests are pointless in a conventional randomized trial that has an effective randomization procedure'*. Pocock⁶²¹ provides further support for this view and states that all baseline differences are due to chance, unless there has been a failure of randomisation. Altman⁶²² and Senn⁶²³ report that this is the reason p-values for baseline differences do not serve a useful purpose, since they are not testing a useful scientific hypothesis. It is acknowledged that there may well be differences in baseline characteristics, however, the randomisation for this study was robust and the only potential bias identified in the randomisation was the cluster effect of participants from the same GP practices. This is described in Section 3.7.1 (page 125) and was controlled for in the analysis.

Table 5-1: Potential effects considered in a mixed model analysis of the effect of a designated goal facilitation tool on clinical outcomes

Fixed effects	
Clinical effectiveness outcomes	
Client factors	Service factors
Proactive coping inventory score	Hours of HBSS package
Home Care Satisfaction Measure score	Interpersonal factors
Caregiver Reaction Assessment score	NASC trust questionnaires score
Group interaction sphere	
Client factors	NASC
Age	Level of experience
Sex	Staffing levels
Ethnicity	HBSS
Socioeconomic status (NZDep)	Level of experience
	Coordinator staffing levels
	Ratio of coordinators to support workers

5.4 Health related Quality of Life

This trial utilised the Short Form 36 Health Survey (SF-36) measure HRQoL. A review of literature revealed the SF-36 was the most commonly used measurement for HRQoL in the older population⁵¹⁷. However, with the potential for a large proportion of the study participants to be Māori and the potential for a decrease in the validity of the SF-36 among this group, a Māori specific HRQoL measure (Hua Oranga) was utilised for Māori participants in conjunction with SF-36. The findings relating to SF-36 will be considered first, before the Hua Oranga data is discussed in relation to the available evidence.

5.4.1 Short Form 36 Health Survey

This study revealed HRQoL, as measured by the SF36 mental component score (MCS) and physical component scores (PCS).

SF-36 Physical Component Score

The SF-36 PCS component scores for participants in the intervention group showed a significantly larger change over time in comparison to the control group. The findings of numerous studies support this observed relationship⁶²⁴⁻⁶²⁸ and the physical component should demonstrate improvement as a result of the anticipated increased physical activity resulting from the intervention. A key element of the restorative care intervention in the current study was to encourage older people to undertake functional and repetitive activities of daily living (ADL) exercises and therefore an improvement in this area was expected. As previously outlined, the ageing process is associated with a decline in physical function, due to reduced muscle mass, strength and power^{629, 630}. In addition, a sedentary lifestyle contributes to poor physical function⁶³¹ whereas regular physical activity reduces age related declines in physical functioning and promotes health in older people⁶³²⁻⁶³⁴. In addition, earlier research has demonstrated restorative home care can improve the physical function of older people living in the community^{350, 635}.

Further evidence for the effect of increased physical activity on quality of life among older community dwelling older people is provided by Okomoto et al.⁶³⁶. They investigated the effects of a home-based walking programme on quality of life among community based older people. The 200 participants were randomised into an exercise group (who were instructed to increase the number of steps a day that they walked and to perform aerobic walking at a target heart rate for 20 minutes or more daily, 2 or more days a week) and a control group who were told to continue their normal level of activity. On the SF-36, the scores in the intervention group for vitality and mental health increased significantly.

In contrast, De Vreede⁶³⁷ suggests that data regarding the effect of exercise programmes on older adults' HRQOL and habitual physical activity are inconsistent. In a study of 98 older women the effect of a functional tasks exercise programme (function group), a resistance exercise programme (resistance group), or normal activity group (control group) on physical function and HRQoL were explored. Participants attended exercise classes three times a week for 12 weeks. He concluded that exercise has a limited effect on the HRQOL and self-reported physical activity

of community-living older women, although the small sample size used in the study precludes definitive conclusions.

The linear mixed model constructed to determine the effect of the intervention on SF-36 PCS used age, living arrangement, the strategic planning scale and the perceived relationship between NASC and HBSS as fixed effects. The inclusion of age is expected as there are strong relationships between increasing age and decreased levels of physical functioning^{125, 545, 549, 638-642}.

Within the current study the differences in the mean age across the two groups and the established links between age and HRQoL reported in the literature indicate that the potential impact of age on HRQoL needs clarification. Walters et al.⁶⁴³ described a marked decrease in SF-36 scores across a sample of over 10,000 people in UK analysed in 5 year age cohorts from 16 to 85+. It was apparent that PCS scores fell with age whereas the as MCS remained relatively constant across the age groups. In the current study such a pattern is not observed as both PCS and MCS remain constant across the age groups when a similar age cohort structure is used. Trief et al.⁶⁴⁴ showed a similar trend in the stability of SF-36 scores among older diabetics. They found that when 30-64 year old and those over 65 were compared the physical and mental summary scores did not differ. However, older participants reported greater role limitations due to physical problems, and better social function. Wedding et al.⁶⁴⁵ supports this view and states that normative samples report an age-dependent decrease of different scales of HRQoL in the general population compared to younger ones⁶⁴⁵⁻⁶⁴⁷. However, none of the reports on normative samples included an assessment of age-associated changes to learn whether the changes are related to age alone or to age-associated changes.

The second of the fixed effects included in the mixed model was that of the participants living arrangement. The findings show that participants who lived alone were more likely to have higher HRQoL, ($t [210] = 3.12, p=0.002$) than those who lived with family or friends. The available evidence in the literature would appear to suggest that the increased social support available to participants who lived with family or friends leads to increased HRQoL^{648, 649}. However, it was evident that those

who lived alone tended to be more functionally able (as determined by SPPB, $t [210] = 2.76$, $p = 0.006$) and there is considerable evidence to show that poor functional ability is related to lower perceptions of HRQoL. For example, Iwarsson et al.⁶⁵⁰ explored the interrelationships among HRQoL, dependence in activities of daily living (ADL) in a random sample of 133 subjects aged 75–84. Significant correlations were shown between poor ADL performance and lower HRQoL. It would appear that in the current study the higher functional ability in the group of those living alone had more of an effect on HRQoL than the reportedly higher levels of social support in the group who lived with friends or family. However, this can not be confirmed as the reasons why participants lived with family members in the current study was not ascertained.

The third variable included in the mixed model was the strategic planning scale. High scores on this scale were significantly correlated with increased levels of change in SF-36 PCS scores at follow-up assessment. As described previously this 4-item scale focuses on the process of generating a goal-orientated schedule of action in which extensive tasks are broken down into manageable components. The effect of this may have been complemented by the goal directed services provided to participants in the intervention group. Goal setting with older people is recognised to improve communication with health care professionals and aid the formation of customised care plans which encompass individual values⁶⁵¹. As demonstrated in the current study, a main factor of the restorative care service was collaborative goal setting undertaken with older people in the intervention group which incorporated the development of personalised care plans.

The findings of the current study showed significantly higher levels of trust in the relationship between NASC and HBSS coordinators providing services to participants in the intervention group when compared to the control group. This is supported by the themes arising from the interviews undertaken. The impact of this positive relationship between the HBSS coordinator and NASC on PCS requires further discussion. The evidence suggests that there are at least two possible reasons for this correlation with the study outcome. Firstly, it may be that the increased level of care management that developed through the implementation of the intervention

(increased monitoring of participants through the process of review and increased communication between NASC and HBSS) may have had an effect. Care management encompasses coordinating and monitoring a comprehensive range of services across a continuum with emphasis on a person-centred environment ^{405, 406}. The central aim of care management is to improve quality of life and it is believed providing the necessary and desired core services to home-based older people will achieve this. A small RCT (n=40) ⁶⁵² discovered older people who received home care services with an emphasis on care management exhibited significantly higher subjective wellbeing. This suggests that care management improved participants' perceptions of their health status and quality of life. A larger RCT (n=522) of high risk older people (70+ years) living at home revealed the intervention group, who received care management, reported higher satisfaction scores compared with recipients of usual care ($p < 0.001$) ⁶⁵³. There is also further evidence to suggest that care management enhances provision of care and quality of life for older people living in the community ^{358, 409}.

These studies suggest that care management may have a larger impact on MCS rather than PCS and so a possible further reason for the correlation merits discussion. It is possible that an improvement in the communication and levels of trust existing between the two parties may have led to more strenuous and sustained levels of physical activity among the participants due to the HBSS being more directed to tasks that were functionally based and individual to the participant. Exercise programmes utilising such tasks have been shown to have higher rates of compliance ^{397, 654} and, as described were an integral part of the restorative model. This would suggest that the observed correlation is in fact due to the improved relationship observed between the intervention group NASC and HBSS coordinators rather than the effect of increased case management.

SF-36 Mental Component Score

The variables included in the mixed model of analysis for MCS included: the perceived relationship between NASC and HBSS, the strategic planning scale, age, gender, ethnicity, living arrangement and the number of hours of home support. The study findings showed that increasing age, being male and of Asian or Pacific Island

ethnicity was associated with smaller improvements in MCS over time. The inclusion of gender and ethnicity are important as ethnic and gender differences in the psychological constructs of life satisfaction and wellbeing, two integral components of MCS, are reported in the literature. In a study of quality of life for patients with chronic heart disease, Emery et al.⁶⁵⁵ found that women indicated significantly lower quality of life than men with cardiac disease over the course of a 12-month longitudinal follow-up (n=410, mean age=60 years). In addition, Pettersen et al.⁶⁵⁶ compared HRQoL between sexes in 408 Norwegian patients following myocardial infarct (mean age =70 years). Multiple linear regression analysis was used to explore the association of scores on PCS and MCS component summary scales with clinical and socio-demographic variables. Women were shown to have significantly lower MCS scores.

The interaction of the number of hours of HBSS provided and the change in MCS is also of note. The question is whether it was the number of hours of face to face interaction with the support worker that produced this correlation or the actual content of the activities undertaken by the support worker? It has been shown that the activities undertaken by support workers in the intervention group were more individualised when compared to those of the control group. Examination of the literature describing the changes in HRQoL resulting from restorative models of HBSS may provide insight into this. However, the majority of intervention studies involving a restorative approach have focused on improvement of basic functional status and measurement of ongoing use of services, rather than on the broader effects of interventions on clients' lives, including their well-being and psychosocial status. Only a few studies, albeit with generally positive findings, have directly investigated the impact of programmes utilising restorative approaches directly on clients' quality of life. Little or no research has examined carer outcomes or perspectives in relation to restorative programmes. One study that did explore this concept was the Western Australian Silver Chain programme⁶⁵⁷. This specifically measured a factor that can be directly related to quality of life – 'geriatric morale' (i.e. clients' morale). Clients who received the programme demonstrated significantly higher scores on the Philadelphia Geriatric Morale Scale than non-participants. There is also some qualitative evidence from evaluations undertaken in the UK that

multidisciplinary restorative programmes are generally well-accepted and seen to have positive outcomes from the clients' perspective ⁶⁵⁸.

Regression to the mean

An issue that requires consideration relates to the level of clinical change in HRQoL. The high levels of statistical significance in the current study have been described. However, an increasing number of studies have questioned the reliance on statistical significance of change in HRQoL for testing the impact of interventions. For example, Crosby et al. ⁶⁵⁹ reports that an issue of relevance in defining clinically meaningful change is whether the level of HRQoL impairment ^{660, 661} or baseline health status ⁶⁶²⁻⁶⁶⁴ is relevant in determining clinically meaningful change. This is particularly relevant to the current study, where the baseline SF-36 scores for the intervention group were considerably lower than those of the control group. Crosby et al. suggest that individuals with more severe impairments may require a greater change in HRQoL to be considered clinically meaningful than those with less severe impairments. For example in a study of patients diagnosed with low back pain, Stratford et al. ⁶⁶⁵ found that patients with more severe initial pain required greater change in HRQoL to be deemed clinically important than those with less severe initial pain. Kolotkin et al. ⁶⁶⁶ report that HRQoL improvements are greater for individuals who have more severe HRQoL scores at baseline, a pattern observed in the current study.

Furthermore, the above discussion of baseline severity assumes that the requirement of greater change for the more severely impaired is entirely a clinical phenomenon. However, this requirement may be influenced in part by a statistical phenomenon: regression to the mean (RTM). RTM is an error based artefact describing the statistical tendency of extreme scores to become less extreme at follow-up ⁶⁶⁷. Thus, individuals with the greatest impairments in HRQoL at baseline have the greatest opportunity to change (improve) than individuals with less extreme scores. RTM has implications for establishing clinically meaningful change because individuals with extreme scores improve, on average, more than individuals with less extreme scores. Consequently, RTM suggests that individuals with extreme scores should require a greater change to be considered clinically meaningful than those with less extreme

scores. Failure to take RTM into account may lead to concluding erroneously that those with severe impairments have shown clinically meaningful improvement when much of that change can be attributed to RTM. Furthermore, RTM has a greater impact upon the data as the reliability of the measure (in this case SF-36) decreases

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The potential effect of RTM in the current study needs to be considered. In light of this, residual diagnostic tests were undertaken to determine the effect of outliers across the sample and the resultant changes in the results when these outliers were manipulated. This involved the removal of outliers from the data set. After this the analysis was undertaken again. However, the residual analysis showed that when significant outliers in relation to SF-36 across the two groups were removed there was no change in the results obtained when the linear mixed model was subsequently undertaken. This confirmed that RTM is not a major factor in the findings of this study.

This section has related the discussion with the main study outcome of HRQoL as measured by the PCS and MCS of the SF-36. The findings have been related to the findings of other related studies and the inclusion of variables into the linear mixed models used to explore the effect of the intervention on SF-36 scores have been discussed. The following section will discuss the results obtained in the Māori subsample using the Hua Oranga tool.

5.4.2 Hua Oranga

Among the Māori participants in the current study, both the SF-36 and a Māori specific quality of life scale (Hua Oranga) were utilised. The tool was administered to the participant, their whānau and the NASC involved in their care. The small numbers of Māori made any definitive conclusions difficult; however, there were significantly higher scores for participants in the intervention group.

The mean score when the three components (participant, whānau and NASC) were combined showed that the intervention group scored significantly higher when compared to the control group ($p=0.002$). This mirrors the patterns observed in the

component scores of the SF-36. This is of interest as the two-dimensional model of health that is the foundation for the SF-36 with physical and mental health seen as distinct and largely uncorrelated, rests on the assumption of mind-body dualism. As described previously, such an assumption may have widespread credence in the United States and Western Europe, but it cannot be assumed to dominate views of health in all populations. Scott et al.⁶⁶⁹ analysed the data from the 1996–97 New Zealand Health Survey where the SF-36 was administered to individuals 15 years of age and older. They found that for the Māori sample as a whole, the factor structure was similar to the two-dimensional model. However, the results in Māori were age-related. The two-factor model was supported in Māori under 45 years of age; this may reflect the fact that many younger Māori are urbanised, often with severed tribal ties and weakened cultural affinity, including language. In older Māori only one factor emerged, which argues for the explanation that, despite the construction of the questionnaire items to attempt to discriminate between physical and mental health, traditional Māori views of health that do not differentiate physical and mental health have dominated the interpretation of responses.

Similar trends in conceptual models of health are also observed in older Pacific People. In a commissioned review of outcome measures for Pacific People within New Zealand, Niumata-Fiulafa & Lui⁶⁷⁰ suggest that with expert Māori advice the application of Hua Oranga among Pacific People would be appropriate. This suggests that the provision of the tool to the participants who identified as Pacific may have been appropriate in the current study; however, this was not undertaken as the use of Hua Oranga in this population has not been explored to date.

5.4.3 Summary

This section has described the impact of the different levels of the model on quality of life for older people receiving HBSS. The significant effect of age, living arrangement and the level of strategic coping on the two component scales of SF-36 (PCS and MCS) were discussed. The impact of increasing physical activity on an older persons HRQoL was explored in relation to the study findings. Furthermore there was a discussion of the effect on HRQoL of services aligned to the principles inherent in the intervention group where physical activity is enhanced and also closer

care management of the client is provided. In addition the number of hours of support provided rather than the content of the services was also discussed as this was shown to impact on the participants MCS. The important concept of regression to the mean was explored and the methods utilised to determine the effect of outliers in the study were described. Residual analysis showed that RTM did not have a major effect on the study findings. Finally the significant findings relating to HRQoL among the Māori sample using Hua Oranga and the associations between the two HRQoL tools used in the study were presented and explained. The following section will discuss the findings relating to changes in physical function among the participants.

5.5 Physical function

In the current study, the linear mixed model of analysis constructed to determine the effect of the intervention on physical activity over time included the following as fixed effects: ethnicity, perceived relationship between NASC and HBSS, emotional support seeking scale (a component of the Proactive Coping Inventory) and the number of hours of home based support allocated by NASC. There were significant differences in the change over time for the overall SPPB score between the two groups ($p=0.003$) and in the gait speed component of the SPPB ($p=0.002$). In addition there was a significant difference between the two groups in relation to the balance component ($p=0.03$). There was no difference between the two groups in the chair stand test component ($p=0.25$). This section will describe the evidence arising from similar studies of functional ability among older people to provide a context for the interpretation of the findings.

The improvements observed in SPPB scores are of vital importance. Tinetti & Ginter ⁶⁷¹ highlighted that assessment of an older person's physical mobility is essential. Of particular importance is the level of mobility inside and outside the home environment. A decline in functional mobility is associated with loss of independence for home-based older people ⁶⁷² and is a predictor of residential care admission and mortality ⁶⁷³⁻⁶⁷⁵. For these reasons, when evaluating a restorative care service in the New Zealand context, determining the impact on older people's functional mobility is clearly important. Analysis of the literature supports the notion

that mobility outside the home is essential for basic daily and independent living^{140, 141}. Once more this is relevant in the current study as the services provided to the intervention group showed a far greater proportion of activities that concentrated on assisting the participant to improve their mobility outside of the home.

To determine the generalisability of the findings of the current study it is important to compare the functional ability of the participants to those in other studies which utilised the SPPB. The baseline scores for SPPB were 6.48 (control group) and 6.00 (intervention group). Over time these scores changed to 6.14 and 6.68 respectively. Support for the poor functional ability of the sample in the current study is provided by Miller et al.⁶⁷⁶ who found a mean value of 7.65 among 998 older Americans. This would appear to suggest that the participants in the current study were considerably functionally less able as the mean SPPB score for the intervention group, after a significant improvement, still only reached 6.68. Sayers et al.⁶⁷⁷ in a study to validate a new functional assessment analysed scores obtained on SPPB as a gold standard measure. They reported that older people classified as being limited in their mobility scored 5.5 (SD 0.4) whereas those who were not functionally limited scored 9.1 (SD 0.3). Once more this shows the poor functional ability of the sample used in the current study in comparison to similar studies.

5.5.1 Variables included in the linear mixed model

As stated above the participants' ethnicity had a significant effect on the change in SPPB scores over time. Previous research has indicated definite ethnic differences in muscle strength and physical fitness⁶⁷⁸⁻⁶⁸¹ and so the inclusion of ethnicity in the linear mixed model is supported by the available evidence. However, the evidence concerning physical activity levels is less conclusive. Ross & Hamlin⁶⁸² reviewed New Zealand national surveys undertaken since 1997 reporting physical activity prevalence of New Zealanders of different ethnicities. They concluded that despite health disparities, Māori are at least as active as European New Zealanders. This was contrary to the available evidence from other studies which showed that in other countries, indigenous people had lower levels of physical activity. They concluded that the reasons for this lack of disparity in physical activity prevalence between

Māori and European New Zealanders could be due to environmental influences, including those in the socio-cultural and policy environment.

The higher proportion of non-European participants who lived with family / whānau in the current study would suggest that there would be lower levels of incidental physical activity in this group in relation to a group of European participants who lived alone and so would have higher levels of incidental physical activity^{83, 683, 684}

The impact of the perceived relationship between NASC and HBSS coordinators on the physical function of the participants is also important to consider. The possible reasons for this may relate to the inherent flexibility of the service delivery that appears to be present in the services delivered to participants in the intervention group. This appears to be mainly due to the more regular and higher quality communication between NASC and HBSS. This would result in more flexible interventions which would optimise the participant's functional ability. This view is supported by evidence to show that individualised programmes of physical activity are more effective in improving function and other related outcomes in older people⁶⁸⁵⁻⁶⁸⁸. In addition the significant relationship ($p < 0.05$) between the participant being discharged from HBSS six months after services commenced and SPPB score provides further support.

The highly statistically significant change in SPPB scores in the intervention group when compared to the control group appears to have been driven by the observed significant change in gait speed among this group. Once more the increased use of individualised activities as a core component of the HBSS services delivered to the intervention group would have impacted on this. In addition the correlation between a participant goal of shopping independently and improvements in SPPB among the intervention group support the positive effect of services that aim to that improve physical activity. One RCT revealed functional exercises, such as those used in such an individualised programme, in combination with strength training improved lower extremity physical function compared with strength training alone⁶⁸⁹. A similar RCT found functional task exercises significantly improved ADL performance when compared with resistance training in older women⁶⁹⁰. While a trial of functional

exercises involving pre- and post- testing determined physical function, mobility and balance improvements with older people participants ⁶⁹¹. HBSS for older people which incorporate restorative care have also demonstrated improved functional mobility including ADL, self care and mobility ^{350, 635}. Moreover, a RCT incorporating a high intensity functional exercise programme demonstrated physical function gains although all older people participants were dependent in ADL ⁶⁹².

This section has provided evidence to support the observed changes in physical function in the current study. The effect of the increased level of individualised activities among the intervention group on physical function has been discussed. In addition the low functional ability of the sample in comparison to other studies has been described. The final section of Section I will discuss the findings relating to social support, as determined by the Dukes Social Support Index (DSSI).

5.6 Social support

There was no difference observed in DSSI scores over time between the control and intervention groups ($p=0.09$). The absence of a statistically significant difference in the levels of change across the two groups is surprising given the findings in relation to SF-36 and physical function. The linear mixed model of analysis used to determine the effect of the intervention on social support included HBSS provider and the avoidance coping scale (a component of the Proactive Coping Inventory) as fixed effect factors. In addition, DSSI scores showed a significant correlation with the observed change in SF-36 component scores, caregiver reaction assessment and the gait speed component of the SPPB. It is important to relate these findings to the available evidence to determine the wider implications of the study.

5.6.1 Quality of life, physical function and social support

Older people living at home have identified social support as a valued component of quality of life ^{693, 694}. This is seen clearly in the current study where higher ratings of HRQoL are correlated with a participants increased perception of their social support. This is substantiated by a recent study by Gallicchio, Hoffman & Helzlsouer ⁶⁹⁵ that investigated factors associated with HRQoL; declaring social support an

important correlate of HRQoL. Further research has demonstrated a significant relationship between higher social support and improved physical and mental health ^{560, 696}.

The observed relationship between higher levels of physical function and social support in the current study is also supported by the literature. Seeman et al. ⁶⁹⁷ examined high functioning older people and found a significant association between improved physical performance and greater emotional support from social networks. This supports the relationship observed in the current study between improvements in physical function and the emotional support seeking scale. This 5-item scale is aimed at regulating temporary emotional distress by disclosing to others feelings, evoking empathy and seeking companionship from one's social network. Furthermore functional dependence has been shown to impede opportunities for social contact and participation in activities ^{698, 699}. This is supported by results from a study of older people with hip fractures that revealed an association between increased functional dependence and reduced social support ⁷⁰⁰.

With the improvement over time in the intervention group for both HRQoL and physical function and the significant relationship existing between these measures it is important to describe potential reasons for the lack of change in DSSI scores observed over time. As described in Section 5.5 the level of physical function in the sample tested was at a very low level. It may be that to re-establish social networks and social support may require higher levels of physical function than those observed in this study. This may be related to the concepts of safety while mobilising outside, for which a functional threshold has been demonstrated. One area of safety that could have been impacted relates to falls risk and fear of falling (FOF). Velozo et al. ⁷⁰¹ states that FOF is prevalent in between one third and one half of community dwelling older people and Howland et al. ⁷⁰² suggests that among these a third are limiting their activities because of this. Murphy et al. ⁷⁰³ supports this view stating that FOF can reduce social interaction leading to inactivity and subsequent decline in physical capabilities. In the current study it is not possible to conclusively state that FOF impacted on mobility outside of the home with an accompanying limitation on social support. However, Deshpande et al. ⁷⁰⁴ explored the relationship between

physical function (measured by SPPB) and FOF and showed that activity restriction that is exclusively associated with FOF is an independent risk factor for decline in physical function over time.

A second reason for the absence of a significant change in DSSI over time may be related to a reduced capacity for community ambulation. Community ambulation has been broadly defined as locomotion outdoors to encompass activities such as visits to the supermarket, shopping mall, and bank; social outings; vacations; and pursuit of leisure activities⁷⁰⁵⁻⁷⁰⁷. This may include, not only walking outside but also use of public transport and use of stairs and ramps. Once more the reported threshold to independently function in the community is important. Schmid et al.⁷⁰⁸ suggest that walking speed can be stratified into clinically meaningful functional ambulation classes, such as household ambulation (< 0.4 metres per second [m/s]), limited community ambulation (0.4 to 0.8 m/s), and full community ambulation (> 0.8 m/s). The mean walking speed observed at follow up assessment in the current study across both groups (0.49 m/s) would suggest only limited community ambulation ability. However, it is important to appreciate that walking speed is only a small component of community ambulation and that for an older person to mobilise in the community requires the ability to walk, perform concurrent cognitive and motor tasks, maintain a trajectory and negotiate unpredictable terrain⁷⁰⁹.

5.6.2 Variables included in the linear mixed model

As described above a significant relationship was observed between higher levels of the avoidance coping scale (ACS) and higher scores on the Dukes Social Support Index (DSSI). The ACS is a three item scale that measures avoidance coping whereby a person eludes action in a demanding situation by delaying action. This is entirely congruent with the hypothesis outlined above whereby the participants may have delayed becoming more socially active due to low levels of functional ability.

The living arrangement of the participant was shown to have no significant relationship with the degree of change in DSSI over time. There is considerable evidence which suggests that participants who lived with others (spouse, family or friends) would perceive greater levels of social support. For example the first wave of

the English Longitudinal Study of Ageing ⁷¹⁰ identified living alone as a significant risk factor associated with social isolation and low levels of social support in later life. However, a non-peer reviewed New Zealand evaluation of interventions to optimise social integration reported that most of the socially isolated live alone, but that living alone is not a predictor for social isolation and low levels of social support ⁷¹¹.

Evidence shows that social networks are important for improved health outcomes in older people living at home ^{712, 713} and that there are different network types amongst older people living in the community. The current study did not explore the composition of these networks among the participants however, they would have had a significant effect on the level of social support that they received. There are wide varieties in the size, relationships, gender and age compositions among the different types of networks. For instance, older people embedded in diverse friendship networks were found to have higher morale than older people in other types of support networks ⁷¹⁴. On the other hand, networks based largely on friends offered the greatest degree of social support to older people while the family-based type offered the least ⁷¹⁵. Regarding health service utilisation, older people in diverse networks, or friend and neighbour network types, made greater-than-average use of health services. By contrast, narrow family-focused networks made the least use of health services ⁷¹⁶.

Among the intervention group an improvement in DSSI score was correlated with discharge by the time of the six month study assessment. Once again, this is a significantly positive sign of the impact of the programme. Once the participants had regained some level of social participation, discharge from HBSS shows a service that is aligned with the older person's goals of social reintegration. However, this concept may not supported by the study findings among the intervention group where the type of goal set by participants showed no significant correlation with a change in DSSI score.

5.7 Summary

This section has related the findings relating to the clinical outcomes of social support and participation, HRQoL and physical function to the available evidence found in the literature.

5.7.1 Health Related Quality of Life

The discussion related to the SF-36 and Hua Oranga scores obtained across the two study groups and the impact of the different factors of the model of analysis will continue to be extended through the remaining sections. However, it is necessary to summarise the main points to date. The first of these is that the effect observed in many studies of increasing age having a detrimental effect on HRQoL was not substantiated in the current study for although age was a significant variable in the mixed model described in Section 5.4.1 closer examination showed that both MCS and PCS scores did not vary with increasing age. The second point of interest is that participants who lived alone rather than with family appeared to have both higher PCS and SPPB scores. This is important for future planning of home based support services and the implications of this will be developed further in Section 7.3.1.

In addition the importance of the functional activities and the crucial nature of the NASC-HBSS relationship in effecting changes in the physical component of the SF-36 were highlighted. Furthermore the links between a more trusting relationship and increased flexibility in service provision and the resultant ability of the HBSS provider to integrate functional tasks and individualised activities within a client's home based support was described.

5.7.2 Physical function and social support

In relation to the changes observed in physical function over time in the current study and the factors that influenced this it is important to note that the functional ability of the participant at baseline appeared to have a major impact on the success of the intervention; if the participant had high levels of disability and a concomitantly low level of function then six months of home based support did not have enough impact to enable them to regain a clinically meaningful level of functional ability.

This was particularly relevant when the issue of community ambulation and the level of function necessary to mobilise safely within the community was considered. This was explored further in relation to the level of functional change observed over time in the intervention group not being large enough to show an associated change in social support.

Section II will explore the client interaction level influences on the study outcomes. These include the interpersonal factors, the service factors and the factors related to the individual participants and are shown in Figure 5.2.

Section II - Client interaction sphere

5.8 Introduction

Section I interpreted the findings relating to the clinical outcomes. The significant changes over time observed in relation to HRQoL and physical function and the absence of an associated significant change in social support were placed within the context of contemporary literature. In this section it is important to interpret the impact of the client interaction sphere of the model on the clinical outcomes.

As stated previously the relationship between the NASC and HBSS coordinators and the anticipated change in the services provided to the participants in the intervention group were seen as core components of a restorative model of HBSS. This section will begin with a critical discussion of the findings from the current study related to these two factors. The findings relating to the level of trust and the themes arising from interviews of both groups will be related to the available evidence examining similar boundary role positions and their impact on the quality of service delivery. Following this the service delivery factors concerning the observed differences in the content and quantity of the services delivered to the two study groups will be discussed. The analysis of the service factors will then continue with an elaboration of the interaction with allied health. Subsequently the differences across the two study groups in relation to the process of review and discharge will be interpreted and their effect on the clinical outcomes presented.

Section II will conclude with an elucidation of the client factors and their potential impact on the change observed in clinical outcomes. The evidence generated concerning the level of proactive coping among the participants and the effect of this on HRQoL, physical function and social support will be integrated with the available literature. Furthermore the effect of the relationship existing between the client and the NASC and HBSS on the clinical outcomes will be interpreted.

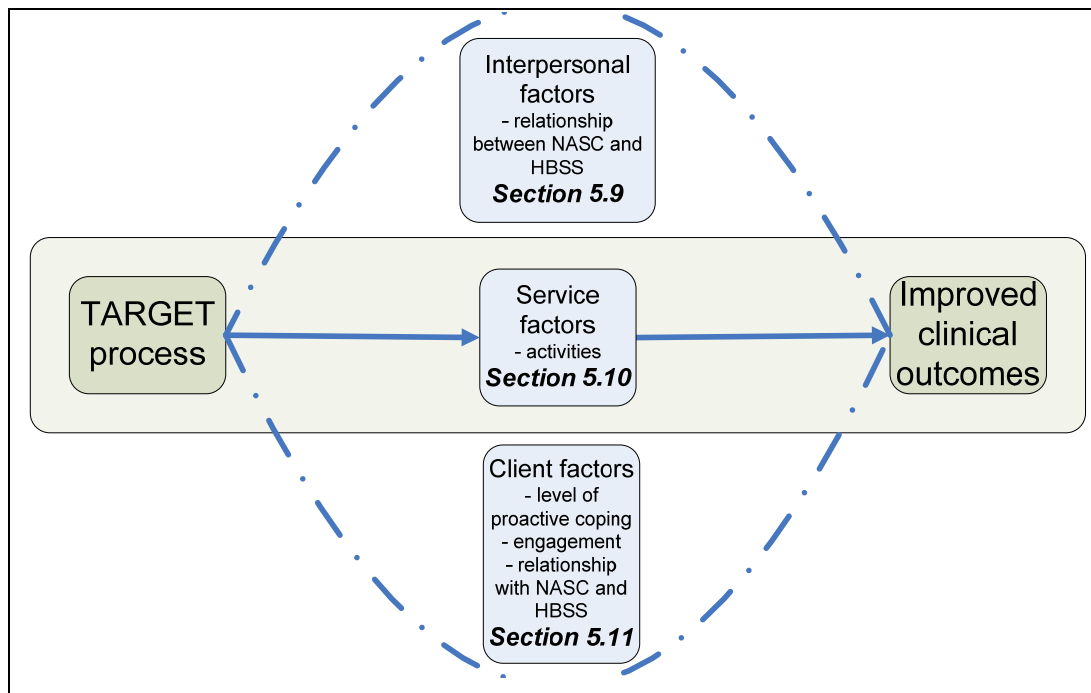


Figure 5-1: The client interaction component of a model utilised to examine the effect of the TARGET tool on clinical outcomes

5.9 Interpersonal factors

The findings of the current study highlight the effect on the implementation of a goal directed person centred model of HBSS of the interpersonal relationship between NASC and HBSS coordinators. Specifically, the degree of trust existing between these two parties was shown to be a significant fixed effect in the model of analysis of physical performance as measured by SPPB and the physical component score of the SF-36. However, the trust measures did not appear to have a significant effect on the total SF-36 score, the mental component score of the SF36 or DSSI. Furthermore it is apparent that the use of TARGET had a beneficial effect on this relationship. It is important to consider this interaction in order to inform future

developments in the home based support sector, both in New Zealand and internationally.

A further theme evident on analysis of the study findings and supported by the available evidence concerns the increased collaboration observed across the NASC-HBSS organisations. Allison and Ewens⁴⁶⁶ studied the collaboration necessary for inter-organisational relationships in healthcare to effect an optimal level of change for clients. They identified that the crucial need for collaboration and cooperative working relationships is underpinned by the (negative) experiences of clients trying to negotiate a complex and confusing system. This is a theme that was apparent across the interviews conducted with participants in the current study where there were often feelings of dissatisfaction with the service delivery. This is further supported by the findings of New Zealand studies described in the literature review concerning the experiences of users of HBSS^{60, 350-352}.

Within the current study the codes arising from analysis of the interviews conducted with both NASC and HBSS coordinators show the need identified by both parties to work together as advocates for the client. According to Helling, many service system reforms to encourage greater collaboration and service system improvement require individuals and organisations to engage in a learning process, and which in turn is reliant on “respect, trust and openness (to) enable learning to take place”⁷¹⁷. This is closely related to the concept of trust. In the current study this was determined by the NASC rating their response for each participant to the question: “how would you rate the interaction between yourself and the HBSS provider in relation to this client?”. In addition the interviews with NASC and HBSS coordinators generated a strong theme of a need for improvements in this crucial area.

5.9.1 Trust

The current study explored the concept of trust between NASC and HBSS through the use of interviews and questionnaires. For each participant the NASC rated their interaction with the HBSS coordinator in relation to the questions: “I felt confident about asking the HBSS provider to fulfil the tasks I outlined” and “I will keep surveillance over the HBSS provider after asking them to do something”. The

findings show the potential variability in the relationship existing between organisational partners and the impact that variability can have on the outcomes for clients shared across these organisations. When comparing the mean scores for each of the providers in relation to the intervention and control group interactions there were significantly higher ratings of the level of trust for providers B and E. The themes generated from interviews of the HBSS coordinators and the NASC in the intervention group show that this improved level of trust is due in part to the increased exposure of the two groups through the training they attended together. This is supported by the absence of any change in the relationship between the control group NASC and HBSS as the control group NASC did not attend training as part of the study.

5.9.2 Changing roles

The importance of the level of trust inherent in the relationships existing between NASC and HBSS coordinators in the current study is supported in the literature examining models of case management. Case management is a further key component utilised in services aligned to a restorative model of support and has often been adopted as a means to reduce, or constrain, health care service use and costs for a given enrolled population⁷¹⁸⁻⁷²¹. It is important, however, to recognise that there are different models of case management reported in the literature, with differing dynamics, designed to achieve different goals. The models that appear to be embedded within the NASC in the current study is the gatekeeper model identified by Capitman et al.⁷²². This model emphasises cost effectiveness of service provision and is the model adopted by NASC when the organisations were formed in 1992⁷²³. It is apparent that this remains the model to which many of the NASC in the control group continue to work to. Indeed some control group NASC even described their role as that of a gatekeeper, with a role of limiting expenditure and monitoring HBSS to ensure that the level of service input matched with the level invoiced to the DHB. Such a role is reported both within New Zealand³⁶⁹ and internationally^{18, 724}.

Alternatively, Capitman et al. also identified the client advocacy model that emphasises the coordination of services on the continuum of care from the client perspective. As suggested by this well-recognised term, the client advocacy model

suggests that the client's financial, psychological, and social circumstances are recognised as legitimate arguments in the decision-making process. This model is more closely aligned to the model proposed for the NASC in the intervention group. Within these different case management models are different underlying dynamics between the funder (NASC) and the provider (HBSS). For example, the dynamics inherent in the client advocacy model are quite different from that of the gatekeeper model. Patmore³⁹⁴ describes the role of the funding agency in implementing a Reablement model, stating that they have a "pervasive, far reaching influence on independent agencies ability to provide flexible, person centred homecare". A number of HBSS coordinators reported that they perceived a definite power imbalance in the relationship between themselves and some of the NASC. This appeared to be unresponsive to the effect of the shared training that had an impact on other aspects of the dyadic relationship. In addition the improved levels of trust inherent in a client advocacy model allows for the development of more flexible services. This is imperative if more responsive HBSS services are to be implemented. The degree to which this flexibility occurred in the current study is difficult to ascertain. However, this could explain the relationship observed between high levels of trust and improvements in physical function and this view is supported by Patmore³⁶⁵, who describes a study exploring factors related to the implementation of person centred HBSS in UK. He reports that at two NASC agencies with customer-centred staff, there was a climate of trust between NASC and the contracted HBSS providers which enhanced these providers' flexibility. In the current study the providers were also those who were rated highest on the trust measures by NASC (A, B and E) delivered services that were more individualised (as shown in Table 4.19 on page 186). As described previously it is suggested that these individualised activities were the main driver for the changes in physical function observed among the intervention group participants.

The interviews with both control NASC and HBSS coordinators also generated some negative views of their roles in both the current traditional service model and in the new restorative model. In the control group NASC this was ascribed to the routine and process driven aspects of the role and also to the low levels of trust in their relationship with the HBSS coordinators. However, the HBSS coordinators also

expressed concerns about the new model and how their role had been impacted by this. Predominantly this related to a perception that the role would become busier and more stressful. This concerned the need to review clients every three months and that their roles had become far more involved in managing the support workers. This incorporated supervision of the tasks undertaken by the support workers which were often far more individualised than in a more traditional model. It was perceived that both of these factors would impact on the workload of the coordinator. However, the impact from the small number of HBSS clients enrolled in the study would have been minimal in terms of the reviews and the added complexity of the support worker tasks. This may not be the case if all the clients of an HBSS organisation were to be provided with services aligned to a restorative model.

The boundaries of the HBSS and NASC roles were also significant themes evident from analysis of the interviews. Often HBSS coordinators and NASC staff with relationships of the greatest length appeared to have the poorest understanding of each others roles. This was apparent when a coordinator for provider B (with more than 15 years of experience) remarked that NASC 7 (with 12 years of experience) complained that NASC 7 expected far more of them in terms of reviewing of complex clients than other NASC. Conversely the same dyadic relationship also led to the coordinator remarking that the NASC did not seem to trust them as much as other NASC. Unfortunately NASC 7 did not refer any participants to HBSS provider B and so this level of trust was not measured quantitatively.

5.9.3 Shared training

The findings of the current study and those of the published studies described above provide further support for the view that for increased trust to develop between NASC and HBSS coordinators, it was imperative that this occur through face to face interactions with a shared purpose. Nearly thirty years ago Trist⁷²⁵ suggested that the crucial relationship inherent in inter-organisational interactions is established through communication over ‘social ground rather than between institutionalised figures’ (p280).

Multidisciplinary (and multi-agency) models of training are often offered as appropriate responses to meeting many of the training needs of assessment and care planning staff ^{726, 727}. Skills in advocacy and facilitating client/family (and broader community) participation in decision-making may also need further development for practitioners working in a (new) community care environment, as, according to Baum, most health professionals have not been trained in participation methods ⁷²⁸. Support for this is provided by Nadash et al. ³⁷¹, who examined the factors that influence successful implementation of a restorative model of HBSS in US and found that cross-training promoted shared understanding among staff. In the current study it was anticipated that such a shift would occur through the training provided to both the intervention group NASC and the HBSS coordinators. Furthermore Parsall et al. ⁷²⁹ stated that such an approach to shared learning can help to “change attitudes, improve relationships, increase trust and dispel some of the stereotyped views different professionals may hold about each other”. The themes evident from analysis of the interviews undertaken with NASC and HBSS coordinators support this.

This section has placed the study findings relating to the interpersonal relationship between NASC and HBSS coordinators within the context of the available evidence. The imperative need to maximise the level of trust in this dyadic relationship in order to produce significantly improved outcomes for clients has been further explored. Furthermore the success of the shared training that occurred in improving the levels of trust has been discussed. Section 5.10 will explore further the interaction between TARGET tool and the factors relating to the services provided to the participants in order to determine the relative effect of these factors on the changes in clinical outcomes observed in the study.

5.10 Service factors

This section will begin by relating the goals set by individual participants to the available evidence. This will allow for the effects of such activities on the study outcomes to be explored. Following this the number of hours of HBSS allocated will be discussed with an emphasis on the content of the services delivered. The relative input of allied health professionals into the design and delivery of the HBSS services

will then be described. Finally the factors related to discharge and review of participants will be examined.

5.10.1 Participant Goals

There is a growing recognition of the importance of providing older people with opportunities to make meaningful choices in the planning, management, and supervision of their community long-term-care services⁷³⁰⁻⁷³². It has been suggested that one way to increase an older person's opportunities to make meaningful choices about their service use and/or the direction of their own care is to incorporate elements from consumer directed care models that have proved successful with younger disabled adults⁷³³. However, there was a marked difference between the participants randomised to the two study groups in relation to this concept. The majority of participants in the intervention group were able to identify the goal they set with the NASC and many actively pursued this through the assistance of the HBSS services. However, the control group participants were not able to identify goals as bearing any relation to the services implemented. Conversely, some of the intervention group participants did express an opinion that their goal was imposed on them. Furthermore, a number of studies have shown that participation of the older person in the goal setting process is likely to enhance adherence to and achievement of the goal^{319, 332, 734-736}.

Within the current study there was considerable variation in the proportion of participants in the intervention group that did not identify a goal through the initial interaction with NASC. This ranged from 0% for participants assessed by NASC 2 through to 30% for participants assessed by NASC 7. There are two potential reasons for this difference.

Firstly, as previously described, there have been a number of studies linking proactive coping behaviours with goal formation and attainment. A second potential reason for the passive role that some older people have taken in goal direction in relation to health services is the presence of a cohort effect^{737, 738}. This effect has been described in numerous studies^{332, 334, 739, 740} and refers to the willingness of older people to engage in shared decision making with health professionals. However,

Ekdahl et al.³³¹ suggest that this reluctance is more often due to the level of disability rather than the age of the person.

However, the two hypotheses listed above, namely the degree of proactive coping and cohort effects, cannot explain such a variation across the participants. Additional factors, relating to socioeconomic status and culture could also have had an effect. A number of studies have demonstrated that the use of active, future-oriented strategies is positively associated with socioeconomic status⁷⁴¹⁻⁷⁴³ and ethnicity^{744, 745}. However, even these could not explain the variation across the groups. Closer examination of the types of goals set by participants assessed by each of the NASC also shows the presence of inter-related trends. Classification of goals using the WHO International Classification of Functioning system¹⁰⁸ shows that participants assigned to NASC 7 only identified goals relating to looking after ones health, transportation, shopping or housework. Conversely, participants assigned to other NASC showed a far more diverse taxonomy of goals involving recreation and leisure activities and the maintenance of interpersonal relationships.

Similar examinations of goal directed HBSS services within New Zealand^{58, 59} explored the taxonomy of goals set by clients of NASC in five District Health Boards different to the one used in this study. The studies classified the goals according to the ICF classification and found that there was a strong trend across all five DHBs towards setting goals for mobility, self care, domestic life, community, support and relationships. The spread was minimal across all categories; it was proposed that this indicated that the level of specificity when setting goals was poor⁵⁹. The findings of these studies show comparable spread in the goals identified by NASC 7 in the current study.

In the current study an explanation for the low proportion of participants identifying a goal and the low levels of variation in goals identified is further explained by Peri & Kerse³⁰² who suggest that there is implicit evidence that traditional practices of goal setting continue to be carried out despite a move towards person centred care³²⁸. These traditional practices relate to the health professional identifying the goal for the episode of care with little or no congruence between this goal and the wishes and

desires of the older person or their family. To date the literature indicates that goal setting has typically been driven by health professionals and has rarely involved the participation of the older client.

A further important consideration for the current study relates to the relationship between the types of goals and the study outcomes. Examination of the correlation between the domains of the participant goals and the study outcomes shows that caring for others was positively correlated with an increase in SF-36 mental component scores and the SF-36 total score at $p=0.05$ level. This effect is supported by a number of studies looking at Health Related Quality of Life in informal carers^{746, 747}. The effect of empowering this sub-group of participants to actively look at strategies to use HBSS to assist with managing the support for the recipient of the participants care had some effect in optimising their quality of life.

In addition improving the participant's ability to complete shopping tasks was positively correlated with an improvement in physical function, as measured by the SPPB. It is important to note that other domains related to physical activity, such as increasing mobility and gardening did not show any correlation to physical function. This may be related to the level of physical activity required to complete shopping tasks and the social aspect of undertaking activities related to shopping. The contemporary evidence suggests that the majority of older people spend much of the day at very low levels of physical activity and that vigorous activities tend to be replaced by longer lasting, less demanding pursuits as people age^{132, 133}. So it may be that goals that require a greater degree of improvement to achieve may lead to greater changes in HRQoL.

This section has explored the effect of TARGET on goal identification among the participants and identified several key areas that inform future development of HBSS provision. The success of TARGET in identifying an older person's goal has been shown and the themes arising from interviews conducted with the participants suggest that these goals were viewed as highly appropriate by the majority of the interviewees. It was identified that the successful completion of the process was heavily reliant on the beliefs and values of the NASC staff. This was evidenced not

only by the variation in the spread of goal domains across the participants but also by the comments from interviews with NASC staff and the participants. Furthermore it was clearly shown that the type of goal was significantly correlated with the level of improvement observed in clinical outcomes.

The following section will explore the relationship between use of 'TARGET' and the content of the HBSS provision in terms of the number of hours provided and the tasks related to the services and their impact on HRQoL, physical function and social support.

5.10.2 Content of Home Based Support Services

Within the current study the integral nature of the relationship between NASC and HBSS is most apparent when considering how the outcome of the NASC assessment (including the goals identified by the intervention group) is operationalised by the HBSS coordinator in the form of the support plan. Analysis of these support plans show distinct trends in the type of support provided to participants across the control and intervention groups. These services were classified into: assistance with domestic chores, assistance with personal cares, assistance with shopping and individualised activities. This last classification described activities such as walking programmes, balance and strengthening exercises or a graduated increase in socialisation. All of these were identified as a means to attain the participant's goal. The services provided to participants randomised to the intervention group across all HBSS providers showed high levels of individualised activities. Conversely, other than HBSS provider E there were no individualised activities in the services provided to participants in the control group.

The first three of the service classifications listed above (domestic chores, personal cares and shopping) comprise the core activities reported in the literature in relation to traditional home care. Kay ⁷⁴⁸ described a classification of home care for "homebound or semi-homebound elderly" that ranged on a continuum from small six home care tasks. These are shown in Table 5.2.

Table 5-2 Common home care tasks and examples from current study

Task	Examples from current study
Housekeeping	Cooking, cleaning, laundry, shopping, home maintenance chores
Escort	Transportation, accompanying, standby assistance, helping with logistics of getting from place to place
Personal care	ADL assistance (bathing, dressing, toileting, transferring, feeding), assistance with walking
Information/referral	Information about resources, referrals, appointment making
Teaching/training	Money management, home management, disease management, diet and nutrition, caregiver instruction
Social therapeutic	Supportive companionship, individual and family counselling,

A report describing essential components of a restorative model of HBSS in New Zealand states that such an approach to individual tailoring at a service planning level for HBSS provider is essential and that clients have commented on the need to deliver support in a manner that works “with” clients rather than “doing for” clients³⁶⁹. Examples of this in the current study are for Participant 184 (control group) who was a recently widowed 76 year old man. He reported having deteriorated since his wife’s death and had stopped going out socially due to his low mood. He was assessed by NASC 2 and provided with two hours of support from Provider B. This involved a support worker undertaking all vacuuming tasks in the house and also in cleaning the shower and bathroom. His SF-36 MCS score deteriorated significantly over time. Conversely Participant 189, an 88 year old Māori woman (intervention group) who lived with her extended family was assessed by NASC 2 and identified a goal, “to walk to the dairy each day”. She received six hours of HBSS support each week from provider D. This consisted of exercises to improve her balance, strength and fitness, together with personal care assistance twice per week. The services were structured to increase her balance, fitness and confidence to enable her to attain her goal. The outcome at the follow-up assessment was that her SF-36 scores had improved significantly. The services provided to these two participants highlight the importance of the social support aspect of HBSS for older people and the need to

assist the client to develop other avenues for gaining this support. Support for this is provided by a study of packages of home-based care for four to six weeks in UK. This focused on a social care model rather than a medical model of Re-ablement with goals which enabled a client to build up social networks ³⁹⁵.

This concept of optimising independence rather than fostering dependence was explored more fully in Chapter Two. It is recognised that delivery of services in this manner requires specifically designed training for support workers and a range of multidisciplinary inputs into the service planning and delivery process ^{4, 22, 749}. This maximises the opportunity that the goal identified by the participant at the time of the NASC assessment and the plan developed by the HBSS coordinator to assist the participant to attain the goal will form the basis of the support workers intervention. Without this there is a danger of the services becoming focussed once more on a dependency model.

As described in Chapter Four, there were only a small proportion of the support workers at each of the HBSS providers who were trained to level two on the Careerforce framework. This training includes the provision of individualised services to clients. This may explain some of the variation in the levels of individualisation in the participants support plans. Studies report that support workers can play a key role in fostering independence once they learn that “doing for” a client, while efficient in the short term, results in lost confidence, physical deconditioning, and increasing dependence ⁴. However, where this level of training and support for such activities is not present support workers explained that they were neither trained nor authorised to orchestrate the gradual transition of activity that would increase the client’s participation in self-care ^{4, 356, 363, 393}. In the current study this is apparent in the relatively low proportion of individualised activities observed in a number of the support plans.

Furthermore a theme arising from the interviews with participants concerned the relationship with the support worker. This was seen as pivotal in the successful implementation of services. This theme was evident across both the control and intervention participants interviewed. The key aspects of the relationship appeared to

be the degree of trust that the participant had in the support worker and also the ability of the support worker to undertake tasks that they had not been asked to do by the HBSS coordinator. However, the need for support workers to operate outside of the activities determined by the HBSS coordinator and the NASC is an important issue when considering the findings of the current study and is related directly to the drive for improved quality and the need for control systems to be in place. However, in the unregulated and largely untrained workforce of support workers it is imperative that any activities outside the tasks determined by NASC and HBSS coordinators, (in collaboration with the client), be agreed on by all the parties. Without this feedback the opportunity for detrimental effects on the older person is considerable. These include, an increase in dependency rather than an optimisation of independence for the older person⁷⁵⁰ and an increased susceptibility to financial abuse⁷⁵¹. Patmore and McNulty suggest that a risk management strategy used by HBSS providers to minimise the effects of this is to prohibit or discourage such activities by support workers with a concomitant reduction in service flexibility³⁶³. It is anticipated that the impact of the intervention would have increased the flexibility of the service provision and so reduced the need for the support worker to operate outside of the prescribed tasks. This is evidenced by the increased number of tasks in the support plans of participants in the intervention group. However, with the small numbers of participants interviewed it is difficult to substantiate this fully.

Support for the importance of the individualised activities observed in the current study is provided by Tinetti et al. who described one of the core principles of successful implementation of a restorative model in US was the individualised nature of support provided by support workers aligned to the clients goals¹. A restorative model of HBSS implemented in Australia also showed similar trends in the types of services provided to clients.

The far greater number of individualised activities evident among the services provided to the participants in the intervention group may have positively impacted on the participants outcomes and such a pattern is supported by the other similar models described in the literature. However, the costs associated with this led to significantly higher costs for the services provided to the intervention group. This is

evidenced by the difference in the mean number of hours delivered to this group in comparison to the control group.

This section has shown how the use of TARGET had a definite effect on the support plans developed by HBSS following NASC assessment. The increased level of individualised activities in the plans for participants in the intervention group has been described and placed within the context of the published literature. It is important to note that this trend showed high levels of variation across the HBSS organisations and that it is assumed that the support plans describing individualised activities were processed appropriately by the support worker when delivering services to the participant.

Section 5.10.3 will explore the impact of allied health involvement in the current study in relation to any potential effect on study outcomes for participants.

5.10.3 Allied health input

Within the context of this study allied health refers to occupational therapy and physiotherapy, although the broader inclusion of dietetics, speech language therapy and social work is common within New Zealand. Analysis of the rate of referrals to allied health in relation to HBSS showed very low numbers across both the intervention and control groups. However, an audit of referrals by NASC to allied health across three other regions in New Zealand showed there were similar patterns of referrals for physiotherapy among two of the District Health Boards, but one region showed considerably higher rates of physiotherapy referrals⁵⁸ than those apparent in the current study. These are shown in Figure 5.3. In addition, across all the regions there was evidence of referrals to occupational therapy (OT) but these were absent in the current study.

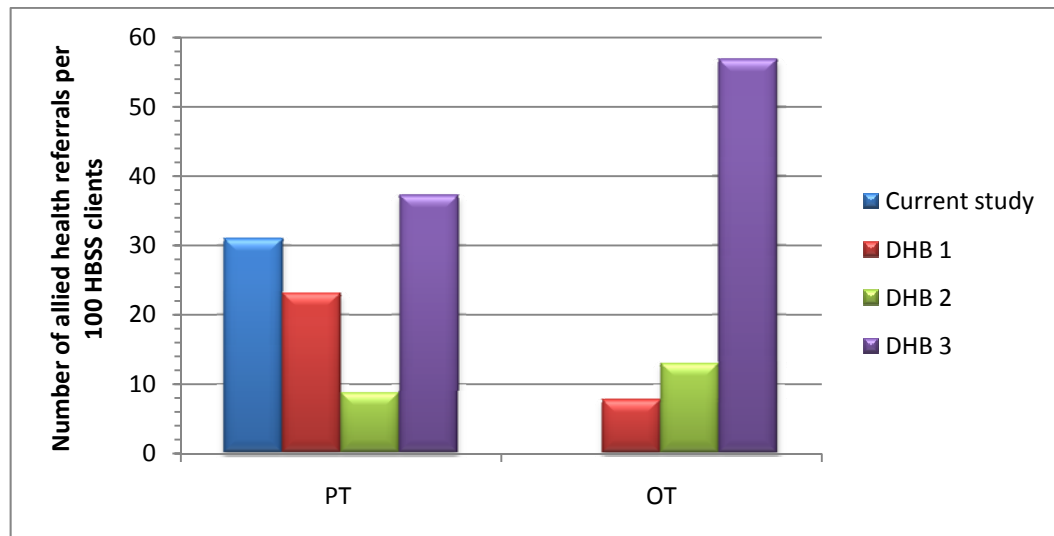


Figure 5-3: Referral rates from NASC for allied health input across four DHBs in New Zealand ⁽⁵²⁾

The potential effect of such low rates of utilisation of allied health is considerable. The current study did show a significant relationship between allied health referral and improvements in physical function over time ($t [72] = -2.12, p=0.04$). As described previously one of the core components of restorative support is the optimisation of physical activity and the integration of functionally based exercises into the provision of HBSS. Studies exploring the necessary factors related to a restorative model of HBSS suggest that allied health can teach and implement plans of treatment in cooperation with coordinators to allow individuals to maintain the maximum amount of independence that their physical condition allows ^{1, 4, 371, 387}. This was the perceived role for allied health in the current study and it was expected that this would be actioned through advice on optimising mobility, fitness and endurance, reducing falls risk and task modification as these are core skills for allied health working in the community. The findings of this study did not show any relationship between allied health referral and a change in social support over time. However, this could be related to the concept proposed previously in this chapter whereby the functional level of the participants was too low to show changes in this outcome. Conversely, this low level of function across the sample gives further credence to the need for a greater rate of referrals to allied health.

A further reason for the low level of allied health referrals concerns the perceived delay in accessing the services. A review of HBSS providers in the Auckland region reports that many HBSS providers had been experiencing delays in accessing allied health. A further study exploring HBSS utilisation of allied health reported that there were between 17 and 55 day waiting lists for physiotherapy input and 23 to 39 day waiting lists for OT input for HBSS clients^{58,59}.

The current study showed an increased rate of individualised activities as part of the HBSS services provided to participants in the intervention group. It is reasonable to suggest that this would have been reflected in an increased rate of utilisation of allied health. However, although there was ten times the rate of allied health referrals when the two groups are compared, the proportion of those referred to allied health was only nine percent.

Conversely, a survey of HBSS providers within New Zealand found that coordinators are involving allied health more in goal planning¹⁰. Eighty percent of NASC assessors said that they involved allied health in care planning and goal setting; 20 percent did not. The authors conceded that there was some ambiguity whether allied health 'involvement' includes a referral for equipment only or actual assistance with goal setting.

As can be seen there is a growing amount of evidence to show the importance of allied health involvement in the planning and implementation of restorative HBSS. However, the effect of the input of both physiotherapy and OT in the current study was negligible due to the small numbers of referrals made. The reasons for this could be due to the perceived effects of the poor responsiveness of the services or the apparent discrepancy in the models of service delivery between HBSS staff and allied health professionals reported in a number of studies.

The effect on an older person who has optimised their functional ability through the provision of a restorative model of home based support and then had their services reduced or been discharged as opposed to a person with a similar level of disability who is the recipient of a traditional model of service provision is uncertain. A survey

of HBSS provision across five regions in New Zealand showed that many older people received services at a low level for many years without any review of their needs^{58, 59}. This relates to the rate of reviews and discharges considered in Section 5.10.4. The final section exploring the impact of service factors on clinical outcomes will discuss the findings relating to reviews and discharges of participants.

5.10.4 Reviews and discharges

Data collection and analysis of the current study included information regarding the number of reviews by HBSS coordinators for participants entered into the study. Within New Zealand the management expenditure for HBSS is an integral role of NASC⁷⁵². A way of managing the expenditure of HBSS delivery is through the regular review of clients by HBSS coordinators. Following this a recommendation is made to NASC regarding the ongoing needs of the client. At this point the client is either discharged from the service, have the level of services increased or have the services reduced. In addition the patterns of service provision over the course of the study were explored with an emphasis on the number of discharges from HBSS. The findings showed that only a small number of the reviews occurred over the course of the six month duration of the study. The compliance ranged from 11% for provider B to 100% for provider F. The only providers to recommend discharge following review were providers A and E. However, at the six month follow-up assessment by research staff the proportion of clients discharged was considerably higher. This was due to informal reviews undertaken by the HBSS coordinators without consultation with NASC. This activity was not recorded as part of this study but needs to be considered as it led to changes in the provision of services to those participants.

The process of regular three monthly reviews is an integral component of the restorative model implemented in this study, as shown in Table 2.1 on page 72. However, within a traditional model of HBSS the role of review is also seen to be of vital importance and is described in the service specifications for HBSS within New Zealand³⁴⁹. The difference is that in a traditional model the period between reviews is not specifically stated and so a traditional model often has a client having only an annual review of the services⁶⁰. This may explain the lack of reviews undertaken within the control group. The evidence for the benefits of care management for

older people has been discussed previously. The training provided to HBSS coordinators and intervention group NASC concentrated on the importance of the dual purpose for the three monthly reviews by coordinators.

The participants in the intervention group discharged from HBSS showed a significantly greater improvement in HRQoL (measured by the SF-36 scores, (t [100] =2.13, $p=0.04$) compared to those who continued with HBSS. Conversely, in the control group, no significant difference was observed in HRQoL between those discharged and those who continued to receive services (t [86] =0.97, $p=0.34$). This pattern in the intervention group is to be expected as those discharged from services should have improved in this important outcome to the point where services are no longer required. However, in terms of discharge the significant improvement observed in both intervention and control groups in terms of physical function in those discharged from HBSS (intervention group (t [100] =6.18, $p=0.0001$), control group (t [86] =3.02, $p=0.003$) is perhaps of more importance. This would suggest that the participants discharged from HBSS are being appropriately targeted. However, as already stated the participants attained gait speeds that indicated limited community ambulation (as described in Section 5.6.2 page 237).

A risk of reducing the quantity of services provided to older people is that following the withdrawal of services there is an increased risk to the older person of their level of functional impairment increasing once more. This is a definite risk in the current study where there have been demonstrable improvements in HRQoL and physical function in the intervention group and consequently a reduction in the level of services provided to this group. A study exploring the outcomes for older people and the sustainability of the improvements resulting from a restorative model of HBSS was undertaken in UK ⁷⁵³. This study determined the length of benefit of Homecare Re-ablement across four regions. The results showed that between 53 and 94% of clients who were discharged from the services, 36 to 87% of clients still needed no HBSS two years after the delivery of a restorative model of home support.

A study exploring the effects of Re-ablement programmes in UK determined the level of appropriate reductions in the number of hours of support delivered to 1,836

clients⁷⁵⁴. Within the region studied there was a 28% reduction in hours at review when compared to a control group of clients receiving standard HBSS. In addition 58% of the clients were discharged at this first review. Similar levels of maintenance of the level of input were seen across the two groups. The results of this study in terms of service allocation at review are summarised in Table 5.3 together with the results from the current study. As can be seen there were far fewer discharges and a smaller proportion of clients who had their services reduced at review in the current study. This was predominantly due to the small number of reviews undertaken by HBSS; however, the effect of differences in the functional level of the participants from the two studies would have had an effect. Unfortunately the authors of the Re-ablement study did not describe the functional ability of the sample included in their study.

Table 5-3: Results of review of hours of HBSS after initial implementation of Re-ablement model⁷⁵⁵ in comparison to current study

Care package required following initial review	Re-ablement study		Current study	
	Matched clients (control group)	Re-ablement clients	Control group	Intervention group
Discontinued	5%	58%	5%	15%
Decreased	13%	17%	10%	20%
Maintained	71%	17%	75%	55%
Increased	11%	8%	10%	10%

The number of participants admitted to aged residential care (rest home and private hospital) over the course of the study were too small to provide the opportunity to make any conclusive statements regarding the effect of the intervention on the risk of admission to aged residential care. However, the ASPIRE study (described on page 64) explored the effect of community based initiatives on the rates of admission to aged residential care³⁵⁰. The researchers conducted randomised control trials of a sample of clients using the three ageing-in-place initiatives, compared to the usual care resulting from NASC assessment. There were 569 participants in the trial. All three services reduced the risk of entry to residential care in comparison with usual

care. The COSE programme reduced the risk by 43 percent, Community FIRST by 33 percent and PIP by 16 percent.

This section has placed the findings of this study, regarding reviews and discharges from HBSS, within the context of the international literature. The small number of reviews undertaken was compared to the considerably larger proportion reported during the implementation of Re-ablement programmes in UK. The issue of appropriate reviews for recipients of HBSS and the integration of the concept within a restorative model is important to consider when planning ongoing development of support services for older people in the home. In the next section the client factors reported in this study will be elaborated on. These include: the level of proactive coping among the participants; the relationship existing between the participant and the HBSS coordinator and NASC; and the information obtained through the interviews of a sub-sample of participants.

5.11 Client factors

This section considers the effect of the level of proactive coping among the participants on the observed changes over time in the clinical outcomes. This will be discussed within the available evidence linking proactive coping to the concept of successful ageing. Following this impact of the relationship between the participants and the NASC / HBSS providers will be discussed. In addition the experiences of the participants in relation to home based support will be explored with reference to other studies that have reported older people's perception of home care.

5.11.1 Successful ageing and proactive coping

Within the current study the participants had all experienced a recent change in functional ability that had necessitated a referral to NASC. The effect of the strategies utilised by the participants in coping with this decrease in functional ability in relation to the selective optimisation compensation (SOC) model of ageing may have impacted on the relative success of the intervention.

5.11.2 Association between the Proactive Coping Inventory and other study variables

The current study showed no difference in the Proactive Coping Inventory (PCI) at baseline between the two groups and the scores obtained were similar to other studies undertaken among older populations in Canada and US^{243, 253, 756}. Fiksenbaum et al. showed in a study that scores on the proactive subscale⁴¹ correlated positively and significantly with scales assessing planning, goal setting, and positive reframing, thus enabling people to prepare and ward off stress before it occurs²⁵³. It could be expected from the work of Fiksenbaum et al. that a similar trend would be observed in the current study. If this was so then a correlation with the study outcomes would be seen; however, the scale was not correlated with any of the other variables. It is important to note that the scale was correlated ($p < 0.05$) in the current study with the involvement of allied health (occupational therapy and physiotherapy) in the planning and delivery of HBSS services to the participants.

Caregiver Reaction Assessment

Significant correlations were observed between the strategic planning scale (SPS) and the Caregiver Reaction Assessment (CRA) and the SF-36 scores. The SPS is a 4-item scale that focuses on the process of generating a goal-oriented schedule of action in which extensive tasks are broken down into manageable components. This is a core phase of the TARGET process described in Chapter Three, where the NASC undertakes, with the participant, a breakdown of the tasks required for attainment of the goal. If a high level of strategic planning was present among a participant in the intervention group then they may well have found the TARGET process congruent to their natural ability and so may have benefitted more from the intervention. Indeed the significant correlation that was observed between scores on the strategic planning scale and the successful identification of a goal following NASC assessment would appear to support this and the correlation with increases in HRQoL would appear to further substantiate this view.

41 This scale, consisting of 14 items, combines autonomous goal setting with self-regulatory goal attainment cognitions and behaviour.

Furthermore Kuijer et al.¹⁴⁵ suggest that coping with a chronic illness requires substantial effort and a great capacity to adjust to new and changing circumstances on the part of the ill person. They cite a number of studies that reported several demands or adaptive tasks that are common to a variety of chronic illnesses, for example, maintaining an emotional balance, maintaining social relationships, maintaining self-esteem and following medical prescriptions⁷⁵⁷⁻⁷⁵⁹, they concluded that these demands may be very difficult to meet for some clients, whereas they may be easier to attain for other clients. In many cases the ability of the person with chronic illness to ascertain the important aspects was important.

This could provide a rationale for the observed correlation between lower caregiver stress levels (measured by CRA) and higher scores on the SPS. An older person who is able to continue to prioritise important tasks and to implement actions to attain such tasks could lead to lower stress levels among informal carers. Fiksenbaum²⁴³ speculates that this could be due to two reasons: first, a proactive individual is more likely to recognise cues that there is an increased risk of functional disability with ageing, and takes steps to deal with it before it occurs. Second, a highly proactive older person is more likely to see himself/herself as efficacious and therefore initiate behaviour directed toward modifiable factors, such as nutrition and physical exercise. However, other elements of the proactive coping inventory would also have been expected to have shown correlations with carer stress, but in the current study no such relationships were shown to exist.

Physical function and social support

Contrary to expectations there was no relationship observed between the level of proactive coping and social support and physical function. According to previous research, there is an integral relationship between proactive coping and social support and physical function^{253, 756, 760}. Resources such as social support lead to the development of proactive coping²⁵⁴. These ideas parallel those of Hobfoll et al.⁷⁶¹, who discuss the dynamic relationship between coping and social support acquisition. This approach acknowledges the importance of resources in others that can be incorporated into the behavioural and cognitive coping repertoire of the individual. Resources from one's network, such as information, practical assistance, and

emotional support, can contribute positively to the construction of individual coping strategies⁷⁶². Once again it would be expected that the presence of an informal carer would impact on proactive coping levels among the participants of the current study, however, this relationship was not observed.

5.11.3 Relationships with NASC and HBSS and experience of services

The current study explored the quality of relationship that participants formed with the NASC and HBSS staff through two independent means. These were semi-structured interviews with a randomly determined sub sample of participants and the completion of the Home Care Satisfaction Measure (HCSM) by all participants. This section will discuss the findings of these in the light of contemporary evidence to allow an informed consideration of the impact of this relationship on the study outcomes. In addition the participants experience of the home based support services provided to them will be explored.

Home Based Support Service coordinator

The themes generated from the interviews with participants relating to their interaction the HBSS coordinator showed a high level of ambiguity. The majority of participants commented positively in relation to the coordinator but, as previously stated, saw the support worker as the key relationship. However, this was not consistent across provider organisations or between the study groups. The data provided by the participants' completion of HCSM would appear to support this view, as the mean values for the participants in the control group were significantly lower than those in the intervention group. This suggests that the role may have been clearer and there was a higher degree of satisfaction among this group of participants. A further explanation for the increased levels of satisfaction in the intervention group may have been the increased level of congruence between the participants perceived needs and the HBSS coordinators understanding of these needs. It is anticipated that this would have been facilitated by the application of the TARGET tool by NASC staff.

Furthermore the HCSM data across the providers varied considerably across the intervention group, whereas it showed consistent values across the control group. The mean HCSM scores for Providers A and B were significantly higher for participants in the intervention group. Whereas there was no difference between values obtained for participants in the intervention and control groups who received services from Providers D, E and F. As suggested above this would suggest that participants receiving services from A and B had greater control and so were receiving services more closely aligned to a restorative model. However, there is evidence to suggest that the pattern of increased levels of satisfaction among older people who are given more control over their service input may not be universal across the population of older people receiving HBSS.

Needs Assessment Service Coordinator

The themes arising from interviews with the participants relating to the NASC suggest that the role of NASC was ambiguous in relation to its perceived importance in the quality of the services delivered. Some of the participants interviewed stated that NASC was integral in successful delivery of services that met their needs, whereas others reported that they had no real relationship with NASC. Analysis of the HCSM scores across the NASC staff show that there was a significantly higher rating of satisfaction for participants in the intervention group in comparison to the control group.

A further reason for differences in the participants perceived satisfaction with both HBSS coordinators and NASC could be related to socioeconomic factors. Hollander reports that older people with higher incomes, higher levels of education and higher self-rated health were more likely to rate the system as excellent⁷⁶³. However, this non-peer reviewed study showed no correlation between HCSM scores and socioeconomic status.

The perceived interaction between NASC and HBSS was not a theme evident from the interviews conducted. However, a study of HBSS clients within New Zealand⁷⁶⁴ found that most HBSS clients participating in the focus groups thought that poor

communication among needs assessors, support workers and the providers was an underlying cause of problems with the service.

This section has explored the effect of the client factors component of the model on the study outcomes. The levels of proactive coping determined among the participants has been discussed and shown to be consistent with internationally published data. The links between participant scores on the Strategic Planning Scale and HRQoL and the absence of a relationship between proactive coping and functional ability and social support have been described. Of particular note is the significant relationship between high levels of strategic planning and the successful identification of goals for the episode of home based support. Finally the participant perceptions of NASC and HBSS have been discussed. The lack of clarity relating to the role of the HBSS coordinator and the crucial role played by the support worker were strong themes generated from the interviews with participants. The increased level of satisfaction among participants in the intervention group in relation to both NASC and HBSS coordinators was interpreted and there was recognition that this was not a consistent pattern across the entire intervention group.

5.12 Summary

Section II has explored the effect of the client factors of the model on the effectiveness of TARGET. Furthermore the effect of the TARGET in facilitating a change in the relationship between NASC and HBSS has been described and the high level of trust necessary in this relationship in order to deliver flexible services to older people was highlighted.

It was clearly shown that TARGET was successful in identifying an older persons goal and the themes arising from interviews conducted with the participants suggest that these goals were viewed as highly appropriate by the majority of the interviewees. However, the importance of the NASC belief systems relating to goal facilitation among older people and the impact of this on the use of TARGET to identify a goal was highlighted.

The content of the services provided to the participants following the use of TARGET to align to a more flexible and individualised method of service provision was also investigated. It was shown that there was a high degree of individually tailored support plans generated by HBSS coordinators in the intervention group in response to the goals identified through the use of TARGET. However, there was a high level of variability in the individualisation of the support plans across different HBSS providers. In addition the small number of reviews undertaken was compared to the available literature and the need for appropriate reviews for recipients of HBSS and the integration of the concept within a restorative model was stated.

Section II concluded with a discussion of the impact of a participant's level of proactive coping on HRQoL, physical function and social support. The significant relationship observed between high levels of strategic planning and the successful identification of goals for the episode of home based support was seen as an important finding that requires consideration when planning goal directed service provision. Finally the participant perceptions of NASC and HBSS were discussed with reference to the impact of these factors on the clinical outcomes.

Section III will continue the investigation of the effect of the factors contributing to the changes reported in Section I. The clinical interaction sphere will be explored in order to explore the contribution of the organisational and family variables to the effectiveness of TARGET.

Section III - Clinical interaction sphere

5.13 Introduction

Section III will continue the exploration of the factors inherent in the model and their impact on the use of TARGET and the resultant changes in HRQoL, physical function and social support. These are shown in Figure 5.4. Firstly the effect of client / whānau effects will be described. Following this the data relating to the organisational and individual aspects of the NASC will be interpreted. Finally the section will conclude with an examination of the effect of the HBSS organisations on the clinical outcomes.

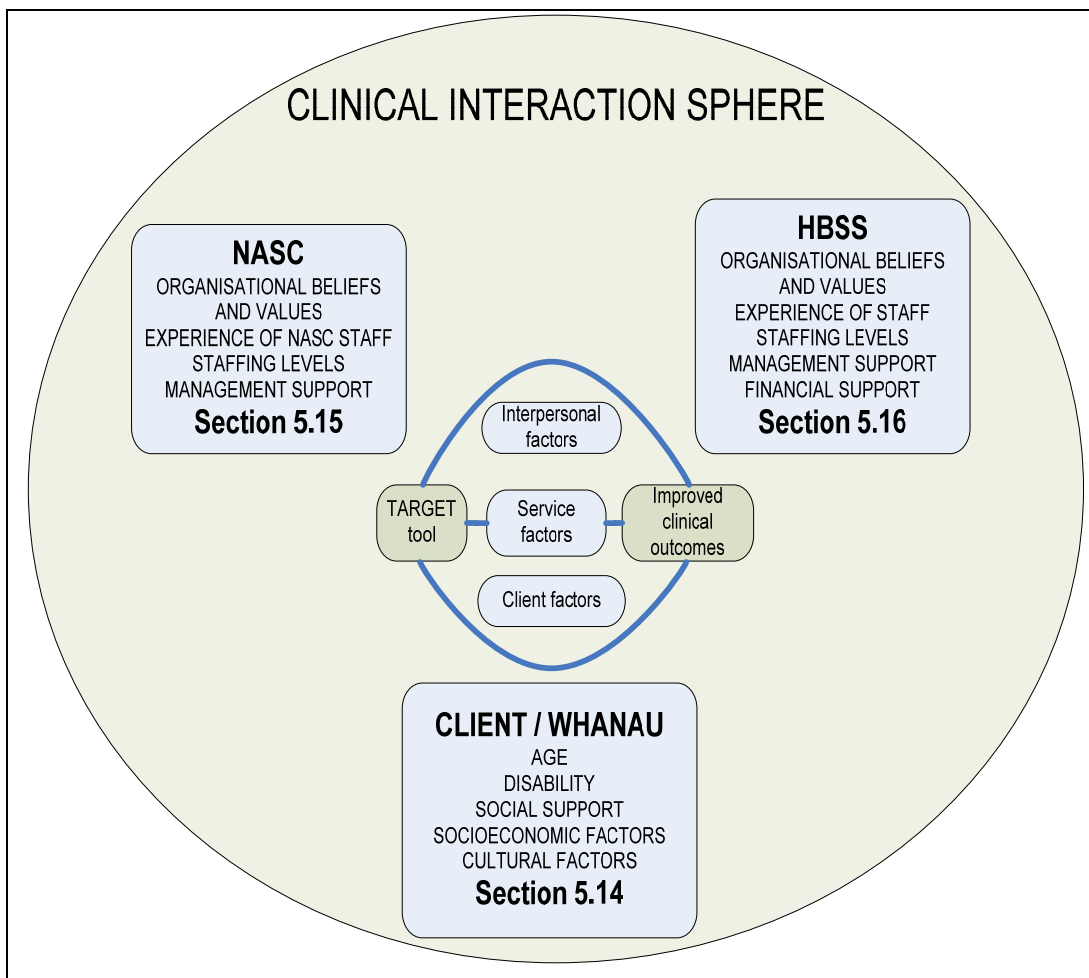


Figure 5-4: The clinical interaction component of a model utilised to examine the effect of the TARGET tool on clinical outcomes

5.14 Client / whānau

5.14.1 Age and gender

The demographic information described in Chapter 4 relating to the study sample showed that the control group tended to be younger and have a higher proportion of both males and participants from ethnicities other than New Zealand European. Of particular note is the far larger number of Asian participants in the control group (7.22% versus 0.93%) and that the proportion of Asian participants was well below the reported numbers of older people within CMDHB who identify as Asian (9%)⁷⁶⁵. It is important to consider the potential effect of this when interpreting the observed changes in clinical outcomes in this study.

The potential effect of the gender difference across the two groups is important to consider as HRQoL and psychological wellbeing has been reported to differ among older men and women⁷⁶⁶⁻⁷⁷⁰. Pinquart⁷⁶⁸ published a meta-analysis exploring gender differences in subjective wellbeing and found that older women reported significantly lower subjective wellbeing and less positive self-concept than men on all measures, except subjective age. The gender differences in functional performance are also important to consider⁷⁷¹⁻⁷⁷⁵. These reported gender based differences could explain the higher SF-36 scores for the control group (with a higher proportion of men) when compared to the intervention group for the physical and mental component scores. However, the physical performance measure and the social support scale did not show a clinically significant difference between the two groups despite these differences in gender and age.

5.14.2 Ethnicity

A further important consideration in relation to the difference in ethnic composition across the two study groups is the effect of different health paradigms on the implementation of TARGET and the accompanying new model of HBSS. New Zealand Europeans are likely to share a similar understanding of health as people living in other 'Western' English-speaking countries around the world. There is generally an implicit understanding of mental and physical health as separable entities. However, Māori, Asian and the various Pacific groups have very different

traditional concepts of health and disease. These concepts include key ideas that are integral to Māori, Asian and Pacific cultures such as the relation / connectedness between the individual, family, and community; and the holistic links between the mind, body, environment (social and physical) and spirituality. This may impact on the suitability of a model designed to optimise functional ability among older people rather than providing them with services to replace activities that are difficult (as in a traditional model). However, both the interviews conducted with participants who were not of New Zealand European descent and the absence of any observable effect of ethnicity on clinical outcomes would suggest that the model used in the intervention group was accepted to an equal level across all the different ethnicities.

5.14.3 Socioeconomic status

Although the measure of socioeconomic status (SES) utilised in the current study (NZDep rating) is a commonly used measure within New Zealand it is only a proxy measure and does not allow for consideration of an individual participant's SES as determined by the three accepted determinants (less years of schooling, lower income and not being employed). This means that, although it is possible to interpret the findings of the study in relation to SES, the measure used may have not been sensitive enough to establish definitive links.

However, the SES of the participants did appear to be similar across the two study groups, with 51% of the intervention group and 54% of the control group living in the most deprived areas (NZDep rating of 8, 9 or 10). In addition SES was shown to have a significant effect on change in physical function over time [(F=2.18, p=0.03)]; however, it was not shown to affect changes in HRQoL or social support. This is important to consider as Barrett et al.¹¹⁹ indicated a greater prevalence of disability among older people on lower incomes within New Zealand. Furthermore, Badley and Ibanez explored the link between SES and physical function in the Canadian Health and Activity Limitation Survey¹⁰¹. They found that disability was independently associated with the three accepted determinants of SES.

The lack of an association between HRQoL and SES is important to consider as there is considerable evidence that report this relationship. For example Burstrom et

al.⁷⁷⁶ analysed data from the 1996–1997 Survey of Living Conditions, interviews with a representative sample (16–84 years) of the Swedish population (n=11,698) and showed that HRQoL varied between socio-economic groups. Grembowski et al.⁷⁷⁷ provided further evidence using linear regression of data from 2,524 older people within US which showed a significant relationship ($p=0.02$) between SES and HRQoL.

5.14.4 Living arrangement

Finally the current study showed a significant relationship between HRQoL and the participants living arrangement ($F=3.23$, $p=0.01$). This has been discussed fully in Section 5.4.1 on page 223. In addition the potential reasons for a lack of a relationship between the participants living arrangement and social support have been described previously (Section 5.6 on page 235).

5.14.5 Informal Carers

Comparison of the subsamples within the study of participant's, where an informal carer was present and where there was no informal carer present revealed issues that require elaboration. In the intervention group there was a higher percentage of participant's with an identified informal carer. This is not surprising as they had a higher mean age, as already discussed, and so it would be expected that there were be a higher degree of functional impairment which would lead to a subsequent need for informal support. This is confirmed by examination of the physical performance scores for the subsample of participants in both the study groups, where the SPPB scores are lower for the participants with an identified carer. This explains the higher baseline HRQoL among the participants with no informal carer identified, due to the lower average levels of disability and functional limitation that appear to exist within this group. Conversely the group with a carer identified showed lower mean scores for HRQoL.

The measurement of caregiver stress for the informal carers of participants across the two study groups showed that there was no difference in the stress levels at the follow-up assessment. This is of interest as there are a number of potential

mechanisms identified in the literature by which carer stress levels could have been impacted in the study.

The first of these is that receiving HBSS services would impact on carer stress by alleviating the burden on the carer. This is seen as a prime purpose of HBSS provision^{369, 510, 778}. The provision of formal support services is often seen as a way of decreasing the burdens of caring day and night for a person with high support needs⁷⁷⁹.

There is evidence to suggest that HBSS provision can sometimes increase carer stress levels, especially when the levels of stress were low at the commencement of formal services. In these studies looking at carer stress, the older person's functional ability often deteriorates when services begin due to the increase in dependency and a lack of continuity between support workers and clients, compounded by inflexible service provision and inadequate staffing³⁶⁶. This was particularly apparent for older people with less cognitive impairment, and greater independence in self-cares^{780, 781}. This has a concomitant effect on increased carer stress levels.

The second mechanism by which carer stress may have been impacted is through the difference in expectations of the services to be provided. In a traditional model of HBSS the adoption of strenuous activities such as heavy housework tasks (laundry, vacuuming, mopping) and tasks that require physical exertion (such as shopping) by the support worker would theoretically reduce the stress on the informal carer. However, in the model of HBSS used in this study where older people were encouraged to continue to undertake certain of these tasks as a way of optimising functional independence, there is a potential to increase stress levels. A way of negating this potential effect is through communication of the philosophy to the carer at initial assessment. If this mechanism was present then an increase in stress levels among carers of participants in the intervention group would have been observed.

Lastly, the intervention may have elicited feelings of increased control among the participants and their informal carers.

It is difficult to ascertain the reason for there being little change in carer stress levels for informal carers of participants in the two study groups. It is possible that a combination of the potential effects of HBSS (traditional models in the control group and a restorative approach in the intervention group) could explain the observed stability. However, an important point to consider is that it is certain that the implementation of the intervention did not lead to an increase in stress levels among the informal carers of older people in the intervention group.

This section has discussed the potential effect on the study outcomes of differences in the client / whānau variables across the two study groups. The differences reported in the literature in HRQoL, physical function and social support relating to age, gender, ethnicity and socioeconomic status have been presented within the context of the current study. An understanding of these effects is important when planning ongoing development of services for older people. The section concluded with an interpretation of the effect of informal carers on the outcomes of the study. The next section will consider the second of the components of the clinical interaction level of the model of analysis; the effect of the organisational attributes of the Needs Assessment and Service Coordination team.

5.15 Needs Assessment Service Coordination

The impact of the relationship between NASC and HBSS and between the participants and NASC/HBSS was considered in Section II of this chapter. However, the findings highlight the importance of other factors relating to both NASC and HBSS organisations. There is considerable evidence to suggest that coordinating services or care packages in response to the assessed needs of older people and their carers is a core part of delivering integrated, person-centred care that is of optimal quality ^{407, 408, 722, 782-787}. This section will relate the findings of the study, concerning the organisational aspects of the NASC team, to the available evidence. As already described CMDHB was committed at a policy level to the optimisation of the quality of HBSS. The support provided to implement the TARGET process was considerable with NASC staff in the intervention group released from their clinical workload to enable them to attend the initial training

sessions and the ongoing peer review sessions. However, the effect of individual NASC is difficult to ascertain.

The randomisation process utilised within this study to assign NASC staff to either the control or intervention arm is described in detail in Chapter Four. However, the professional backgrounds of the NASC, together with the experience of the staff members, need to be discussed as they have the potential to impact significantly on the study outcomes. Any comparison of this study to other services within New Zealand or elsewhere needs to be cognisant of the predominance of social workers within this sample, particularly in the intervention group. Particular emphasis will be placed on the intervention group NASC in relation to the degree of goal directed services ascertained in the study.

Traditionally, NASC roles are filled by nurses, social workers, physiotherapists or other professionals. Currently, the professional background of NASC staff is inconsistent across New Zealand. In an analysis of NASC agencies across five district health boards, Gunderson-Reid et al.⁵⁷ found that: 24 percent were registered nurses (RNs); nine percent were registered occupational therapists or physiotherapists; 43 percent were social workers and five percent identified themselves as medically trained. The remaining 19 percent were not health professionals. In Australia, a comprehensive review of assessment practice in Home and Community Care (HACC)⁷²⁴ found that 96% of assessment officers in local government had some form of formal post-secondary qualifications, with nursing, welfare or social studies, social work and disability studies accounting for 76%. In this study, the organisational decision to only employ health professionals into the NASC positions had led to a workforce that were all trained at tertiary educational facilities. However, the proportion of RNs was smaller than the figures found by Gunderson-Reid et al., whereas the number of social workers was higher. This is worthy of particular note due to the philosophical paradigm within which HBSS is embedded in New Zealand. As described previously, in Australia and UK HBSS is seen as a social service^{356, 364, 395, 416, 460, 788} and is run by local councils. In New Zealand it is becoming more and more the remit of health professionals with funding devolved to DHBs. This is driven partly by the perceived need to case manage the increasing number of disabled

older people, and it is felt that this is best achieved by RNs. The evidence for this is predominantly from US studies of care management for older people in the community^{722, 785, 789-791}.

This concept is vital in the consideration of the NASC staff in the current study as the experience of the NASC staff varied considerably across the two study groups, with the intervention group having an average 9.86 years of experience whereas the control group only had an average of 4.86 years of experience. In fact, the practice of community care draws from an interdisciplinary knowledge base making it very difficult for one profession to totally distinguish itself from another⁷⁹². Keegan and Kent⁷⁹³ suggest that in nursing the knowledge base is inadequate for practice in community care. In contrast to hospital settings, in community care settings nurses are engaged in more variable activities, their work is less predictable, there is a less rigid structure, practice tends to be more autonomous⁷⁹³ and greater knowledge of the individual clients/patients is required⁷⁹⁴.

The following section will conclude the examination of factors at the clinical interaction level. It will explore the HBSS organisational variables, including management attitudes, professional background of assessors, staffing levels and the attitude of the HBSS staff to the change in their role.

5.16 Home Based Support Service providers

As described previously there was a high level of commitment to the study among the NASC organisation. The same degree of certainty was not apparent in the interviews conducted across the HBSS providers. The impact of the relationship that funding and planning staff within the DHB had with HBSS provider managers ensured that HBSS staff were released for training as part of the study. However, the themes evident on analysis of the interviews conducted with HBSS coordinators showed that management support for implementation of the process was not consistent. Provider E appeared to have a management structure that fully supported the principles of quality improvement and the philosophy of restorative home based support. Conversely other providers appeared to have significant tension between the coordinators and management in relation to implementation of the model. This is

of particular note as Provider E was the only HBSS organisation to have experience of implementation of the model in other regions of New Zealand.

Patmore et al.³⁹⁴ explored the factors that influence the delivery of flexible person-centred care for older people through interviews of the stakeholders in the process. They concluded that the process may depend at least as much on the organisational culture and management support as from particular assessment, service planning or review procedures. This view strongly supports the findings of this study where an aspect that impacted significantly on the role of the coordinator was the support provided by the management of the HBSS organisations. There was a marked variation in the support provided to the coordinators by leaders within their respective organisations to implement services that aligned with the principles inherent within the restorative model of home based support.

A further factor related to the management of the organisations concerns the integral role of funding and planning and DHB strategies regarding HBSS. This was of vital importance in the current study. This forms one of the main factors described in chapter two in relation to optimising quality of care for users of health services⁴⁵⁶ and relates to the concepts of contingency theory. Support for this is provided by Patmore et al.^{356, 365, 393, 394} who showed that if an agency (HBSS) aspires to a contract, it will seek to impress Social Services (DHB funding and Planning) with their mutual compatibility during work obtained on spot contracts.

In addition, Newbronner et al.⁷⁹⁵ determined six key factors for implementing the UK Re-ablement model. This was ascertained through interviews with care managers and service managers across the local councils which comprise the equivalent of HBSS organisations. The relevant factors for this perspective were:

- The culture and contracting arrangements for the HBSS provider
- The commitment from service managers of the HBSS organisation to the principles of the model

It is difficult to ascertain whether this congruence of values and beliefs occurred through this mechanism or whether the values were inherent within the HBSS

organisations in the current study. The manager for Provider A was reluctant to allow coordinators to attend ongoing peer review meetings between the Providers and NASC and coordinators from Providers C and D would often not attend the meetings. This further questions the commitment for the managers of these organisations to the implementation of this model of service provision.

The possible effects of this will be explored through a consideration of the structure of the organisations, the application of the principles of contingency theory (described more fully in Chapter Two) and professional background and level of expertise of the coordinators.

5.16.1 Organisational structure

A further potential factor to be considered is the different organisational structures of the providers included in this study. There was one for-profit organisation (provider A), two Marae based providers (C and F), two community trusts (providers B and D) and a large not-for-profit organisation with nationwide coverage across New Zealand. Schmid et al. examined the impact that not-for-profit and for-profit organisational structures had on the quality of HBSS in Israel ^{422, 423, 796, 797}. For-profit (FPO) providers tended to adopt a generalist strategy ⁷⁹⁸. Their services were developed and provided rapidly in diverse locations, in order to ensure immediate return on capital, which the organization needs for its continued operation. The only FPO in this current study had indeed diversified into aged residential care; however, the two Marae based providers and the Pacific provider (D) reported that the HBSS arm of their organisation often assisted in funding other community based initiatives such as child care and community education initiatives. Schmid continues that, in contrast, Not-for-profit organisations (NPO), tend to adopt a specialist strategy ⁷⁹⁷. However, they seem to have shifted to a generalist strategy as they encounter increasing competition, particularly from for-profit agencies.

5.16.2 Contingency theory

Among the elements of organisational structure described by contingency theorists the following seem particularly pertinent to the current study: formalisation,

specialisation and standardisation. It is apparent that there was a high degree of variability across the HBSS organisations in relation to these concepts.

Within contingency theory formalisation is defined as the amount of written documentation in the organisation, including job descriptions, policies and procedures ⁴⁴⁴. The larger organisations (Providers A and E) had considerably more developed levels of this element in terms of policy manuals, the development of training programmes for support workers, a higher number of support workers trained to NZQA level 2. The high degree of variation in formalisation is reinforced by a New Zealand report from a different region which showed limited evidence of organisational development throughout the HBSS industry ⁷⁹⁹. Similarly, a report examining the majority of HBSS providers within the Auckland region in New Zealand, of which CMDHB is part, stated that home based support providers appeared to need help with the development of policies and procedures for operating their services and providers needed to further develop quality systems and incorporate best practice guidelines for workers ⁷⁶⁴.

Specialisation is the second element of the theory and refers to the degree to which tasks are subdivided into roles ^{443, 444}. An example in the current study was the division of the role of rostering support worker staff from the HBSS coordinator role in providers A and E. Across the other organisations this job remained a core task for the coordinators, together with their other roles. Specialisation relies on the staff within the organisation working on the basis of rules, procedures, systems, guidelines and policies. Traditionally this has been a control mechanism used in HBSS organisations as the tasks undertaken by support workers were routine with minimal variation and consequently this meant that large spans of control were feasible. However, the model implemented in the intervention arm of the current study meant that support workers showed higher degrees of variation in the tasks they performed due to the higher proportion of individualised activities delivered to the participants.

5.16.3 Coordinator experience

With this cognisance of the crucial role of management in implementing systemic change in HBSS organisations the attributes of the coordinators will now be considered. The first of these relates to the professional background of the HBSS coordinator. As described in Section 5.15 there is no strong evidence to suggest the most effective professional background for NASC workers. This is also the case for HBSS coordinators. In fact many of the HBSS coordinators in New Zealand currently are not health professionals. This is supported internationally where, in the UK, untrained or unqualified assessors are not uncommon in services such as home care, respite or meals provision^{800, 801} and in Australia where the majority of people in similar roles are not qualified health professionals². Across the HBSS providers included in this study there is an obvious pattern in the background of the coordinators. Providers A and E were committed to having experienced health professionals in the role. This is evidenced by both the background of the coordinators and the level of experience. Provider B had coordinators who had been in the role since the organisations conception and so were very experienced. Providers C, D and F with their more diversified organisational structures did not employ health professionals to the role.

The findings of these studies are important for the sustainability of the improvements observed in current study. Clients of Provider A, B and E appeared to have the largest improvements in the study outcomes. However, only Provider E appeared to have a culture that would foster continued implementation of the principles of the model. This is highlighted by statements from the coordinators interviewed.

The potential effects of this variation across the providers are considerable. As described previously there is an increase in the number and the level of disability of older people in the community receiving HBSS. The interviews with coordinators undertaken in this study support this view, as they described a change in the role and in the caseload of clients. There was a definite trend towards a change in the role with the job becoming busier and more complex. The role and competencies of the coordinator changes greatly with the evolution of restorative home support^{58, 391}.

Roles and duties may include: delegation and supervision of non-regulated staff; comprehensive assessment; care management; goal activity analysis and grading, expertise surrounding community integration for older people. Support for this need for change in the key competencies of the coordinator role is provided by work undertaken in Australia to implement restorative home based support there ². The report stresses that the success or failure of the implementation rests with the workforce and so training and key competencies are required to facilitate a paradigm shift in thinking of all coordinators.

This section has examined the potential effect of the HBSS organisation on the study outcomes. The level of management support and the organisations relationship with the DHB Funding and Planning personnel was shown to be important when considering the level of commitment of the HBSS coordinator staff. Furthermore the organisational structure was seen to have a potential impact; the mix of NPO and FPO, together with those providers where the delivery of HBSS was not the core business of the organisation is important to consider. In addition the application of the principles of contingency theory showed that there was a high level of variability among the providers in terms of their alignment within the local environment.

5.17 Summary

This section has shown the importance, when determining the effectiveness of an innovative model of service delivery, of considering client / whānau characteristics and the impact of factors relating to the composition and structures of the organisations delivering the services. The potential effect of age, gender, ethnicity, socioeconomic status and the presence of informal carers have been described in relation to the current study.

In addition the effect of the professional background of the NASC was explored. In particular this related to the high proportion of social workers in the current study. Finally the organisational characteristics of the HBSS organisations were discussed to place the findings of the study in a context that is transferrable outside of the environment in which the study occurred. The high level of variability across the HBSS organisations in terms of the organisational structure, commitment and

alignment within the study environment was presented alongside the findings of relevant literature.

5.18 Chapter summary

This chapter has presented and discussed the evidence supporting the findings of the current study, using the model developed over the course of this thesis as a framework. The inherent nature of studying such a multifaceted and complex area has necessitated the use of evidence from diverse disciplines.

Several inter-related factors that impact on the effectiveness of HBBS have been discussed and interpreted. The study findings show that the use of a goal facilitation tool is a method of optimising the degree to which these factors interact to optimise outcomes for the older person. This has significant impact on the ability of local funders of support services for older people to align with government policies and strategies, both overseas and within New Zealand that aspire to effectively support older people to remain in their home.

Section I discussed the significant improvements observed over time in SF-36 and Hua Oranga scores for participants in the intervention group and the impact of the factors of the model of analysis found to be significantly related to change observed in the HRQoL measures over time. In addition the importance of the integration of functional activities within the services provided to the participant and the impact of the NASC-HBSS interactions in relation to changes in the physical component of the SF-36 was highlighted.

Following this the effect of the use of 'TARGET' on physical function was discussed. It was noted that the functional ability of the participant at baseline appeared to have a major impact on the success of the intervention; if the participant had high levels of disability and a concomitantly low level of function then six months of home based support did not have enough impact to enable them to regain a clinically meaningful level of functional ability.

Section I concluded with an exploration of potential reasons for the absence of a change in the social support measure over time. The complex nature of social support was considered and it was suggested that the low functional ability of the participants may have precluded their full participation in society.

Section II interpreted the findings relating to the effect of the client factors of the model on the effectiveness of TARGET. It was clearly shown that TARGET was successful in identifying an older person's goal. The difference in the content of the services provided to participants across the two groups was discussed and the increased prevalence of individually tailored activities in the support plans of many of the intervention group participants was seen as an important factor in effecting beneficial changes in outcomes among this group. Section II concluded with a discussion of the impact of a participant's level of proactive coping on HRQoL, physical function and social support. Finally the participant perceptions of NASC and HBSS were discussed with reference to the impact of these factors on the clinical outcomes.

Section III described the potential effect of age, gender, ethnicity, socioeconomic status and the presence of informal carers in relation to the current study. Furthermore the impact of the experience and professional background of the NASC staff and the effect of the organisational and individual characteristics of HBSS organisations were explored.

The findings of this study show the importance of goal facilitation as a strategy to enhance the quality of services provided to older people and ensure that these services align to the concept of person-centred care. Furthermore the potential use of TARGET to facilitate the required changes in the relationships between NASC and HBSS and also to alter the content of services has been clearly shown. Chapter Seven will further develop the findings of the study and provide recommendations for future development of services aligned to the principles inherent in this study. However, before this occurs it is important to consider the limitations of the study. Although all efforts were made to minimise these, it is important to have an

awareness of the issues that commonly the study of human behaviour and outcomes in a pragmatic and real world setting. These are presented in Chapter Six.

Chapter Six: Study limitations

6.1 Introduction

This study, in attempting to determine the effect of a goal facilitation tool as a driver for quality improvement in HBSS was experimental in nature and thus had limitations arising inherently from this approach. In view of this, extra deliberation must be afforded when considering the findings. It will also examine the strengths and weaknesses of the study methodology, analysis and interpretation.

The number of methodological limitations of research undertaken examining optimisation of the quality of service provision to older people in the community make it difficult to interpret the available data, especially when attempting to distinguish primary versus secondary effects of the ageing process on a particular function. Further, it is always difficult under time and financial constraints to draw more than tentative conclusions. In addition the heterogeneity of older people compounds the difficulties. Among the older people admitted to this study there was a wide variation in age and associated traits. There is ample evidence to suggest that older people living to their seventh, eighth and ninth decade of life represent a biased population of survivors. The bias must be increased by the number of older people who have carers sharing their home.

Traditional Randomised Controlled Trials (RCT) are often undertaken in a controlled environment and involve exploration as to whether an independent variable affects outcomes in comparison to the absence of the variable or a different variable^{802, 803}. Due to the nature of this study, it was undertaken in a real world setting as opposed to a controlled environment. This involved assessing an intervention population group in comparison to a control group, however, of as much importance was investigating the intervention itself. Furthermore, certain factors could not be controlled in the real world setting which necessitate discussion.

6.2 Internal validity

Internal validity refers to the extent to which changes of the dependent (outcome) variable can be attributed to the independent (experimental) variable and not to the influence of extraneous factors. Sim and Wright⁸⁰⁴ describe principal threats to a studies internal validity. These are discussed below.

6.3 Measurement bias

This concept is defined as a bias of the measurement of an outcome which may suggest that a change has occurred where it has not or that a change has not occurred when it has. The outcome measures utilised in the current study were carefully chosen from the findings of studies that have reported their high levels of internal validity. These are described in Chapter Three. In the current study the use of these standardised and well validated tools for measuring HRQoL and functional ability reduced the risk of measurement bias. However, in certain circumstances the design of the trial did increase the chance of a measurement bias. The concept of regression to the mean and also the potential for people with low initial measures requiring greater change to show a clinically difference in outcome have been described. It would have been very difficult to remove these errors and it is important to consider them when interpreting the results of the study.

6.4 Selection bias

Selection bias occurs when an investigator attributes study results to the effect of the independent variable when, in reality, the results could be explained by differences in the subjects before experimental intervention was implemented. Several issues arose over the course of the study that may have confounded data in this manner. Due to the pragmatic nature of the study cluster randomisation was not undertaken in a strictly controlled environment. Consequently, there was a risk of treatment contamination between older people in the control and intervention groups. In addition the nature of the study meant that only the NASC were separated into intervention and control; the HBSS coordinators and support workers had to deliver services to both groups. Furthermore research suggests that self-selected volunteers tend to be more active, better educated, less overweight and in better health than

those who choose not to be part of a research study⁸⁰⁵. However, in this study 263 older people were eligible for entry using predefined and rigorously applied eligibility criteria and 205 agreed to take part. This high rate of eligible older people who consented to participate suggests that the effect of selection bias was minimised. Of the new referrals to NASC who were excluded (n=1290) only 23 are recorded as having mini mental states of less than seven out of ten. However, it is not possible to ascertain how many of the remaining 1267 also had a degree of cognitive impairment, as only the primary reason for exclusion from the study is listed.

6.5 External validity

External validity pertains to the generalisability or applicability of research findings to other settings and samples. Certain characteristics of the sample and the research conditions may pose threats to external validity. Some of the major threats to the study are described below. Only 6.2% (263/4234) of those screened for inclusion into the study were eligible to participate. However, the majority of those excluded did not receive HBSS (1027/4234). This may mean that the findings of the study are only able to be generalised to those older people referred for HBSS who meet the inclusion and exclusion criteria. This is of particular relevance as the current study excluded those with moderate or severe cognitive impairment and also all older people currently receiving HBSS support.

6.6 Expectancy effect

This occurs when participants respond to the perceived expectations of the investigator. There are two main forms of this; The Rosenthal effect where the participants respond to the simple fact that they are being observed. The Hawthorne effect occurs when people react to the fact that research is taking place. The participants may respond in a specific manner because they are aware that they are participants in research projects. Both of these effects may have influenced the findings generated from the two study groups. Of particular note is the need to have cognisance of the potential effect of having participants who were unblinded to treatment allocation. It is recognised that in such a pragmatic study it would have been difficult to blind the participants. It is recognised in the contemporary literature

that a major source of difficulty in RCTs of physical activity and other non-pharmacological interventions that require patient participation is the issue of double blinding. In a systematic review of the effect of quadriceps exercises on knee osteoarthritis ⁸⁰⁶ it was noted that on assessment of methodological quality none of the RCTs included double blinding. The authors stated that exercise and physical activity interventions can never be genuinely double blinded like in a placebo controlled trial of a pharmacological intervention. Further support for this is provided by Olivio et al ⁸⁰⁷, Maciejewski et al ⁸⁰⁸ and Kerse et al ⁵⁷⁶ who state that in trials to investigate the effect of physical activity interventions it is often not feasible to undertake double blinding. However, in the current study it may have been possible to design the study so that the participants were not aware of whether they were receiving usual care or the innovative treatment. This approach was thought to be impractical due to the requirements of the Ministry of Health and DHB Ethics Committees.

6.7 Experimenter effects

Experimenter effects stem from characteristics of the researcher. Attributes such as age, socioeconomic status, ethnicity, gender and communication style may influence a participant's behaviour and responses. To illustrate, when subjects were being assessed they may have behaved differently because of familiarity with the researcher. Indeed, several researchers have pointed to subjects becoming so well acquainted with them that they exerted themselves in the assessments more than they would normally do in order to achieve better post-test results. Also of significance is that many subjects may have seen the baseline and follow-up assessments as a test in which they were expected to achieve high scores. Although these threats were minimised by the control group, it remains an inherent weakness with intervention studies and these experiments can never be fully blinded.

6.8 Data recording and analysis effects

The use of a blinded assessor at baseline and follow-up should have minimised bias in recording and analysing data. In addition all participants were coded and the

assessor was prevented from viewing baseline data when completing the follow-up assessment.

6.9 Summary

This chapter has discussed the limitations of the study within the context of similar studies undertaken with older people. The challenge of undertaking robust clinical trials in this area is well documented^{809, 810}. However, the current trial attempted to minimise the impact of these challenges. For example the use of outcomes and methods of data collection and analysis that were well validated among older populations and assessors who were blinded to the allocation of participants. Finally the high proportion of potential participants who were eligible for inclusion in the study suggests that the results are applicable to wider populations than the one used in this study. However, it is important to recognise the potential issue of a failure of the randomisation process. The differences observed across the two study groups in relation to key variables (age, ethnicity, gender) and the difference in the professional background and experience of the NASC staff allocated to the two groups are issues that could have influenced the study findings. The consideration of these factors throughout Chapter Five was highlighted and it is important to continue to be cognisant of these when discussing the conclusions and future directions in Chapter Seven.

Chapter Seven: Conclusions and future directions

7.1 Introduction

The current study sought to determine the effect of a designated goal facilitation tool on Health Related Quality of Life (HRQoL), physical function and social support among a sample of older people referred for Home Based Support Services (HBSS) in an ethnically diverse area of New Zealand. The model developed to explore the factors influencing the outcomes for the participants was informed by the available evidence from a wide diversity of disciplines. One specific purpose of the model was to determine how the use of TARGET facilitates the implementation of core components of a ‘restorative model’ of support for older people living in the community.

7.2 Implications for policy and practice

The improvements in the clinical outcomes of HRQoL and physical function in the intervention group provides support for the effect of a model aligned to the core principles of restorative home based support described in the literature. This includes Needs Assessment Service Coordination (NASC) and HBSS working collaboratively together to provide person centred and goal directed services for older people in their own homes. However, the study findings are perhaps more useful in informing future directions when the outcomes for participants in the intervention group who showed smaller degrees of improvement are examined.

The effect of increased physical activity and improved functional ability together with an increase in health related quality of life has a potentially huge effect on health care costs within the current New Zealand context. The improvement in function that is apparent in the current study would have an effect on long term HBSS usage by many of the participants. In addition the improvement in activity and ability would potentially impact on readmission to hospital and residential care. However, to validate this would require closer examination of the sample with utilisation of different research methodologies.

It is important to consider the main findings from this study that need to be considered for ongoing implementation of a similar model of HBSS service provision. The main study findings are summarised in Figures 7.1 and 7.2. Figure 7.1 shows the factors from the model of analysis that had a significant impact on clinical outcomes whereas Figure 7.2 shows factors supported by qualitative findings of the current study or factors that were significantly different across the two study groups. This chapter will briefly describe the implications of the findings of the current study in relation to the broad categories inherent in the model.

7.2.1 NASC / HBSS relationship

The study has shown how the relationship existing between NASC and HBSS coordinators is pivotal in the successful implementation of a model of HBSS provision that is goal directed and person centred. The more collaborative nature of the relationship between the two parties in the intervention group contributed to the improvements in outcomes for the participants. This relationship appears to have been improved and optimised by the increased contact between the two groups that formed an integral part of the training in the use of the goal facilitation tool. Active interventions to ensure the formation of such trusting relationships are crucial to ensure that services are implemented to assist older people to age-in-place successfully.

7.2.2 Service factors

The TARGET was shown in the current study to be an effective way of identifying an older person goals. This effectiveness appeared to be dependent on the acceptance by individual NASC staff of the concepts of goal setting among older people. The integral nature of a well motivated NASC who has beliefs that are congruent with the principles of the model is highlighted throughout the study. The high level of variability in the classification of the identified goals number of domains of ICF that the goals.

The effect of the content and level of services delivered across the two study groups were also shown to be a significant factor in improving the outcomes for clients of HBSS organisations. The study clearly showed that the use of TARGET had an

effect on the content of support plans developed by HBSS following NASC assessment. The significantly higher mean number of hours of support provided to the intervention group involved far higher levels of individualised activities that were aligned to the identified goals (73.2% in the intervention group vs. 27.8% in the control group). However, it is important to note that this trend showed high levels of variation across the HBSS organisations.

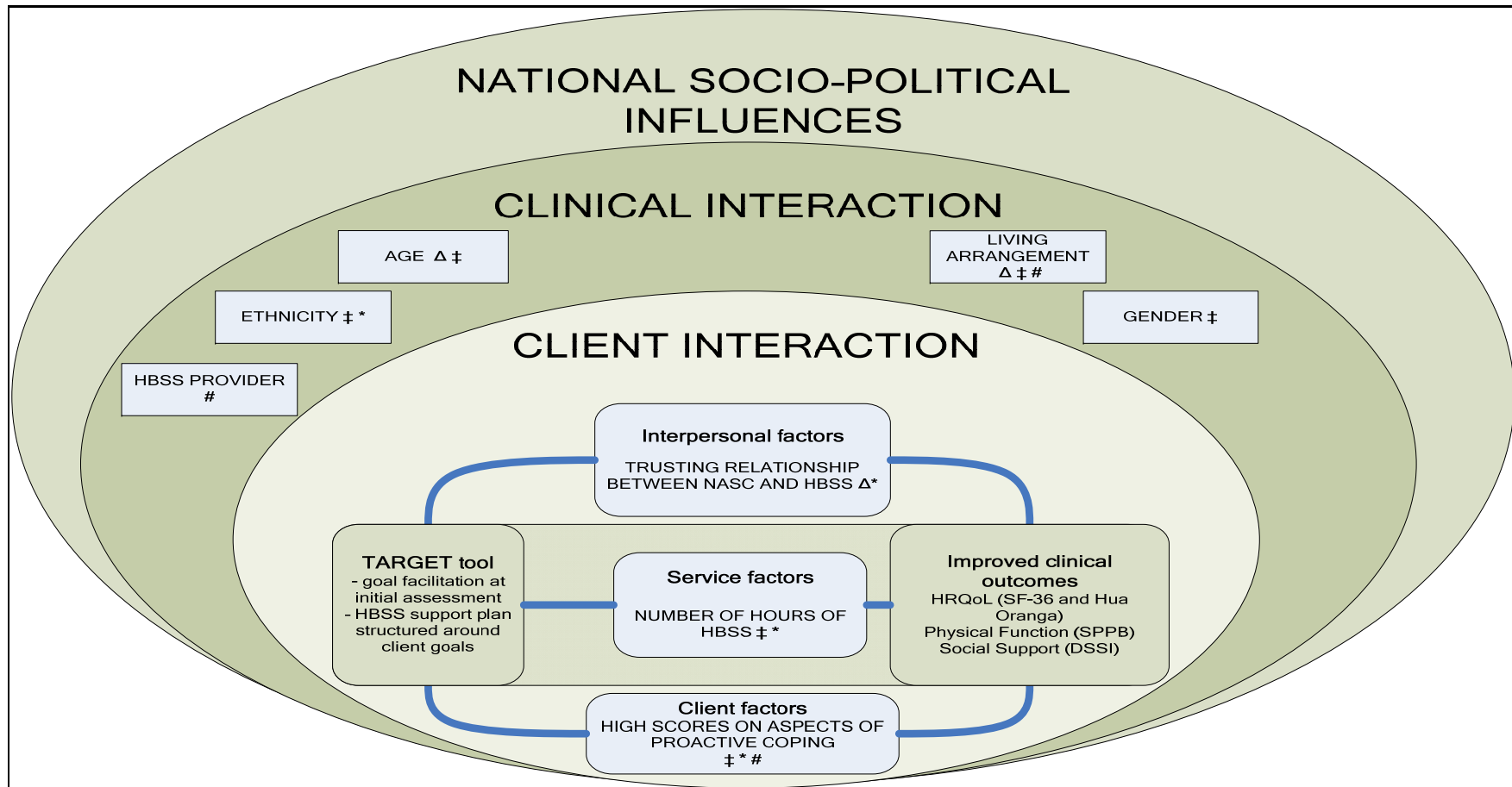


Figure 7-1: Summary of factors from the model of analysis that had a significant impact on clinical outcomes

Δ Significant effect on change in SF-36 PCS over time (p=0.001); ‡ Significant effect on change in SF-36 MCS over time (p=0.001); * Significant effect on change in SPPB total score over time (p=0.001); # Significant effect on change in DSSI total score over time (p=0.001)

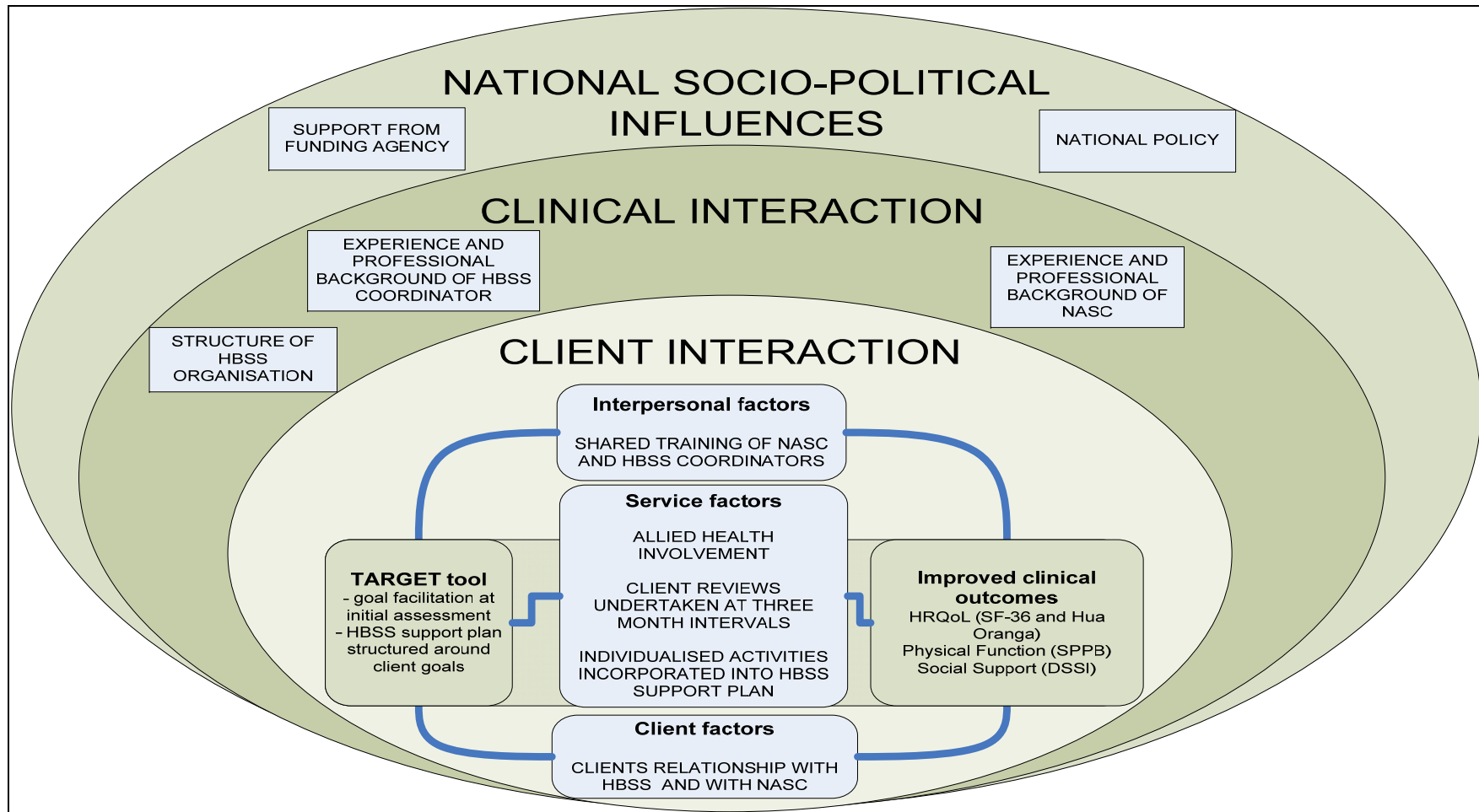


Figure 7-2: Summary of factors from the model of analysis that were supported by qualitative findings of the study or were significantly difference across the study groups

The available data on allied health referrals in the current study prevent definitive conclusions relating to the effect of physiotherapy and occupational therapy (and dietetics, speech language therapy and social work) on the outcomes for older people who are recipients of services aligned to a restorative model of HBSS. In a similar manner the failure of HBSS coordinators to formally review many of the participants in the intervention group, make any analysis of the implications of this practice on outcomes for the older person difficult to formulate. However, even without such a formal process there were still a large number of participants who were discharged from services.

7.2.3 Individual client factors

The factors related to the older person themselves have also been shown to be of vital importance. Previous studies reporting the crucial nature of the relationship between the client and the support worker have been reinforced by the findings of this study. In many cases the relationship between the older person and the HBSS coordinator and NASC appears to be of lesser importance in delivering services that assist with improving HRQoL and physical function. Strategies to allow for the flexibility required in the support workers' work while still maintaining the integrity of the HBSS organisation need to be explored.

Analysis of the findings of the study has shown the effect of the interpersonal attributes of the older people on the study outcomes. It is of no surprise that those participants who had high degrees of certain types of proactive coping behaviour had improved outcomes. The reasons for this have been explored but those who have coping strategies congruent with a goal directed model of service provision seem to have benefitted most from this model. The effect of attempts to optimise such behaviour among older people may be of benefit in conjunction with the implementation of new models of care aligned to the one utilised in this study.

In addition, the other characteristics of the participants that were collected in the study were shown to be significant in their effect on the person's outcomes. The high mean age and high levels of functional disability in relation to similar studies have been described. The relatively low numbers of Māori, Pacific and Asian participants

make it difficult to determine quantitatively the level of acceptability of the model among older people from these ethnic groups. However, the qualitative information collected suggests that the principles were aligned with the beliefs and values of these groups.

The impact of the programme on stress levels of informal carers has been described and the implementation of HBSS services aligned to a restorative model was shown to have no effect. This was described in terms of two conflicting modes of action. This important area is one that may require closer examination through further research.

7.2.4 HBSS organisational attributes

The impact of the attributes of the different HBSS organisations involved in the study was significant. The level of management support, the professional background of the coordinators and the ratio of clients to coordinators varied considerably across the six organisations. In addition the low numbers of participants referred to three of the providers is of interest. It is suggested that this may have been influenced by the poor relationship existing between NASC and these providers' organisations. In addition the study findings suggest that the relationship between the District Health Board (DHB) and the HBSS organisation at a management level appears to have had considerable impact. The DHB had undertaken considerable work to align their organisation to the principles of the relevant national strategies and policies. Where the HBSS organisation did not subsequently align themselves to their funders' position this would have had significant effects.

7.3 Future research

The findings of this study highlight the capacity for a range of further research in the area of HBSS for older people. Due to the predicted surge of the older population, developing efficient home based support services which provide quality care that is structured to meet their needs is crucial. This study has explored the complex inter-relationships existing between the diverse variables examined. Any quality

improvement initiatives to optimise service quality need to have a cognisance of these and implement strategies to address them effectively.

7.3.1 Goal setting and older people

A crucial area evident from the current study that continues to require ongoing emphasis is the role of goal setting in planning services for older people. The current study clearly showed the importance of facilitating older people to set goals that are then used in developing support plans to structure services to assist them in the home. Further development of this concept would involve more in-depth investigation of the impact of the factors shown to have an effect on the successful identification of goals. The first of these is the experience and beliefs of the clinician working with the older person to facilitate the setting of the goal. The variation in the spread of goals across the domains of the International Classification of Function (ICF) among the different NASC workers and the comments made by certain of the NASC staff highlight the impact of these factors. A further aspect relating to this is the professional background of the clinician. As already described in Chapter Five it is expected that the preponderance of social workers among the NASC workforce in the current study would have an effect on the goal setting process. Further study of the ability of other health professionals to facilitate goal setting with older people who are referred for HBSS is necessary.

The effect of high levels of aspects of proactive coping among the participants in the current study was also shown to have a positive effect on the successful identification of goals. Identification of strategies to enhance this behaviour are important if home support is to align to the concepts of person centred care and thus deliver support to older people that are congruent with their wishes and needs.

7.3.2 Maximising outcomes for older people

The current study generated significant levels of improvement in HRQoL and physical function among the participants randomised to the intervention group. The impact of the perceived level of trust existing between NASC and HBSS on these outcomes is an issue worthy of note. Further, it is imperative to investigate the effect of this phenomenon on services delivered in similar clinical situations where there is

interaction across organisational boundaries. The training delivered to the intervention group NASC and the HBSS coordinators was reported to be a major contributing factor in improving the relationship between the two parties. Once more there is a need for future investigation of the content and delivery of similar training to determine the most effective model to use. Communication with Careerforce (Industry Training Organisation offering NZQA accredited courses to HBSS support workers) to date has shown a willingness to investigate this need.

The potential reasons for the absence of an associated significant improvement in social support among the intervention group participants has been discussed. The low level of baseline functional capacity of the sample (as determined by SPPB) had the effect that even those participants who improved their functional ability to a significant degree often did not regain enough capacity to reach a threshold for community ambulation. Exploration of this is vital in terms of the necessary dosage of HBSS that is required in order to attain this threshold. It would appear that six months is too short a time to reach this threshold.

7.3.3 Content of HBSS services

The effect of the observed change in the content and quantity of HBSS services delivered to participants in the intervention group as a result of the use of TARGET is an additional concept that requires continued elaboration. The first issue related to the content of services concerns the level of individualisation of the activities included in the support plan. The study had the effect of significantly increasing this among the intervention group; however, the trend was not universal. For the quality of services to be maximised it is important that this be explored further. The support workers' role in operationalising the support plan is an additional area that requires investigation. The study has reinforced the crucial role that the support worker has in delivering services. The views of the support workers need to be considered if a model similar to the one used in this study is to be used more widely. The final issue relating to the content of services concerns the involvement of allied health in the planning and delivery of services. The current study showed negligible levels of allied health input in assisting participants to improve their functional ability. To maximise the potential effect of the model used in the study it is

important that strategies to address this be investigated. One potential strategy may be the involvement of allied health in the shared training of NASC and HBSS as this was shown to be an effective method of improving communication and trust.

7.3.4 Further issues

The study also clearly highlighted the effect of other factors on the successful implementation of an innovative model of HBSS that leads to improvements in HRQoL and physical function. The organisational attributes of the HBSS providers are a vital component of this. To create a sustainable model aligned to the principles inherent in this study it is important to explore these further. The increased load on HBSS coordinators if their full load of clients (up to 375 for Provider B) were to have their service provision offered in this way is something that requires investigation. Furthermore the current study only enrolled older people who were new referrals and were not significantly cognitively impaired. Offering the model to all recipients of HBSS may require innovative strategies of funding and alterations to the model of service delivery.

7.4 Conclusions

Government policies and strategies, both overseas and within New Zealand aspire to effectively support older people to remain in their home. Furthermore, there is evidence demonstrating numerous clinical benefits and remaining at home is clearly the preferred choice of older people. However, the resultant effect has been substantial increase in demand and expenditure for home based support services. Despite the fact HBSS provide indispensable assistance to community dwelling older people, there is a plethora of evidence revealing current provision is fraught with issues. The inevitable continuation of an aged society, including rapid ageing of the oldest old population, will result in a higher prevalence of chronic illness and disability with community dwelling older people exhibiting increasingly complex needs. Consequently, improving the quality of provision and creating sustainable home care services to meet the needs of these older people is imperative.

There have been numerous attempts reported in the literature to develop services that have a focus more on optimising function rather than fostering dependency among older people supported to remain in their home. This study utilised the concepts described in these studies together with a philosophy of person-centred care. The primary purpose of the study was to assess the impact of TARGET on health related quality of life, social support and physical function among community dwelling older people referred for HBSS. One specific purpose of the study was to determine how the use of TARGET facilitated the implementation of core components of a 'restorative model' of support for older people living in the community. One of the core components of restorative support explored in this study was the structuring of services around what the client wanted to achieve through the identification of goals and the implementation of individually tailored activities to support the attainment of those goals. The second core component considered was regular and coordinated reviews of the client by the health professionals and organisations involved in supporting the client.

The findings of the study showed that among recipients of six months of services directed by TARGET there were significant improvements in health related quality of life and physical function when compared to a group receiving standard HBSS. One key to these improvements was the nature of the relationship existing between the NASC and HBSS coordinators and that this relationship appeared to be considerably improved through the shared training that formed part of the intervention. A further difference between the two groups related to the content of activities undertaken by the support worker to assist the older person in the home. In the intervention group there was a significantly higher rate of these activities being structured around tasks that were aligned to the clients needs rather than generic tasks such as vacuuming or housework. Whilst encouraging results have been demonstrated in this study, in order to further improve quality and ensure HBSS provision is aligned to the proven concepts of person-centredness and restorative support, additional modifications appear necessary.

The study clearly shows the success of TARGET in facilitating the identification of a goal by older people, 84 percent of the participants in the intervention group

developed a goal during the NASC assessment. However, there was a high level of variability in the spread of these goals across the NASC staff suggesting that the impact of the individual assessors may have been significant in the types of goals identified. However, high levels of aspects of proactive coping among the participants was also shown to be associated with successful identification of a goal.

The level of involvement of community based occupational therapy and physiotherapy services in the design and implementation of support for the older people in their homes was very low and this was identified as an issue that requires further investigation if the model used in the study were to be adopted more widely. Further issues that were highlighted as requiring consideration were: the attitudes and level of behaviour change among support workers; the organisational attributes of the HBSS providers and the potential changes in the funding of services if the model was fully implemented.

Chapter Eight will complete this thesis by presenting reflections and learnings of the author in relation to the process of undertaking and completing the study.

Chapter Eight: Reflections

8.1 Introduction

This thesis has explored the conceptualisation, design and implementation of a pragmatic and real world study of factors related to improvements in outcomes for older people who were recipients of support to allow them to remain in their homes. The iterative process inherent within the course of doctoral study has encouraged the generation of common learnings that are important to consider, both within the context of the study, but also as a guide for future research employing similar techniques to investigate the complexities effecting changes in health service delivery. This process was greatly enhanced by the use of a research log / diary throughout the course of the study. The information contained in the log highlights the evolution of ideas and concepts. This chapter will present the key developments that occurred throughout the course of the study together with issues that arose during the research that would require consideration in future work.

8.2 Conceptual frameworks

Reflection on the study as it was originally conceived shows that there was a progression from the conceptualisation of the study as just an examination of the clinical and health factors relating to the use of a goal facilitation tool towards a model that encompasses a person-centred model of service delivery with consideration of the influence of individual, organisational and social / political factors. The theoretical concepts supporting the use of goal setting in optimising functional ability and the issues relating to the clinical aspects of service delivery for older people were areas where the author had considerable clinical and conceptual experience. However, the aspects relating to the interpersonal and organisational impact of the NASC and HBSS on the clinical outcomes observed required considerable exploration. Ongoing development of the study's focus had an associated development of the areas to be explored in the literature review. As concepts relating to the NASC, HBSS and the clients individual coping skills were included it became necessary to limit the literature review. For example there was considerable debate concerning the relationship between frailty, disability and the

study outcomes. However with the considerable debate relating to frailty it was decided that it did not add to the thesis and so only disability was retained. Furthermore the decision to not focus on a life course perspective in relation to ageing was made due to it not being a focus of the study to draw on past life experiences.

The identification for increased collaboration, innovation and an emphasis on service development were seen as strategies to lead to quality improvements within CMDHB. These are congruent with the national strategies described in the literature review^{12, 34, 35, 37, 40}. Of particular note, the New Zealand Positive Ageing Strategy identified the need to optimise integrated planning, funding and delivery of community support services. In addition, the New Zealand Health of Older Person's Strategy states that more emphasis needs to be placed on community-level health care and support services to support older people to 'age in place'. Co-ordinating processes and services for older people have the potential to avoid unnecessary duplication and promote continuity of care. This facilitates older people's independence by preventing deterioration in their health and home situation and by managing crises, as Challis describes "The impact of services upon well-being is much greater when those services are planned and co-ordinated in an integrated fashion"³⁴⁸. In the current study the necessary coordination related to the interaction between NASC and HBSS.

Furthermore, appraisal of literature related to the implementation of new initiatives within healthcare often explored factors relating to change management and the required levels of organisational change. It was acknowledged that this was important to consider, however, a sole focus on this would negate the crucial interactions at an individual level. The imperative requirement to determine the influence of the quality of the dyadic relationship between the NASC and HBSS was only identified following extensive critical review of the multifarious concepts of Actor Network Theory, Leader-Management Exchange and power dynamics. It would seem that the choice to measure the level of trust in the NASC-HBSS relationship was not only supported by the literature but also by the subsequent findings of the study, where it was shown to be significantly related to improvements in clinical outcomes.

However, it may be assumed that the investigation of the effect of the other concepts mentioned above may well have shown similar links to optimising clinical outcomes for the participants in the study.

8.3 Study methodology

The shift in conceptualisation of the study also necessitated a concomitant progression in the methodology chosen to explore the model developed. A research methodology describes a broad strategy or design that shapes the choice and use of particular methods and links them to the desired outcomes. The theoretical perspectives, or philosophical stance, that provides the backdrop for the chosen methodology “provides a context for the process and grounds its logic and criteria”⁸¹¹. Questions of method are secondary to questions of methodological paradigm, defined as “the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways”⁸¹². Perhaps because of the centrality of methodology, there is a temptation in conducting social research (and research methodology/methods texts can seem to imply that this is possible and desirable) to ‘select’ a methodological paradigm to work within and then to follow the methods usually associated with that paradigm.

On closer reading of methodology texts, it becomes apparent that there is no such neat approach. Perhaps it is less important to provide the ‘correct’ name for the qualitative inquiry paradigm for a research study than it is to be aware of the various standpoints, perspectives, and assumptions represented by them that need to be considered whilst engaged in social research. A more productive approach to beginning research is to articulate the ontological and epistemological perspectives driving the research. The main philosophical perspectives contributing to the methodology will then become apparent.

8.3.1 Ontological and epistemological considerations

Ontological concerns are those that question ‘what is the very nature and essence of things in the social world?’ Epistemological concerns are those that question ‘what is the theory of knowledge, and what will be regarded as knowledge or evidence?’ This thesis is essentially about making such ontological and epistemological characteristics

explicit. These new understandings will inform the quality improvements that are required within the delivery of services for older people. It soon became apparent that to examine the effect of the tool on clinical outcomes among the sample of older people would not fully consider the mechanisms by which the use of client goal facilitation can impact on the systems and processes utilised by the varied actors (NASC, HBSS and client families) within the environment of the individual client and also the wider community. It was necessary to investigate from many different perspectives in order to explore the relationship between these actors and the systems that they work within. Such a complex view required many levels of analysis and investigation. This necessitated the development and application of the model developed within the thesis.

The NASC and HBSS organisations (and the individual staff within them) needed to be understood from the standpoint of their local contexts and personal stories rather than from the perspective offered by externally determined categories such as professional groups, policy directions or traditional occupations. Any theorising therefore needed to take account of local contexts, and acknowledge that connections are made by individuals and filtered through their experiences, perspectives and biases⁸¹⁵. This is suggestive of an ontological perspective that includes a belief that ‘reality’ is comprised of such things as experiences, accounts, people, understandings, interpretations, ideas, attitudes, values, motivations, actions, identity, essence and being⁸¹⁴. Further, there are “multiple realities” that are “psycho-social constructions forming an interconnected whole”, and they can only be understood as such⁵⁷⁷. This essentially means that the focus of inquiry cannot be understood by separating out certain ‘parts’ for analysis without reference to context and situatedness. Meaning will only be made by studying the ‘whole’. Ontological issues and epistemological issues tend to emerge together⁸¹¹.

So, with a view of reality as described above, an epistemology that makes no claim of an objective truth or meaning to be discovered would seem to follow. In a constructivist view of knowledge, meaning is constructed, and different people may construct meaning in different ways about the same phenomenon. Constructivism is the epistemology most commonly invoked in qualitative research^{578, 811}. It is for this

reason that the combination of qualitative and quantitative methods was so crucial in this study. The ability to determine the effect of the use of TARGET on clinical outcomes, and concurrently explore the impact of the multifarious factors that the available literature reported would influence the use of the tool, was of considerable benefit.

8.4 Interaction between research and participants

The process of reflexivity described above is indeed a factor worthy of note in the current study. The interaction that occurred through the duration of the study between the NASC / HBSS staff and the author was considerable. This consisted of both the interviews and meetings to discuss the pragmatic issues relating to study design and also the training and peer review sessions provided to the intervention group. The influence of such a high level of interaction has been explored in Chapter Six when considering expectancy effect. However, it is possible when reflecting on the progress of the study to recognise several key areas that may have had especial impact.

8.4.1 Referrals to NASC

The first area that required considerable interaction with NASC related to the randomisation of referrals to the service. From the outset of designing the study there were members of the NASC team who were resistant to the process of research (although they all consented to participate). The concerns raised related often to the perceived level of disruption the study would cause within the busy NASC environment. It was agreed that the study needed to have minimal impact on the routine business of processing referrals and in timely assessment and commencement of services.

It was anticipated that there would be an average of 16 new referrals made to NASC each week and that approximately two thirds of those would be eligible for inclusion in the study. However, the rates of referral were often only eight to ten referrals a week and so recruitment of participants was significantly slower than anticipated. The result of this was that the impact of the study on the process of delivering

NASC services to clients was considerably reduced in intensity but was increased in duration.

8.4.2 Control group

Throughout the course of the study NASC staff allocated to the control group were often very negative about the implementation of TARGET within CMDHB. The randomisation process that placed them within the group chosen to deliver 'usual care' was not one they were familiar with and the majority of them often tried to ascertain the process used in the intervention. Considerable effort was needed by the author, NASC management and the intervention NASC to prevent this occurring.

Following completion of all data collection for the study the NASC in the control group attended training that was identical in content to the sessions attended by the HBSS and intervention group NASC. However, their high levels of negativity towards the process were once more apparent. It is important to note that this negativity was not apparent during the formal interviews conducted as part of the study.

A process for including this group to make them feel more involved in the study may have been beneficial and may have precluded the animosity that was apparent even after completion of the study.

8.4.3 Training

The inclusion of the control group in training was an aspect that was considered within the study design. It was acknowledged that this training could not provide information relating to the theory and practical applications of TARGET and its potential effects. However, it was accepted that the control group may require some form of frequency matched training to allow them to recognise that they were a crucial part of the research process. In addition there was prolonged discussion relating to the potential innovation effect of the training and the subsequent analysis of the factors relating to the success of the use of TARGET in improving clinical outcomes has shown that the training was indeed a major factor in this success. This debate is common in designing RCTs where an intervention is compared to a 'usual care' control group. The decision was made that if an element of training was

provided to the control group then this would have altered the factors inherent within the services delivered by this group. A solution commonly applied in these situations is the use of a three group design whereby there is: a control group providing usual care; a control group with enhancements (in this case some element of training) and the intervention group. However, the added complexity of this design in conjunction with the increase in sample size that would be required made this option impractical.

8.4.4 Ongoing sustainability

Counties Manukau DHB was committed to the continued implementation of the model described in the study. However, once the research was completed and the control group were trained in the use of the TARGET the close monitoring of the outcomes related to the study stopped. Subsequent meetings with staff from HBSS regarding matters that were not concerned with the study have alluded to the low level of commitment of NASC staff to the ongoing use of TARGET and a decrease in the perceived quality of the relationship between NASC and HBSS. The turnover in staff that occurred following completion of the study was a factor in this. NASC 1, 2, 11 and 13 all moved from frontline community based roles within three months of the trial finishing. As these were the intervention group NASC who showed the highest levels of commitment to the process this would have impacted on the ongoing sustainability.

A further issue related to the sustainability of the model concerns the support workers. As described in Chapter Seven there was an assumption that the support workers were able and willing to implement support plans that moved away from traditional tasks such as vacuuming and cleaning to assisting clients to maximise their functional capacity in a far more individualised manner. An important development of the findings of this study would involve discussion with the support worker staff across the organisations to ascertain their willingness and also to determine if the organisational influences of the different HBSS providers impacted on this. The current study clearly showed that the relationship between NASC and HBSS coordinators was important in the successful use of TARGET. It may also be the case that the quality of the relationship between the HBSS coordinator and the

support workers was equally important in improving the outcomes for older people receiving HBSS.

However, the CMDHB management continue to express strong support for the critical components of the restorative model. Furthermore there is continued development across the country relating to many of the issues described in the study. An in-depth exploration of the activities inherent in a model of restorative HBSS is underway to develop a more meaningful method of funding providers to deliver services. In addition the author is currently developing resources for Careerforce in order that their support worker training is congruent with the fundamental principles of the model.

8.5 The impact of the researchers professional paradigm

A further factor to consider when interpreting the study findings relates to the authors professional background as a physiotherapist and the possible impact this may have had in the design, implementation and interpretation of the study. Such an issue is common in studies involving qualitative methods and it is important to consider. As a profession physiotherapists focus on diagnosing functional limitations and utilising physical treatment modalities to maximise functional ability.

Three particular areas of the study could have been influenced by having a researcher that focussed on physical. These included: the training programme and subsequent case review sessions; the analysis and interpretation of the data arising from the interviews of the NASC, HBSS and older participants; and the interpretation of the goals determined using the TARGET and associated support plans.

However, strategies were implemented to minimise the risk of the researcher on these areas together with particular attributes of the researcher themselves. Firstly, the researcher has extensive experience of working clinically with older people in community and inpatient settings and so is fully aware of the importance of the need for a holistic view of the needs of the older person. Furthermore, the researcher coordinates and teaches a number of courses at an undergraduate and postgraduate level that emphasise such a holistic view of health. In relation to the training

provided to the NASC and HBSS coordinators it is important to note that this was a programme that had evolved over a number of years and had been used across a number of organisations within New Zealand and also within Australia and was developed by a diverse group of clinicians working within The University of Auckland.

A further strategy to minimise the effect of the researcher's professional background related to the analysis of the interview data. Although the initial determination of themes and codes was by the researcher there was a parallel and independent process undertaken by a nurse with extensive experience working with older people. Only where there was agreement between the two coders were themes, categories and associated statements assigned. This minimised the potential bias towards physical function that having sole coding by a physiotherapist could have produced.

8.6 Goal setting

An additional factor that is related to the training component of the study concerns the considerable variation in the commitment and skill of the NASC staff in utilising the TARGET tool. The support provided by senior managers within CMDHB was crucial to the successful completion of the study. However, for ongoing sustainability and to ensure higher levels of consistency in the use of the tool it would have been beneficial if, during the course of the study, there had been a member of the frontline NASC team who could have fulfilled the role of mentor and champion in relation to the use of TARGET.

8.7 Allied Health

As described in Chapter Five the use of Allied Health in the current study was very low. One of the core skills of both occupational therapists and physiotherapists is in the use of the principles of person-centred care (and particularly goal facilitation) to enable clients to return to the maximum level of function that is possible. When innovations involving person-centred care are implemented in clinical practice, it is often the role of Allied Health clinicians to assume the role of mentor or champion described above.

Consequently, in the current study it was recognised that the involvement of the Allied Health was of extreme importance and considerable effort was expended in an attempt to achieve this. However, resourcing of the Allied Health team, together with the change in practice that would be required for both NASC and Allied Health to allow them to collaboratively work with the group of participants in this study precluded their use. Attempts were made to include Allied Health in the design of the study and also in the training sessions provided. However, as can be seen there was only limited success in achieving this.

8.8 Summary

This final chapter has described the main issues considered when designing and implementing the current study. The development of the conceptual model utilised as a structure for the thesis was explained. Following this the justification for the choice of a mixed methodology that allowed for exploration of both the epistemological and ontological considerations was presented. The interactions between the research and the participants were then described in relation to the issues that arose throughout the study. These included the integration of the trial within the routine NASC processes. The chapter concluded with an examination of strategies that may have led to greater commitment from certain of the NASC and also the Allied Health team within CMDHB. The factors described in this chapter are of particular interest in placing the remainder of the thesis within the context of the reality of the environment in which the study occurred. Knowledge of this context is vital to fully understand the importance of the study findings. The comprehensive model maximised the internal validity of the study findings by ensuring that the multifarious individual, organisational and environmental influences were considered.

Appendices

Appendix 1 shows a glossary of terms commonly used within the thesis. It is included here to assist the reader.

Appendix 2 contains the consent and information sheets provided to participants prior to their entry to the study.

Appendix 3 shows the licence information for the use of the Short Form–36 Health Survey in the current study.

Appendix 4 summarises the content of the training programme delivered to the Needs Assessment Service Coordinators and Home Based Support Service Coordinators as part of the intervention portion of the trial.

Appendix 5 contains the guides used for interviewing the NASC, HBSS coordinators, HBSS managers, Funding and Planning manager and the sub-sample of older people.

Appendix 1: Glossary

Abbreviation		Definition
ACS	Avoidance Coping Scale	A component scale of the Proactive Coping Inventory, consisting of a 3-item scale, which measures the tendency to elude action in a demanding situation by delaying action.
CMDHB	Counties Manukau District Health Board	One of the 21 geographically located organisations within New Zealand responsible for providing, or funding the provision of, health and disability services in their district. CMDHB is located in South Auckland.
CRA	Caregiver Reaction Assessment	A 24-item instrument designed to measure the reactions of family members to caring for older relatives with a variety of illnesses. The scale is designed to assess specific aspects of the caregiving situation, including both negative and positive dimensions of caregiving reactions.
DSSI	Dukes Social Support Index	This 35-item tool) measures multiple dimensions of social support and is comprised of 11 items with two subscale scores. The social interaction subscale has four items and the satisfaction subscale has seven items. The total score ranges from 11-47 with increased values indicating higher levels of support
ESSS	Emotional Support Seeking Scale	A component scale of the Proactive Coping Inventory, aimed at regulating temporary emotional distress by disclosing to others feelings, evoking empathy and seeking companionship from one's social network.
HBSS	Home Based Support Services	Services delivered by contracted organisations (within New Zealand) to provide personal care and household management to promote and maintain the independence of older people living at home
HRQoL	Health Related Quality of Life	Health related quality of life (HRQoL) is considered a sub-division of quality of life which <i>“includes the</i>

		<i>physical, psychological, and social functioning associated with an illness or its treatment</i> ". Due to the global ageing population and associated rise in chronic illness, HRQoL is recognised as an increasingly important area for older people
Hua Oranga		A tool developed to measure mental health for Māori. It consists of three sets of 16 questions. One set is answered by the kaumatua or kuia, the second set by their whānau and the third by the NASC.
IADL	Instrumental Activities of Daily Living	The activities often performed by a person who is living independently in a community setting during the course of a normal day, such as managing money, shopping, telephone use, travel in community, housekeeping, preparing meals, and taking medications correctly.
ICF	International Classification of Functioning	A classification of the health components of functioning and disability developed by the World Health Organisation. The ICF is structured around the following broad components: Body functions and structure Activities (related to tasks and actions by an individual) and participation (involvement in a life situation) Additional information on severity and environmental factors
ISSS	Instrumental Support Seeking Scale	A component scale of the Proactive Coping Inventory. It focuses on obtaining advice, information and feedback from people in one's social network when dealing with stressors.
MCS	Mental Component Score	One of the two summary scores that together comprise the SF-36 health status questionnaire. It is derived through consideration of the relevant domains of the scale.
NASC	Needs Assessment	In New Zealand, support services for older people

	Service Coordination	assessed as having a disability which will last longer than six months are currently accessed from a Needs Assessment and Service Co-ordination (NASC) agency. Needs Assessment Service Coordination is a community-based service which supports older adults with a disability to enable them to stay at home as safely and as independently as possible.
PADL	Personal Activities of Daily Living	The activities ordinarily performed day by day essential for everyday living (such as eating, dressing, bathing and other personal care activities)
PCC	Person Centred Care	A philosophical approach advocated within a current Western health care culture, and has a range of definitions ¹⁷⁻²⁰ . These include components such as: understanding the whole person; finding common ground regarding management; sharing power and responsibility. It is suggested that these components are most effectively enabled by client involvement in the goal setting process.
PCI	Proactive Coping Inventory	A tool constructed to assess different dimensions of a proactive approach to coping and consists of six subscales
PCS	Proactive Coping Scale	A component scale of the Proactive Coping Inventory, consisting of 14 items, combines autonomous goal setting with self-regulatory goal attainment cognitions and behaviour.
RCS	Reflective Coping Scale	This component scale of the Proactive Coping Inventory describes simulation and contemplation about a variety of possible behavioural alternatives by comparing their imagined effectiveness and includes brainstorming, analysing problems and resources, and generating hypothetical plans of action.
SF-36	Short Form 36	A widely used health status questionnaire comprised of 36 items that explores health concepts. It also

			includes a single item that provides an indication of perceived change in health.
SPPB	Short Performance Battery	Physical	A measure consisting of an assessment of standing balance, a timed 2.4 metre walk test and a timed test of five repetitions of rising from a chair and sitting down. Each of the three tests generates a score (0-4) which is summed to produce a final score of 0-12.
SPS	Strategic Scale	Planning	A component scale of the Proactive Coping Inventory, which focuses on the process of generating a goal-oriented schedule of action in which extensive tasks are broken down into manageable components

Appendix 2: Information and consent forms



Schools of Nursing and Business

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Auckland

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CONSENT FORM

The effect of goal setting on services provided to older people

Researcher: John Parsons

This consent form will be held for a period of two years

English	I wish to have an interpreter.	Yes	No
Maori	E hiahia ana ahau ki tetahi kaiwhakamaori/kaiwhaka pakeha korero.	Ae	Kao
Samoan	Oute mana'o ia iai se fa'amatala upu.	Ioe	Leai
Tongan	Oku ou fiema'u ha fakatonulea.	Io	Ikai
Cook Island	Ka inangaro au i tetai tangata uri reo.	Ae	Kare
Niuean	Fia manako au ke fakaaoga e taha tagata fakahokohoko kupu.	E	Nakai

I have read and I understand the information sheet dated 10/1/07 for volunteers taking part in the study designed to examine the effect of a goal setting tool on quality of life, function, social participation and caregiver stress. I have had the opportunity to discuss this study. I am satisfied with the answers I have been given.

I understand that taking part in this study is voluntary and that I may withdraw myself or any information traceable to me at any time up to October 2008 without giving a reason. My withdrawal will in no way affect my future care.

I understand that my participation in this study is confidential and that no material which could identify me will be used in any reports on this study.

I understand that the treatment, or investigation, will be stopped if it should appear harmful to me.

I understand the compensation provisions for this study.

I have had time to consider whether to take part.

I know whom to contact if I have any side effects to the study.

I know whom to contact if I have any questions about the study.

I agree to take part in this research.

Signed:

Name:

(please print clearly)

Date:

This study has received ethical approval from the Auckland Ethics Committee.

Patient Information Sheet

An invitation...

You are invited to take part in a research study because you have been referred to Needs Assessment Services for an assessment of the services needed to help you remain at home. This study is trying to find out about a way to try and improve services for older people in the community. It is also a way of making sure that any services provided meet your individual needs. It is part of research carried out over the last 3-4 years in New Zealand to increase the amount of input that older people have in deciding the type and amount of services that will be provided to help them remain independent. This study may involve the Needs Assessor contacting you and using a specially developed form. They will work with you to look at how to keep you as good as you can be and as independent as possible. Another important part of what the assessor will talk to you about involves working out your goals and how to achieve these goals. Services will then be provided to meet these goals. There is a lot of evidence from around the world that older people continue to have dynamic, multifaceted and future oriented goals and there is good evidence that suggests that setting goals has a positive effect on psychological wellbeing and life satisfaction in older people.

We hope to make life easier for older people living at home.

The School of Nursing and the School of Business at the University of Auckland coordinate this study. The study is being undertaken as fulfillment of a Doctoral study.

Your participation is entirely voluntary (your choice). You do not have to take part in this study. If you choose not to take part, any care or treatment that you are currently receiving will not be affected. If you do agree to take part, you are free to withdraw from the study at any time, without having to give a reason. Withdrawing at any time will in no way affect your future health care. To help you make your decision please read this information sheet. You may take as much time as you like to consider whether or not to take part. If you require an interpreter this can be arranged.

What are the aims of this study?

The main aim of the study is to assess the effect goal facilitation has on service provision and clinical outcomes among older Pakeha (aged over 65) or Māori (aged over 55) referred to Needs Assessment Service Coordination in Counties Manakau District Health Board. Service provision will be assessed by interviewing Needs Assessment Service Coordination staff and service providers. The following outcomes will also be examined across the two groups of older people at 4 months after they enter the study: quality of life; physical function; social participation; caregiver stress and levels of mastery and control.

What types of people can be in the study?

Any pakeha aged over 65 years or Maori aged over 55 years referred for assessment by Needs Assessment Service Coordination at Counties Manukau District Health Board is eligible for entry into the study as long as they do not meet the following criteria:

- Severe cognitive impairment that compromises adherence to the intervention.
- Evidence of any unstable medical condition that has been the primary diagnosis for three or more inpatient episodes in the previous six months
- How many people will be in the study?
- There will be approximately 200 older people recruited into the study.

What happens if I do decide to take part?

If you decide you would like to take part, your participation would be for six months only. A researcher who has been specially trained for this project, will interview all of the participants. You will be asked questions about your health and asked to complete several simple tasks such as standing up, reaching forward and bending over. You will be randomly placed in one of two groups. The first group will have the special form used when the Needs Assessor talks to you. After this all the services provided to you will be based on what you said when the form was filled out. The second group will undergo a normal assessment and will receive normal care only. This is to ensure the study is fair. If you are placed in the second group

undergoing a normal assessment then any follow-up assessments Needs Assessors perform with you after the study is completed may use the special form. This will occur if it is found that using the form improves the services that people receive.

We would also like to gather information about anything that happens to you during the course of the study. We would also like to contact your GP or the hospital for information if necessary.

What is the time-span for the study?

The study is expected to start in January 2007 and will continue until mid 2008.

The risks and benefits of the study

Taking part in this study will take some of your time and require you to answer a series of questions and complete some simple tasks. Your usual medical care will not be affected in any way by participation in the study, or by declining to participate or withdrawing from the study at any stage. Your participation in this study will be stopped should any harmful effects appear or if the doctor feels it is not in your best interests to continue. Similarly your doctor may at any time provide you with any other treatment he/she considers necessary.

This study will be of benefit to the wider population. There is no guarantee that you will benefit directly from being involved in this study, however, other studies have shown that increasing activity and function makes older people feel better and maintain independence so you may benefit directly. The results obtained from your participation may help others in the future.

Compensation

If you suffer physical injury as a result of your participation in this study, the Accident Rehabilitation Compensation Insurance Corporation (ACC) may cover you. You should note however, that eligibility for compensation is not automatic. Your claim to compensation may be accepted by ACC but your entitlement to compensation will depend upon a number of factors such as whether you are an earner or non-earner. You should note that in most cases ACC provides only partial reimbursement of costs and expenses and there is no lump sum compensation payable under the current ACC legislation. If you have suffered mental injury there

will be no ACC compensation available. You should also note that if you have cover under the ACC legislation your right to sue the researcher(s) or anyone else in the trial is extremely limited. If you have any questions about cover or entitlements under the ACC scheme you should contact your nearest ACC branch office for further information before you consent to participate in this trial.

Confidentiality

The study files and all other information that you provide will remain strictly confidential. No material that could personally identify you will be used in any reports on this study. Your GP will be informed of your participation in this study. Upon completion of the study your records will be stored for 16 years in a secure place at the central coordinating centre in Auckland. All computer records will be password protected. All future use of the information collected will be strictly controlled in accordance with the Privacy Act.

Your rights

If you have any queries or concerns regarding your rights as a participant in this study you may wish to contact a Health and Disability Advocate;

Phone	0800 423 638
Free fax	0800 27877678 (0800 2 SUPPORT)
Email	advocacy@hdc.org.nz

Finally

This study has received Ethical Approval from The Northern Y Regional Ethics Committee in December 2006. If you would like some more information about the study please feel free to contact John Parsons, (09 373 7599 x83935) or Professor Martin Connolly (09 486 1491 x7170).

Study Investigators

The principal investigators for this study are:

John Parsons

Professor Martin Connolly

Associate Professor Paul Rouse

Appendix 3: Short Form 36 Health Survey Licence

Product Version: QualityMetric Health Outcomes(tm) Scoring Software 3.0

SF8 Credit Count: 0

SF8 MDE Enabled: No

SF10R1 Credit Count: 0

SF12v1 Credit Count: 0

SF12v1 MDE Enabled: No

SF12v1 Utility Index: No

SF12v2 Credit Count: 0

SF12v2 MDE Enabled: No

SF12v2 Utility Index: No

SF36v1 Credit Count: 0

SF36v1 MDE Enabled: No

SF36v1 Utility Index: No

SF36v1 RCI Score: No

SF36v2 Credit Count: 525

SF36v2 MDE Enabled: Yes

SF36v2 Utility Index: No

SF36v2 RCI Score: Yes

Medical Expenditure Credit Count: 0

Activation Key(s):

950AD-CA764-F1739-F38C9

Appendix 4: Components of training programme

The training was divided into three distinct sections including an induction session and five subsequent sections which allowed participants to gain a greater understanding of assessing older people, undertaking goal facilitation and functional rehabilitation. Specifically, the programme provided participants with the fundamental skills to deliver a model of HBSS structured around TARGET and was separated into:

- Induction session (4 hours),
- Goal facilitation (8 hours)
- Putting it into practice (12 hours)

The programme drew on a number of highly skilled health professionals and to maximise time efficiency, the workshops were best suited to six half days sessions.

The objectives for the training were:

1. To be competent in the completion of tasks related to TARGET tool
2. Be confident in the process to be followed in facilitating goal directed home based support service provision
3. Coordinate individually tailored requests for allied health provision
4. Coordinate access, to appropriate activities in the community that may be funded through other means
5. Design and / or support the design and implementation of a client centred and fiscally responsible package of care
6. Monitor and review the clients progress in response to the package of care delivered by the home based support provider
7. Identify the main points of the concept of functional rehabilitation and goal facilitation
8. Describe ways of integrating ADL tasks into rehabilitation

The programme focused on two areas: first, accelerating learning for all services concerning restorative home based care and support, working with participants to ensure they understand the concepts of restorative home based care and support and client centred service input; second, developing the participants' skill base so that they will begin to operate a client goal driven restorative service. The aim was that through gaining an understanding the purpose of a restorative approach and by

gaining skills in client goal setting through the use of TARGET, participants left the sessions able to begin delivering a restorative service.

The programme covered:

- Critical reflection on practice
- The fundamental principles of restorative home based care and support
- Principles of self-management for older people
- Motivational interviewing techniques and accompanying evidence
- Functional task analysis
- The evidence for functional rehabilitation and the development of skills necessary to incorporate this into packages of care
- Skill development in transforming the output of TARGET into personalised packages of care
-

Peer review sessions

There were monthly peer review sessions, at which coordinators from all HBSS providers as well as intervention group NASC, were invited to attend a two hour peer review process. The sessions consisted of face to face meetings, and will be facilitated by the NASC with assistance from the author. Providers were expected to present client cases which prompted informed discussion concerning client progress. The presence of HBSS and NASC coordinators combined with the focus on actual clients receiving services provides a non-threatening, solutions based environment to supported ongoing implementation.

The main aim of these sessions was to provide a peer review structure to enable providers and NASC to problem solve collectively in a shared learning environment to support ongoing service implementation. This occurred through:

- Ongoing education concerning goal facilitation and assessment and review of care packages for older people, and the meaning and practice of a restorative home based care and support programme
- Continued development of the NASC/HBSS provider interface
- Identification of process issues and solutions

Appendix 5: Interview Guides

Interview guide management/leader

Management career
How many staff do you manage?
Role identity
How would you describe your role as a leader?
How do you feel about your role at the present time?
How would you describe the role of NASC?
Tell me how you think that role may have changed recently?
How would you describe the role of the HBSS coordinator?
Tell me how you think that role may have changed recently?
What attributes does a HBSS coordinator need to have to work well in the job?
What attributes does a NASC need to have to work well in the job?
Relationships and networks
What are the groups that you work closely with in your position?
What can you tell me about your relationship with these groups
How would you describe communication between NASC and service providers over the past year?

What happens when the interaction between NASC and HBSS is perfect?
What happens when the interaction between NASC and HBSS is less than perfect?
Service provision
What are your views of the services currently provided to older people in their homes within South Auckland?
Beliefs and values
What is the purpose of the service that you manage?
What can you tell me about person or client centred care in your organisation
How do you suggest the services you provide to older people fit in with the concepts of person or client centred care?
Tell me about your views on goal setting by the older person.
Describe what happens when a client really benefits from input by your service
How do older people benefit from input by your service?

Interview Guide for NASC / HBSS

Career
Role identity
How would you describe the role as a NASC within CMDHB?
How do you feel about your role at the present time?
Tell me how your role may have changed recently?
How did you learn how to become a NASC?
What are parts of your role that you enjoy?
What are parts of your role you would like to change?
Relationships and networks
What are the groups that you work closely with in your position?
What can you tell me about your relationship with these groups
How would you describe communication between NASC and service providers over the past year?
What happens when the interaction between HBSS and yourself is perfect?
What happens when the interaction between HBSS and yourself is less than perfect?
Service provision
What are your views of the services currently provided to older people in their homes within South Auckland?

Tell me how the way that older people receive services within South Auckland has changed over the past year?
What do you see as the main areas for improvement in services to older people within South Auckland?
Beliefs and values
What can you tell me about person or client centred care in your work
How do you suggest the services you provide to older people fit in with the concepts of person or client centred care?
Tell me about your views on goal setting by the older person.
Describe the purpose of your role as NASC
How do older people benefit from your input?
Describe what happens when you feel a client did not benefit from your input as much as you think they could have

Interview guide for older people

What is your opinion of the services you receive here in your home?
Do you think they have helped you in any way?
If so how?
What parts of the services you receive do you feel have been most beneficial?
Did you set a goal?
Were the goals what you really wanted?
Does the support worker assist you with goals?
Do you have a good relationship with your support worker?
Do you have enough information?

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