Making Meal Times Better for those with a Dementia.

The impact on nursing home residents and health care assistants of a feeding assistance training programme.

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Declaration

I, Maureen Henderson, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

This project evaluates the effectiveness and impact of a feeding assistance programme 'Making Meal Times Better for those with a Dementia' (MMB) supported by five sixty minute health professional led support forums as compared to a three hour MMB standalone version and control conditions for health care assistants (HCAs) working with residents with a dementia and oral feeding difficulties. Outcomes were evaluated for 90 participating health care assistants and 451 observed meal times across three nursing homes. Measures of staff knowledge, competency, attitudes and daily care practices were measured using self completion questionnaires alongside observations of the quality of and adequacy of mealtime feeding assistance pre- and five months post intervention, using purposive sampling.

HCAs who participated in support forums maintained significantly better knowledge and competency scores five months following training compared to those who received the stand-alone three hour MMB training programme and control conditions. Observations of mealtimes revealed that the nursing home exposed to greatest duration of training demonstrated most improvement in the provision of quality feeding assistance: actively identifying and providing targeted feeding assistance to those residents deemed at risk of malnutrition and relocating more residents into the communal dining room. Beneficial changes were accompanied by a significant reduction in social stimulation. Control conditions demonstrated several changes in feeding behaviours which may be attributed to attempts to increase oral intake without sufficient training.

Training increased the food consumption of those residents at risk of malnutrition but did not increase food consumption overall or the high levels of stress and guilt experienced by HCAs. Lack of social cueing and less than five minutes of feeding assistance were correlated with increased risk of malnutrition across nursing homes. A paucity of HCA documentation of

oral intake in medical records suggests an organisational barrier to the translation of HCA knowledge to the wider healthcare team.

For John

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Chapter: 1 Introduction

Dementia is the greatest challenge facing health and social care services in the United Kingdom (Department of Health, 2009). In the year 2010, approximately 820,000 individuals in the UK, one in fourteen people over 65 years of age, were estimated to have some form of dementia. The majority of people (70%) with a dementia will die in a nursing home, thrusting nursing homes into the role of key providers of palliative care (Alzheimer's Research Trust, 2010). Although dementia clearly falls within accepted criteria for an end of life condition it is not widely recognised as a terminal illness, with dementia sufferers receiving inadequate palliative care, having in place fewer advanced care directives and undergoing more burdensome medical interventions (Mitchell, Teno, Kiely, Shaffer, Jones, Prigerson, Volicer, Givens & Hamel, 2009). The clinical trajectory of dementia suggests that oral feeding difficulties are highly prevalent in advanced dementia, with up to 86% of individuals with a dementia in a nursing home setting presenting with an oral feeding difficulty and more than half losing some ability to feed independently, with consequent risks for inadequate food intake, malnutrition and a life threatening dysphagia (Chang & Roberts, 2011, Teno, Mitchell, Kuo, Gozalo, Rhodes, Lima & Mor, 2011). In response to the overwhelming evidence in the literature base and the release of several landmark Government papers outlining the management of oral feeding difficulties in advanced dementia the debate regarding enteral feeding has been reframed from advocating feeding tubes to specifying the act of hand feeding as a viable alternative therapy, thereby re-establishing the focus for the patient on care provision and ensuring quality of feeding assistance in the nursing home until the end of life (All Party Parliamentary Group, 2009, Department of Health, 2009, Royal College of Physicians, 2010).

‘Oral feeding’ difficulty is the term favoured by the Royal College of Physicians to describe the complex and entire range of eating and swallowing difficulties displayed by individuals with a dementia, dysphagia and complex feeding disorders (Royal College of Physicians, 2010). Oral feeding difficulties in adults with a dementia is a multidimensional phenomenon encompassing cognition and an array of associated factors including physical, psychological, social, environmental and cultural factors (Chang & Roberts, 2008). In a survey of 71 residents in a dementia special care unit only 24% of residents were able to eat independently, 18% were hand-fed and 58% had significant eating difficulties. These included feeding refusal (26%), choking on food (7%) and a combination of feeding refusal and choking (25%), thus illuminating the array and prevalence of feeding difficulties in the dementia care nursing home setting (Volicer, Seltzer, Rheaume, Karner, Glennon, Riley & Crino, 1989). Eating is a major source of pleasure but it is apparent that health care providers struggle to help older people maintain this source of enjoyment (Berry & Marcus, 2000).

Both within the UK and in developed Western countries, health care assistants (HCAs) provide virtually all of the direct care (including feeding assistance) to residents in dementia care settings (Schneider, 2010). HCAs working in dementia care settings have been shown to have an important influence on the frequency and severity of behavioural problems and agitation in dementia (Dunkin & Anderson-Hanley, 1998). Assisting individuals with a dementia and oral feeding problems is an area of nursing care in which intervention is, in many cases, inadequate, sometimes casual and in some cases potentially life-threatening (McGillivray, 1999).There is a growing recognition of the poor nutritional and substandard feeding assistance care provided to residents in many nursing homes (Simmons, Keeler, Zhuo, Hickey, Sato & Schnelle, 2008 & Simmons, 2007). Evidence suggests that HCAs do not recognise dementia as a terminal neurodegenerative illness and are unable to recognise the signs and symptoms of oral-feeding difficulties (All Party Parliamentary Group, 2009, Thune-Boyle, Sampson, Jones, King, Lee & Blanchard, 2011). In a sample of 143 HCAs, none were able to differentiate between a lack of the wish to eat and a lack of the ability to eat, delineating a fine line between 'assisting to eat' and 'force feeding' in these feeding situations (Norberg, 1988 & Watson, 1990). HCAs are rarely provided with specific training to equip them to deal with the physical, psychological, social, environmental and cultural factors that arise when assisting an individual with a dementia to eat and drink (Chang & Roberts, 2011). The All Party Parliamentary Group (2009) concluded that the workforce as a whole is ill equipped to deliver personalised care to individuals with a dementia, as reflected in a lack of HCA knowledge and poor attitudes even in 'specialist' dementia services, citing lack of training as a barrier to personalized dementia care.

Objective 13 of the National Dementia Strategy for England (2009) targets as a 'profound' priority the formation of an 'informed and effective workforce for people with dementia' throwing the gauntlet to health and social care providers and health professional institutions to identify specific goals and core competencies for HCAs working with a dementia and to develop training consistent with their role. Despite proposals for widespread training of HCAs the uptake of vocational qualifications both by individuals and their employers has been poor (Wakefield, 2009). There is no dementia standardised training or competency framework relevant across care settings or levels of practice, recognition of the competencies required of non traditional learners to demonstrate good quality dementia care and, due to a lack of regulation, a failure to understand who makes up this large unregulated cohort of dementia care providers (Traynor, Inoue & Crookes, 2011). The questionable efficacy of artificial feeding and the provision of virtually direct care services by an untrained and ill prepared workforce mean that health and social care providers are under a clear obligation to evaluate methods to manage the challenging issue of oral feeding difficulties in advanced dementia and feeding assistance by HCAs. Few studies have evaluated the effectiveness of ‘inputs’ such as feeding assistance interventions and the provision of training for HCAs against ‘outcomes’ such as the quality of the resident dining experience (Chang & Roberts, 2011).

This research evaluates whether a feeding assistance programme ‘Making mealtimes better for those with a dementia’ alongside five sixty minute supported training forums in three dementia care units improves HCA knowledge, their ability to recognise and manage the signs and symptoms of oral feeding difficulties. The research also evaluates whether the programme influences HCA attitudes and assesses the dining experience of those residents with a dementia in their care as demonstrated by improved quality of feeding assistance using an observational framework during meal times. The targeted feeding assistance programme was delivered both with and without additional health professional led support forms as a means of exploring effective inputs and teaching methods required for HCAs working with individuals with a dementia and oral feeding difficulties to demonstrate adequate core knowledge and competencies as well as gauging associated outcomes. This research is a response to the All Party Parliamentary Group on Dementia’s (2009) call for innovative exploratory training programmes using a mixed methodology and observational frameworks taking into account the characteristics and learning needs of HCAs in the UK, identifying the core competencies necessary for the delivery of good quality dementia care within the setting of three specialised dementia care units within the UK.

Chapter: 2 Literature review

2.1 Defining Dementia:

Dementia is a syndrome, and the term refers to a collection of progressive and largely irreversible neurological disorders strongly associated with aging (Savva, Wharton, Ince, Forster, Matthews & Brayne, 2009). On a neuropathological level, hallmark features of dementia include brain atrophy, extracellular amyloid plaques and intracellular neurofibrillary tangles (a build up of an abnormal form of the tau protein) throughout the brain and particularly in the portions of the brain related to memory, the entorhinal cortex and hippocampus (Welsh-Bohmer & White, 2009). Tau neurofibrillary tangles signal an interruption of cell transport properties important for neuronal survival and function leading to weakened communication between cells in the brain (Braak & Braak, 1991). Studies have suggested no direct link between the presence of plaques and tangles and a subsequent dementia. Larger brain size, greater earlier cognitive abilities, efficient use of alternative brain networks, inherited genes, lifestyle habits and other health conditions also play a role in cognitive resiliency (Scarmeas & Stern, 2004).

The term 'dementia' has many limitations, most importantly the lack of a universally agreed, operationalised definition which recognises the multiple causes of cognitive impairment on a continuum without attaching the social stigma of a "dementia diagnosis" (van den Noort & Bosch, 2010). A more sensitive understanding of dementia in modern times is heralded by the removal of the term in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders in 2013, replacing it with three broad syndromes 'Delirium, Major Neuro-cognitive Disorder and Minor Neuro-cognitive Disorder' (George, 2010). A broadly accepted interpretation of dementia is that of 'an intellectual decline involving at least two cognitive domains including memory, language, praxis, gnosis and / or executive abilities associated with impairment in activities of daily living' a definition established by the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV, 2000). Given that researchers are still in the infancy of understanding the cellular mechanisms responsible for the expression of dementia it is unsurprising that an operational definition for a dementia or dementia syndromes is still unclear. What is certain is the progressive debilitating loss of self as a consequence of dementia disease progression with a devastating impact on the person, carers, health and social services and society.

A dementia is the consequence of a large number of progressive brain disorders. The most common is Alzheimer's disease which accounts for 55% of all dementias followed by vascular dementia (20%), dementia with Lewy bodies (15%), fronto- temporal dementia including Pick's disease (5%) and other dementia (5%) (Alzheimer's Society, 2004). Despite a wide variety of causes several risk features are common to all dementias of which age is the most relevant. Alzheimer's disease (AD) progression can be divided into approximately three stages. In early stages a person with AD may experience very minor changes in their abilities or behaviours. In the middle stages changes in ability and behaviours such as increasing forgetfulness become more significant with the person requiring more support to manage their daily activities such as eating, washing, dressing or using the toilet. In later stages people with AD may become increasingly frail, have difficulty eating and feeding, lose memory and speech abilities and so gradually become dependent on others for care (Alzheimer's Research Trust, 2010). At advanced stages people with dementia can present carers and social care staff with challenging and complex care needs that require careful management including aggressive behaviour, restlessness and wandering, dysphagia, incontinence, delusions, hallucinations, aspiration and pneumonia which increase the risk of mortality (NICE-SCIE, 2006).

2.1.1 Incidence and Prevalence:

The Alzheimer's Trust (2010), estimate that over 820,000 individuals in the UK have a dementia, representing 1.3% of the UK population. By 2050, this number is forecast to exceed 1.2 million. The prevalence of dementia depends greatly on the age structure of the population and for the UK the prevalence rates are 2% in the 65-70 age group; 5% in the 70-80 age group and 20% in the over-80 age group (Department of Health, 2009). It is estimated that approximately 180,00 new cases of dementia occur in England and Wales each year – one every 3.2 minutes (Matthews & Brayne, 2005). Despite these figures there is a significant gap between the expected number of people with a dementia and the number of diagnoses made in the UK: only one third of people with a dementia receive a formal diagnosis (National Audit Office, 2007). In England only an estimated 31% of people with a dementia are registered in General Practitioner (GP) lists. Reasons for the low rate of diagnosis in primary care settings include lack of GP training and confidence in diagnosing a dementia, further highlighting the insufficiency of current levels of training to meet the workforce needs in dementia (Department of Health, 2009, National Audit Office, 2007).

In 2007, dementia was the fourth leading cause of death among females and the eighth leading cause among males in the US (Office for National Statistics, 2007). Death rates based on mentions of Alzheimer's disease on death certificates increased dramatically over the period from 2002 to 2007, by 9.3% for females and 1.6% for males. This was partly due to an increasing tendency to record Alzheimer's disease on death certificates, following an increasing recognition of the disease underlying much dementia. These statistics likely underestimate the clinical and societal burden of dementia because they do not consider other causes of dementia (e.g. vascular) and are derived from death certificate data which typically under represent dementia as a cause of death (Ganguli, 1999, Sachs, Shega & Cox-Hayley, 2004).

2.1.2 Where are those with dementia living?

Over one third of people with a dementia live in care homes and at least two thirds of all people living in care homes have some form of dementia (Alzheimer's Society, 2007). Given these finding it is remarkable that most care homes do not specialise in dementia care (All Party Parliamentary Group, 2009 & Matthews, 2002). One third of care homes with dedicated dementia provision report having no specific dementia training for staff (National Audit Office, 2007). Levels of training are low even in specialist dementia services, and this is reflected in the lack and variable nature of specialist dementia care training available in the care home population. This deficit in training exposes the insufficient ability of the workforce as a whole to deliver personalised care to people with a dementia and their families. The All Party Parliamentary Group on Dementia in an evaluation of the care skills of care home staff concluded that as a whole the social care workforce has a very limited knowledge of dementia and is therefore not ready to provide high quality dementia care (All Party Parliamentary Group, 2009).

2.1.3 Palliation in dementia:

Dementia is a terminal condition but people can live with it for 7 -12 years after diagnosis (Department of Health, 2009). Approximately 70% of persons with a dementia die in nursing homes therefore these homes constitute key providers of terminal care to these people (Mitchell, 2005). Although a leading cause of death in the UK and clearly meeting the definition of an end of life condition it is not widely recognised as a terminal illness and health and social care staff are unable to recognise the symptoms of dementia disease progression (All Party Parliamentary Group, 2009, Kontos, Miller & Mitchell, 2009, Mitchell et al., 2009). Unlike the dying trajectory in more acute illnesses, persons with a dementia are severely functionally and cognitively more impaired for a prolonged period before death with many developing difficulty in swallowing, leading to poor oral intake, malnutrition, weight loss and recurrent episodes of aspiration pneumonia (Palecek, Teno, Casarett, Hanson, Rhodes & Mitchell, 2010). The illness trajectory, often described as a period of prolonged dwindling, makes it difficult to meet needs and complete advanced care planning (Murray, 2005). Currently, inappropriate admissions to hospital are common in the UK, often despite the knowledge that admission to hospital of a person with moderately severe dementia may be a critical event: half will die within six months (Morrison & Siu, 2000). Furthermore, hospitalization is linked to increased risk of delirium and distress (Mace, 2006) and individuals with advanced dementia in acute care receive less pain control but undergo more invasive interventions compared to cognitively intact individuals receiving palliative care (National Council of Palliative Care, 2007).

Despite developments in government legislation, individuals with advanced dementia 'rarely' access palliative care services and families 'rarely' receive an advanced care planning discussion lasting more than five minutes (Thune-Boyle et al., 2011). Evidence suggests that end of life care provided to residents in a nursing home setting with a dementia is sub optimal, with dementia not viewed as a terminal neurodegenerative illness by a majority of staff (Mitchell, 2007). Using an explorative qualitative methodology applying semi structured interviews directed at twenty next of kin of those who had recently died secondary to a dementia, Thune- Boyle et al (2011) illustrated several challenges to providing appropriate end of life care to those with a dementia in the UK. Barriers included a lack of illness awareness, poor knowledge on the part of staff and health care professionals and the fact that families were seldom informed of the likely progress and terminal nature of dementia. Poor command of English by care staff was consistently identified as problematic, interfering with communications with the resident. Furthermore, GPs appeared to rely on secondary care to provide relatives with information regarding the dementia status which was clearly absent resulting in families 'guessing' what was going to happen. A similar pattern is portrayed in the United States literature base (Mitchell, 2007 & Sachs, 2004).

The knowledge base of some health care professionals in hospital and nursing homes has proved to be lacking. Speech and language therapists (SLTs) are often directly involved in management of treatment plans in individuals with advanced dementia and oral feeding problems. In a national study of 731 SLTs in the United States only 42% of respondents felt moderately to well prepared to manage dysphagia in advanced dementia (Vitale, Berkman, Monteleoni & Ahronheim, 2011). Many SLTs have beliefs about tube feeding in advanced dementia that do not comport with the evidence base in the scientific literature, with 76% of respondents believing that tube feeding might reduce aspiration risk, whilst remaining ambivalent about tube feeding preventing an uncomfortable death (50.2%) or improving functional status (54.5%) (Vitale et al., 2011). Evidence suggests that confusion among health care staff regarding when to initiate advanced care planning may result in care not being directed towards comfort until death is perceived as imminent and the responsibility for end of life treatment being placed on families (Thune-Boyle et al., 2011).

Effective seamless care between health and social care providers is achievable if appropriate training is provided for health and social care staff targeted on advanced dementia and end of life care in the nursing home. An educational programme for 19 Australian nursing homes involving advance care planning discussions significantly reduced hospital admissions from the nursing homes to acute care alongside decreased resident mortality and reported beneficial cultural changes from family, carers and nursing home staff (Caplan, Meller, Squires, Chan & Willett, 2006). Both international and UK based literature have highlighted shortcomings and barriers to the provision of quality end of life care in vulnerable individuals with an advanced dementia for many years with the end result that nursing homes often provide inappropriate life prolongation rather than active palliation (Thune-Boyle et al., 2011).

2.1.4 Policy context and dementia:

Following unanimous widespread condemnation of the lack of dementia care planning and commissioning of services which as recently as 2007 was described as 'patchy' at best (Alzheimer's Society, 2007) the Government produced the National Dementia strategy for England in 2009 in recognition of a specific condition, as opposed to previous dementia legislation that was covered under the Long Term Conditions frameworks. The framework has its origins in a number of initiatives around mental health services for older people, policy statements, reviews of practices and recommended standards for service delivery and staff capabilities. These include: the National Institute for Clinical Excellence: Dementia Clinical Guidelines (Department of Health, 2001), Dementia UK: the full report (Alzheimer's Society, 2007), Forget Me Not: Mental Health Services for Older People (Benbow, 2000) and Improving Services and Support for People with Dementia (National Audit Office, 2007).

The first National Dementia Strategy (2009) and subsequent Quality Outcomes for People with Dementia: building on the work of the National Dementia Strategy (Department of Health, 2010) is a comprehensive national strategy aiming to improve local provision of good quality care for all with dementia from diagnosis to the end of life in the community, hospitals and in care homes. With this landmark document, England joined five other countries (Norway, France, Scotland, Australia and South Korea) in making dementia a national policy priority. The strategy is designed to cross the boundaries between health, social care and the third sector and to unite service providers, people with dementia and their carers in pursuing three broad goals: raising awareness and understanding; promoting early diagnosis and support; and improving conditions for those living with dementia. Integral to and underpinning these outcomes are four identified priority objective proposals which aim to improve community personal support services and prevent premature admission to hospitals and length of hospital stay (Department of Health, 2010).

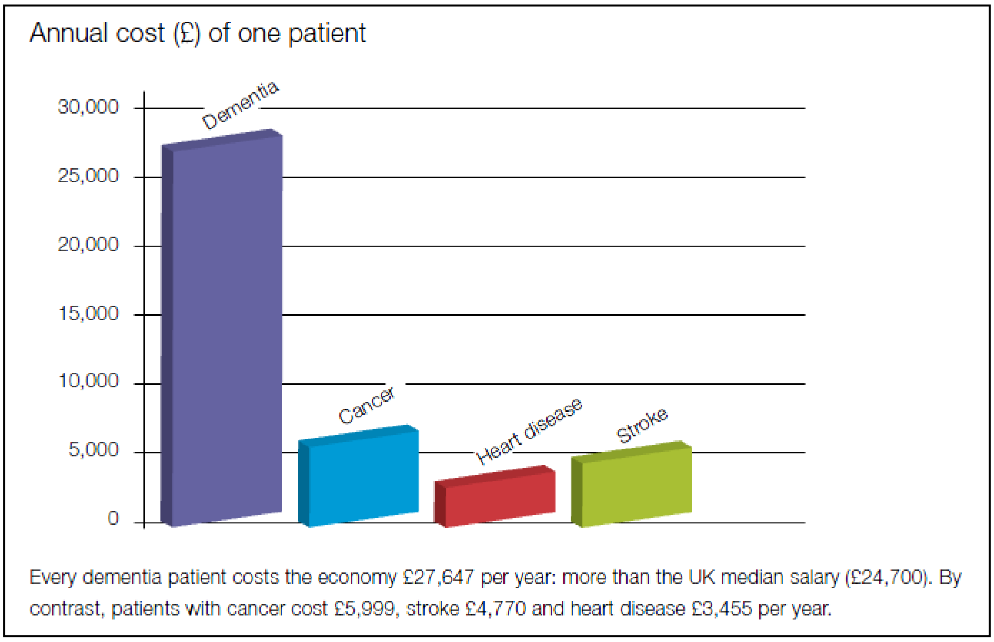
The capacity of the National Health Service to maintain the dignity of vulnerable patients has been an emerging theme in the literature spearheaded by the National Dementia Strategy. Maintaining patient dignity and delivering personalised dementia care has become a key policy issue following growing concern about the lack of respect shown to older people in care settings (Philp, 2002) and about many of the standards developed in earlier governmental documents such as the National Service Frameworks for Older People (Department of Health, 2001) and Dignity in Care Agenda (Department of Health, 2006). Proposals to promote Dignity in Care at a national level include regulation of all social care workers (including HCAs) and setting up a review of the National Minimum Standards for care.

2.1.5 Economic cost of dementia

The Alzheimer's Trust (2010) estimate that dementia costs the UK economy £23 billion per year. This figure incorporates wider societal costs including health care costs and those costs falling outside the health care sector such as unpaid care to individuals with a dementia. For every one of the 821,884 people in the UK with a dementia it costs the economy £27,647 per year, more than the UK median salary. The cost of dementia today is more than the cost of heart disease, cancer and strokes combined (Alzheimer's Research Trust, 2010). From a health care perspective, most of the direct cost is attributable to inpatient services, home health care and skilled nursing facilities (Department of Health, 2009).

It is an interesting juxtaposition that whilst the economic costs of dementia are vast, government and charitable spending on dementia research is 12 times lower than that spent on cancer research. A large figure, £590 million is spent on cancer research each year, while just £50 million is invested in dementia research. For every person with cancer, £295 is spent each year on research whereas for dementia, the figure is just £61 (Alzheimer's Research Trust, 2010).

Figure 2-1: Cost of dementia in UK compared to other chronic diseases



(Alzheimer’s Research Trust, 2010)

2.2 Oral feeding difficulties in a dementia

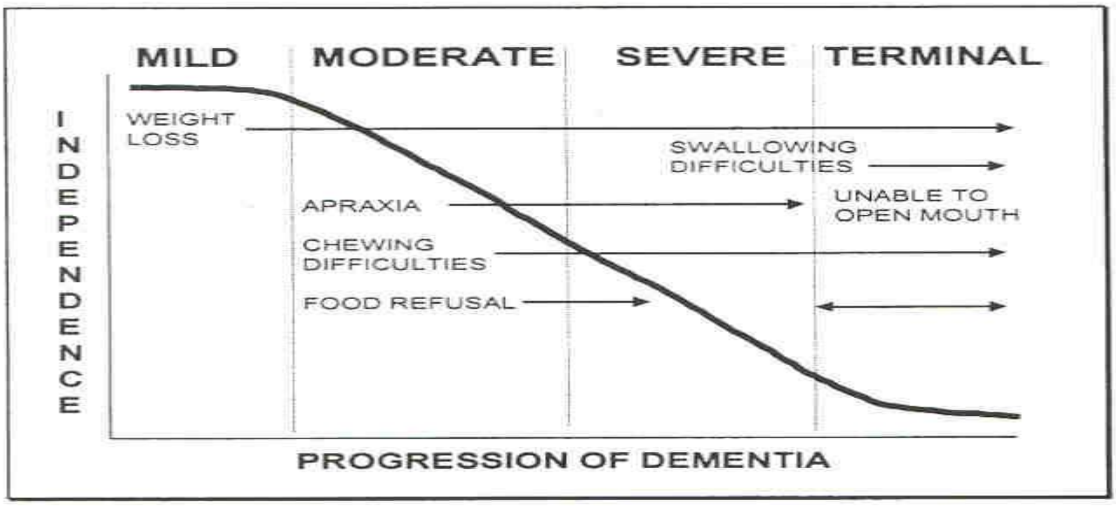
2.2.1 Oral feeding difficulties in a dementia

Swallowing is the efficient and safe movement of a bolus from the mouth to the stomach without aspiration, and it involves the co-ordinated and synchronized contraction of muscles in the oro-pharynx, larynx and oesophagus (Dodds, Stewart & Logemann, 1990). Swallowing depends on a complex neuronal network involving many brain areas; lesions in the pre-motor, primary motor, primary somatosensory cortices, insula and the periventricular white matter can all cause dysphagia (Steinhagen, Grossmann, Benecke & Walter, 2009). Four overlapping phases describe the movement and modification of the bolus as it progresses from the mouth through the oesophagus and into the stomach: oral preparatory, oral, pharyngeal and oesophageal (Dodds et al., 1990).

Dysphagia is the term used to describe disordered swallowing regardless of etiology and includes problems with ‘behavioural, sensory and preliminary motor acts in preparation for the swallow as well as cognitive awareness of the upcoming eating situation, visual recognition and physiologic response to the smell and presence of food’ (Logemann, 1998). Presbyphagia, the naturally diminished functional reserve of the swallow as a consequence of aging occurs as a result of changes in head and neck anatomy, physiologic and neural mechanisms underpinning the swallowing function and increased prevalence of disease, increasing the risk for disordered oro-pharyngeal swallowing (Ney, Weiss, Kind & Robbins, 2009). Estimates of the prevalence of swallowing dysfunction in older (65 years and older) adults without known disease ranges from 7% to 22% (Easterling, 2008). These problems place those with a dementia at even greater risk of oral feeding difficulties.

Oral feeding difficulty is the term favoured by the Royal College of Physicians to describe the complex and entire range of eating and swallowing difficulties displayed by individuals with a dementia, dysphagia and complex feeding disorders (Royal College of Physicians, 2010). Robertson (1996) defined the issue of dysphagia in dementia as an eating problem accompanied by a swallowing problem specifically knowing what, when and how to eat in addition to having a delayed or absent swallow reflex. Oral feeding difficulties and dysphagia can be a result of behavioural, sensory or motor problems (or a combination of these) predisposing the individual to dehydration, malnutrition, weight loss and aspiration pneumonia (Hudson, Daubert & Mills, 2000). Aspiration is defined as the inhalation of oropharyngeal or gastric contents into the pulmonary tree (Marik, 2003). Signs of aspiration include recurrent chest infections, coughing, choking, ‘wet’ or ‘gurgly’ voice or respiratory distress when being fed. Weight loss, dysphagia and dependency for feeding are strongly associated with death from pneumonia (Langmore, Grillone, Elackattu & Walsh, 2009).

Figure 2-2: Nutritional problems defined by stages of Alzheimer's disease.

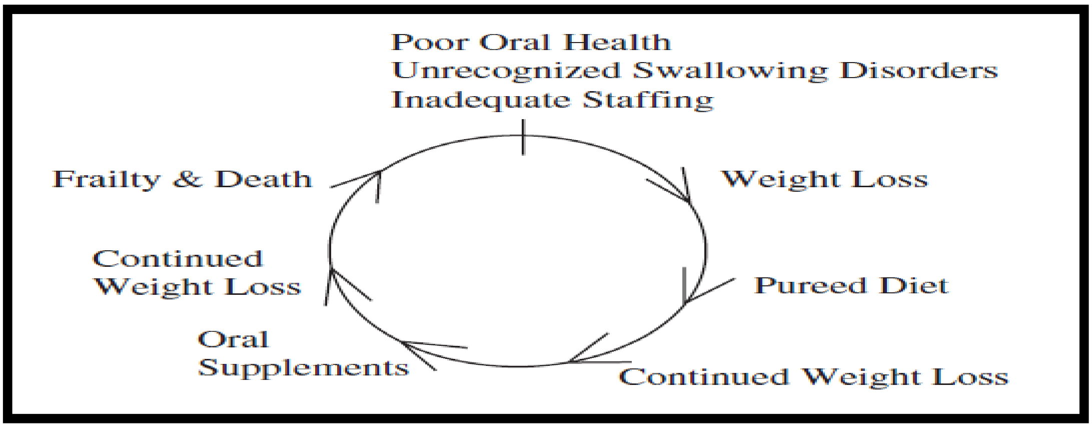


Morris and Volicer (2001)

2.2.2 Oral feeding difficulties in a dementia: the clinical course

Individuals with an advanced dementia typically develop oral feeding problems, eating difficulties or an indifference to food leading to a reduction in nutritional intake, weight loss and an increased risk of aspiration (Langmore et al., 2009). Oral feeding and swallowing difficulties are hallmark features of advanced dementia associated with the final phase of the illness when it is not possible to understand the individual’s wishes (Royal College of Physicians, 2010).

Figure 2-3 Typical pattern of weight loss and death in advanced dementia



Kayser- Jones (2002)

2.2.2.1 Oral feeding difficulties: early stage

Research suggests that oral feeding difficulties begin early in the process of a dementia. Anosmia (a diminished sense of smell) may result in a reduction in appetite and a preference for spicy, highly seasoned or sweet foods is common in early Alzheimer's disease detrimentally affecting nutrition (Gilbert, 1986). Memory impairment results in behavioural changes such as changes in eating preference, forgetting to shop or walking away from food (Morley, 1988). Depression is common in early stage dementia and has been linked to reduced appetite and weight loss (Easterling, 2008). The literature base attributes swallowing disorders as a hallmark feature of advanced dementia however they have been shown to appear early in the course of the disease. Priefer & Robbins (1997) identified significantly prolonged pharyngeal response duration and total swallow duration occurring early in the course of a dementia suggesting that oral feeding difficulties are initially well compensated for (Bascunana, 1999).

2.2.2.2 Oral feeding difficulties: mid stage features

As the disease progresses, oral feeding difficulties are characterised by behavioural feeding problems, food agnosia and increased feeding dependency. Typical behavioural feeding difficulites at the mid stages of a dementia include clamping the mouth shut, food dribbling, food refusal and poor positioning resulting in the mouth being inaccessible to assisted feeding (Crawley, 2002 & Wasson, 2001). Individuals with mid stage dementia often develop a food agnosia: specifically the individual cannot visually discriminate food when it is placed in front of them. Many individuals develop a feeding apraxia (i.e. forget how to use feeding utensils) and may not initiate eating or drinking (Crawley, 2002). Psychiatric disturbances common to dementia may result in delusions about food and refusal to eat for fear of poisoning (Easterling, 2008). Progressive cognitive impairment can result in behavioural problems such as vocalizing while eating, poor concentration and fluctuation in consciousness, placing the individual at significant risk of aspiration of food or liquids (Summersall, 2004). The presence and frequency of common mealtime behaviours demonstrated by clients with mid-stage Alzheimer's disease in a dementia unit are outlined in the table below Table 1, pg. 25.

Table 1: Common problem mealtime behaviours in dementia

Common problem mealtime behaviours observed:	
Behaviour	Times
Distracted from eating	62
Eats non-finger food with hands	61
Plays with food or non-food items	58
Eats pieces that are too big	31
Eats dessert and sweets but neglects other foods	30
Uses spoon incorrectly	27
Stares without eating	27
Impatient behaviours demonstrated during or prior to meal time	27
Eats other residents' food	26
Verbally refuses to eat or states, "No more, I'm finished"	25

Durnbaugh (1996).

At mid stages of dementia the most significant dysphagic impairment is centred around the oral stage of the swallow Feinberg et al (1992). Physiological changes in the swallow as a consequence of dementia include a reduction in lateral tongue motion for chewing, a delay in triggering the pharyngeal swallow and motor abnormalities in the pharynx including bilateral pharyngeal weakness, reduced laryngeal elevation and reduced posterior motion of the tongue base (Horner, 1994). At this stage changes in the consistency of an individual's diet may be needed but not accepted due to cognitive disorders (Easterling, 2008).

Swallowing apraxia makes it difficult to initiate the oral stage of the swallow (Logemann, 1998). Characteristic apraxic swallowing features in dementia include a prolonged oral stage and continual movement of food around the oral cavity in searching motions with abnormal or absent tongue and jaw movement. Individuals with dementia and swallowing apraxia may take three or four minutes to initiate a single swallow (Logemann, 1998). Oral feeding difficulties in dementia encompass sensory and motor changes and may explain some of the challenging behaviours associated with mealtimes such as refusing to eat and drink, slowness to open their mouth, hoarding food in their mouth and a failure to chew (Robertson, 1996). The development of restlessness and increased motor activity combined with increased distractibility and agitation makes sitting down for meals problematic and ensures that often individuals often do not obtain their calorific requirements (Easterling, 2008).

2.2.2.3 Oral feeding difficulties: advanced stage features

Oral feeding difficulties are a hallmark of end-stage dementia. Oral dysphagia manifesting as absent or continuous chewing with a tendency to pocket or spit food is common (Mitchell, 2007). Pharyngeal dysphagia is also typical presenting as delayed swallowing initiation, multiple swallows to clear, coughing, choking, poor tongue control while eating, holding food in the mouth without swallowing and aspiration often leading to pneumonia which is a common cause of morbidity and death (Burns, 1990, Chouinard, 2000; Mitchell, 2007). Chouinard (2000) observed pseudobulbar dysphagia in many late stage Alzheimer's disease patients and its presence was similarly correlated with the development of pneumonia.

Although the ability to eat and swallow is severely compromised in end-stage dementia the person can live for a relatively long time despite poor oral intake (Wang, 1997). One theory posits that this is due in part to individuals with advanced dementia having an altered state of homeostasis, characterized by a reduced metabolic rate and lower calorific requirements (Hoffer, 2006). Research has suggested that up to 37% of residents die within six months of developing oral feeding difficulties (Horner, 1994).

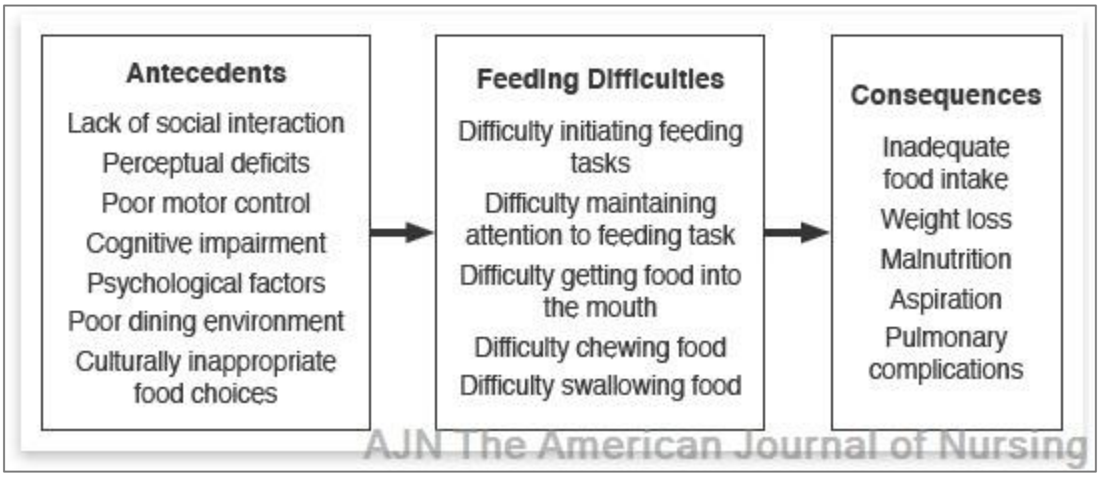
2.2.3 Oral feeding difficulties and dilemmas in nursing homes

It is estimated that 45% of institutionalized individuals with a dementia have a dysphagia and 40-86% of institutionalised residents have an oral feeding difficulty (Teno et al., 2011 & Volicer, 1989). In a survey of 71 residents in a dementia special care unit only 24% of residents were able to eat independently, 18% were hand-fed and 58% had significant eating difficulties. These included isolated feeding refusal (26%), isolated choking on food (7%) and combination of feeding refusal and choking (25%) illuminating the array of feeding difficulties in the dementia care nursing home setting (Volicer et al., 1989).

Malnutrition is a major cause of functional decline and increased morbidity and mortality in the elderly with a dementia. Elderly people in residential care are at high risk of malnourishment with 25-65% of this group having protein energy malnutrition associated with the presence of pressures sores and higher morbidity (Christensson, 1999, Marcel, 2003). Aspiration of food and or secretions may predispose individuals to respiratory complications, pneumonia and death (Langmore, 2002). The incidence of pneumonia in long-term care facilities is as much as ten times higher than the incidence in the community (Marie, 2002). Chouinard, Lavigne & Villeneuve (1998) identified pneumonia associated with aspiration as the major cause of death in 53% of individuals with a diagnosis of dementia in long term care settings.

Chang and Roberts (2011) identified five antecedents contributing to oral feeding difficulties in dementia in a residential setting: impaired cognitive function, physical dysfunction, psychological and social issues, environmental factors and cultural considerations (Figure 2-4 pg. 28). Eating less than 50% of meals in residential care has been shown to be a reliable measure of identifying those at most risk of malnutrition (Vanderbilt, 2004). The number of residents presenting with malnutrition is significantly underestimated in nursing homes with staff failing to recognise and document the oral intake of residents (Simmons, Lim & Schnelle, 2002b). Staff have been shown to overestimate the amount eaten by approximately 15% creating a barrier to improving quality care and supporting an illusion of care consistent with regulations (Schnelle, Osterweil & Simmons, 2005). Nursing homes are a major provider of care to this population of vulnerable adults and the need for additional education in dealing with the challenges of dementia is of paramount importance (Department of Health, 2009).

Figure 2-4 Feeding difficulty in older adults with dementia



Chang & Roberts (2008)

2.2.4 Oral feeding difficulties: care planning

When oral feeding difficulties occur in advanced dementia, health care providers and families often feel compelled to make the challenging decision to continue hand feeding or place a percutaneous endoscopic gastrostomy feeding tube (Mitchell, 2007, van den Noort & Bosch, 2010). In response to the confusion and uncertainty surrounding advanced decision making in people with nutritional and oral feeding difficulties in dementia, the Royal College of Physicians (2010) published a guideline on the mechanisms and techniques of oral and artificial nutrition in health and disease and a framework for decision making considering ethical and legal concerns. Falling short of calling for an outright ban on the insertion of PEG tubes, the framework recommends that gastrostomy should not be offered in advanced dementia and careful hand feeding until the end of life is preferred.

2.2.4.1 Enteral feeding in advanced dementia

The efficacy of PEG feeding tubes in providing nutrition for individuals with advanced dementia remains debatable. Despite a lack of evidence, 109 new individuals with a dementia and 582 established cases were being fed artificially in the community in 2007 (Jones, 2008a). This clinical picture is not restricted to the UK; approximately one third of residents with advanced dementia have a PEG tube in the United States (Mitchell, 2007). Ethical issues prohibit a randomised control trial and the majority of methodologies are observational in nature however existing evidence is clear. A recent Cochrane systematic review along with several older reviews concluded that the use of feeding tubes when compared with attempts at hand feeding does not prolong survival for patients with advanced dementia (Dharmaranan, 2001, Finucane, 1999, Gillick, 2001, Sampson, 2009)

In a retrospective five year analysis of PEG placement in 361 patients the overall mortality was 28% (non dementia group) at one month, compared to 54% in the dementia group (28.5% of entire cohort) and 63% vs. 90% at one year (Sanders, Carter, D'Silva, James, Bolton & Bardhan, 2000) (Table 2 pg. 30). PEG tubes are associated with numerous adverse complication rates (estimated range of 32% to 70%) although the reasons for this have not been clarified (Gillick, 2000). Up to one third of residents with a feeding tube may have be physically restrained (Teno et al., 2011). Perceived benefits of tube feeding include preventing weight loss and malnutrition, healing pressure sores and reducing the incidence of aspiration pneumonia. To date, research has not demonstrated that feeding tubes benefit patients with advanced dementia in these ways although they have been shown in some instances to predispose affected individuals to pneumonia (Dharmaranan, 2001, Finucane, 1999, Friedel, 2000, Langmore, 2002). Individuals in the later stages of dementia are reported to enter a catabolic state of negative protein balance secondary to poor nutritional intake. This state is irreversible and therefore the use of enteral feeding is of questionable benefit to the individual with a dementia (Chouinard, 1998).

Table 2 Mortality rate post PEG insertion

	Individuals with advanced dementia (%)	Non dementia patients (%)
At one month	54	28
At one year	90	63

(Sanders et al., 2000)

Despite the consensus of the literature many new individuals with a dementia are being given PEG tubes suggesting that factors other than the dementia are influencing feeding tube decisions. Ethical commentaries provided by North American ‘substitute decision makers’ (i.e. people entrusted with the power to participate in decision making on behalf of an incapacitated individual) found that only 40% of decision makers felt that quality of life had been improved by artificial feeding (Meyers, 1991). In a similar thread one survey revealed 48% of surrogates for tube fed patients with dementia were not confident that the patient would have chosen the intervention for themselves and were less likely to report excellent end of life care than those who were not PEG fed (Mitchell, 2004a, Teno et al., 2011). The Royal College of Physicians (2010) stipulated that balancing the risks and benefits leads to the conclusion that feeding tubes are seldom warranted for patients in the final stages of dementia.

2.2.4.2 Hand feeding in advanced dementia:

The main goal of continued hand feeding is to provide food and drink to the extent that it is enjoyable for the resident reframing the discussion to that of care and advanced care directives rather than life prolongation (Mitchell, 2007, NICE-SCIE, 2006, Palecek et al., 2010). The focus is on what is done for the individual to promote comfort rather than simply forgoing an action such as resuscitation, intubation or tube feeding. Hand feeding is provided as long as it is comfortable for the person. There will come a point when individuals with an advanced dementia are no longer responsive to feeding assistance and hand feeding (Mitchell et al., 2009). In situations when it is causing significant distress the care plan for hand feeding calls for a form of continued interaction with the resident which includes assiduous mouth care, speaking to the resident and therapeutic touch (Palecek et al., 2010).

Hand feeding allows the maintenance of patient comfort and intimate individual care (Li, 2002). Benefits to hand feeding include increased opportunity for family members to care for loved ones and for formal caregivers to interact with their patients (Mitchell, 2004b). Staff time required for hand feeding residents is expensive and labour intensive. Approximately 45 to 90 minutes per day are needed to hand feed and deliver oral medications to residents with advanced dementia (Mitchell, 2004a). Individuals in a residential environment with Alzheimer's disease require twice as much time to complete meals compared to non demented residents with physical impairments (Hughes, Bagley, Reilly, Burns & Challis, 2008). The decision to hand feed does not imply the discontinuation of medical care, and families may opt for hand feeding while at the same time choosing potentially curative treatment for other problems e.g. repair of a fractured hip (Mitchell, 2007).

As illness and frailty worsen, eating and drinking become harder, raising other issues of concern. Loss of cognitive function leads to specific feeding and swallowing behaviours, with individuals having varying ability to understand direction and to verbally express their needs. The complexity of residents' deteriorating mental status and their increasing need for functional assistance require HCAs to modify daily care on the basis of accurate assessment and correct intervention. As key providers of direct care HCAs have an essential role and must be able to identify, assess and manage common oral feeding behaviours until the end stages of a dementia.

2.2.5 The influence of feeding assistance on oral feeding difficulties

The skill of the feeder has a direct impact on the quality of the resident's eating experience. Few studies have evaluated the efficacy of feeding assistance on oral intake and those that have are limited by methodological limitations. Existing research suggests that quality feeding assistance provision, touch, guidance, redirection and providing compassionate care result in positive outcomes in weight maintenance or gain and increased meal intake until the end stages of dementia (Amella, 2002). One-on-one mealtime assistance can significantly increase residents' food and fluid intake, but considerable staff time is required to achieve these positive results and strategies are often overlooked in healthcare facilities where demands on staff time are high (Vitale, 2009). Multiple studies have shown that in many nursing homes feeding assistance is inadequate and of poor quality (Kayser-Jones, 1997, Simmons, Bertrand, Shier, Sweetland, Moore, Hurd & Schnelle, 2007, Simmons, Osterweil & Schnelle, 2001)

Norberg (1988) found that almost no interviewees in their sample of 143 interviewees were able to differentiate between a lack of the wish to eat and a lack of the ability to eat. Those residents in need of feeding assistance in nursing homes do not receive enough to ensure adequate nutrition and hydration (Simmons & Schnelle, 2004a). Inadequate staffing resources at mealtimes are exacerbated by poor targeting of residents who need and are responsive to feeding assistance interventions (Simmons & Schnelle, 2004b). With the loss of vitality as the disease progresses the individual with dementia becomes more dependent on others for feeding assistance. Individuals with a dementia who need to be fed or cued during a meal are at greater risk of illness and mortality than those who can feed themselves and this is an important factor in predicting the occurrence of aspiration pneumonia in institutionalized residents (Easterling, 2008, Langmore, 2002). Inadequate training and supervision will result in poor quality assistance and untrained staff will further jeopardize the safety of those residents with complicated feeding assistance needs (Bertrand, 2007a).

HCAs feeding people with dementia face an ethical decision each time a patient with dementia is approached at mealtimes. The HCA is faced with an array of behavioural and physiological difficulties and the crucial decision as to whether to feed or not (Watson, 1996). In reality HCAs provide the majority of direct care yet typically possess low levels of knowledge, a poor understanding of dementia, fail to identify those residents at nutritional risk or recognise the constellation of signs and symptoms of an oral feeding difficulty (All Party Parliamentary Group, 2009, Schneider, 2010). These findings highlight the discrepancy between the numbers of actual residents with feeding and swallowing difficulties and health professional recognition of the difficulties (All Party Parliamentary Group, 2009, Durnbaugh, 1996, Schneider, 2010).

HCAs require the skills to assess the mealtime for behavioural problems that may interfere with the client's ability to be successful in self feeding (Simmons & Schnelle, 2004b). HCA feeding assistance training that encourages feeding strategies (verbal prompts and giving praise during meals) has demonstrated a significant impact on the amount of food consumed by individuals with a dementia (Altus, 2002). Effective holistic training for coping with decision making in advanced dementia requires the elicitation of the primary goal of care, and understanding the treatment options and how they fit in with this goal (Mitchell, 2007). Given the role of the HCAs in providing virtually all direct care and the potentially hazardous implications of untrained feeding assistance to residents the question arises about how HCAs can be best supported to manage effectively individuals with advanced dementia and oral feeding difficulties.

Table 3 Proposed best practice in management of individuals with advanced dementia

Step	Specific factors to consider:
1	Discussion of possible oral feeding difficulties in the future and education on alternative nutrition and hydration with personal wishes documented
2	Assessment by senior physician in nutrition support and SLT before admission to a nursing home
3	In an unsafe swallow altering the consistencies e,g. thickening fluids may make feeding manageable and preserve quality of life. This is preferable to routine tube feeding
4	Ongoing assessment and support of oral nutrition and hydration with progressive modification of diet towards mushy food and thickened fluids

Royal College of Physicians (2010)

2.2.6 **Strategies for promoting eating, drinking and meal time pleasure**

Feeding strategies must account for the cognitive, physical, psychological, social, environmental and cultural factors that can contribute to, reduce or prevent multifactorial oral feeding difficulties experienced by residents with a dementia (Chang & Roberts, 2011). Few studies have evaluated the effectiveness of feeding strategies on residents with a dementia and most have methodological limitations including non controlled measures, small sample size and failure to recognise contributing factors. The literature surrounding the effectiveness of feeding strategies in dementia care is frequently based on case studies and is typically based on assumptions rather than rigorous scientific scrutiny. The existing body of literature suggests that weight loss in dementia and the wide variety of factors that can contribute to a compromised swallow within the geriatric population can be managed with a combination of nutritional supplements and effective feeding strategies with beneficial effects on body composition, muscle strength and immune function until the advanced stages of dementia when oral intake is no longer a viable option (Gazzotti, 2003).

Feeding strategies require a multidisciplinary approach including residents, HCAs, nurses, healthcare professionals, family members and the support of the nursing home management team. Some of the factors that contribute to feeding problems in residents with a dementia are best managed at system level, where changes in social policies and environmental design can be addressed (Chang & Roberts, 2011). Assessment and intervention practices specific to various observed behaviours useful for assisting in feeding residents with a dementia are included in Appendix 6: Oral-Feeding strategies.

At the onset of eating problems, acute medical problems (e.g. infection, stroke, medication adverse effects) need to be excluded. A relationship between the number of decayed teeth and the incidence of aspiration pneumonia has been established (Terpenning, 2001). Oral hygiene is paramount to maintaining healthy oral mucosa and healthy eating behaviours (Yoneyama, 2002). This area of care could be easily targeted and could significantly lower the incidence of aspiration pneumonia in the nursing home (Oh, 2004). Easily reversible causes should be addressed in keeping with the resident's goals of care.

Adapting the dining environment to meet the individual's changing needs can support self-feeding behaviours (Amella, 1998). In nursing home settings efforts to make the dining room environment as home like as possible have yielded positive results. Initiatives include preparing meals in an open kitchen, serving meals at a large dining table which residents can socialize with staff and visitors, 24 hour open access to snack foods of the residents' choosing and encouraging residents to sit with each other at the dinner table have been found to increase resident participation, encourage appropriate communication at mealtimes and the frequency of praise by HCAs assisting with feeding (Altus, 2002, Nijs, 2006). Family style meals stimulate daily energy intake and protect nursing home residents against malnutrition (Nijs, 2006).

A parallel group intervention study over 12 months targeting the ambiance of food on consumption in two nursing homes discovered that the mean body weight of residents significantly increased in the experimental groups alongside a decline in the health status in the control groups (Mathey, Vanneste, de Graaf, de Groot & van Staveren, 2001). The use of colour contrast to enhance legibility and figure background distinction can aid perception of food on plates. Increased light is required to ambulate and perform tasks such as eating. Older people need about 30% more light for equivalent vision to younger adults, and this can increase to 500% more light required for tasks (Jones, 2008b). Institutional policies that promote family involvement in feeding and social interaction between residents and care givers contribute to both physical and mental resident health and strengthen the connection between resident and caregiver (Athlin, 1998).

Self feeding performance is complex and requires independent assessment reflecting the various common behaviours presented by the individual with mid-stage dementia (Osborn, 1993). In the early to middle stages of dementia management, techniques such as changes to food texture, the right environmental modifications and advice on feeding methods can improve the management of dysphagia very successfully (Summersall, 2004). Food consistency, taste and volume can influence the length of the oral preparatory and oral phase functions (Hiiemae, 1999, Palmer, 1992). Compensatory techniques may be used to redirect the flow of the bolus and include the following: postural changes; modification of the bolus volume; consistency; temperature, and the rate of bolus presentation (Easterling, 2008). The host of interventions should be tailored to the individual resident's needs e.g. time, consistency, taste and type of meals, drink rounds, positioning of the individual, swallowing techniques, mood, behaviour, cognition and mobility.

2.3 Health care assistants in dementia care

This section examines the essential contribution of HCAs in dementia care. Despite longstanding recognition of the integral role they play in dementia care in the UK HCAs remain non- registered and non professionally regulated with inconsistencies and confusion surrounding their job role, role boundaries and level of professional development required to deliver good quality dementia care. The characteristics of the cohort as the largest unregulated occupational group working across health and social care boundaries as well as their ill defined role will be examined in Section 2.3.2. Section 2.3.3 discusses the serious concerns raised over whether the workforce has the right training, support, structures and leadership alongside barriers to the provision of good quality personalised dementia care and factors that may limit potential training effectiveness.

2.3.1 Health care assistants: the profile in UK nursing homes

HCAs work in various settings and represent a significant proportion (17%) of the 1.3 million health and social workers in the UK, exceeding the numbers of practitioners belonging to the largest 'professional' groups within healthcare (Department of Health, 2005). Nursing homes have integrated HCAs into their teams to help to provide maximum quality care for residents while keeping the residential home staff -related costs down (Simmons & Schnelle, 2004b). HCAs operate at the front lines of dementia care and are largely underrepresented in health care research (Lloyd, Schneider, Scales, Bailey & Jones, 2011). The literature points to a quiet revolution in the make-up of direct care services in the UK nursing homes and those in other developed countries.

The literature points to several outstanding characteristics of the HCA worker population. HCAs are overwhelmingly female with little previous caring experience (Keeney, Hasson & McKenna, 2005 & Thornley, 2000). HCAs typically possess a secondary level education with no formal qualifications and no previous dementia care training (Hughes et al., 2008). In the UK a significant proportion of HCAs have a language other than English as a first language and literacy difficulties highlighting potential barriers to developing skills and benefiting from certain types of training (APPG, 2009, Bosley, 2008 & CSCI, 2008). In recent years the UK government has introduced large numbers of HCAs from overseas with English as a second language (APPG, 2009). The impact of large number of non nationals making up the HCA cohort has benefits and disadvantages. These individuals often have little experience in caring for residents in long term care facilities and 'pick up' knowledge from seniors at work as they go along (Keeney, 2005). Foreign workers in long term care settings have been shown in some cases to have difficulties with the language and a non British background may prevent care staff from engaging with residents on some aspects of British culture key to developing rapport (APPG, 2009).

The dementia care workforce has considerably low status, limited career progression and receives little more than the minimum wage (Noelker, 2005 & Thornley, 1996a). Low motivation, poor attitudes and high levels of stress predominate, contributing to high staff turnover rates that hinder the delivery of consistent, skilful care. The Commission for Social Care Inspection (Commission for Social Care Inspection, 2008) reports the annual turnover rates of care workers to be 23.2% in nursing homes resulting in negative consequences such as inadequate staffing, high personnel costs, prejudicing the completion of qualifications and training costs and preventing continuity of care, which is a core characteristic of dementia care. Recruitment and retention of HCAs in nursing homes are significant challenges that require strategic action (Baldwin, 2003). These issues are at the centre of many policies and practice initiatives in the USA aimed at improving the quality of long- term care with the contention that the quality of HCA jobs and consequently HCA turnover are linked to the quality of care (Barry, 2008).

2.3.2 The role of the healthcare assistant in dementia care

There is no concrete definition for HCA in the UK literature reflecting the larger occupational issues of an ambiguous role, skill set and unregulated profession whilst holding a prominent role in the management of dementia care in UK nursing homes. In the UK, ‘health care assistant’ is the title officially applied to staff working at National Vocational Qualification (NVQ) level two or three in healthcare which equates to GCSE and A level respectively (Bosley, 2008b). A thematic review of the literature by Moran et al. (2010) identified four domains of generalist support worker roles; direct care, indirect care, administration and facilitation. Current broad descriptors for HCAs in long term care are vague and open to interpretation. They do not account for the ‘fluid nature’ of the role and blurred boundaries between HCA practice and actual nursing (McKenna, 2003). Modernisation and state sponsored changes in workforce structures have resulted in an increase in the number of HCAs and a recent greater awareness and dependency on the delivery of patient care by non professionally qualified workers (Bach, Kessler & Heron, 2008). Given the recent prominence of the profile of HCAs in dementia care the scope of practice that they actually perform has been re-evaluated by studies employing observational methodologies with the aim of clarifying their contribution to dementia care.

The Prepared to Care Report (APPG, 2009) applauds the role of observational methodologies as applied to dementia care research, elaborating and evolving our conceived ideas of what constitutes the role of the HCA. Employing a longitudinal ethnographic methodology HCAs were shown to provide ‘virtually all of the hand’s on care’ (Schneider, 2010). Similar observational studies reveal up to 90% of direct patient care provided by HCAs with much of this work remaining unsupervised (Friedman, 1999, McKenna, 2004, McKenna, 2007).

HCAs respond to the needs of those with a dementia on a daily basis using tacit knowledge, empathy and biographical knowledge to interpret care situations and provide person centred care (Kontos et al., 2009). Managing the ward environment using emotional labour and behavioural tactics to promote the wellbeing of residents and staff is a role not usually acknowledged but it formed the 'distinctive contribution' made by HCAs which had a therapeutic effect on individuals with a dementia (Schneider, 2010). Schneider et al. (2010) refer to relationship centred care as opposed to person centred care in describing the defining role and work of HCAs in dementia care.

The literature points to a clear lack of distinction between the activities that lie within and outside the domain of qualified staff and the existence of a fluid role boundary secondary to the 'role drift' of the HCAs into traditional nursing roles (Keeney, 2005, McKenna, 2007). The definition of the HCAs in UK long term care facilities is differentiated from registered nurses often by 'what they are not allowed to do' (Perry, 2003) as opposed to a detailed job description. This finding is backed up by a MORI poll undertaken by the Royal College of Nursing which suggested that eight out of ten registered nurses supported the view that much of what HCAs do is actually nursing care (RCN, Congress Report, 2003). The National Dementia Strategy (2009) has highlighted the dementia care workforce as an occupational group in its own right in need of recognition, and in 'profound' need of regulation and training. In this evolving domain clarifying and establishing the role of HCAs will enable educational providers to develop and shape the core set of competencies necessary to provide quality personalised dementia care training.

2.3.3 Healthcare assistants: shortcomings in delivering personalised dementia care

There is growing recognition of the poor nutritional and substandard feeding assistance care provided to residents in many nursing homes (Pokrywka, Koffler, Remsburg, Bennett, Roth, Tayback & Wright, 1997, Schnelle, Bertrand, Hurd, White, Squires, Feuerberg, Hickey &

Simmons, 2009, Simmons & Levy-Storms, 2007). Medical record documentation has been shown to be inaccurate particularly with reference to resident oral food and fluid intake, provision of feeding assistance, deliverance of supplements and monthly weight values (Simmons, 2002; 2010).

Prepared to Care: Challenging the Dementia Skills Gap report by the All Party Parliamentary Group (2009) has made a landmark contribution to the workforce policy in relation to HCAs as it reviewed recruitment, recognition, training and retention of the dementia care workforce. The report concluded that there has been little priority placed on developing a workforce with the appropriate skills to provide high quality dementia care due to the 'mistaken but lingering belief that attempts to improve wellbeing in people with dementia are hopeless'. Dementia training is scarce in the nursing home environment and the workforce as a whole is not ready to deliver personalised care to people with dementia and their families, even in 'specialist dementia services' (All Party Parliamentary Group, 2009)

Barriers to improving the skills of the workforce in dementia identified by the AAPG are the low status of the dementia care workforce, poor working relationships with residents, lack of job satisfaction, lack of regulatory standards relating to training in dementia care, lack of competencies to guide the content of training, lack of a regulatory system accrediting dementia care, the variable quality of service managers and funding problems (Brodaty, 2003, Keeney et al., 2005). Another barrier to standardising the skills of the care home workforce is posed by fact that the majority of HCAs in the community work for the independent sector, thus creating discrepancies in targeting nationalised training (APPG, 2009).

HCAs are rarely approached for information when care planning decisions are made and healthcare organisations lack systems to support knowledge transfer between HCAs and other professionals (Caspar & O'Rourke, 2008). Using structural equation modelling of 242 nurses and 346 nursing aides, enabling simultaneous examination of variables of interest, Casper et al (2008) suggested that the provision of individualised care in long term care settings may be enhanced when HCAs have appreciable access to empowerment structures. By contrast in response to these barriers HCAs have been shown to form a distinct occupational identity as a response to alienation within the team providing further barriers to multi - professional team working (Kontos et al., 2009). Empirical data suggests little evidence of multi-professional or inter-professional teamwork on dementia care wards. Whilst the presence of health care professionals was evident it was unclear whether the team worked together to plan and provide patient care (Lloyd et al., 2011). Furthermore there was little evidence of any formal (notes or documentation) or information communication or translation of knowledge between HCAs and those at higher levels of the hierarchy. The authors suggest that HCA solidarity stemming from sharing an underrepresented and under recognised location at the bottom of the dementia caring system hierarchy exacerbates exclusion from the team, members of which are likely to benefit from knowledge exchange with HCAs (Lloyd et al., 2011).

Contemporaneous with the dependency on unregulated HCAs in long term care settings is the awareness of a growing absence of health professionals working in long term care settings to provide supervision and support to HCAs (Sackley, 2009). Less than half of the homes contacted in a postal survey reported using a dietician (44%), occupational therapist (41%) or a speech and language therapist (39%) (Sackley, 2009). Provision of health care services to older people in nursing and residential care has been found to be inconsistent with significant regional variation in service accessibility and provision.

2.3.4 Training healthcare assistants; non traditional learners

Objective 13 of the National Dementia Strategy for England cites ‘an informed and effective workforce for people with Dementia’ (2009) as a profound urgent need. It throws the gauntlet to professional colleges and bodies, commissioners and learning consortia to take action to ensure that the workforce is able and supported to deliver core competencies, demonstrating effective knowledge and skills in caring for people with a dementia. The literature points to variable, non standardised training provision that is neither statutory nor standardised, with a lack of professional accountability (McKenna, 2004).

In the UK care industry there is no standardised training programme for HCAs or regulation of education providers in dementia care; one third of care homes with dedicated dementia provision reported having no specific dementia training for staff in 2007 (National Audit Office, 2007). 'Dementia specialist care units' or HCAs are not required to undertake any formal training or hold a recognised qualification, nor are they professionally supervised or regulated (Wakefield, 2009). There is evidence to suggest that the educational needs of nursing home staff may be greater than those of clinicians in other settings. Nurses and health care assistants are less likely to have had continuing education courses on managing dementia and palliative care than nurses in acute care settings. Research indicates that HCAs may be less prepared and have access to fewer educational or consulting resources and health professionals than their counterparts in acute care settings (Gibbs, 1995, Sackley, 2009). There is a clear need for educational programmes designed to increase the HCAs' knowledge and skills regarding care of residents with a dementia and complex oral feeding difficulties.

In response, The National Dementia Strategy (2009) has challenged professional colleges and bodies, commissioners and learning consortia to take action and develop core competencies for non professionally qualified or registered staff. This will encourage care organisations to identify learning and development needs and incentivise learning providers to produce courses that have the trainingcontent the sector needs, and thus assist regulators and commissioners to identify good quality in dementia care (p.66).

In relation to those ‘core competencies’ relevant to dementia, dysphagia and complex feeding disorders the ultimate challenge for professional colleges and health service providers and for speech and language therapy trainers is targeting and training HCAs to produce observable improved outcomes for residents. Since a large cohort of HSAs are typically non traditional learners, the problem not only lies in training content but also in the most effective methods of delivering training.

There is no dementia competency framework relevant across all care settings or levels of practice (Traynor et al., 2011). The term ‘competent’ is used purposefully to describe practitioners capable of effectively delivering dementia care (Cowan, Norman & Coopamah, 2005 Watson, 2002). Gonczi (1993) suggests that competencies are derived from professions possessing a certain set of relevant attributes defined by a combination of ‘knowledge skills and attitudes’. No single attribute is sufficient to describe an individual or profession as competent; rather a combination of knowledge, skills and attitudes is necessary for an individual or profession to be regarded as competent (Traynor et al., 2011). Competency frameworks for dementia care and health care assistants specified by Regulatory bodies are sparse. Stirling University has developed a HCA course in dementia care identifying six essential areas across six areas of practice: understanding dementia, seeing the person, communication and behaviour, providing support, health and wellbeing and legal issues. This course translates this content into competencies however the content does not deviate sufficiently from generalist competencies or translate dysphagia and complex feeding disorders into specialised competencies (National Health Service, 2003).

There has been a growth spurt in the literature concerning HCA training. Significant improvements in HCA knowledge and care skills in midwifery were observed following a targeted training programme. Findings were based on perceptual assessments from self-assessment semi-structured interviews as opposed to quantitative measures (Keeney, 2005).

The respondents felt more confident in their ability to undertake delegated duties and believed that the skills learned on the course would be useful to them in their future work.

Bryan & Maxim (1998) evaluated the knowledge and skills base of HCAs working with individuals with dementia following communication training with residents and carers. Conversation analysis techniques were successfully applied to a care context with positive changes being demonstrated in interaction between carers and residents. Improvements in residents' quality of life were directly attributable to increased carer knowledge, skills and effective management strategies gained in the training sessions. Carers reported using the knowledge and skills gained in the training sessions ten weeks after interventions.

In a study targeting HCA motivation and retention working with individuals with dementia in long term care settings, regular training programmes with an emphasis on caring for residents with cognitive and behavioural problems are recommended as an essential strategy for reducing stress and dissatisfaction (Sung, 2005). HCAs with positive attitudes towards long-term care facilities and their residents were shown to provide a higher quality of care for residents with dementia (Sung, 2005). Dementia training for carers has also been shown to positively impact job satisfaction and retention of nursing home staff (Atchison, 1998, Grant, 1996).

The literature base provides an abundance of evaluations of training courses for health care assistants in dementia care and several health care domains with implied quality care outcomes for residents with a dementia yet few studies consider the characteristics of the cohort and the consequences of the teaching methods and delivery of training used for the actual quality of dementia care provided to residents in an institutional setting.

2.3.4.1 Methods of training:

Overall educational programmes in dementia care lack formal evaluations (Kuske, Hanns, Luck, Angermeyer, Behrens & Riedel-Heller, 2007). Educational providers are uncertain as to which dementia education works most effectively. Recent evidence suggests that stand alone training is ineffective in promoting change or good dementia care (APPG, 2009). Research analysing training methodologies for HCAs suggest that peer led support forums were ineffective (Davison, 2007). Reasons for the ineffectiveness of peer led support forums included a lack of managerial support, and the marginalised and disempowered characteristics of HCAs identified in the literature review may lead to their inability to benefit from self taught learning methods which are not led by a health professional (Lloyd et al., 2011). Further training may require support from multi-disciplinary team members and management to ensure HCAs have access to the structures of empowerment in order to precipitate changes in working practices (Kontos et al., 2009)

The importance of the role of the HCA is documented yet the level of preparation and training for the demanding nature of the role varies from two weeks to two years (Kirby, 1991). The All Party Parliamentary Group (2009) recommended that 'training and development programmes take into account the particular characteristics of the workforce' (pg. 22), however many courses are not adapted to the variation in HCAs' education preparation and learning styles (Schneider, 2010). The limited effectiveness of passive educational strategies has been outlined in the literature base (David, 1997). Educational literature for health professionals has emphasized the importance of positive practice behaviour in response to clinical scenarios (Gifford, Holloway, Frankel, Albright, Meyerson, Griggs & Vickrey, 1999). Training programmes that provide staff with both information based sessions and additional support to help facilitate change appear to be more likely to promote continued improvement in skills.

Adult learning theory encourages interaction among the learner and faculty, considers adult learners as co-creators of knowledge, and builds on the learners' current knowledge, interests and life situations (Bryan, Kreuter & Brownson, 2009). Adult learning techniques encourage interactive methods of training such as group discussion, problem-solving with real life situations or case examples, role play, demonstrations, videos and the chance to acquire practical skills (Resnick & Mitty, 2009).

Many questions about the most appropriate or most effective training for HCAs within institutionalized private residential homes aimed at meeting the complex needs of residents with a dementia remain unanswered. The precise training needs of HCAs, particularly those with English as a second language, and the type of education methods necessary for non-traditional learners, to produce an increase in their knowledge, skills and competency in the areas of dysphagia and feeding difficulties in dementia, remain relatively unexplored in UK literature. Little is known about which factors are related to increased knowledge, competencies and attitudes on the part of HCAs in the realm of dysphagia and oral feeding difficulties in dementia. These questions continue to plague the residential home industry, consumers of dementia care and residential home researchers.

2.3.5 Qualifications for Healthcare assistants in Dementia care.

The Government has recognised the increasing numbers of older people in residential homes with high dependency levels and the need for a skilled and numerous workforce. The first national training strategy, Modernising the Social Care Workforce (2000) outlined a target of fifty percent of care staff to be qualified to at least National Vocational Qualification (NVQ) level 2 in care by 2005 (RCN, 2003). Contrary to popular belief in the field of residential care, the NVQ does not include a training course or train staff, nor does an NVQ in care, at any level, provide sufficient information on dementia (Alzheimer's Society, 2000). Research has criticized the NVQ's effectiveness arguing that training provision is variable and does not, at present, have the potential to improve the quality of care for vulnerable older people (Bosley, 2008a, Witton, 2005). Despite proposals for widespread training of HCAs, the uptake of vocational qualifications both by individuals and their employers has been poor (Thornley, 2000, Wakefield, 2009). Lack of career progression in the HCA profession discourages some staff from taking up training while deterring others from even entering the workforce (Schneider, 2010).

The Prepared to Care Report (APPG, 2009) advocates that the NVQ system is reformed by the Qualification and Credit Framework providing opportunities for career development, progression and flexibility to respond to individual training needs. At present what constitutes core competencies, essential skills and training methods applicable to the HCA population are still evolving.

2.3.5.1 Summary

The previously ignored profile of HCAs in dementia care has taken on greater significance yet our understanding of who constitutes this workforce, what they do and what competencies they possess has lagged sorely behind. Recent observational research points to the distinctive work conducted by HCAs, emphasising the distinctive and pivotal contribution that they make to the care of residents with dementia including direct care, managing the ward environment, facilitating family members and determining the level of stimulation on the ward (Schneider, 2010). The National Dementia Strategy (2009) and Prepared to Care report (APPG, 2009) have proved to be landmark documents heralding the essential role of the HCA profession in dementia care, questioning the readiness of the workforce to provide personalised dementia care and emphasizing the unregulated nature workforce underpinning the dementia care industry. Clarification of the necessary skills, competencies, training systems and training methods is necessary in order to achieve the ultimate goal of well informed staff delivering personalised quality dementia care to residents in nursing homes.

2.4 Implementing change in long term care settings.

Change in health care environments can be referred to as continuous i.e. 'ongoing, evolving and cumulative' (Weick, 1999). In recent times proposals for change in healthcare adhere to the movement of 'evidence based medicine' (EBM) which is defined as 'the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients' (Sackett, 1996). Major difficulties arise when introducing evidence and clinical guidelines into the routine daily practice of HCAs. This is particularly the case when the evidenced based changes in question require complex change in clinical practice and changes in the organisation of care (Grol, 2003). Substantial evidence suggests that change in the clinical practice of HCAs is possible but this change requires comprehensive approaches at different levels, including the level of the health professional, organisation and wider political environment. This section will evaluate approaches to implementing and monitoring an evidenced based change to assist health and social care providers make the necessary changes in behaviour based on a protocol and the characteristics of the evidence base surrounding 'making meal times better' for those with dementia. The key theoretical models underpinning change at the level of the individual, organisation and wider political environment will be explored with the aim of implementing change into the clinical practice of HCAs.

EBM is a key driver for clinical guidelines, arising as a result of wide variation in clinical practice and the presumption that this variation stems from inappropriate care (Woolf, 1999). The principles of the EBM movement have been used to define the hierarchy of knowledge in clinical practice by classifying findings according to the perceived relevance and validity of the respective methodologies of the studies from which evidence was collected (Djulbegovic, 2000). EBM relies predominantly on findings obtained from populations and clinical research ensuring that research obtained from certain types of studies, such as random controlled trials (RCTs), is valued more than from others (single case studies) which are deemed to be prone to design flaws, bias and poor generalisabilty. Consequently a schism between proponents of physiologic and population models to the practice of medicine has developed (Djulbegovic, 2000). The limitation of EBM models to new and under researched areas such as investigative dementia research has highlighted a gap in the literature base. The relative lack of evaluation of dementia care provision combined with the narrow eligibility criteria, homogeneous populations, lengthy time period and long-term measures used to assess outcomes for random controlled trials may suggest that this 'supreme methodology' has limited application in the management of individuals with dementia, dysphagia and feeding disorders in UK nursing homes at this present time. By contrast in order to promote the ultimate goal of a personalised approach to care, case studies are most sensitive to context and context is all important in individualised care (Keeley, 2003). The science of guideline development and implementation of change in nursing homes must be informed by its own specific evidence base with attention paid to the design of studies, inherent flaws and attention to analyses that matter most to policy makers such as head to head comparisons of alternative interventions or interventions with baseline characteristics (Grimshaw, 2000) There is a strong sense that guideline developers have urged the need to place evidence in its context. Indeed, Keeley (2003) advocates using the best methodological evidence available for the effective treatment of patients but not uncritically.

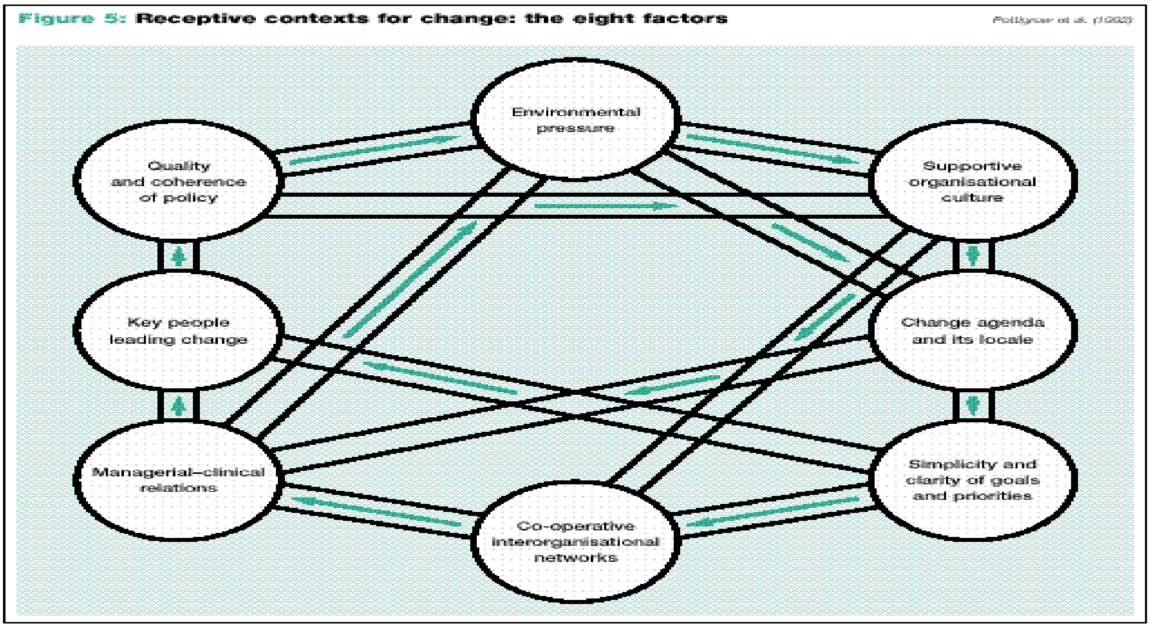
Planning quality change in the nursing home dining room environment warrants an educational approach with a focus on intrinsic person centred motivation achieved by local consensus and interactive learning (Grol 2000). The National Institute for Health and Clinical Excellence (NICE, 2005) has devised a step by step guide to developing protocols to support implementation and map interventions that can be used to support change health care workers' behaviour, particularly changes relating to the introduction of evidence based practice (Fig. 1.) Appendix 7 contains the plan adhered to throughout the research in an attempt to develop and implement evidence based change in the nursing home environment.

Organisations such as private health care providers have to be viewed as systems with interrelated parts which do not follow commands like a simple machine (Koeck, 1998). Organisational change in such a system is a process that can be facilitated by perceptive and insightful planning and well crafted, sensitive implementation phases, while acknowledging that it can never be fully isolated from the effects of serendipity, uncertainty and chance (Dawson, 1996). The size and complexity of health and social care services ensure that change processes do not follow a simple cause and effect logic. Organisational change in health care with multiple stakeholders, changing pressures and interdependent teams is never likely to be straightforward and intervention may have many unanticipated outcomes (NICE, 2005). A central message of management change literature is that organisation level change is not fixed or linear in nature but is emergent, capitalizing upon the principles of 'continuous change'. A benchmark for successful implementation of a training and change based mealtimes protocol in the complex social and dynamic system of the nursing home is to facilitate improvement via work teams which evolve towards learning organisations, able to adapt to the changing demands of the environment (Koeck, 1998). For these reasons insights from anthropological theory and social movement's theory shall be utilised to highlight theoretical common approaches to organisational change and provide the tools and stimulus to promote evidence based changes in the work environment.

Anthropological theory views organisational change as the application of ideas to organisations rather than to an indigenous people, with organisational culture as an emergent property of an organisation's constituent parts (Scott, 2003). Although difficult to define and relate the concepts of 'performance' and 'culture' these ideas of a distinctive health provider culture and cultural traits have now percolated into health care forming major strands of both policy stipulations and managerial action (Davies, 2003). Anthropological theorists suggest building upon positive norms (resident centred culture) and understanding negative ones (low employee loyalty as evidenced by high turn-over of staff) are a key challenge in introducing or managing change in any organisations. The Content, Context and Processes Model has been widely used in analysing and learning from retrospective change programmes in organisations (Pettigrew, 1992). Based on empirical case studies it was developed as a means of generating insight into why some health care organisations were better able to manage change and improve performance. Dependant on context, eight interlinked factors serve to differentiate high from low performance (Figure 2-5). The model provides a diagnostic checklist which can be used to assess the likely reception of the changes secondary to implementing a feeding protocol in the nursing home environment and assist developers to recognise organisational norms and values and to adapt organisational culture via conscious effort towards cultural destinations (Davies, 2003).

Knowledge utilisation based theories of organisations are less interested in formal structures and more interested in how knowledge is exchanged and reframed by working groups such as a quality improvement collaborative (Ovretveit, 2002). Knowledge utilisation based tools include ‘quality learning circles’ which are group level change interventions that are created especially for planning and guiding change programmes that have a primary focus on improving quality and problems in the work area (Deming, 1986). If effective change in the nursing home is to occur the collaborative must develop a learning checklist which would promote change in the dining room, outline the gap between current and best practice, set measurable targets, cut down on didactic teaching enabling facilitation learning by practice and utilise team discussions about how to apply change in the nursing home (Ovretveit, 2002). Limitations to the collaborative include the expense incurred by collaborations and the anecdotal evidence base surrounding their daily care practice (Bushe, 1991). The next section shall focus on the wider political issues that need to be considered when implementing change in the nursing home environment.

Figure 2-5: The Context, Content and Process Model (Pettigrew, 1992).



Evidence based research has evolved as a social movement which, when placed in a social context, reveals the limitations of a 'linear relationship' between implementing research into policy making (Dobrow, 2004). Evidence based policy is not simply an extension of evidence based medicine; it is inherently different with policy makers under a myriad of often competing sources of evidence. The over emphasis on the problem solving capacities of research may mask the complex social process that is policymaking. In reality evidence based medicine has little impact on service and government policy (Black & Donald, 2001). Evidence based policy makers differ in their interpretation of the evidence. When we consider generalising evidence based changes implemented in the nursing home to policy inherent difficulties arise. These include identifying policy in practice that is consistent across the features of the health care worker population, the contextual nature of differing nursing homes and various external factors such as access to health services and resources.

Furthermore the high turn-over of health care assistants may militate against good quality advice. Other legitimate factors such as financial constraints, timescales, decision makers' current values and agendas ensure that research is only one of several knowledge sources and cannot speak for itself in policy terms. In order to justify and plan evidence based change a more sophisticated understanding of the complex social nature of the policy making process in context is required. This understanding needs to relate service provision, governance and the need to change the design of research enabling cross comparison via baseline measures serving to bridge the divide between evidence based medicine and evidence based policy making values. Implementation of evidence based protocols should not be considered as a the solution to problems rather planned in a way that account for the wider social context and presented as a process of argument or debate to challenge and change beliefs, thereby setting the agenda for political focus (Black & Donald, 2001).

This section has attempted to plan and justify an approach to implement an evidence based change to making meal times better for those with dementia in the nursing home. In developing and planning an evidence based change numerous challenges arise in translating the evidence base into clinical practice, identifying and managing organisational change and placing protocols in the wider social contextual context of policy making. Planning and justifying an evidence based change in the workplace places a responsibility on health care leaders to generate protocols that are informed by the nature of their own evidence base, presented in a format that is designed according to the needs of the target population in organisational context, accessible to all users and will contribute to the body of knowledge concerning the development of change management of individuals with dementia who have feeding and swallowing difficulties. Successful implementation of protocols fosters an understanding of individual (behavioural and motivational) factors plus organisational issues whilst utilising tools (context, content and process model and collaborations) intrinsic in moving change into effective clinical practice. Evidence based guidelines when placed in a social context highlight the complex social nature of policy making and the role of research among a ‘common groundwork of explanation’ (Djulbegovic, 2000). The literature on developing and implementing guideline development and organisational change in the context of the nursing home environment suggests that formalised research evidence is not the only source of knowledge about what works. Managers acknowledge that much of practitioner knowledge is tacit in nature, yet to be codified and rigorously studied. From the onset, it is clear when planning and justifying an evidence based change in the work environment a complex interplay is needed between thinking and doing throughout the change process (NICE, 2005).

Chapter: 3 Making meal times better for those with a Dementia: the impact of a feeding assistance programme alongside five health professional led support groups for health care assistants.

3.1 Introduction

This chapter evaluates the design and implementation of a feeding assistance programme 'Making Mealtimes Better for those with Dementia' (MMB) with an additional five health professional led support groups compared with both participation in training only and a wait list control condition. This project will examine whether any changes in knowledge, competency, attitudes and daily reported practices of health care assistants (HCAs) working with individuals with a dementia and oral feeding difficulties can be maintained over time as a consequence of training delivery. Few controlled intervention studies aiming to improve the knowledge and competency of HCAs have been evaluated in the nursing home setting. A sparsity of literature surrounds the key parameters effective in training HCAs who are typically non traditional, adult learners and provide the majority of direct care of residents with a dementia. Chapter Three is an evaluation of the inputs i.e. training necessary to achieve desirable outcomes such as a developed HCA staff workforce. The aim is to establish whether a feeding assistance programme followed by five health professional led support forums focused on oral feeding difficulties in dementia can impact the knowledge, competency, reported daily practices and attitudes of HCAs in a specialised dementia care setting. If so, this would support a developing model of training using adult learning techniques, reflective and experiential learning whereby duration and method of delivery are key parameters in the provision of equipping HCAs with the necessary knowledge and skills to provide good quality dementia care. It is hypothesised that 'Making Meal times better for those with a Dementia': a feeding assistance programme will have beneficial impact on HCAs compared with those staff who did not receive the training with an additional effect hypothesised for the health professional led support component.

The training programme 'Making Mealtimes better for those with a Dementia' was delivered to HCAs as part of a pilot study exploring the impact of hours of educational exposure necessary to demonstrate improvements in HCA knowledge, competency and attitudes following a feeding assistance programme (McCartney, 2005). The pilot study is reported in section 3.2. Of particular interest during the pilot was an evaluation of the method of training delivery, topics covered and the presentation of information in an accessible format to HCAs who typically had English as a second language and a below average level of education during a one off training course and whether to pursue this part of the investigation in the principal study. A subsidiary aim was to test the reliability of the sampling procedure.

Measurement of knowledge, competency, attitudes and daily practices using traditional questionnaires is problematic given the low levels of academic interest and low English language proficiency of HCAs (Sheldon, 2006). In the present study HCA knowledge, competency, attitudes and daily reported care practices are investigated using questionnaires and responses to statements on Likerd scales and resident based clinical scenarios with minimal open spaces. Sections 3.2.1 and 3.2.3 outline the pilot study, the changes made to initial training materials and procedures used for the pilot and principal studies, the questionnaires employed, measurement criteria and changes made.

The results and statistical analysis of HCA knowledge, competency, attitudes and self reported daily care practice scores are presented in Section 3.5. The implications of these findings are discussed in section 3.8.

This research will coincide with the second set of experiments running concurrently which will analyse the quality of feeding assistance provided to residents during mealtimes using a standardised observational tool before and after training (Chapter Four).

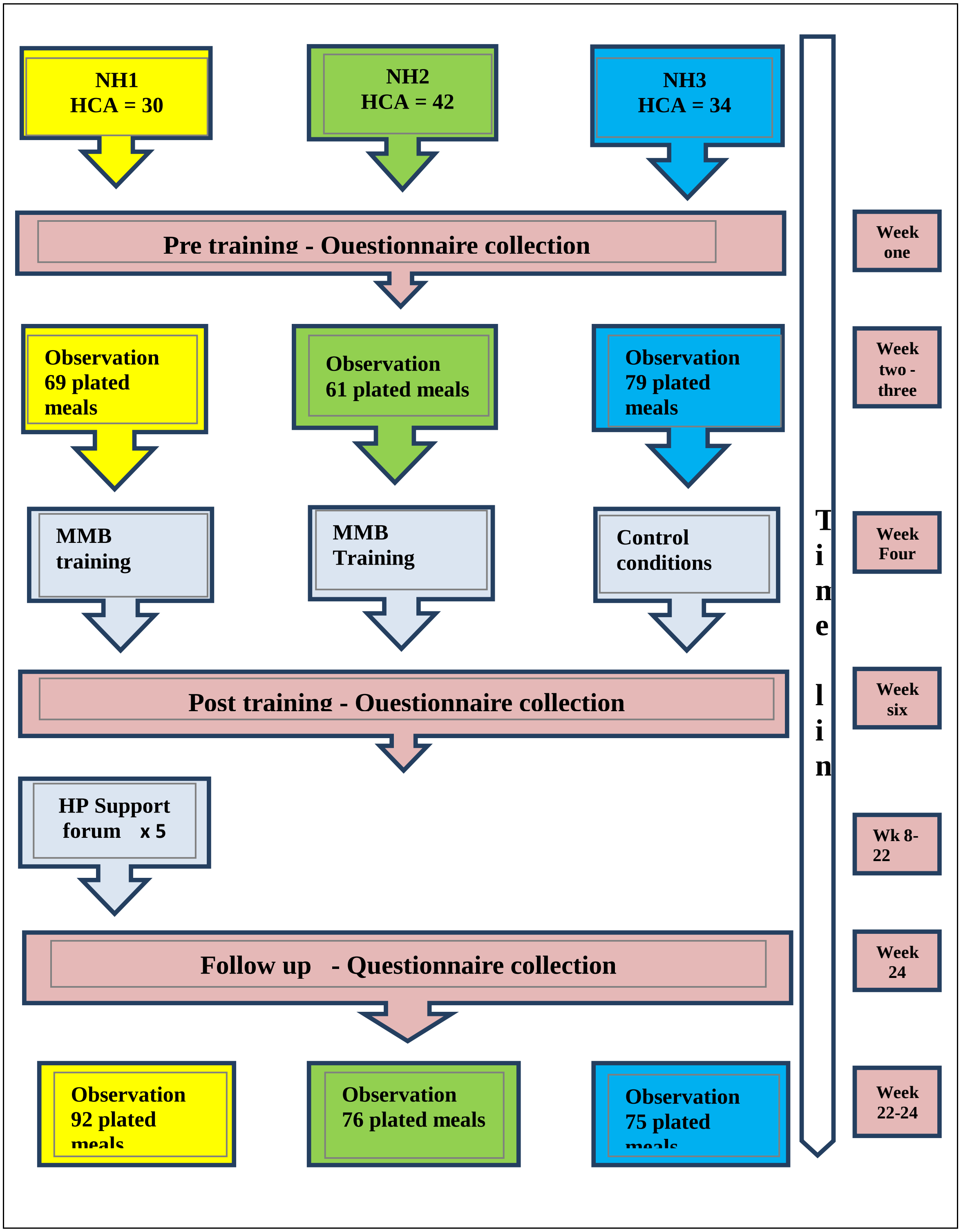
3.1.1 The design of the experiment

The purpose of this study was to evaluate the impact of a feeding assistance programme for HCAs working with residents with a dementia and oral feeding difficulties in a specialised dementia care ward through an evaluation of three interventions: MMB training supported by five health professional led support forums; as a standalone three hour training package; and control conditions. The project employed a quasi- experimental, longitudinal, mixed design used to test for differences between three independent groups whilst subjecting participants to repeated measures.

Quasi – experimental design uses comparison groups rather than randomly-assigned control groups as the baseline against which to measure net programme impacts (Schildmann & Higginson, 2011). This experimentation method is efficient in longitudinal studies or evaluation of educational programmes that involve longer time periods which can be followed up in different environments (Nagy Hesse-Biber, 2010). Although lacking randomized allocation of participants and posing challenges in terms of internal validity, eliminating confounding variables and bias, a programme evaluation concerned with applied research questions and human subjects may be better than a classic experimental design such as a randomised control trial, which may not accomplish the objectives (Shadish, 2002).

The following research questions were addressed: (a) how comparable are the groups pre-intervention, (b) what are the characteristics of these HCAs (c) are there any changes in knowledge, competency, attitudes and daily reported care practices of HCAs at one month and five months in response to MMB a feeding assistance programme and five monthly health professional led support forums (d) are there any changes in knowledge, competency, attitudes and daily reported care practices of HCAs at one month and five month post in response to MMB a feeding assistance programme.

Figure 3-1: Experimental design



3.2 Pilot study

This research builds upon a pilot research project: 'The effectiveness of an educational programme for HCAs caring for people with dementia, dysphagia and other feeding disorders: does length of time make a difference?' (McCartney, 2005). The aim of the pilot study was to examine the impact of an educational programme on dementia and oral feeding difficulties through an evaluation of three interventions: a one hour feeding assistance programme, a three hour feeding assistance programme and control conditions. HCAs from workshop A completed a three-hour course. Participants in workshop B underwent a ninety-minute condensed training course and workshop C, represented wait – list control conditions and participants did not receive any form of training.

The emphasis on exposure to training (one hour vs. three vs. control conditions) reflected one of the key objectives of the pilot study, which was whether increased hours of education was a critical component in predicting knowledge, skills and competency in HCAs working with residents with dementia, dysphagia and complex feeding disorders and thus if there was any justification in using this foundation as a basis for training in the principal study.

The materials used are described in Section 3.2. These were used in the pilot study and changes made for use in the principal study. The implications of the pilot study are discussed in Section 3.2.3 .

3.2.1 Method:

3.2.1.1 Setting and recruitment

A quasi-experimental mixed design and purposive sampling was employed to recruit three nursing homes matched for admission criteria, size and containment of a specialised dementia care unit. Nursing homes were allocated randomly into experimental groups.

A total of 154 HCAs met inclusion criteria for this study which required that HCAs had not received any prior training in dementia, dysphagia and complex feeding disorders. Written consent was obtained from 90 HCAs. Baseline assessments were completed on these participants.

3.2.1.2 Measures:

HCAs completed a questionnaire pre- training and a slightly modified version immediately post and again at two weeks following training.

A ‘Swallowing and Feeding difficulties in Dementia’ programme was implemented for HCAs in nursing homes one (three hour version) and two (ninety minute version). Training was designed to incorporate the characteristics of the HCAs and adult learning styles including: reflection, role play and experiential learning with less of a focus on academic learning and traditional class room based teaching. Theory and practical sessions were assessed within the session e.g. optimum feeding positions using videos and practical demonstrations. The areas covered included: Dementia, Dysphagia, signs and symptoms of dysphagia and communicating with individuals with dementia.

3.2.2 Results (pilot)

Results showed significant improvements two weeks post training in knowledge, competency, skills and attitudes following training for those HCAs in experimental conditions that received the most exposure to training. Increased hours of education were also associated with improved attitudes and reduced stress.

All HCAs working across the three nursing homes described their job as mostly direct care with residents with a dementia. Coinciding with findings in the literature, HCAs were predominately female (97%) and in their current job for 7- 12 months reflecting a general high turn-over of HCAs in the long term care setting. 82% of trainees reported having no formal qualifications with the remainder of trainees indicating education to the level of GCSE. They did not have any previous training in dementia, dysphagia or complex feeding disorders. Trainees overwhelmingly reported a poor understanding of dementia and associated dysphagia and feeding difficulties (75%). 62% of trainees reported that 'about half to most' of the residents in their care experienced dysphagia and feeding disorders associated with dementia, revealing that this was a significant factor in their everyday work. 100% of trainees identified a training need in this area.

3.2.2.1 Knowledge scores (pilot):

Respondents were requested to answer five questions regarding knowledge of dementia, dysphagia and feeding disorders. Repeated measures analysis, using non parametric analysis and Friedman's testing, revealed statistically significant improvements in knowledge of dementia, dysphagia and feeding disorders across testing over time for workshops A $\chi^2 = 36$, $df = 2$, p = <0.05 and B $\chi^2 = 29$, $df = 2$, p = < 0.05. There was no statistically significant improvement in knowledge scores evident across testing for workshop C ($\chi^2 = 1.7$, *ns*). Post hoc analysis using Mann Whitney testing revealed knowledge scores of HCAs from workshop A were significantly higher immediately post and at testing two weeks later than those of participants in workshop B (immediately post: U = 42, N = 40, two tailed p = <0.05, two weeks later: U = 56, N = 40, two tailed p = <0.05).

3.2.2.2 Competency scores (pilot):

Respondents were asked to demonstrate competency in managing individuals with dementia dysphagia and feeding disorders by providing appropriate answers to hypothetic feeding or swallowing scenarios. Friedman's tests revealed statistically significant improved performance regarding competency across pre-, immediately post and testing two weeks following training in workshop A (χ^2= 38, df = 2, p = <0.05) and B (χ^2 = 16, df = 2, p = <0.05). Findings for the control workshop C proved significant in that scores significantly deteriorated across testing (χ^2= 10, df = 2, p = <0.05).

3.2.2.3 Attitudes (pilot):

Attitudes were analysed on a five-point scale. Respondents were questioned regarding their disposition towards their job and their attitudes towards working with individuals with dementia, dysphagia and feeding disorders. Significant positive changes in attitude from high to low levels of frustration were observed in workshops A (χ^2= 17, df = 2, p = <0.05) and B (χ^2 = 21.3, df = 2, *p* = <0.05) across pre, immediately post and at two weeks following training. There were no significant effects observed within workshop C although the means indicated a consistently high level of frustration across testing. The Friedman's test revealed significant effects with increased confidence working with people with dementia, dysphagia and feeding disorders across testing for both experimental workshops A (χ^2 = 21.1, df = 2, *p* = < 0.05) and B (χ^2= 11.4, *df* = 2, *p* =<0.05). Visual inspection of the means indicated consistently decreased levels of confidence across testing for workshop C although these findings did not prove significant.

3.2.3 Discussion

Participants who were exposed to the longest period of training performed significantly better than any other workshop across all parameters assessed. These findings are supported by the lack of improvement of the control group across testing. Workshop A performed significantly better than workshop B immediately post and two weeks following training although the experience did not have any significant effect on the participants from the control group. Visual inspection of raw scores indicate that knowledge scores of the control group improved slightly over testing, this may be attributed to the Hawthorne effect and increased reflection across testing. The pilot study provided strong evidence for the argument that increased hours and exposure to education is the critical component in determining improved knowledge of dementia, dysphagia and associated feeding disorders.

The competency of both workshops A and B significantly improved following training. Both workshops A and B benefited from training, with significantly greater numbers of strategies produced immediately post and two weeks following training. Workshop A produced significantly more strategies than workshop B, with some participants close to ceiling on the use of strategies at post and follow up stages of training. HCAs exposed to the most training (workshop A) performed significantly better immediately post and two weeks following testing, with answers reflecting a more person-centred approach to care. For workshop C, control conditions the findings are more complex and less easy to interpret. For the workshop as a whole, competency pre- testing mean ranks were significantly lower as compared to workshops A and B, suggesting a lower level of competency before the experiment commenced. There were no differences in educational qualifications or status of the nursing facilities to account for this difference, which is not evident for any of the other parameters assessed. Analysis of the questionnaire data reveals that the pre-questionnaire answers of workshop C were more task-centred with a focus on getting feeding finished as quickly as possible. Significant deterioration in the competency scores of the control group over time was evident. These differences may be attributable to the participants reflecting on their competency across testing, exacerbating any uncertainty or confusion.

Attitude changes reflect, to an extent, the assumption that increased knowledge, competency and skills positively impact daily contact with individuals with dementia, dysphagia and feeding disorders and contexts where such skills are essential elements to the role of the HCAs in residential settings. Significant increases in job satisfaction were evident in the experimental groups from strong negative emotions to a positive disposition. The attitudes in workshop A improved significantly immediately post training and were maintained over time. Although workshop B did reveal evidence of improved attitudes at post and follow up testing this did not reach levels of significance. Furthermore, training resulted in evidence of increased confidence across testing for both workshops A and B.

The attitudes from workshop C differed from the other workshops in that the participants expressed satisfaction with their job throughout testing but were consistently not able to cope and lacked confidence in their working practices. This finding may be attributable to the lack of knowledge about strategies available to improve one to one contact with individuals with dementia and is reflected in consistently high levels of frustration across testing. In contrast, significant decreases in frustration were observed in workshops A and B across testing. This research supported earlier research in suggesting that education is a crucial component in determining job satisfaction, increasing self-confidence, reducing frustration and improving participants' ability to cope with complex feeding situations.

There are several limitations to this pilot study: the small sample size using non randomised methodology ensures that it is difficult to generalise upon findings and apply them to the wider HCA population. Certain insights have been gained into the learning styles of HCAs and the characteristics of the participants have conformed with the picture of HCAs developed in the literature which may not have been gained using a randomised control trial which may not be sensitive to the learning needs of human subjects. Although the study and questionnaires used were successful in evaluating an 'input' i.e. feeding assistance programme they failed to analyse the 'outputs' or impact of training on practice, the impact on the individuals with dementia during mealtimes or demonstrate evidence of good quality dementia care.

3.2.4 Conclusions and implication for the principal study

The results of the pilot study provided promising evidence that increased hours of education invested is a critical component in predicting knowledge, competency, skills and improved attitudes immediately post and at follow up testing after training pertaining to dementia, dysphagia and feeding difficulties. The pilot study revealed evidence that the number of hours of education provided to HCAs has a beneficial impact on knowledge, skills and competency with associated positive changes in attitudes and confidence up to two weeks post training. The results of this study show that it is possible to obtain a representative sample of HCAs using a small purposive sample. This relatively small study has shown that significant changes in HCA knowledge can be achieved and maintained for short periods post training.

Few controlled intervention studies have evaluated the impact of a feeding assistance programme for residents with a dementia and oral feeding difficulties delivered in different formats longitudinally. The futility of one off training as a method of continuing learning and development has been documented in the research (All Party Parliamentary Group, 2009, Davison, 2007). The principal study will consider the characteristics of HCAs, effective methods necessary to equip staff with the knowledge and skills to identify dementia and oral feeding difficulties and the competencies to deliver quality feeding assistance to residents. The principal study will evaluate how improved knowledge and competencies are translated into practice and any subsequent impact on the meal time experience of the resident with a dementia via an observational component; this will be discussed in Chapter Four. These findings will enable researchers to evaluate the effectiveness and influence of training on the daily working practices of HCAs, identify potential barriers to training and evaluate the delivery of good quality dementia care.

3.3 Principal experiment: Methodology

This section contains the methodology employed for the educational / training component of this study (Chapter Three) and the observational component which runs concurrently (Chapter Four).

3.3.1 Setting and recruitment:

The sampling frame was devised from a National Health Service (NHS) record of nursing home facilities in a health borough in East London accessed via the local speech and language therapy department. A total of 12 nursing facilities with specialist dementia special care units exist in this catchment area. Contact was made with nursing homes via the chief of community nursing in the London borough and presented at the quarterly NHS Nursing Home Managers Meeting. Managers who expressed interest were contacted by the principal researcher and the research, purpose and procedures were explained. In purposive sampling the characteristics of the individuals are used as the basis of selection, chosen to reflect the diversity and breadth of the sample population (Wilmot, 2005). Purposive samples are derived from a pre-specified group and purposively sought out and sampled. This sampling method provides a means of acquiring information in unexplored areas that would be difficult to obtain in a random sample (Burns, 2008).

Participants were recruited from three nursing homes (NHs), two owned by private organisations and one run by a charity. These nursing homes were matched on the basis of containing a specialised dementia care unit, unit size and staffing to resident ratios (Table 4). A total of 205 HCAs met inclusion criteria for this study which stipulated no prior HCA exposure to training in the area of dementia, dysphagia and oral feeding difficulties and a willingness to engage in a long term training programme. This strict sampling criterion decreases the impact of extraneous variables related to the HCAs' prior knowledge of dementia thereby decreasing the potential for sampling bias and improving the representativeness of the purposive sample.

Table 4 Comparison of Nursing Homes (NHs), one, two & three

NH:	**Type of registration:**	**Categories of regis-tration**	**Private owner-ship?**	**Age of residents**	**Total beds**	**Dementia unit?**	**Number of beds in the dementia unit**	**Staffing ratios**		
								HCA to resident:	**Qualified nurses to residents**	**HCAs to nurse**
NH 1	Nursing care home	Dementia	✓	65 plus	81	✓	25	5 HCA day shift	2 Registered nurses day	5:2
NH 2	Nursing care home	Dementia	Charitable	65 plus	80	✓	25	5 HCA day shift	2 Registered nurses day	5:2
NH 3	Nursing care home	Dementia	✓	65 plus	120	✓	30	5 HCA day shift	2 Registered nurses day	5:2

To avoid confounding of subjects the specialised care units were randomised into three intervention groups: MMB training programme plus five, monthly, sixty minute health professional led support forums, nursing home one (NH1), MMB three hour stand-alone training programme, nursing home two (NH2) and control conditions, nursing home three (NH3).

There was a high rate of attrition in this sample with 99 out of the 205 HCAs who completed measures at baseline failing to complete outcome measures at post intervention. Written consent was obtained from HCAs and the nursing home managers to engage in the study. Residents who were deemed to have capacity were informed of the study by managers, provided with written information and were given a choice to contribute. The named next of kin of residents who were deemed not to have capacity were contacted via letter and provided with written information about their relative's participation in the study. Only one family member contacted the research team to express concern at their family member's participation. Upon further discussion regarding the rationale of the study they agreed to consent on the resident's behalf. Consent was gained from all residents across the three nursing homes. After consent was given, 5 participants were lost due to transfer out of the nursing home, prolonged hospitalization or death.

3.3.2 Measures:

The effectiveness of training was evaluated by self reporting questionnaires. Questionnaires used in the principal study are a modified version of that used in the pilot study (McCartney, 2005), based on a comprehensive literature review, clinical experience and the contribution of several expert practitioners. Content validity was established by five experts in speech and language therapy, psychology, nursing and a medical doctor independently rating each item on a five point Likert scale in terms of relevance, ease of reading, and content. The ratings for all items in questionnaires had a content validity of four – five points.

The self administered questionnaire approach to data collection has many advantages in that they are relatively easy to distribute to large numbers of research subjects who can remain anonymous. Also, the interest or relevance of the questionnaire has a positive impact on participation (Sheldon, 2006). Self administered questionnaires assume an unstated 'general knowledge' about the group of interest and can be subject to error in relation to the collection of information about attitudes and behaviour (Bowling, 2005). Furthermore responses elicited may be a reflection of the options presented to participants rather than their innate knowledge base (Bowling, 1997).

There is a developing literature base outlining the variation in response rates and ability to access survey responses amongst certain groups: black and minority ethnic (BME), the elderly, younger adults, men, those in poorer health, people on low income and with a lower level of education typically are less likely to engage in a questionnaire (Sheldon, 2006). There is limited published evidence examining the reasons behind non participation but evidence suggests disengagement, poor literacy, language, acculturation and poor contact information (Sheldon, 2006). The questionnaires used in the study were developed with the characteristics of the target population of HCAs in mind therefore several strategies were applied to questionnaires to address communication barriers and improve participation including: use of formats that are appropriate for different visual and literacy impairments, including the use of simple, straightforward language and the production of culturally appropriate translations.

Questionnaires were distributed to HCAs pre-, two weeks post and five months following initial delivery of MMB three hour training. Collection of research questionnaires were collected in NH3 (a control intervention) at equal time points so that the effects could be differentiated from the effects obtained from the other two experimental conditions. Groups of HCAs were given time off the floor to complete the questionnaires with the support of the research team. Information on the first language of HCAs in the nursing homes was obtained from nursing home management. Translation of written documents was provided in advance for those HCAs who had English as a second language. Those candidates who were illiterate were offered a 1:1 translation of the document.

The measurement criteria used in the pilot and the principal studies for the measurement of HCAs knowledge, competency, attitudes and self reported daily care practice are outlined below.

3.3.2.1 Self completion questionnaires: knowledge

Assessment of knowledge of dementia, dysphagia and oral feeding difficulties was ascertained via agreement or disagreement with ten statements. Respondents were requested to answer 'true or false' to 10 questions relating to knowledge of dementia and oral feeding difficulties to achieve a total knowledge score.

3.3.2.2 Self completion questionnaires: competency

HCAs were asked to demonstrate competency in managing individuals with a dementia and oral feeding difficulties by providing appropriate answers to hypothetic feeding or swallowing scenarios. Positive suggestions were awarded a plus score (+) whilst negative strategies were awarded a negative score (-). Feeding scenarios were rated by two independent speech and language therapists and a score agreed.

3.3.2.3 Self completion questionnaires: attitudes

HCA attitudes towards their work and the residents in their care were analysed by responses to statements. Attitude scores were analysed via responses to ten statements and responses scored on an ascending five point scale using the following indicators: strongly disagree, disagree, neither agree nor disagree, agree and strongly agree.

3.3.2.4 Self completion questionnaires: reported daily care practices

HCAs were questioned regarding their working practices and behaviours regarding dementia care on a daily basis, and daily care practice scores were analysed on a five point Likert scale from 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently and 5= always.

3.3.3 'MMB' feeding assistance programme.

The purpose of 'Making Meal times better for those with a dementia' (MMB) is to provide HCAs with the knowledge to understand and recognise a dementia and complex oral feeding difficulties alongside an array of associated cognitive, physical, psychological and environmental factors. MMB for those with a dementia aims to instil in HCAs an appreciation of the importance of individualised feeding assistance care for residents and equip them with the tools necessary to manage complex oral feeding difficulties with the assistance of the multi-disciplinary team.

The content of MMB was developed following an extensive literature review and in partnership with local medical, nursing, nursing home management and HCA consultations. Developing HCA competencies and themes of educational content were identified via needs assessments, review of the literature and consultations with health care professions and academics. Preliminary evaluations of the content were evaluated during a pilot project and subsequent changes to content (McCartney, 2005). The HCAs' learning portfolio was guided by the competency framework developed by the National Health Service Scotland (2003). This framework aims to bring together theory and practical skills, whilst the assessment of clinical competency is via observation protocol and questionnaire data.

The question of how competent HCAs have to be to perform their role safely is critical. Marshall & Luffingham (1998) argued that greater role definition is achieved through introducing core competencies. Competence is job related, being a description of an action, behavior or outcome that a person should demonstrate in their performance. Competency and competencies are person orientated, referring to the person's underlying characteristics and qualities that lead to an effective and/or superior performance in a job (Marshall, 1998). Competence concerns an aspect of a job that an individual can perform, while competency concerns an individual's behaviours underpinning competent performance (Woodruffe, 1993). Competence covers something a person is or should be able to do. Its focus is more on performance than on knowledge and it is concerned more with what people can do than what they know (Rees, 2009).

Table 5: HCA competencies: Dementia and oral feeding difficulties

HCA competency domains: Dementia and oral feeding difficulties
1. Understanding dementia 2. Understanding complex oral feeding difficulties in dementia 3. Recognising oral feeding difficulties in a dementia 4. Personalised feeding assistance 5. Promoting a positive mealtime environment for those a dementia 6. Effective communication 7. Advanced dementia, palliation and complex feeding disorders

The core training package 'Making Mealtimes Better for those with Dementia' delivered in the pilot study was refined with reference to adult learning theory, teaching styles and models used for developing newly qualified nurses, paying particular attention to the characteristics of HCAs identified in the literature (All Party Parliamentary Group, 2009, Bryan et al., 2009, National Health Service Scotland, 2003). The MMB programme avoids the traditional lecture format and employs structured exercise and role play, case studies, demonstration, group assignment and discussion. These methods encourage the HCAs to decide what to learn and validate the information drawing upon past experiences and viewpoints (Bryan et al., 2009). Using this methodology HCAs were serving as knowledge resources to each other and the instructor, reinforcing their valuable contribution as key contributors to improving outcomes in the area of dementia, dysphagia and oral feeding disorders. The training is not intended to be an all encompassing programme for HCAs; rather it draws upon the ongoing Multi Disciplinary Team focus of setting standards and delivering good dementia care to residents in long term care. The aim for this programme is that it will fit alongside a standardized training package as a specialised module in dementia care for a regulated HCA profession.

3.3.4 'MMB': health professional led support forums.

The use of professional or peer led support groups as an approach to facilitate the development of workforce development has received little attention in the literature. Brodaty et al. (2003) reported that approximately one in three nursing homes staff members felt that they did not have enough opportunities at work to discuss the psychological stress of their job. A recent study employing peer support groups for HCAs in dementia care has been shown to have little impact on staff or residents (Davison, 2007). Peer support forums for HCAs may prove futile for several reasons. Given the marginalised status of HCAs and their isolated role from the wider team (Lloyd et al., 2011) their ability to promote role autonomy and instigate professional development amongst peers is questionable. The lack of recognition of dementia as a terminal neuro-degenerative condition and failure to identify array of cognitive, physical and psychosocial factors by HCAs (All Party Parliamentary Group, 2009) may limit their ability to autonomously promote self directed learning and management in this area.

The aim of the health professional support forums is to facilitate ongoing learning in dementia and oral feeding difficulties, discuss challenging feeding behaviours, management of difficult feeders and a discussion of subsequent emotional reactions and work related stress. This approach includes extended on the job training to enhance learning of new skills through ongoing expert consultation, modelling of appropriate practices or supervision and feedback by specialists (Davison, 2007). The forums were designed so HCAs could identify learning needs and topics of discussion for each session which would then become the focus of a sixty minute follow up support forum the following month. Goals and learning aims for the training were developed in conjunction with HCAs during the pilot training, nursing home managers, local health professionals and the community nursing team. A copy of the goals and aims of intervention is in Appendix 4: Support Forums.

The format of the support forums consisted of a synopsis of previous core learning, targeted new learning goals and ended with a case study of a resident at the nursing home. Video footage of a resident with dementia, feeding and swallowing disorders being fed by a HCA was shown to the support forum. In groups, HCAs were given the task of identifying potential swallowing and feeding difficulties, effective feeding techniques and development of a care plan. Recordings of familiar residents in a familiar context enabled the HCAs to reflect on current practices and promoted new learning via the sharing of ideas from colleagues. HCAs were provided with a training manual for the core MMB training and for follow up training support groups. The additional five sixty minute follow up support groups were attended by approximately 8 - 10 members of staff and delivered during the day shift. Not all staff members attended the support forums. A copy of the MMB three hour training package plus support forums initiated by HCAs are in Appendix 3: MMB Training programme & Appendix 4: Support Forums.

Table 6: Making Mealtimes Better for those with a Dementia, competency statements and descriptors.

Competency Domain	Competencies:	Underpinning knowledge, skills and attitudes
1. Understanding dementia	• Demonstrate understanding that dementia is a terminal condition	• Positive belief about the potential for enhanced independence among people with a dementia. • Understanding of the aging process and its effects on the physical, psychological, social and spiritual functioning of older people • Knowledge and skills in relation to observation within the nursing home environment.
2. Understanding complex oral feeding	• HCAs will recognise the cognitive, psychological, social, environmental and cultural considerations that contribute to oral feeding difficulties in dementia • HCAs will gain an understanding of compounding medical conditions in dementia care that may impact eating and drinking	• Recognise problems relating to the impact of oral feeding difficulties including malnutrition, pressure sores and mortality. • Recognition of the need for a modified diet and specialised assessment by MDT colleagues including SLT and dietician.
3. Recognising oral feeding difficulties in a dementia	• HCAs will gain an understanding of physical, cognitive and behavioural aspects of oral feeding difficulties in dementia.	• HCAs will identify the various types of feeding problems including: initiating the feeding, maintaining attention, getting food into the mouth, chewing food and swallowing food that accompany dementia. • Reporting any ill-effects of oral intake including choking, coughing, increased shortness of breath, eyes watering and chest infections for action by a trained nurse. • Checking resident care plans, nursing and MDT instructions for eating and drinking care.

4. Personalised feeding assistance	• HCAs will seek to empower residents to be active participants in feeding by employing a range of feeding assistance interventions targeting safe oral intake based on the specific presentation of the resident. • HCAs will demonstrate an ability to contribute towards and implement a personalised plan of care based on the residents wishes and medical care plan.	• Ensure appropriate food and fluids and feeding assistance are provided to residents at mealtimes. Identify easily modifiable factors (e.g. use of glasses, hearing aid) and adapt feeding assistance accordingly • Implement the suitable feeding strategies including management of food refusal, aversion, pushing the feeder away, spitting out food or refusing to open the mouth that accompanies dementia. • Providing verbal encouragement, sitting down and making eye contact with the resident, asking the resident or family members about food preferences. • Recognition of when to postpone feeding or employing the skills of a colleague to offer assistance. • Management of residents who are violent including introducing quiet or relaxing music to reduce agitation or outbursts. • Recognition of the need to alerting nursing staff to residents at risk of malnutrition / intensive hand feeding / further specialist assessment. • Pursues, collects and values data relating to personal / cultural eating preferences of the individual with a dementia from the persons family members with the older person's permission • Demonstrate correct procedure regarding full and accurate completion of food record charts including actual amount consumed and specific information relating to food tolerance.
5. Promoting a positive mealtime environment for those with a dementia	• Demonstrates insights and abilities in adapting feeding to meet the needs of individuals with a dementia in the nursing home setting.	• Ensure informed observation of residents at mealtimes, preparing and positioning them for meals, observe level of independence. • Observe how much a resident eats and drinks, complete food and fluids charts appropriately and ensure that any changes in appetite or thirst or oral / dental problems are reported to the relevant practitioner.

6.	**Effective communication**	• Knowledge of what constitutes good communication in dementia care in relation to communicating with residents and colleagues, care delivery and record keeping.	• Importance of involvement in the initial screening of residents' nutritional status in admission, using the MUST tools including weight, height and body mass index and reporting adverse scores to relevant health care professional. • Appropriate referrals for ongoing assessment and monitoring of residents to MDT colleagues ensuring appropriate documentation of clinical information including weight, oral intake and clinical presentation. • Utilises a range of communication skills – verbal, non verbal, written and information technology based aimed at maximising older people's capacity to communicate effectively.
7.	**Advanced dementia, palliation and complex feeding disorders**	HCAs will demonstrate: • Understanding of the overall aim of care, life prolongation, maximizing function or promoting comfort. • insight into the importance of MDT team working in advanced care planning in dementia • the importance of encouraging family members to speak to other trusted advisors	• Demonstrate awareness of the importance of goal directed care in the nursing home and discussion of the care needs of the residents, • encouraging family members to discuss with other trusted advisors and medical team representatives • provide access for family members to printed materials and guidelines

(Chang & Roberts, 2011, Mitchell, 2007, National Health Service, 2003)

3.4 Training conditions:

HCAs in experimental group nursing home one (NH1) received: (i) A three hour training programme ‘MMB’ targeting specific skills and strategies to assist with feeding plus five monthly sixty minute health professional led focus groups involving discussion of difficulties encountered in feeding individuals with dementia, practical problem solving and information giving. Topics for support forums were initiated by HCAs and led by a health care professional.

HCAs in nursing home two (NH2) received: (i) The same three hour training programme ‘MMB’ targeting specific feeding and swallowing problems in dementia including specific skills and strategies in isolation.

HCAs in nursing home three (NH3) received no training for the duration of the research and acted as control conditions.

‘MMB’ was delivered in the nursing home in a training room. It was delivered on several occasions encompassing morning and evening shifts to ensure that all HCAs working in the nursing home received the training programme.

3.4.1.1 Data Analysis:

SPSS 17.0 for Windows was used to analyse obtained data. Descriptive data analysis was used for describing demographic data. Tests of normality identified the non – normal distribution of questionnaire data. Levene’s test demonstrated the homogeneity of the three experimental groups. A combination of non parametric methods of analysis was employed in the statistical analysis, specifically Kruskal Wallis, Mann Whitney U and Friedman’s testing.

Based on Cohen (Cohen, 1992) the following guidelines were used to obtain the population effect size. Using the standard α- level of 0.05 and the recommended power of 80%, then 85 participants are needed to detect a medium sized effect (r = .3)

3.4.1.2 Ethical permission

Approval for the study was obtained from the Essex 2 Research Ethics Committee, Reference no: 09/H0302/79. Written information about the research aims / purpose was provided to HCAs and written consent was obtained.

3.5 Results

3.5.1 Healthcare assistants: a profile.

Table 7 shows the characteristics of the 106 intervention participants followed over the course of five months. The composition of the cohort is typical of the UK HCA population in several aspects. The population sample was mostly female 75% (NH1 = 80%, NH2 = 67% and NH3 = 79%) and from Black and minority ethnic groups, 77%. The age of the HCAs extended from 19 – 60 years, mean age: 51% of HCAs reported having no formal qualification with the remainder of HCAs indicating education to the level of secondary school. Across all nursing homes all of the HCAs described their job as ‘direct care provision’ to residents. Trainees overwhelmingly reported a poor understanding of dementia and oral feeding difficulties (75%). HCAs identified ‘about half to most’ of the residents in their care as experiencing difficulties with eating and drinking, presenting a daily challenge to the provision of basic care. HCAs had no prior training in dementia or associated oral feeding difficulties (Results: Table 7, pg. 84).

3.5.1.1 Ethnicity

The sample population was very diverse with the majority of HCAs originating from a Black or minority ethnic group (77%). The largest ethnic representation was Filipiono 26% followed by Black African 25% and White 24%. The majority of the sample (82%) classified themselves as non UK residents. Of those non UK citizens approximately 31% of the sample population had been living in the UK 12 months or less with only 23% having lived in the UK more than five years. The vast majority of HCAs had a first language other than English 77% (Results: Table 7. pg. 84).

Table 7 Demographic, citizenship and educational characteristics of HCAs in nursing homes: one (NH1), two (NH2) & three (NH3)

Demographics:			
Characteristic	NH1	NH2	NH3
Demographic			
Percent female	80% (24)	67 % (28)	79 % (27)
Percent White	16% (5)	26% (11)	27% (9)
Percent Black	7% (2)	36% (15)	50% (17)
Philipina	57% (17)	14% (6)	12% (4)
UK Citizen	13% (4)	21% (9)	18% (6)
Length of stay in UK (yrs, mean)	2 years	4 years	5 years
English first language	13% (4)	29% (12)	27% (9)
Education			
Secondary-school level	50% (15)	52% (22)	62% (21)
No Formal qualifications	50% (15)	55% (23)	40% (20)
Employment			
Length of stay in years, (mean)	1 year	1 year	1 year

Figure 3-2 HCA ethnicity, NH1, NH2 & NH3

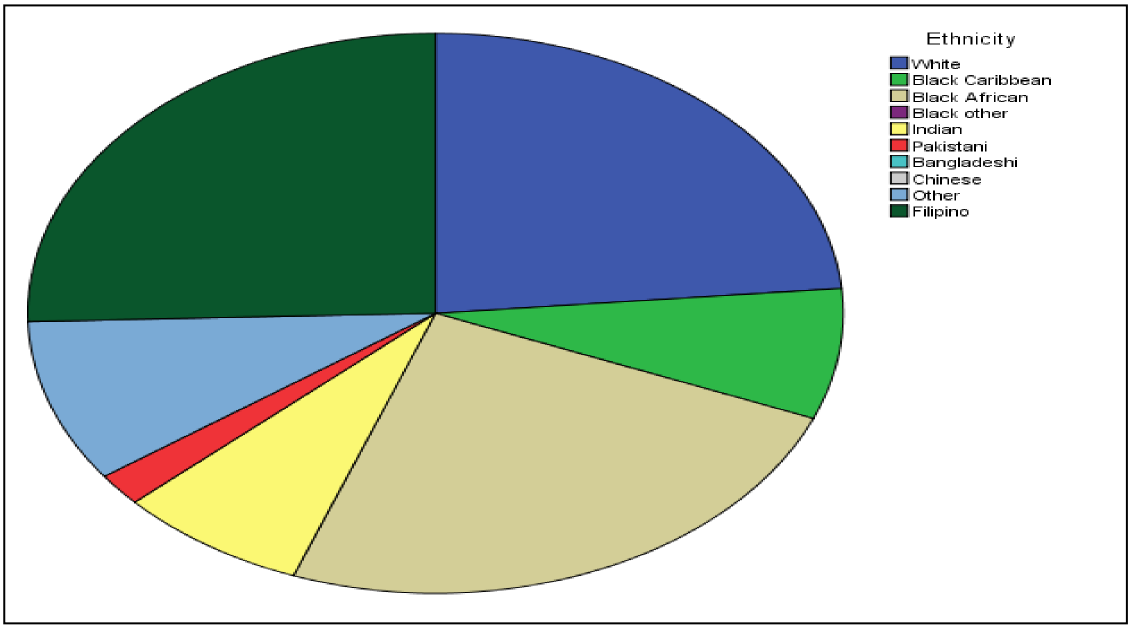


Figure 3-3: First language of HCAs

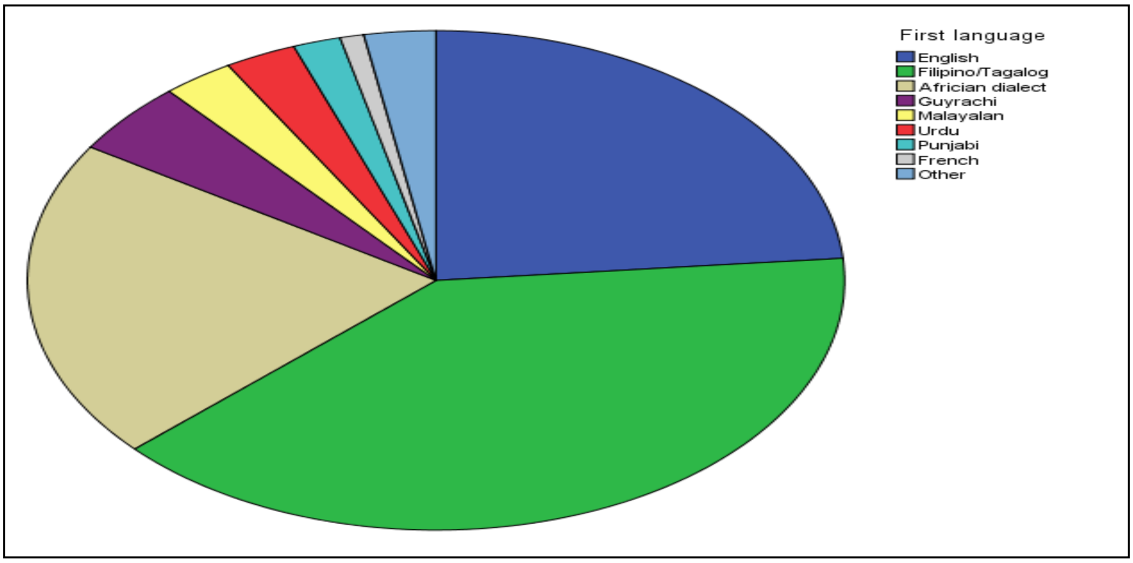


Figure 3-4 UK citizenship of HCAs, NH1, NH2 & NH3

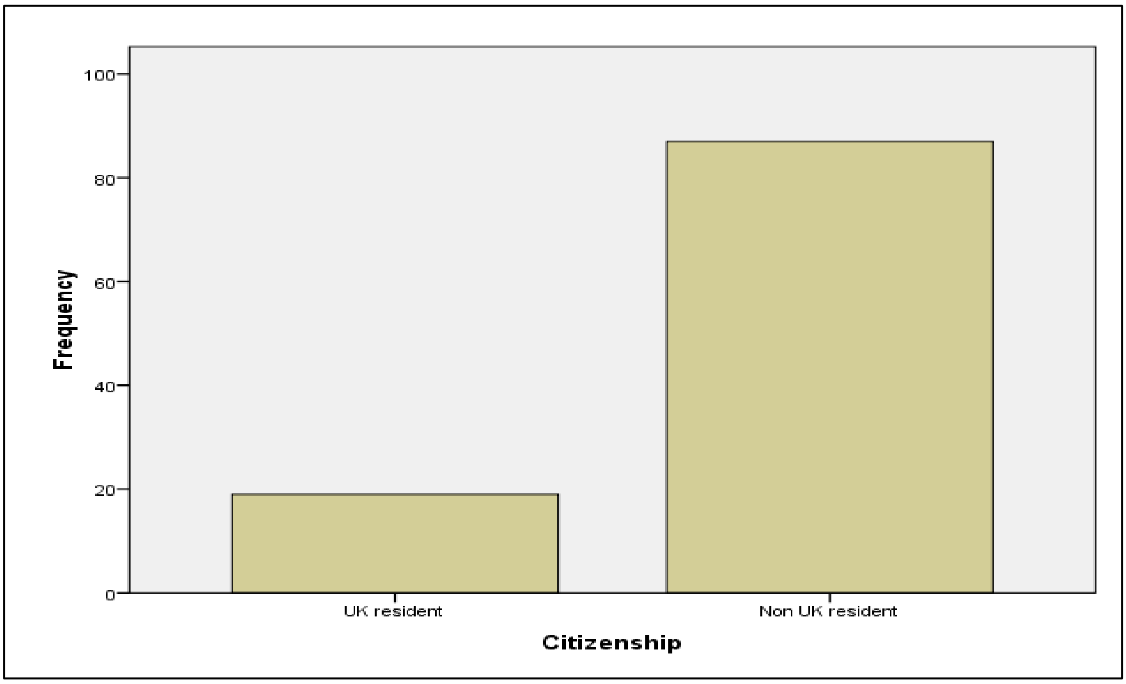
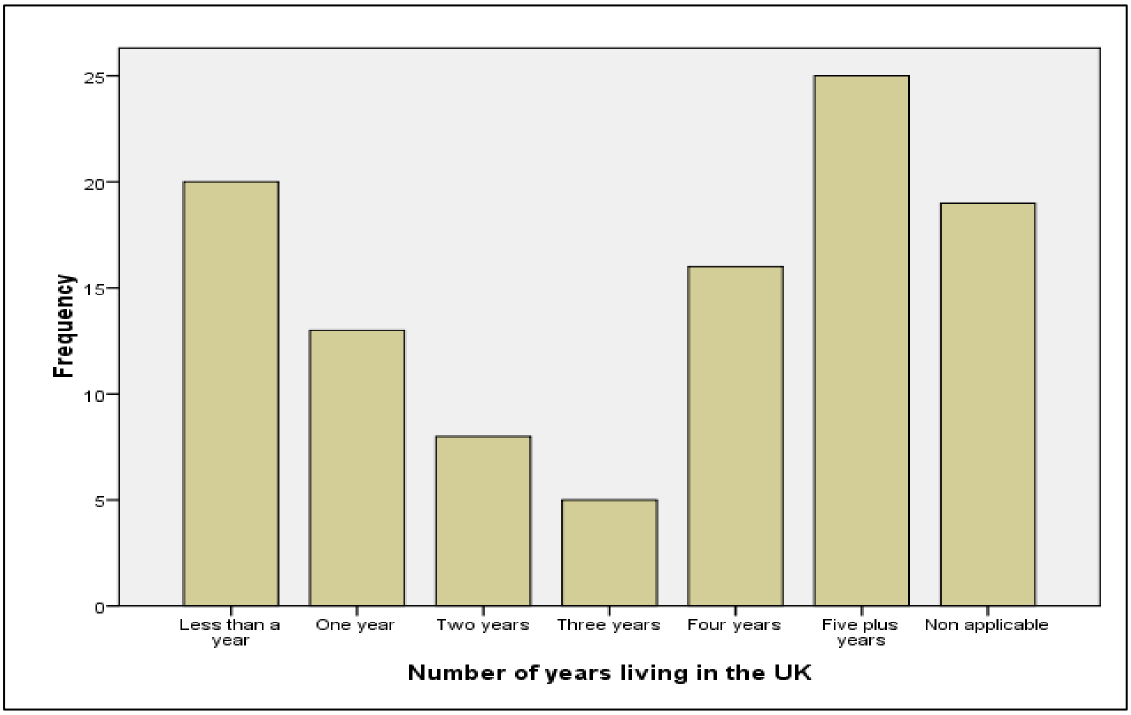


Figure 3-5 HCA, number of years living in UK (non UK citizens)



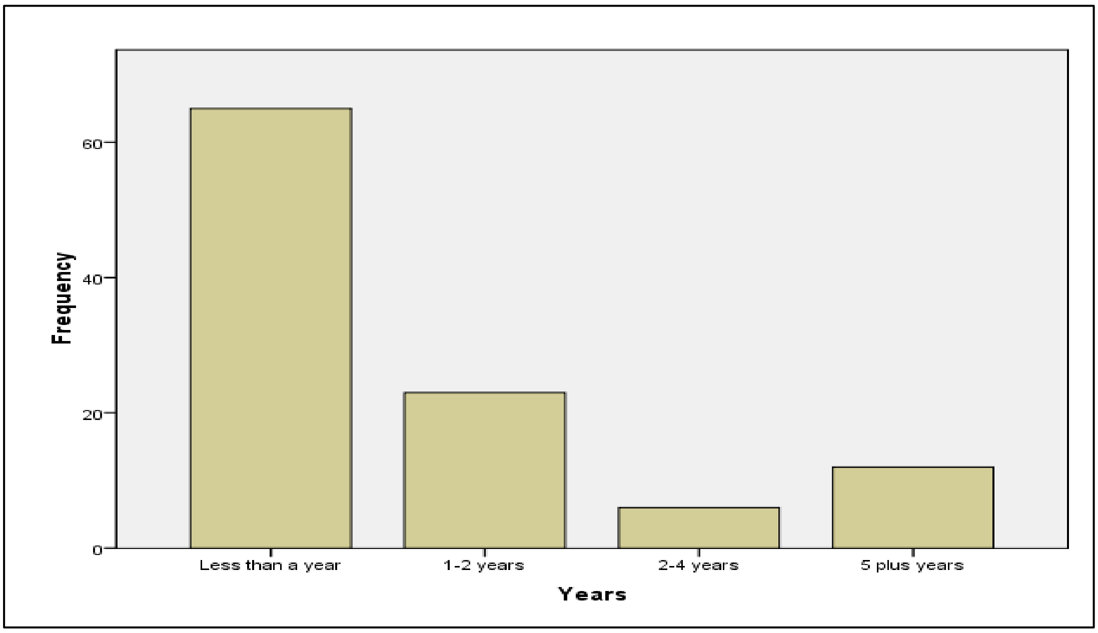
3.5.1.2 Length of time in current job

The majority of HCAs (61%) are in their current jobs for 12 months or less, approximately 22% of HCAs report being in their current jobs one to two years, with a minority being in their jobs over five years (11%). There were no significant differences in average length of stay in the position between nursing homes, H (2) = 2.22, p = *ns*. (Appendix 1 Table 15 pg. 214). These findings suggest a general pattern of high HCA turn-over in long term care settings coinciding with findings in the literature (Sung, 2005).

Table 8 HCAs: length of time in current job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than a year	65	61.3	61.3	61.3
	1-2 years	23	21.7	21.7	83.0
	2-4 years	6	5.7	5.7	88.7
	5 plus years	12	11.3	11.3	100.0
	Total	106	100.0	100.0	

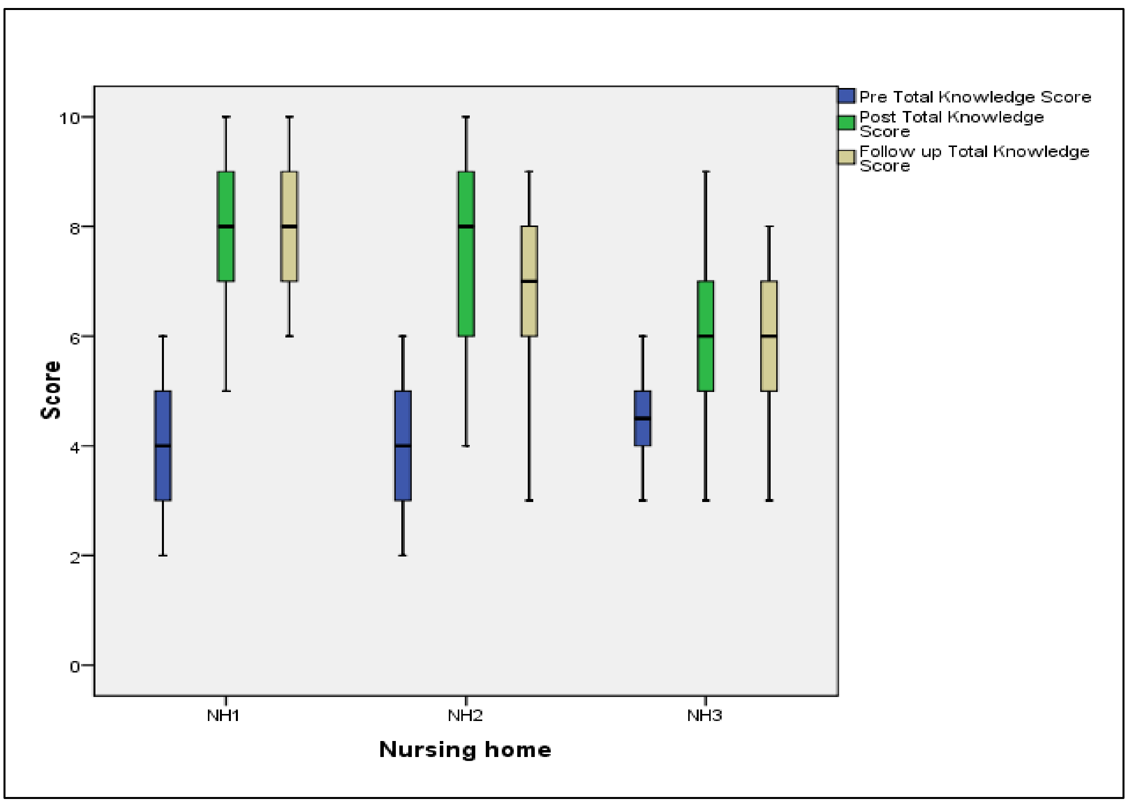
Figure 3-6 HCAs: length of time in current job



3.5.2 Knowledge scores:

Respondents were requested to answer 'true or false' to 10 questions relating to knowledge of dementia, dysphagia and oral feeding disorders to achieve a total knowledge score. The total knowledge scores at pre-, D (42) = 0.19, $p < .05$, post-, D (34) = 0.22, $p < 0.05$, and follow up, D (42) = 0.17, $p < 0.05$ (Appendix 1 Table 16, pg. 214) stages of testing on the questionnaires were all significantly non – normal. Homogeneity of variance is the assumption that the spread of scores is roughly equal in different groups of cases. For total knowledge scores on the questionnaire at the pre- stage, F (2,103) = 0.65, *ns*, post stage F (2,103) = 0.29, *ns*, and follow up stage F (2,103) = 0.02, *ns*, the homogeneity of variances were equal across the three nursing homes (Appendix 1 Table 17, pg. 215).

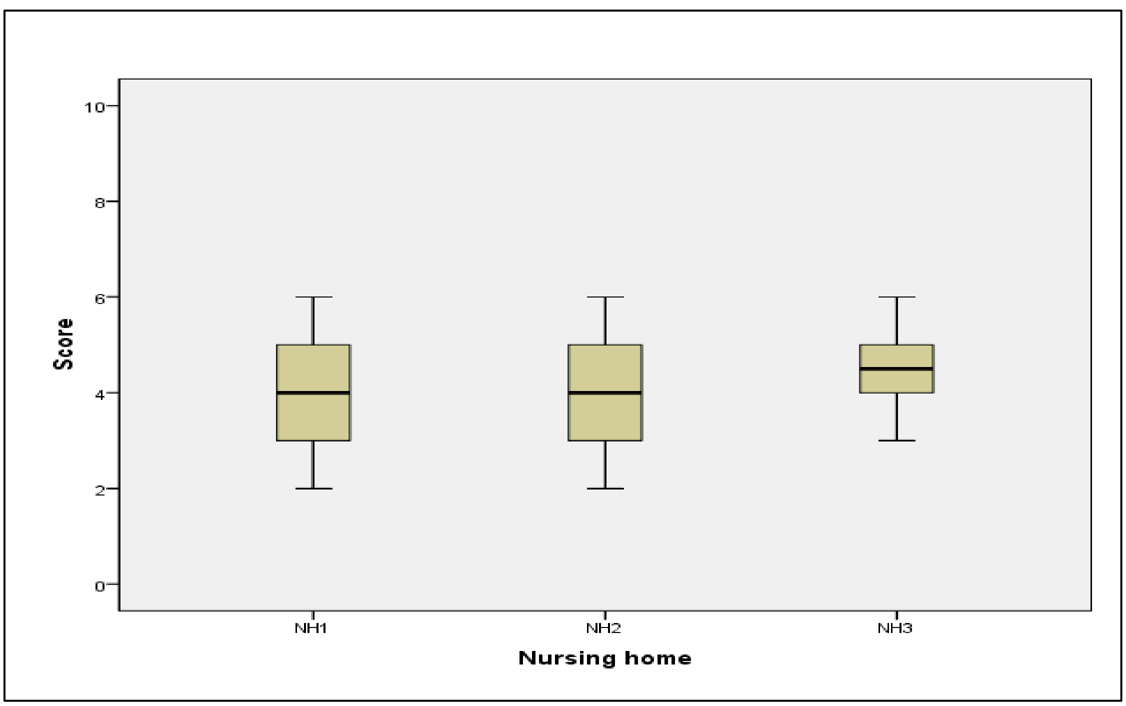
Figure 3-7 Total knowledge scores, pre-, post and follow up stages of testing, NH1, NH2 & NH3



3.5.2.1 Total knowledge scores: Pre Testing

The Kruskal-Wallis test was employed to assess whether there was a difference among the workshops pre training, two weeks post and testing five months following training. Pre- training there were no significant differences between the medians of the participant scores, H (2) 1.96, $p = 0.4$ *ns*. (Appendix 1 Table 18, pg. 215). Analysis revealed significant differences among the distribution of the participant total knowledge scores at post and follow up testing stages, post: $H (2) = 29.1$, $p < 0.05$, follow up: $H (2) = 48.4$, $p < 0.05$. Findings suggest that training had a differential effect on the three nursing homes. Jonckheere's test revealed a significant trend in the total knowledge score data at the post, $J = 1046.5$, $z = - 4.77$, $r = - 0.46$ and follow up stages of testing, $J = 804.5$, $z = -6.20$, $r = - 0.60$ suggesting that as time progressed the median total knowledge scores decreased with large effect (Appendix 1: Table 19, pg. 216).

Figure 3-8 Knowledge scores, pre- testing, NH1, NH2 & NH3



3.5.2.2 Total knowledge scores: post and follow up stages of testing:

Mann- Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Total knowledge scores were significantly greater post training for NH1 (Mdn = 8.0, $U = 176$, $z = -4.6$, $p < 0.0167$, $r = -0.6$) than NH3 at post stages of testing (Appendix 1: Table 21, p.216). There is no significant difference between NH1 and NH2 post testing total knowledge scores. At follow up stages of testing total knowledge scores for NH1 (Mdn = 8.0) were significantly greater compared to NH3 (Mdn = 6.0, $U = 176$, $z = -4.6$, $p < 0.0167$, $r = -0.6$) (Appendix 1: Table 21, p. 217) and NH2 (Mdn = 7, $U = 304.5$, $z = -3.8$, $p < 0.0167$, $r = -0.44$) (Appendix 1: Table 22 p.217).

Figure 3-9 Knowledge scores, post testing, NH1, NH2 & NH3

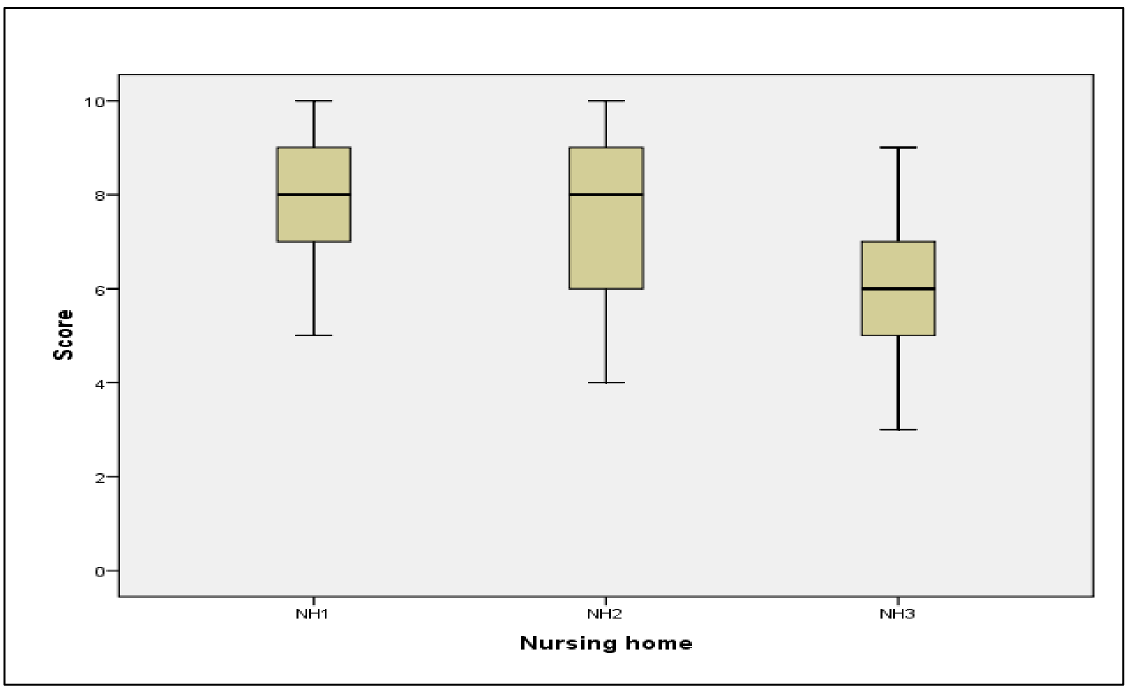
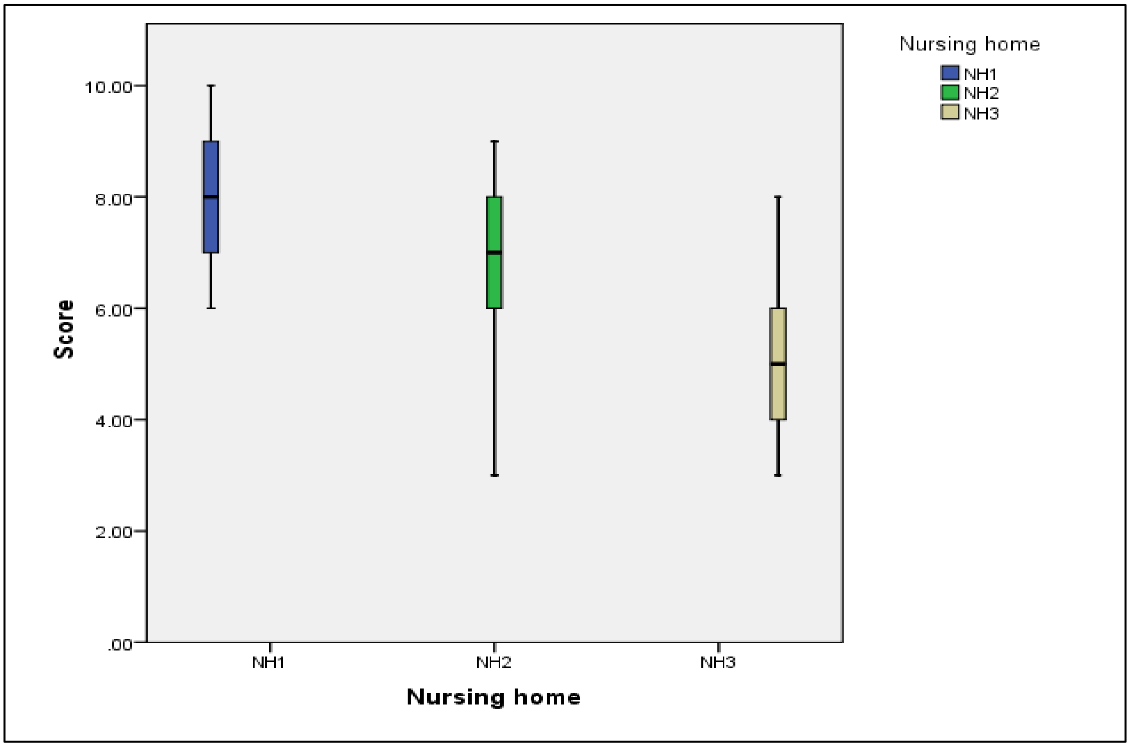


Figure 3-10 Knowledge scores, follow up testing, NH1, NH2 & NH3



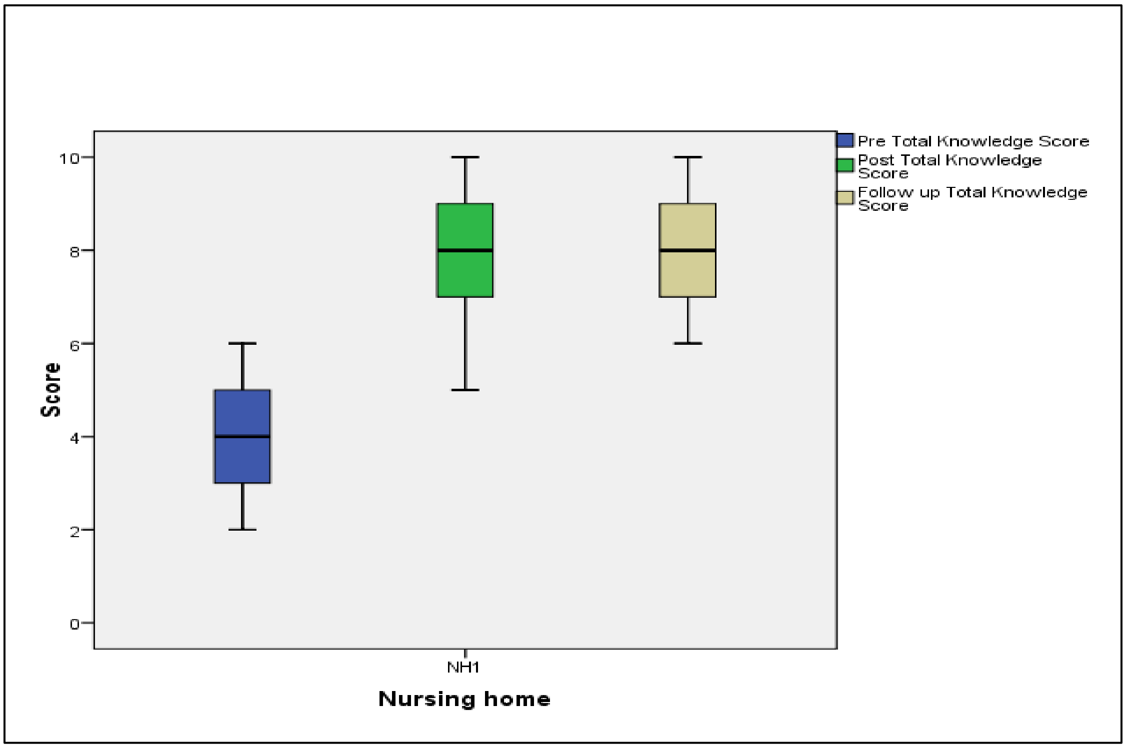
3.5.2.3 Differences in total knowledge scores over time: NH1, NH2 and NH3

Friedmans ANOVA was used to compare the total knowledge scores at each stage of testing for each nursing home. The total knowledge scores for each of the HCAs in NH1, (χ^2 (2) = 45. p < 0.05), NH2 (χ^2 (2) = 55, p < 0.05 and NH3 (χ^2 (2) = 17, p < 0.05 significantly changed over the course of the five months of training (Appendix 1: Table 21, p. 218,)

3.5.2.4 Total knowledge scores NH1:

Wilcoxon tests were used to investigate the significant changes in knowledge scores over the course of the training experiment in NH1. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. It appeared that total knowledge scores changed significantly over the course of training from pre testing to follow up stages of the testing, T = 0, z = - 4.82, p < 0.0167, r = - 0.88 (Appendix 1: Table 24, p. 219). There was a significant increase in scores from pre- testing to two weeks post testing, T = 2, z = -4.77, $p < 0.0167$, r = - 0.87 (Appendix 1: Table 25, p.219). Improved knowledge scores were maintained from post testing to follow up stages of testing with no significant changes, T = 9.14, z = -0.88, ns, r = 0.16 (Table 26, p. 220).

Figure 3-11 NH1, Total knowledge score: pre-, post and follow up stages of testing

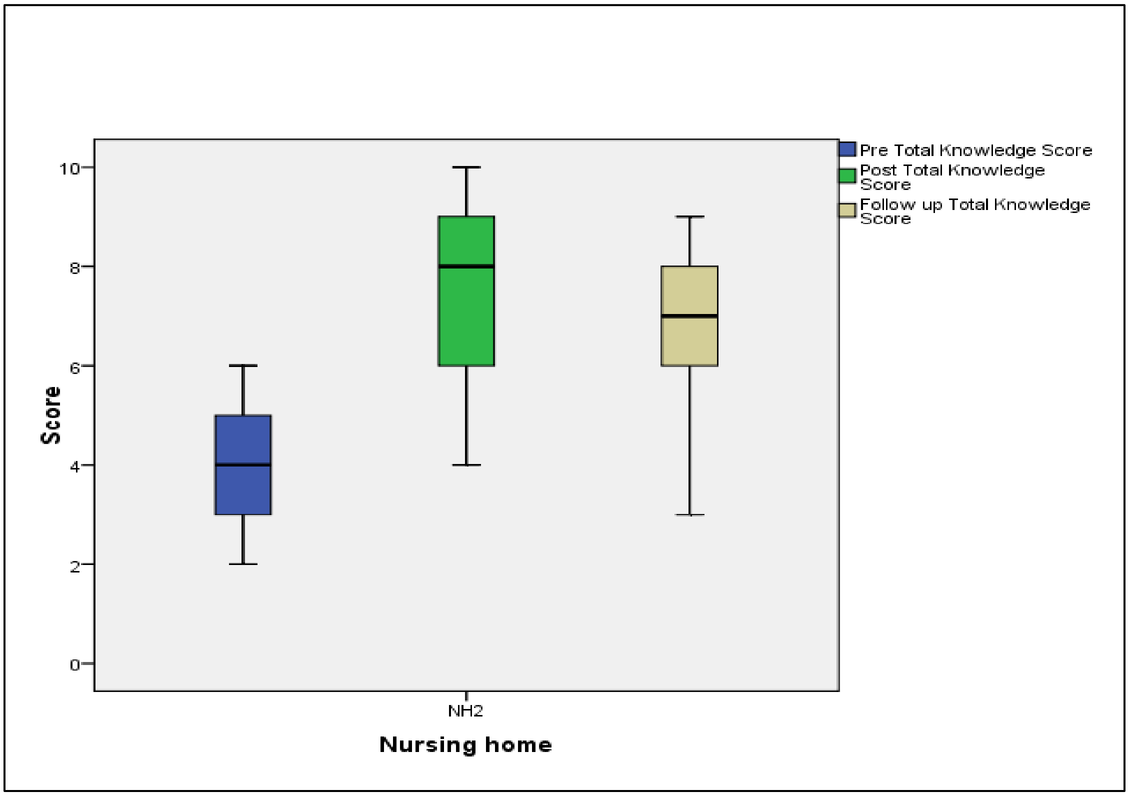


3.5.2.5 Total knowledge scores: NH2

Wilcoxon tests were used to follow up the significant changes in total knowledge scores over the five months of the training programme in NH2 (Appendix 1 Table 23, p. 218). Again, a Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Training was beneficial for participants with total knowledge scores increasing significantly over the course of testing from pre testing stages to five months post training, T = 8.25, z = -5.25, $p < 0.0167$, r = - 0.81 with large effect. It is evident there is a significant increase in NH2 knowledge scores from pre testing stage to post- testing stages, T = 12, z = -5.36, $p < 0.0167$, r = - 0.83.

From post stages of testing to follow up stages five months later there is an almost significant reduction in knowledge scores, T = 11.5, z = -2.03, *ns*, r = -0.31 (Appendix 1 Table 27, p. 221).

Figure 3-12 Total knowledge scores: NH2, pre- post and follow up stages of testing

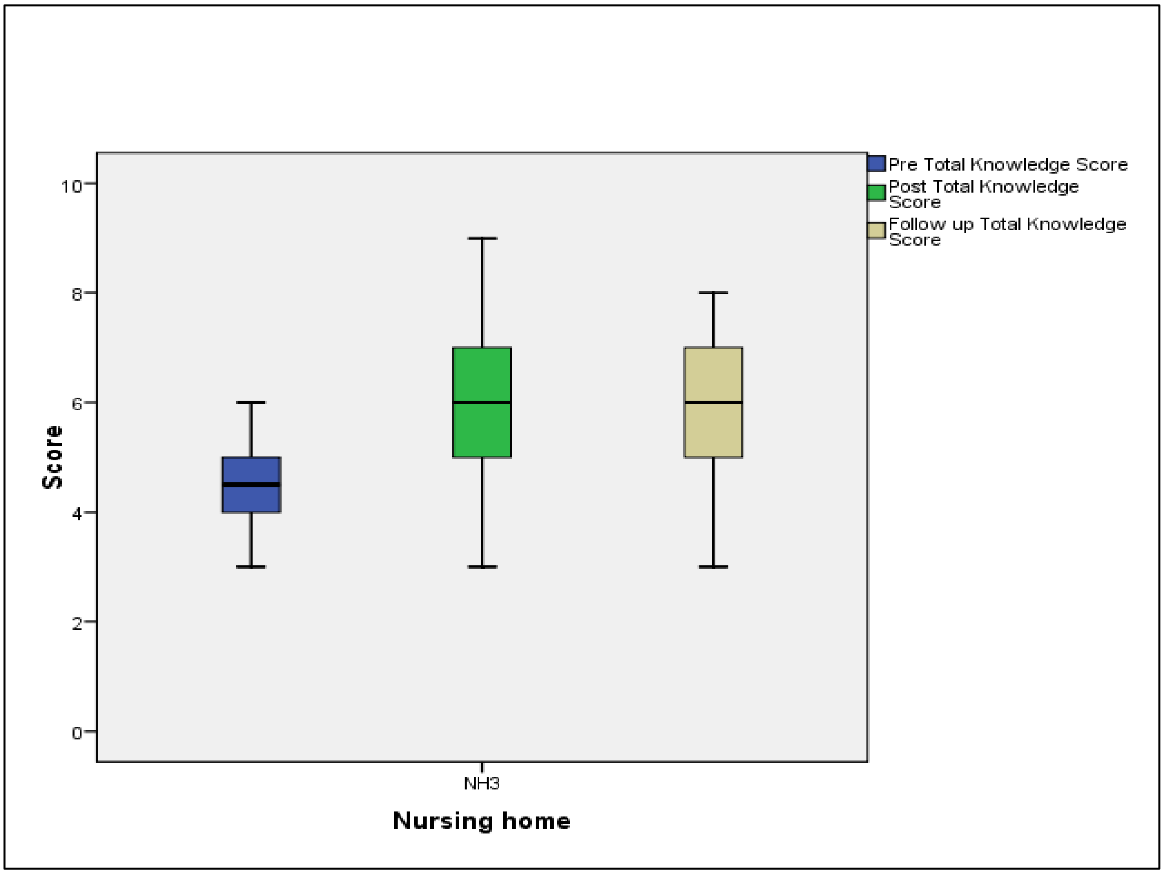


3.5.2.6 Total knowledge scores NH3:

For the participants in control conditions the total knowledge scores changed significantly over the course of the five month training programme despite a lack of training (Appendix 1 Table 23, p. 218). Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. In control conditions completion of the questionnaires resulted in an increase in total knowledge scores over time from pre training to five months post training, T = 11, z = -3.07, $p < 0.0167$, r = -0.64 (Appendix 1 Table 28, p. 222). Scores significantly increased from pre- to post stages of testing, T = 6.10, z

= -3.71, p <0.0167, r = -0.52 with medium sized effect. Total knowledge scores did not change significantly from post stages of testing to follow up stages of testing five months later, T = 12.7, z = -.92, p > 0.0167, r = -0.16 (Appendix 1 Table 28, p.222).

Figure 3-13 NH3, total knowledge scores, pre-, post & follow up stages of testing

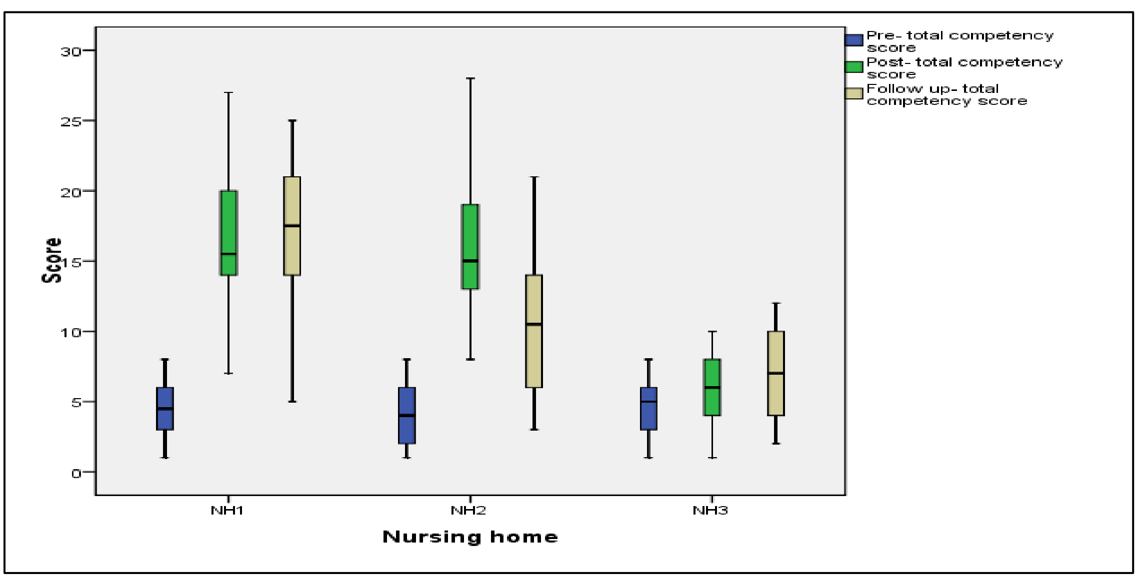


3.5.3 Total competency scores:

Respondents were asked to demonstrate competency in managing individuals with a dementia and oral feeding difficulties by providing appropriate answers to hypothetic clinical scenarios of individuals with a dementia and oral feeding difficulty. Positive suggestions were awarded a plus score (+) whilst negative strategies were awarded a negative score (-). Feeding scenarios were rated by two independent speech and language therapists and a score agreed.

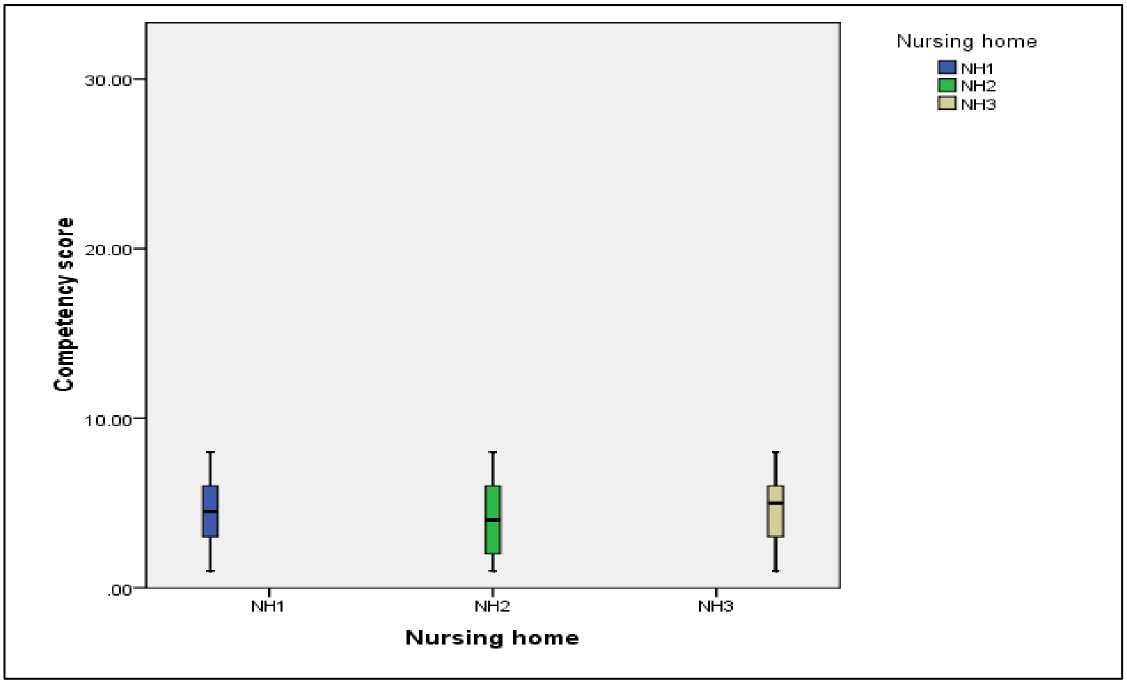
Competency scores at pre-, D (106) = 0.17, p< 0.05, post- , D (106) = 0.23, p < 0.05 and follow up stages of testing, D (106) = 0.17 p < 0.05 were all significantly non normal suggesting that the scores are significantly different from a normal distribution (Appendix 1Table 29, p.223). Variances are not significantly different at pre- testing stages therefore the homogeneity of variance assumption is tenable, F (2,103) = .593, *ns*. At follow up and post testing stages the variances are significantly different in the three groups: post F (2, 103) = 5.08, p < 0.05, follow up, F (2,103) = 9.25, p < 0.05 suggesting that training had a differential impact on competency scores (Appendix 1 Table 30, pg. 224).

Figure 3-14 Total competency score, NH1, NH2 & NH3, across testing.



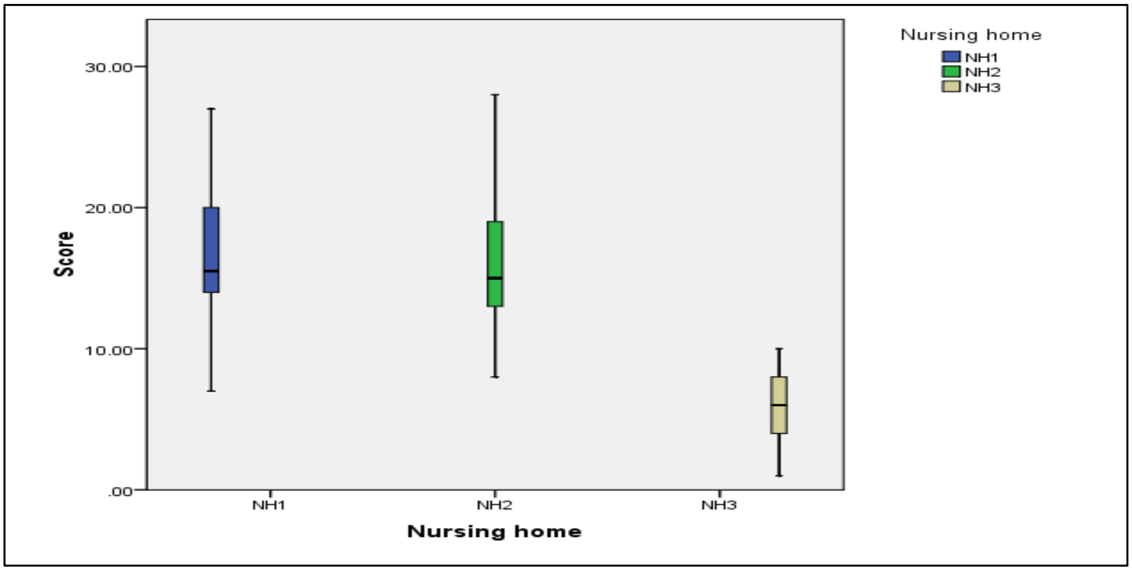
Pre- training total competency scores from HCAs across nursing homes did not significantly differ pre testing H (2) = 0.993, *ns*. (Appendix 1 Table 30, pg. 224) Total competency scores were significantly different across nursing homes at post-, H (2) = 47.54, $p < 0.05$ and follow up stages of testing, H (2) = 53.86, $p < 0.05$ (Appendix 1 Table 30, pg. 224). A Bonferroni correction was applied and so all effects are reported at a 0.0125 level of significance.

Figure 3-15 Total competency score, pre- testing, NH1, NH2 & NH3



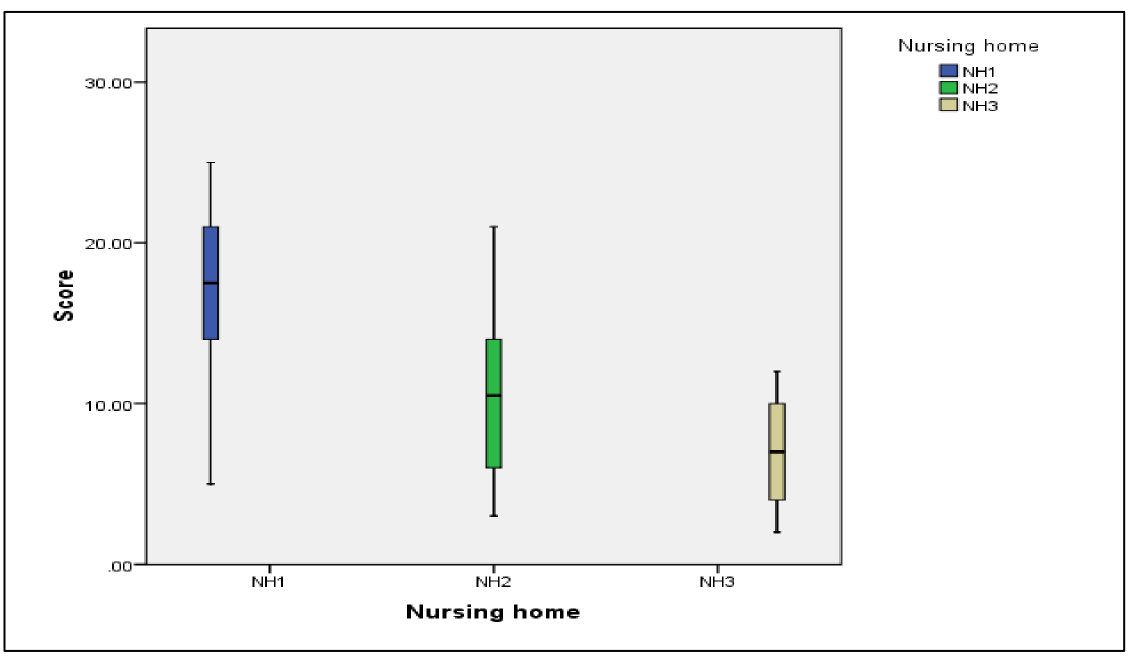
Post training NH1 (Mdn = 15.5) performed significantly better than control conditions, NH3 (Mdn = 4), U = 49, z = -6.11, $p < 0.001$, r = 0.78 with a large effect (Appendix 1 Table 32, pg. 225). Similarly, NH2 at post stages of testing performed significantly better than control conditions, U = 68, Z = -6.76 , p = < 0.001, r = -0.78 (Appendix 1Table 33, pg. 226). At post training stages of testing, there was no significant difference between NH2 and NH3 competency performance.

Figure 3-16 Total competency scores, post stages of testing, NH1, NH2 & NH3



At follow up testing stages, five months post initial training, competency scores for NH1 (Mdn = 17.5) were significantly greater than NH2 (Mdn = 7.5), U = 239 z = -4.48 , $p < 0.01$, r = -0.53 (Appendix 1Table 34, pg. 226) and control conditions (NH3) (Mdn =3.0), U = 33 z = -6.43, $p < 0.01$, r = -0.8 (Appendix 1Table 35, pg. 227).

Figure 3-17 Total competency scores, follow up stages of testing, NH1, NH2 & NH3.



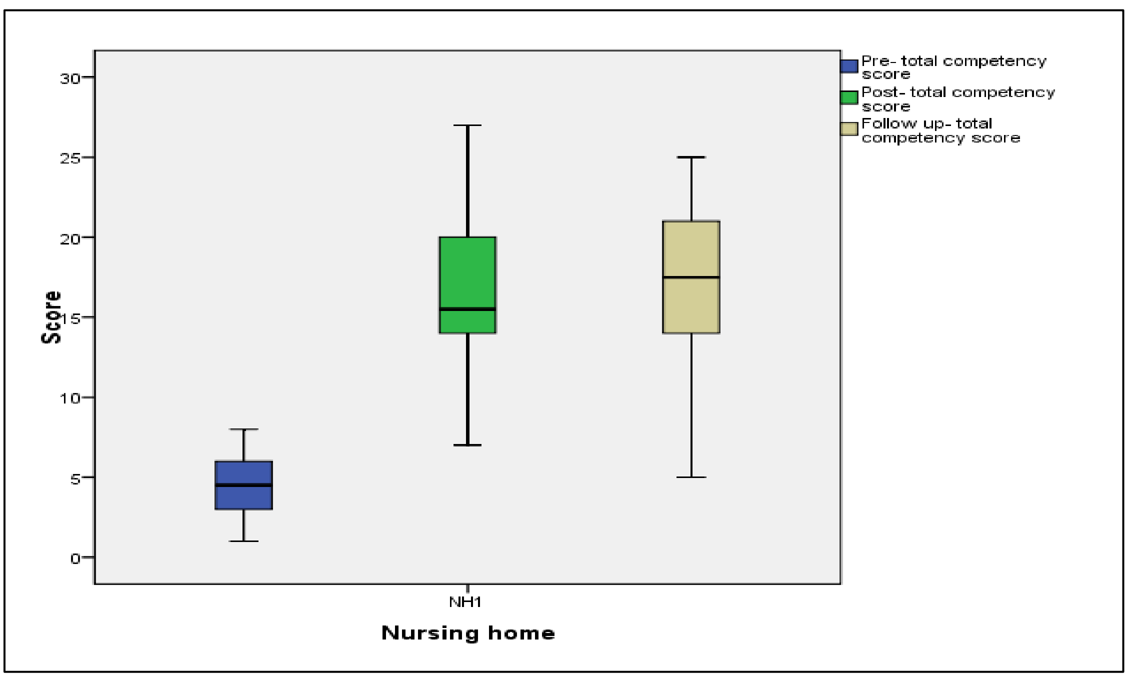
3.5.3.1 Total competency scores: within nursing homes

The competency scores for HCAs in each of the nursing homes changed significantly over the five months of the training programme, NH1, $\chi^2(2) = 45.8$, $p < 0.05$, NH2, $\chi^2(2) = 52.8$, $p < 0.05$ and NH3, $\chi^2(2) = 42.4$, $p < 0.05$ (Appendix 1Table 36, pg. 227).

3.5.3.2 Total competency scores: NH1

For HCAs in NH1 training had a differential impact on competency scores. Competency scores significantly improved over the course of time from pre- testing (Mdn = 4.4) to follow up stages of testing stages (Mdn = 16.5), z = - 4.79, p < 0.0167. r = - 0.62. Competency scores significantly improved from pre- (Mdn= 4.4) to post stages of testing (Mdn = 16.2) as compared to pre-testing, z = -4.79, p < 0.0167 r = -0.62. High scores were maintained over time from post stages of testing to follow up stages five months later, z = -0.137, *ns*. (Appendix 1 Table 37, pg. 228).

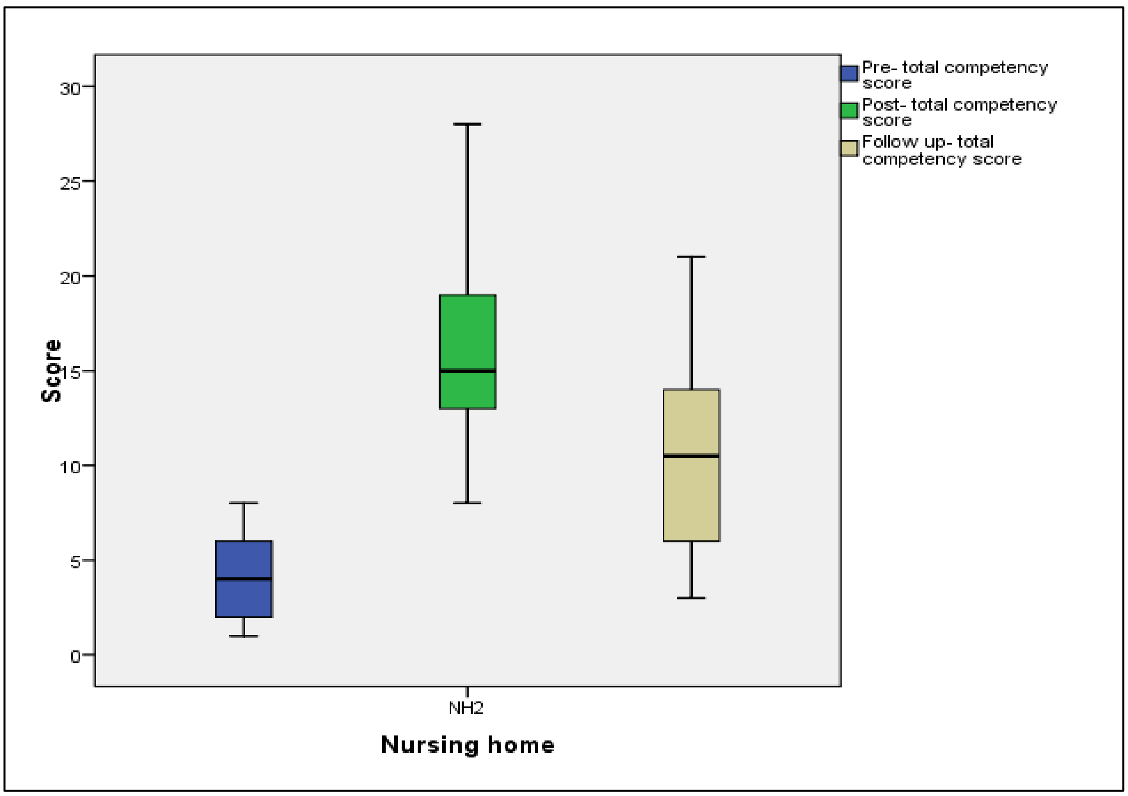
Figure 3-18 Total competency scores, NH1, pre-, post and follow up stages of testing.



3.5.3.3 Total competency scores: NH2

HCAs in NH2 benefited from training with total competency scores significantly better at follow up stages of testing (Mdn = 7.5) compared to pre testing (Mdn = 4.0), $T = -3.99$, $p < 0.0167$, $r = -0.62$. Total competency scores were significantly higher post testing (Mdn =15.0) as compared to pre- testing stages (Mdn = 4.0), $T = -5.65$, $p < 0.0167$, $r = -0.87$. Ceiling total competency scores at post stages of testing (Mdn = 15.0) were not maintained at follow up stages of testing (Mdn = 7.5) with a significant deterioration in scores, $T = -4.51$, $p = < 0.0167$, $r = - 0.7$ (Appendix 1 Table 38, pg. 229).

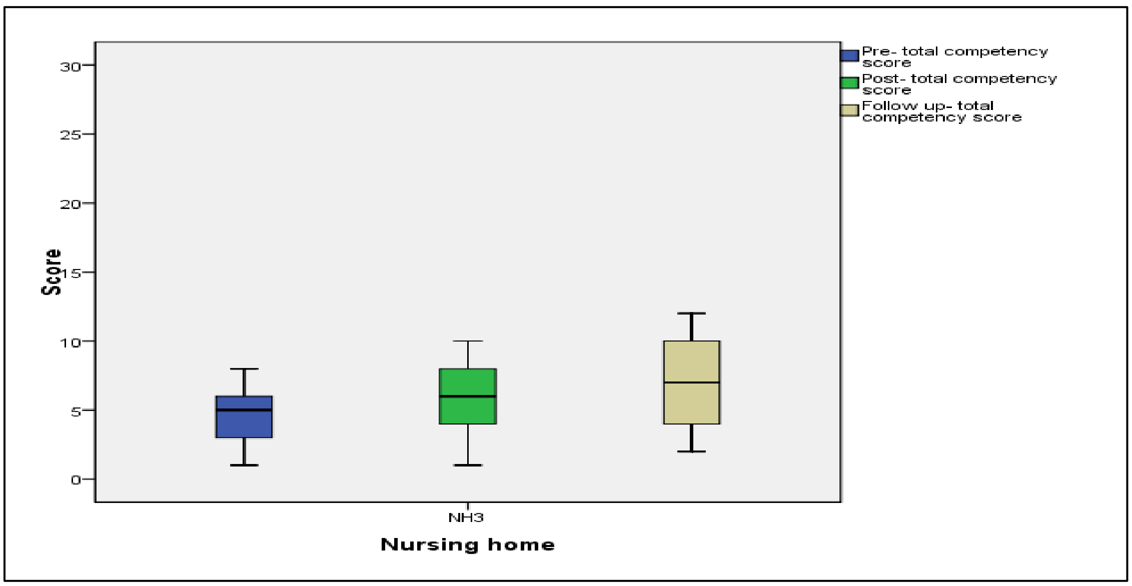
Figure 3-19 Competency scores, NH2, pre- post and follow up stages of testing.



3.5.3.4 Total competency scores: NH3

Training also had a differential impact on total competency scores for the control experimental condition, NH3. Total competency scores were significantly higher at five months post training (Mdn = 7.0) than at pre stage testing (Mdn = 5.5), $z = -3.5$, $p < 0.0167$, $r = -0.31$ suggesting that total competency improved significantly over time, with small effect (Appendix 1 Table 39, pg. 230).

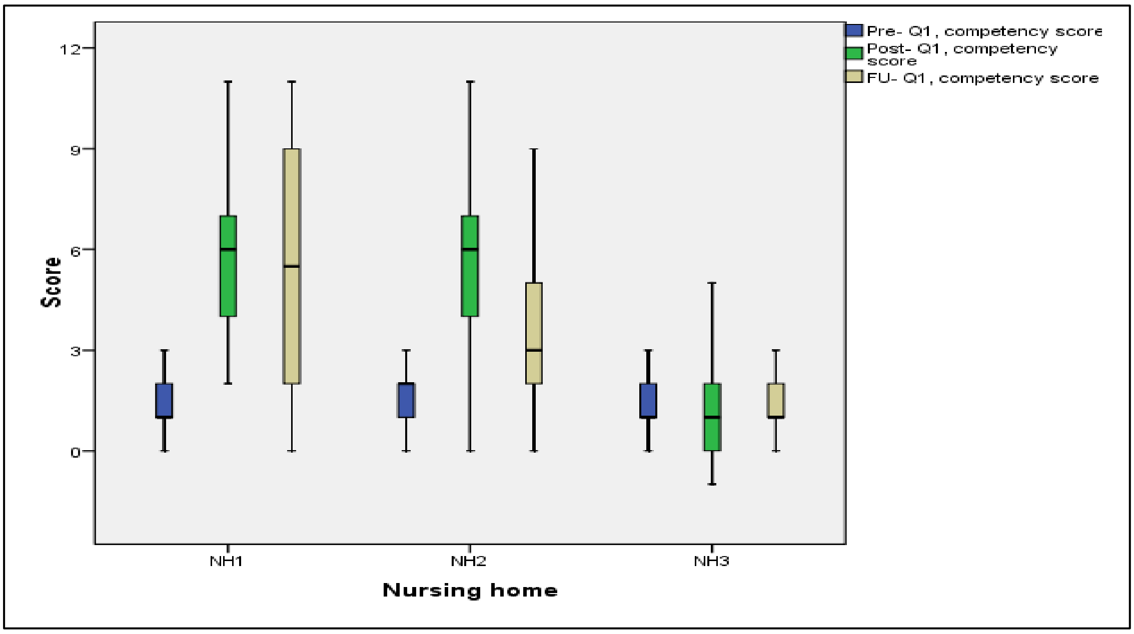
Figure 3-20 Total competency scores, NH3, pre-, post and follow up stages of testing.



3.5.3.5 Clinical oral-feeding scenario 1: Bob.

Respondents were asked to demonstrate competency in managing individuals with a dementia and oral feeding difficulty by providing appropriate answers to hypothetic clinical resident scenarios. Competency Question One (Q1) concerned a hypothetical resident, Bob. Bob presented with oral feeding difficulties typical of mid to advanced stage dementia; suspected aspiration, feeding apraxia reduced levels of arousal, weight loss and cognitive communication difficulties exacerbated by visual and hearing loss. Positive suggestions were awarded a plus score (+) whilst negative strategies were awarded a negative score (-). Feeding scenarios were rated by two independent speech and language therapists and a score agreed. Responses to competency Q1, across testing were significantly non normal suggesting that the scores are significantly different from a normal distribution: pre testing, $D(2) = 0.27$, $p < 0.05$, post testing, $D(2) = 0.11$, $p < 0.05$ and follow up testing $D(2) = 0.33$, $p < 0.05$ and therefore require non parametric methods of analysis (Appendix 1 Table 40, pg. 231)

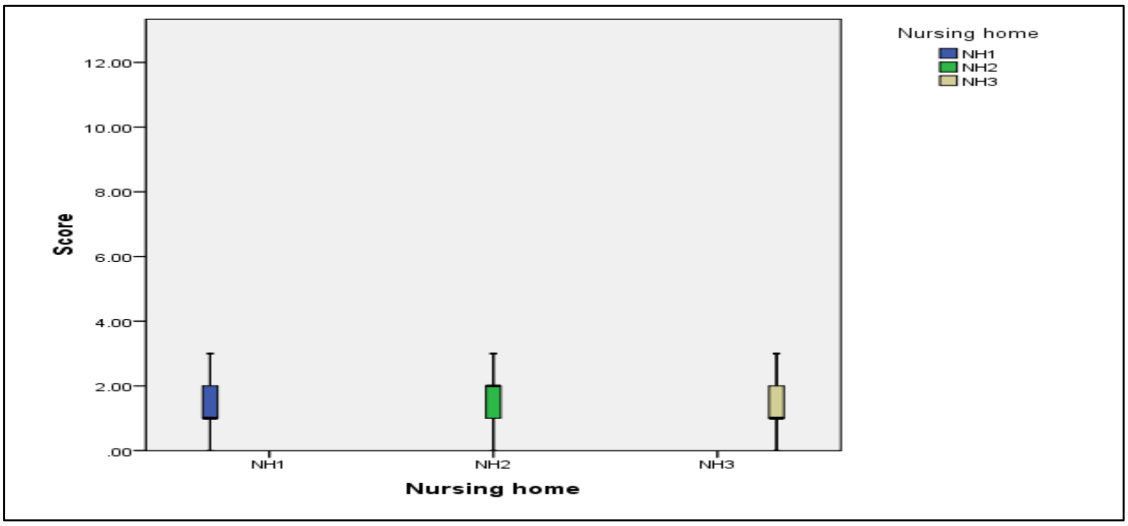
Figure 3-21 Q1, Competency scores, NH1, NH2 & NH3, pre-, post and follow up stages of testing.



3.5.3.6 Q1, Pre- competency scores, differences between NH1, NH2 and NH3:

There is no significant difference in the distribution of pre- testing Q1 competency scores across NH1, NH2 and NH3, H (2) = 2.31, *ns.* (Appendix 1 Table 41, pg. 232). Visual inspection of the medians ranks suggest similar findings across the nursing homes, most HCAs scored one to two points with a large proportion in each home scoring zero marks.

Figure 3-22 Q1, competency scores, pre- testing stages, NH1, NH2 & NH3



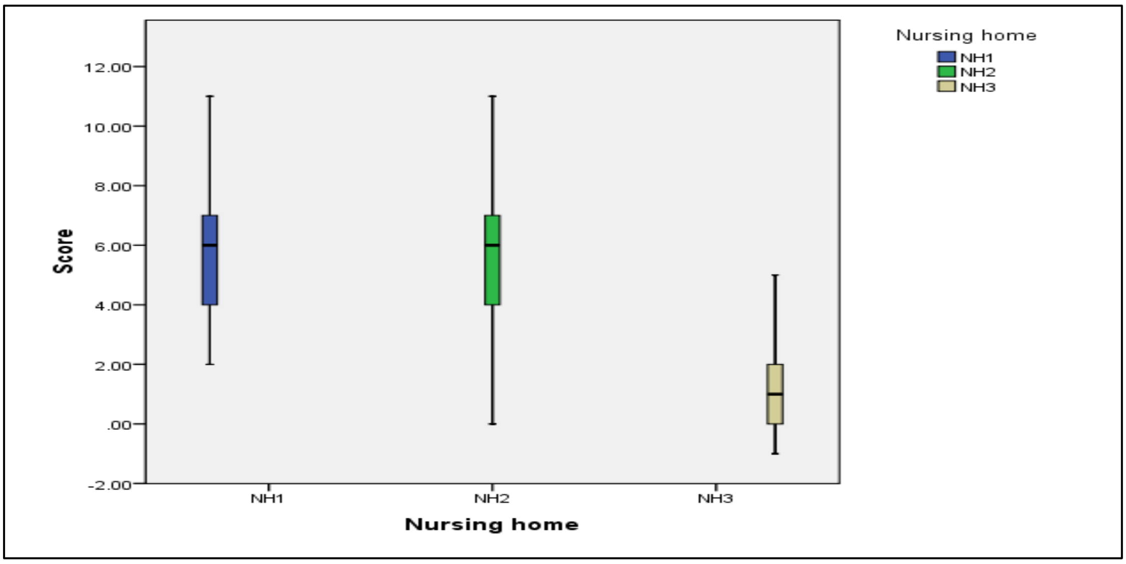
3.5.3.7 Q1, Post- Q1, competency scores, differences between NH1, NH2 and NH3:

Post training, Q1 competency scores were significantly different across NH1, NH2 and NH3, H (2) = 64.1, $p < 0.05$ suggesting that training had a differential impact on HCA total competency scores in the three nursing homes (Appendix 1

Table 42, pg. 232). Mann – Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Q1, competency scores for experimental groups NH1 (Mdn = 6.0) and NH2 (Mdn = 6 .0) were not significantly different, U = 601, z = -.74, *ns* (Appendix 1Table 43, pg. 233). Whereas, NH1 (Mdn = 6.0) and NH2 (Mdn = 6.0) performed significantly better than NH3 (Mdn = 1.0), NH1 vs. NH2: U = 40.0, z = -6.4, p = < 0.0167, r = -0.8 (Appendix 1

Table 44, pg. 234), NH2 vs. NH3: U = 135.0, z = -6.10, p = < 0.0167, r = - 0.7 (Appendix 1 Table 45, pg. 234).

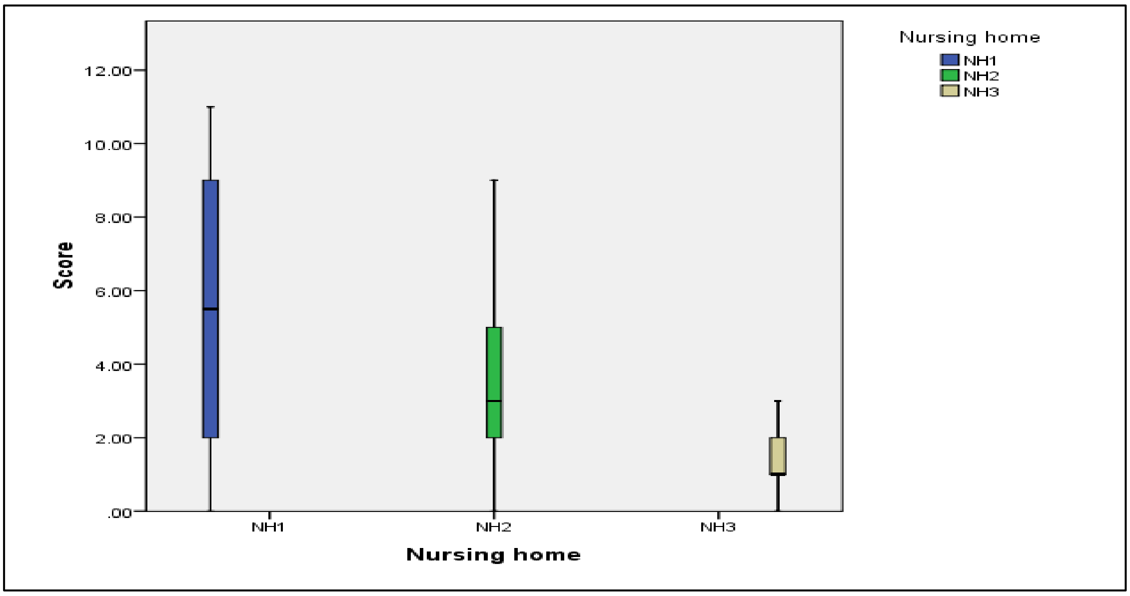
Figure 3-23 Q1, competency scores, post stages of testing, NH1, NH2 & NH3.



3.5.3.8 Q1, Follow up – competency scores, differences between NH1, NH2 and NH3:

At follow up stages of testing, Q1 competency scores were significantly different across NH1, NH2 and NH3, H (2) = 30.19, p < 0.05 suggesting that the training had a differential impact on HCAs (Appendix 1 Table 46, pg. 235). Mann – Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Scores for NH1's responses to competency Question One (Mdn = 5.5) were significantly better than NH2 (Mdn = 3.0), U = 411.5, z = - 2.5, p < 0.0167, r = 0.29 (Appendix 1 Table 47, pg. 236) and NH3 (Mdn = 1.0) U = 155.5, z = -4.87, p < 0.0167, r = 0.60 (Appendix 1Table 48, pg. 237) five months post training. Responses from NH2 were significantly better than NH3, U = 329.5, z = -4.13, p < 0.0167, r = -0.47 (Appendix 1 Table 49, pg. 237) where correct suggestions of managing mid – late stages of dementia with oral feeding difficulties and challenging behaviours were very low.

Figure 3-24 Q1, competency scores, follow up stages of testing, NH1, NH2 & NH3.

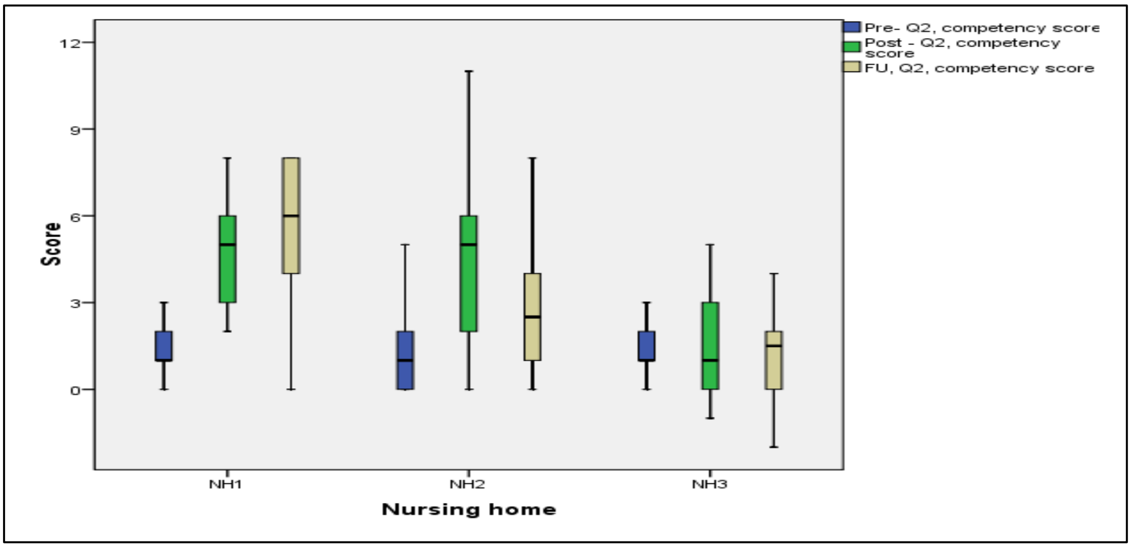


3.5.3.9 Clinical oral-feeding scenario 2: Elizabeth

Respondents were asked to demonstrate competency in managing individuals with a dementia and oral feeding difficulties to hypothetical clinical scenarios. Feeding scenario question two (Q2) concerned hypothetical resident Elizabeth, a new resident to the nursing home who presents with a mid- late stage dementia, oral feeding difficulties and related challenging behaviours including: wandering, inability to self feed, suspected dysphagia (coughing on liquids) and improved performance with particular members of staff. Positive competency suggestions were awarded a plus score (+) whilst negative strategies were awarded a negative score (-). Feeding scenarios were rated by two independent speech and language therapists and a score agreed.

Responses to competency Q2, across testing were significantly non normal suggesting that the scores are significantly different from a normal distribution therefore requiring non parametric methods of analysis: pre testing, $D(2) = 0.19$, $p < 0.05$, post testing, $D(2) = 0.16$, $p < 0.05$ and follow up testing $D(2) = 0.18$, $p < 0.05$ (Appendix 1 Table 50, pg. 238).

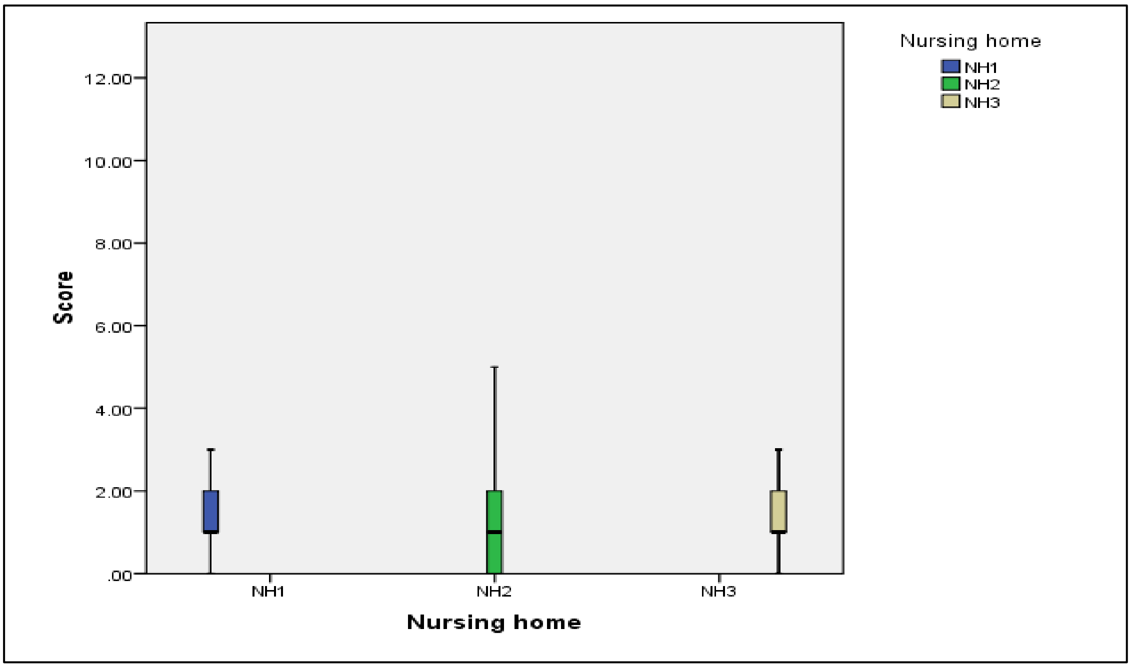
Figure 3-25 Q2, competency scores, NH1, NH2 & NH3, across testing.



3.5.3.10 Q2, Pre- competency scores, differences between NH1, NH2 and NH3:

There was no significant difference in the distribution of Q2, pre- testing competency scores across NH1, NH2 and NH3, H (2) = 1.84, *ns*. (Appendix 1 Table 51, pg. 238). Visual inspection of the scores suggests similar median rank scores of one point across nursing homes. There is large non-significant variability of scores in nursing home two. Large whisker plots point to a maximum scores of 5 and minimal scores of 0 suggesting large variability within the nursing homes.

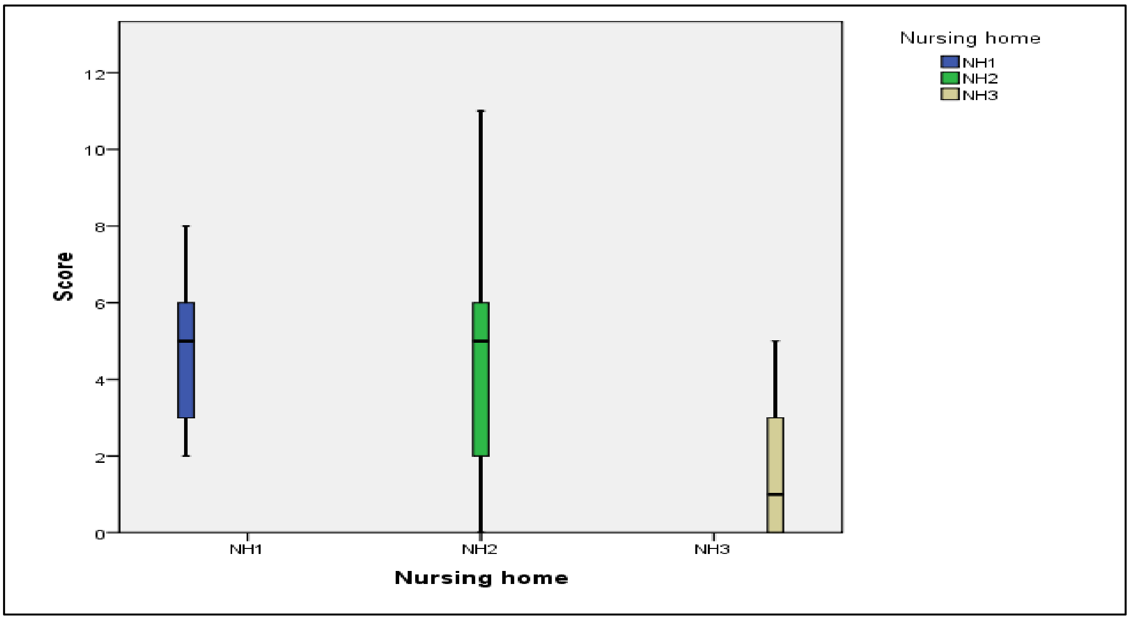
Figure 3-26 Q2 competency scores, pre- stages of testing, NH1, NH2 & NH3.



3.5.3.11 Q2, Post- competency scores, differences between NH1, NH2 and NH3

Post training, total Q2 competency scores were significantly different across NH1, NH2 and NH3, H (2) = 38.2, $p < 0.05$ (Appendix 1 Table 52, pg. 239) suggesting that training had a differential impact on HCA total competency scores in the three nursing homes. Mann – Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Competency scores for experimental groups NH1 (Mdn = 5.0) and NH2 (Mdn = 5 .0) were not significantly different, U = 595, z = -.41, *ns* (Appendix 1 Table 53, pg. 239). NH1 (Mdn = 5.0) and NH2 (Mdn = 5.0) performed significantly better than NH3 (Mdn = 1.0) on competency Q2 at post testing stages (NH1 vs. NH3: U = 96.0, z = -5.6, p = < 0.0167, r = -0.7, (Appendix 1 Table 54, pg. 240) NH2 vs. NH3: U = 226.0, z = -5.15, p = < 0.0167, r = - 0.6 (Appendix 1 Table 55 pg. 241).

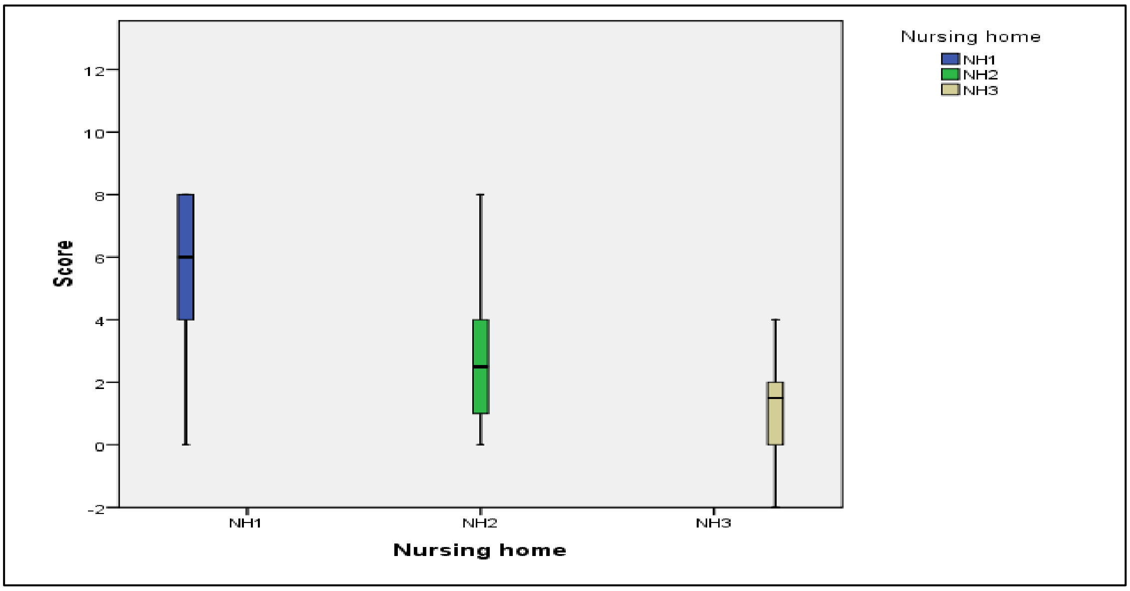
Figure 3-27 Q2 competency score, post stages of testing, NH1, NH3 & NH3



3.5.3.12 Q2, Follow up- competency scores, differences between NH1, NH2 and NH3:

At follow up stages of training five months post initial training, total Q2 competency scores were significantly different across NH1, NH2 and NH3, H (2) = 38.2, $p < 0.05$ suggesting that the training had a differential impact on HCA total competency scores. Mann – Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Scores for NH1's (Mdn = 6) responses to competency Q2 were significantly better than NH2 (Mdn = 2.5) U = 247, z = - 4.42, $p < 0.0167$ (Appendix 1 Table 57, pg. 242) and NH3 (Mdn = 1.5) U = 98.0, z = -5.6, $p < 0.0167$, r = -0.66 (Appendix 1 Table 58, pg. 243) five months post training. Although NH2 did not perform as well as NH1 they performed significantly better than NH3, U = 437.5, z = - 2.95, $p < 0.0167$, r = -0.34 (Appendix 1Table 59, pg. 243).

Figure 3-28 Q2, follow up stages of testing, NH1, NH2 & NH3

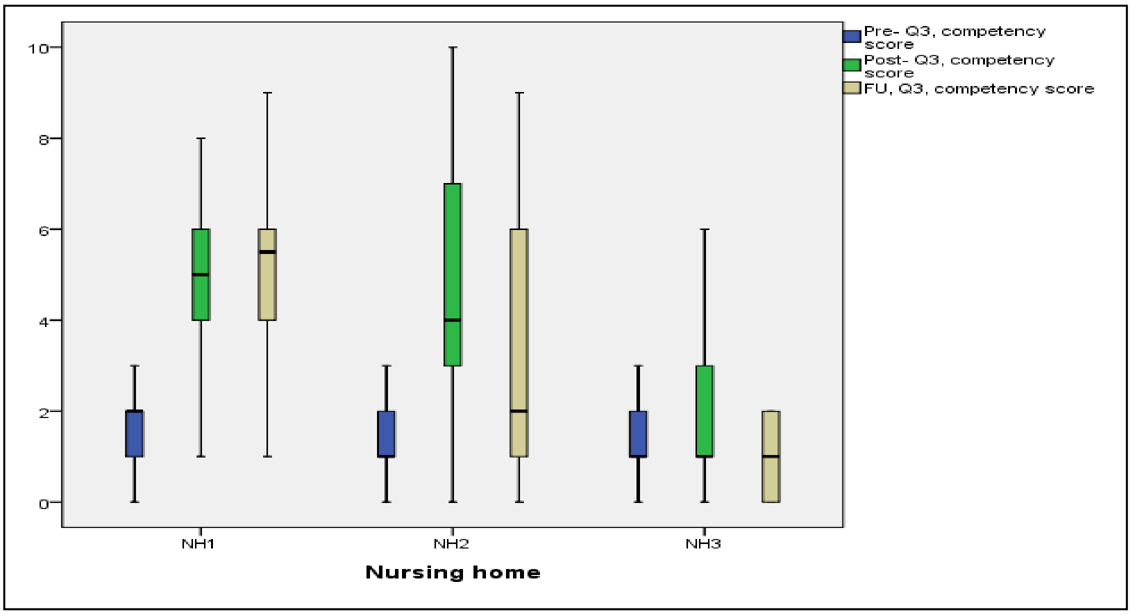


3.5.3.13 Clinical oral-feeding scenario 3: Ruby

Respondents were asked to demonstrate competency in managing individuals with a dementia and an associated oral feeding difficulty by providing appropriate answers to hypothetic feeding or swallowing scenarios. Competency question three (Q3) related to Ruby, an end stage dementia resident who is bed bound, presenting with frequent chest infections, suspected dysphagia weight loss and skin management issues with an anxious family. Positive suggestions were awarded a plus score (+) whilst negative strategies were awarded a negative score (-). Feeding scenarios were rated by two independent speech and language therapists and a score agreed.

Responses to Q3, across testing were significantly non normal suggesting that the scores are significantly different from a normal distribution: pre testing, $D(2) = 0.23$, $p < 0.05$, post testing, $D(2) = 0.2$, $p < 0.05$ and follow up testing $D(2) = 0.21$, $p < 0.05$ and therefore require non parametric methods of analysis.

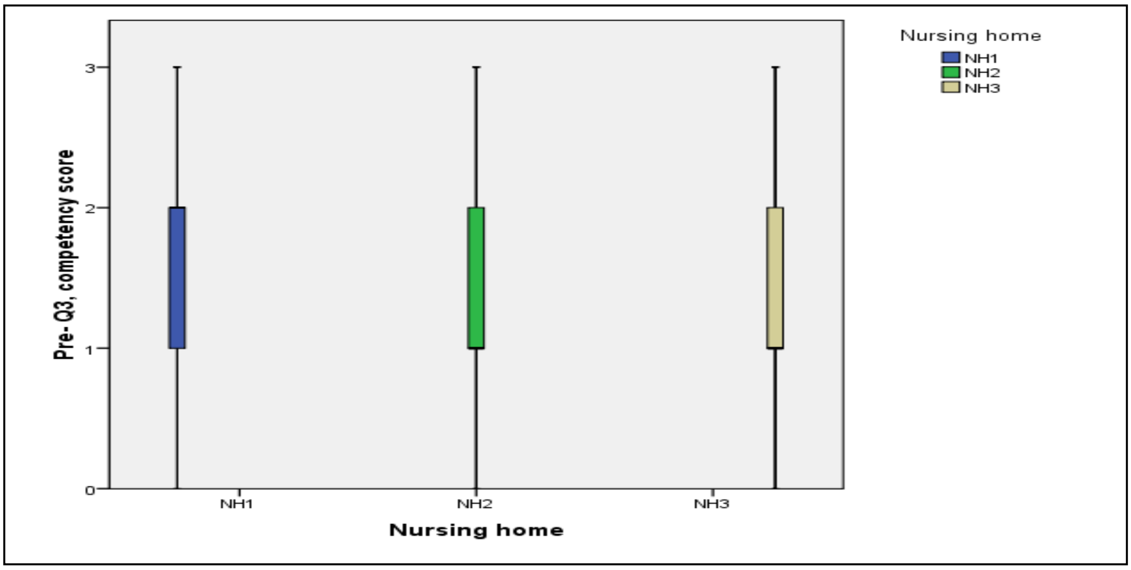
Figure 3-29 Q3 competency scores, NH1, NH3 & NH3, across testing.



3.5.3.14 Q3, Pre- testing competency scores, differences between NH1, NH2 and NH3:

There was no significant difference in the distribution of pre- testing Q3 competency scores across NH1, NH2 and NH3, H (2) = 3.3, *ns*. (Appendix 1 Table 60, pg. 245). Visual inspection of the scores suggests similar low median rank scores of one – two points across nursing homes.

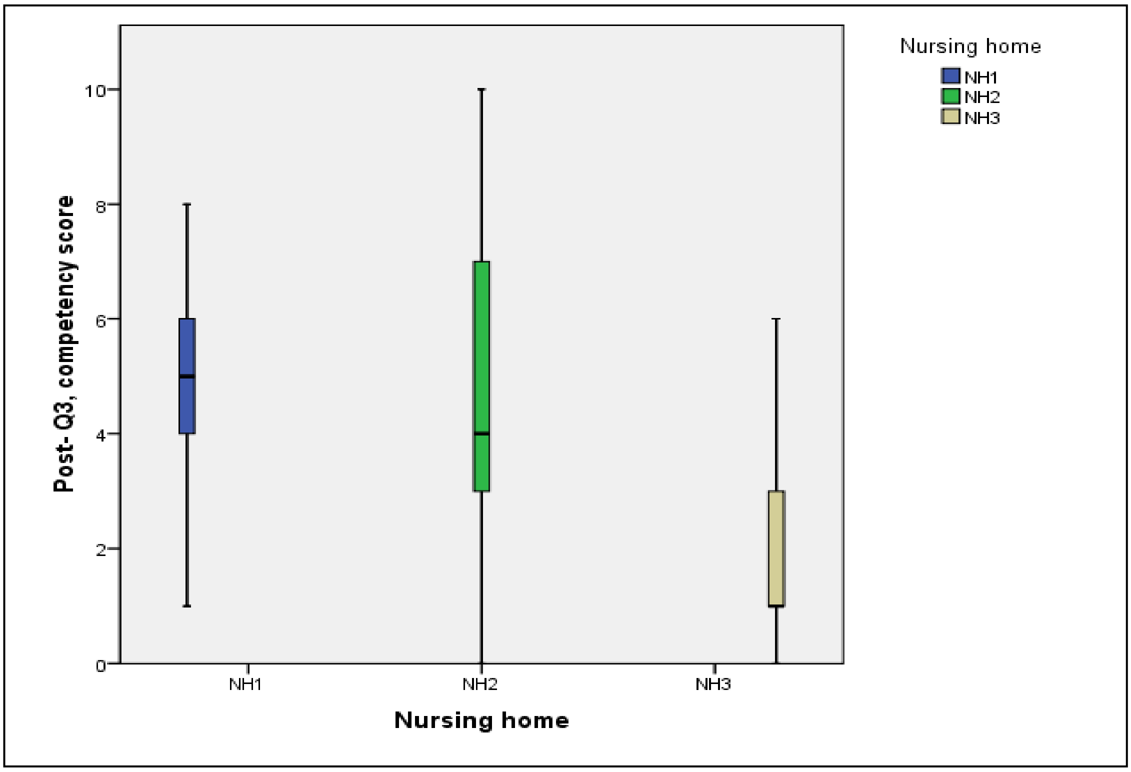
Figure 3-30 Q3 Competency scores: pre- testing, NH1, NH2 & NH3



3.5.3.15 Q3, Post- competency scores, differences between NH1, NH2 and NH3:

Post training, total Q3 competency scores were significantly different across NH1, NH2 and NH3, H (2) = 29.3, $p < 0.05$ (Appendix 1Table 61, pg. 245) suggesting that training had a differential impact on HCA total competency scores in the three nursing homes. Mann – Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Competency scores for experimental groups NH1 (Mdn = 5.0) and NH2 (Mdn = 4 .0) were not significantly different, U = 535, z = -.1.1, *ns*. (Appendix 1 Table 63, pg. 247). NH1 (Mdn = 5.0) and NH2 (Mdn = 4.0) performed significantly better than NH3 (Mdn = 1.0): NH1 vs. NH3: U = 143.0, z = -5.0, p = < 0.0167, r = -0.63, (Appendix 1Table 62 pg. 246) NH2 vs. NH3: U = 305.0, z = -4.33, p = < 0.0167, r = - 0.5 although wide whisker plots suggest some variability in performance.

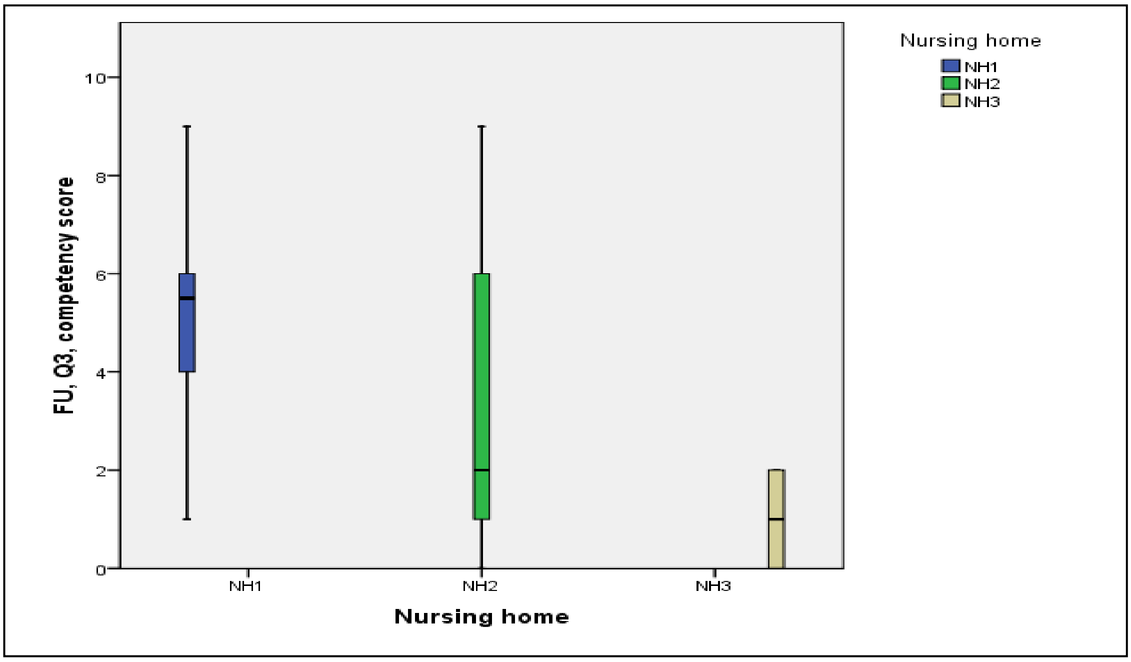
Figure 3-31 Q3, competency scores, post stages of testing, NH1, NH2 & NH3.



3.5.3.16 Q3, Follow up, competency scores, differences between NH1, NH2 and NH3:

At follow up stages of training Q3 competency scores were significantly different across NH1, NH2 and NH3, H (2) = 43.2 $p < 0.05$ suggesting that the training had a differential impact on HCA total competency scores (Appendix 1 Table 65, pg. 248). Mann – Whitney tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. NH1's responses to Q3 (Mdn = 5.5) were significantly better than NH2 (Mdn = 2.0) U = 356, z = - 3.16, $p < 0.0167$, r = -0.37 (Appendix 1 Table 72, pg. 250) and NH3 (Mdn = 1.0) U = 41.0, z = -6.4, $p < 0.0167$, r = -0.8 (Appendix 1 Table 66, pg. 249) five months post training. Although NH2 did not perform as well as NH1 they performed significantly better than NH3, U = 337.5, z = - 4.1, $p < 0.0167$, r = -0.47 (Appendix 1 Table 68, pg. 250).

Figure 3-32 Q3 competency score, follow up stages of testing, NH1, NH2 & NH3.



3.6 HCA attitudes

3.6.1.1 HCA attitudes: the job

HCAs attitudes towards their job and working with individuals with a dementia and oral feeding difficulties were analysed by responses to two statements "The work that I do matters and actually makes a difference to the lives of the residents I care for" (Question Nine, Q9) and "I find it stressful working with residents with dementia who have feeding or swallowing difficulties" (Question Ten, Q10). Responses were scored on an ascending five point scale using the following indicators: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree.

3.6.1.2 HCA attitudes: Q9, job satisfaction, differences over time

The attitude scores for question nine: "The work that I do matters and actually makes a difference to the lives of the residents I care for" across NH1 D (2) = 0.27, $p < 0.05$, NH2, D (2) = 0.31, $p < 0.05$ and NH3, D (2) = 0.28, $p < 0.05$ were all significantly non normal (Appendix 1 Table 97, pg. 272).

HCAs in NH1 and NH2 throughout the course of training attributed high levels of value to their work as HCAs and the impact they have on the lives of residents in their care. This did not change over time: NH1, χ^2 (2) = 2.70, *ns*. & NH2, χ^2 (2) = 0.51, *ns*. HCAs in NH3 did vary in their job satisfaction over the course of training (χ^2 (2) = 13.16, $p < 0.0167$ (Appendix 1 Table 98, pg. 272). Wilcoxon tests were employed to follow this significant finding and a Bonferroni correction was applied with all levels of significance reported at 0.0167. At post stages of training the value HCAs placed on their job deteriorated significantly from pre-stages of testing ($z = -2.67$, $p < 0.0167$, $r = -0.46$), however by follow up stages of testing the value placed on their roles had significantly improved, returning to pre- testing levels ($z = -2.85$, $p < 0.0167$, $r = -0.54$) (Appendix 1 Table 100, pg. 275).

Figure 3-33 Attitudes, NH1, Q9, pre- post and follow up stages of testing.

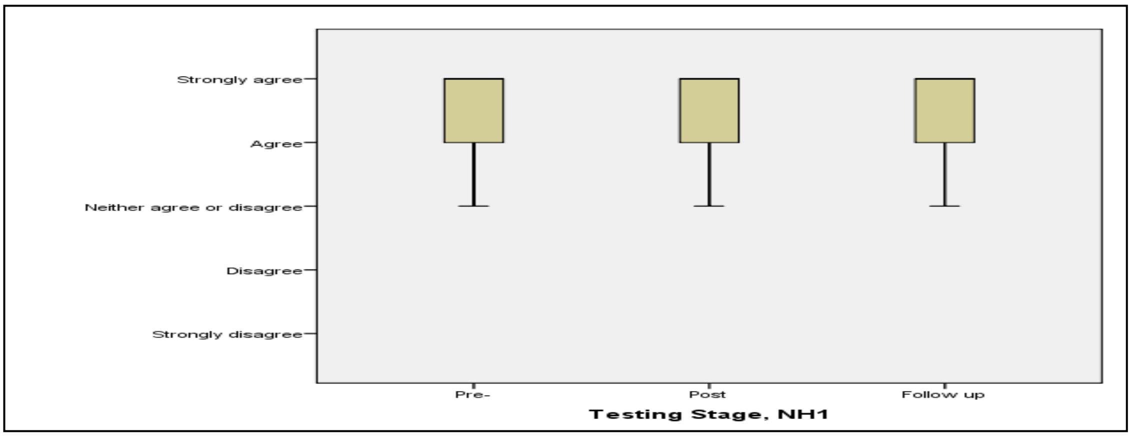


Figure 3-34 Attitudes, NH2, Q9, pre-, post and follow up stages of testing.

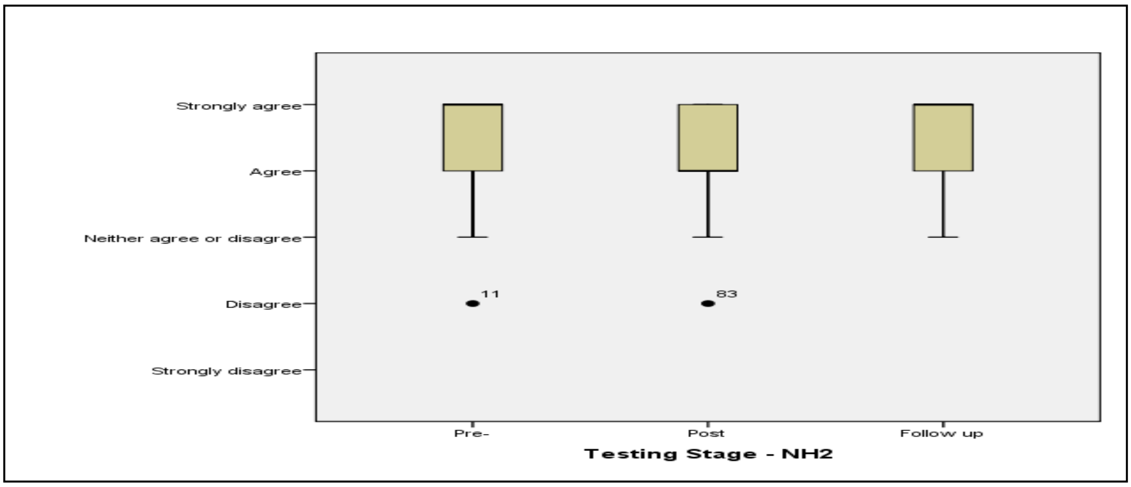
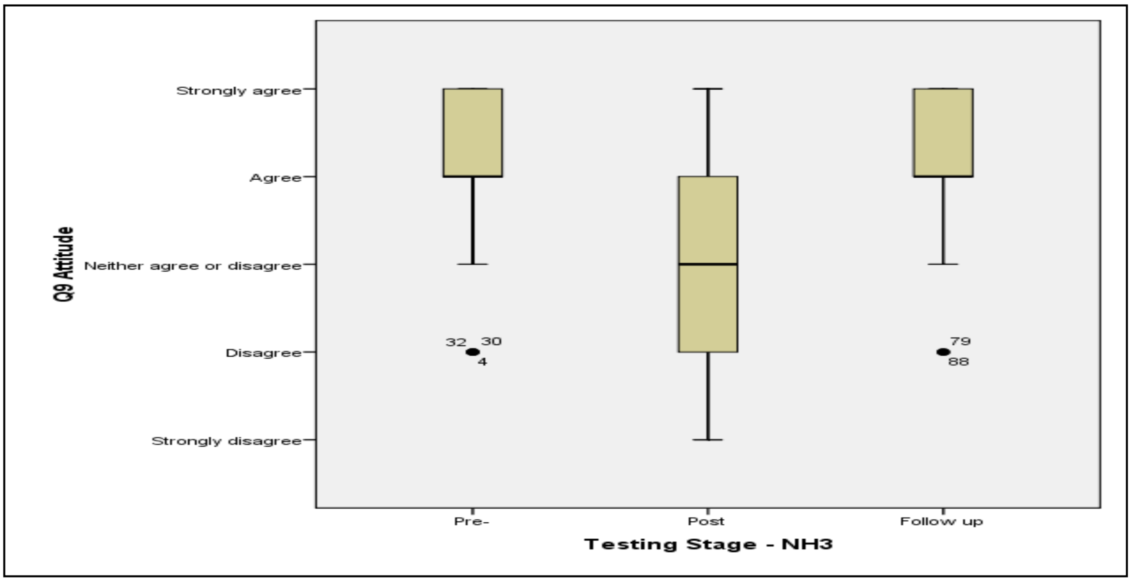


Figure 3-35 Attitudes, NH3, pre- post and follow up stages of testing



3.6.1.3 HCA attitudes: Q10, stress, differences over time

The attitude scores for question ten: "I find it stressful working with residents with dementia who have feeding or swallowing difficulties" across NH1 D (2) = 0.25, $p < 0.05$, NH2, D (2) = 0.21, $p < 0.05$ and NH3, D (2) = 0.20, $p < 0.05$ were all significantly non normal (Appendix 1 Table 101, pg. 276).

Stress levels reported by HCAs in NH1 changed significantly over the course of the training programme, χ^2 (2) = 6.14, $p < 0.05$ however post hoc Wilcoxon tests did not find any significant changes over the course of training. Visual inspection of the data suggests overall high levels of stress working with residents with a dementia and oral feeding difficulties in NH1. In NH2, there is no significant difference with regards to stress levels across testing. Large boxplots with equal whiskers suggest variability in the responses to stress levels with HCAs commonly reporting ambivalence to this question and a smaller percentage of respondents identifying with high and low levels of stress across testing, χ^2 (2) = 1.4, *ns*. Stress levels reported by HCAs in NH3 changed significantly over the course of the training programme ($\chi2$ (2) = 13.27, $p < 0.05$) although post hoc analysis over the course of the training did not detect any significant differences in levels of stress of HCAs in NH3 (z = -0.31, *ns*) with respondents 'agreeing' to high levels of stress (Appendix 1,Table 102, pg. 277)

Figure 3-36: Attitudes Q10, NH1, boxplots of attitudes, pre-, post- and follow up stages of testing.

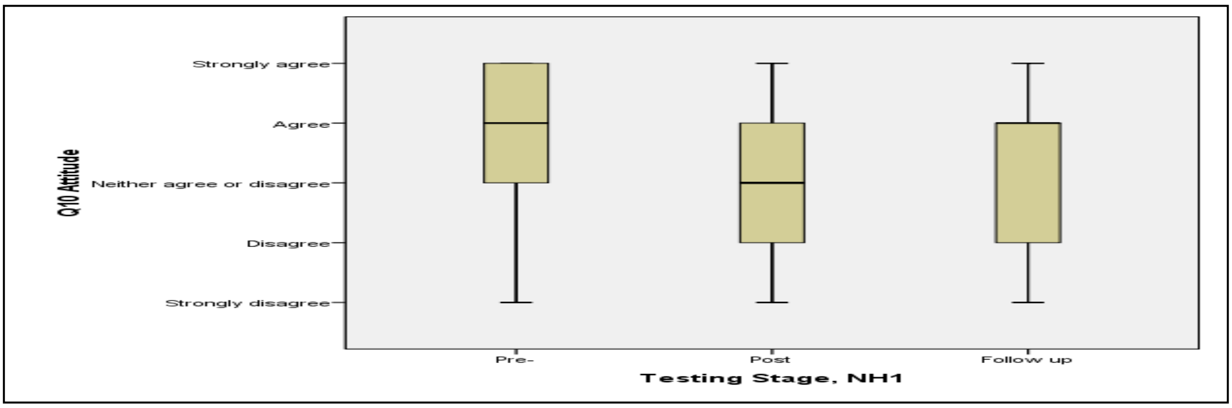


Figure 3-37: Attitudes Q10, NH2, boxplots of attitude scores, pre-, post- and follow up stages of testing.

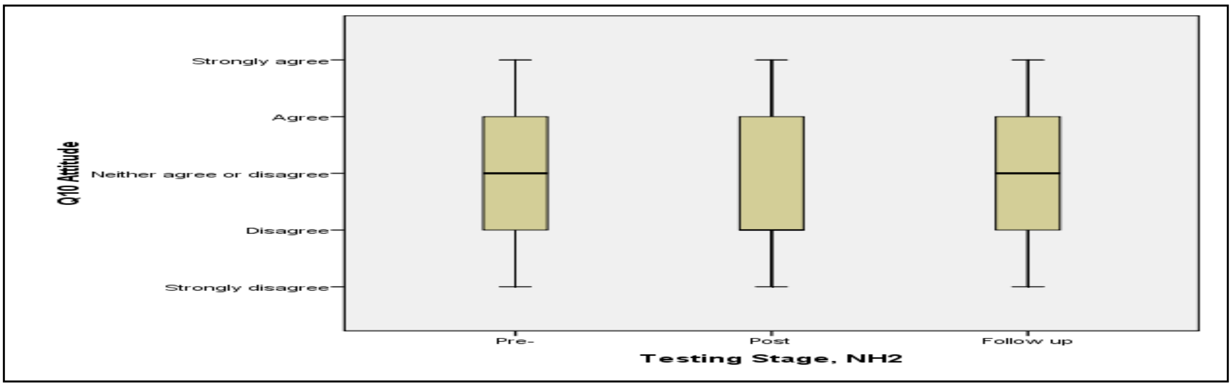
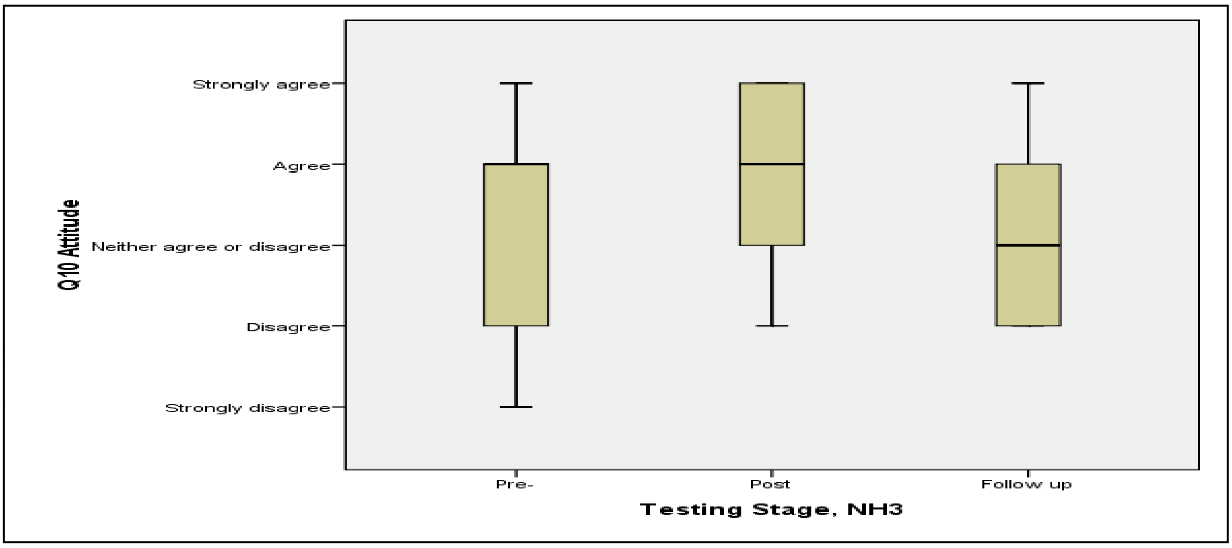


Figure 3-38 Attitudes Q10, NH3, boxplots of attitudes scores, pre-, post- and follow up stages of testing



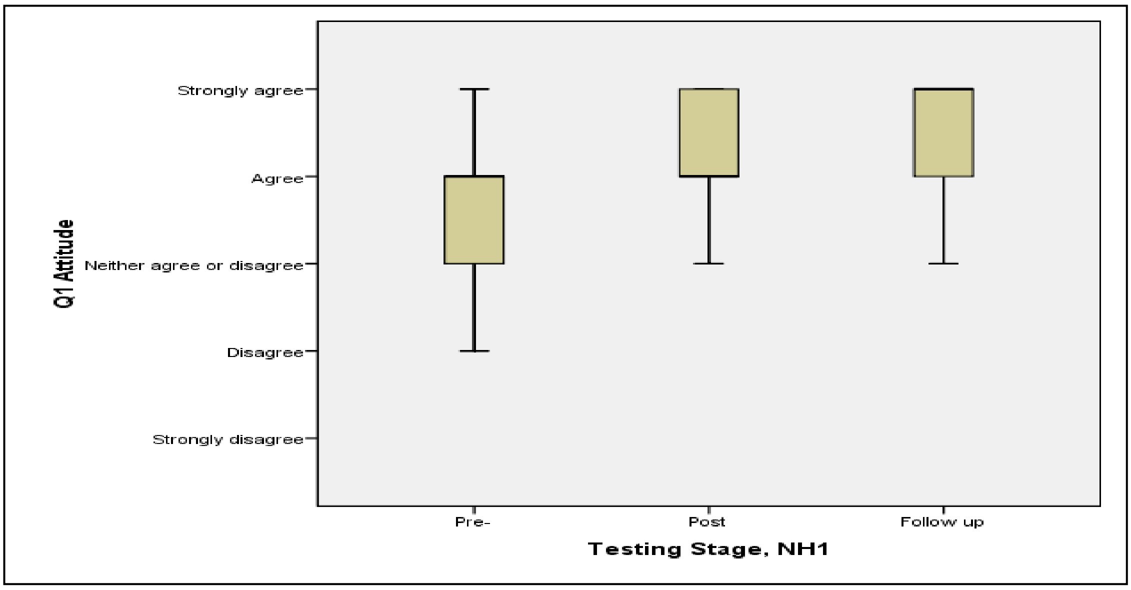
3.6.2 HCA attitudes: residents with a dementia and oral feeding difficulties

HCA attitudes towards the residents in their care with a dementia and oral feeding difficulties were analysed by responses to three statements: "I feel empathetic towards the resident with dementia, swallowing and feeding difficulties" (Question One, Q1), "I have developed a good relationship with the residents I work with" (Question Two, Q2) and "I feel guilty if a resident in my care does not manage to eat and drink enough" (Question Seven, Q7). Responses were scored on an ascending five point scale using the following indicators: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree. The attitude scores for all questions were all significantly non normal.

3.6.2.1 HCA attitudes: Q1, empathy: NH1, NH2 and NH3: changes over time:

The empathy levels changed significantly over the course of the five months of the training for HCAs in NH1: $\chi^2\,(2) = 11.9$, $p < 0.05$ (Appendix 1 Table 70, pg. 252). Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Across the course of training HCAs in NH1 from pre (Mdn = 1.65) to follow up stages of testing (Mdn = 2.43) felt significantly greater levels of empathy with residents, $z = -3.40$, $p < 0.0167$, $r = -0.62$, 'strongly agreeing' with the statement (Appendix 1 Table 71, pg. 253). Attitudes relating to feelings of empathy towards residents with dementia, swallowing and feeding difficulties did not change significantly over the course of training for the HCAs in NH2, $\chi^2\,(2) = 1.93$, *ns*. or NH3, $\chi^2\,(2) = 0.85$, *ns*. (Appendix 1 Table 70, pg. 252).

Figure 3-39 Attitudes, Q1, NH1 boxplots of attitudes scores across testing

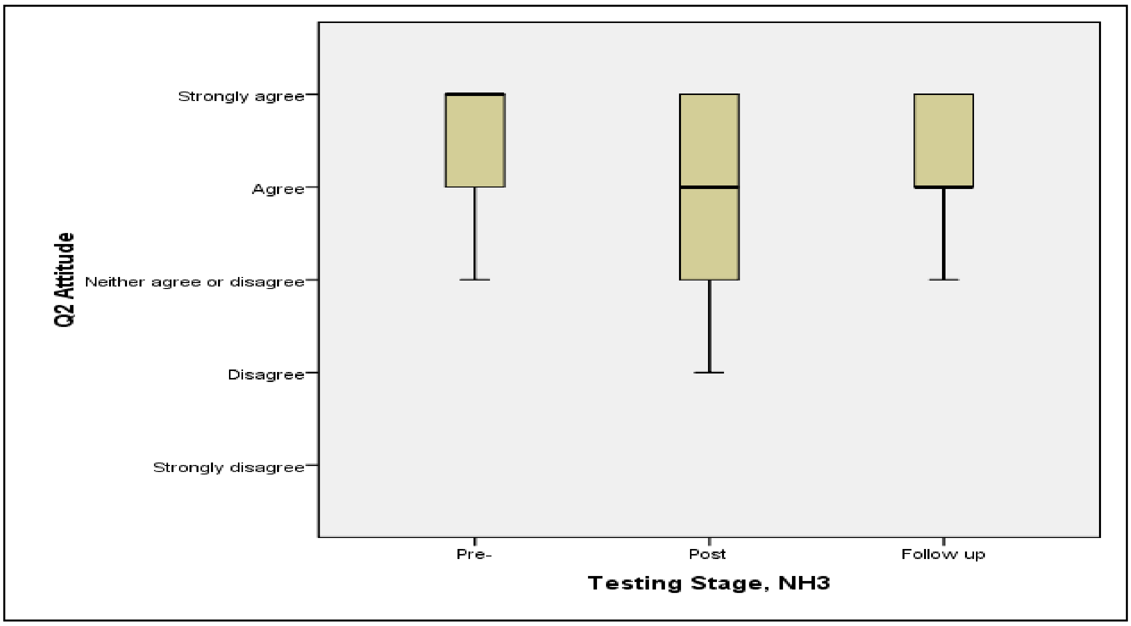


3.6.2.2 HCA attitudes: Q2, quality of relationship with the resident, NH1, NH2 and NH3: changes over time:

The attitude ratings for question two (Q2): "I have developed a good relationship with the residents I work with" across NH1 D (2) = 0.37, $p < 0.05$, NH2, D (2) = 0.23, $p < 0.05$ and NH3, D (2) = 0.28, $p < 0.05$ were all significantly non normal (Appendix 1 Table 72, pg. 254).

Over the course of training for the HCAs in NH1 (χ^2 (2) = 1.16, *ns*.) and NH2 (χ^2 (2) = 0.4, *ns.* attitudes did not change with HCAs 'agreeing' that they had a good relationship with the residents in their care . (Appendix 1 Table 73, pg. 254). Relationships with residents changed significantly over the course of the five months of the training for HCAs in NH3: χ^2 (2) = 9.71, $p < 0.05$). Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. In NH3, attitudes significantly deteriorated from 'strongly agreeing' at start of the training to 'agree' immediately post training, $z = -3.16$, $p < 0.0167$, $r = -0.54$ (Appendix 1 Table 74 pg.255).

Figure: Attitudes Q2, NH3 boxplots of attitude scores across testing.

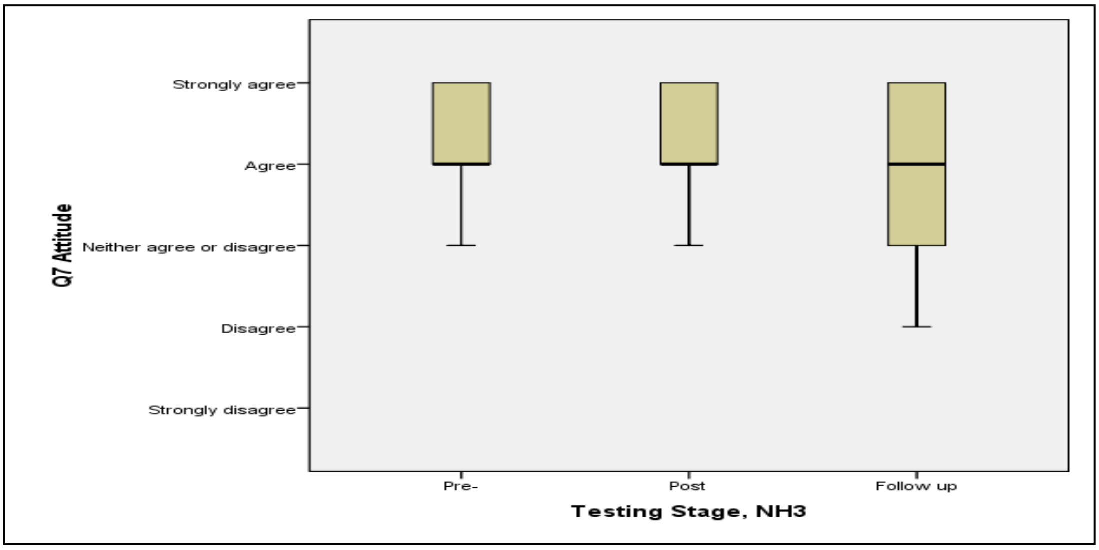


3.6.2.3 HCA attitudes: Q7, guilt, NH1, NH2 and NH3: changes over time:

The attitude ratings for question seven (Q7): "I feel guilty if a resident in my care does not manage to eat and drink enough" across NH1 D (2) = 0.19, $p < 0.05$, NH2, D (2) = 0.31, $p < 0.05$ and NH3, D (2) = 0.21, $p < 0.05$ were all significantly non normal (Appendix 1 Table 75 pg. 256).

Feelings of guilt experienced by HCAs when residents with a dementia and oral feeding difficulties failed to eat or drink sufficiently did not change significantly over the course of training for HCAs in NH1, χ^2 (2) = 0.10, *ns*. or NH2, χ^2 (2) = 5.03, *ns.* with high levels of guilt experienced throughout the course of the training (Appendix 1 Table 76, pg. 257). There was a significant change in the feeling of guilt experienced by HCAs in NH3 over the course of training, χ^2 (2) = 10.12, $p < 0.05$, (Appendix 1 Table 77, pg. 257). Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and so all levels of significance are reported at 0.0167. Poc hoc testing revealed a significant difference from pre to follow up stages of testing ($z = -2.80$, $p < 0.05$, $r = - 0.3$). Across testing there is a reduction in feelings of guilt experienced by HCAs in NH3 from ‘agreeing’ with the statement to ‘neither agreeing nor disagreeing’ at follow up stages of testing.

Figure 3-40 Attitudes, Q7, NH3, boxplots of attitudes across testing



3.6.3 HCA attitudes: management of a dementia and oral feeding difficulties.

HCA attitudes towards the management of residents in their care with dementia and an oral feeding difficulty were analysed by responses to three statements: "All residents with dementia and swallowing problems should have a feeding tube fitted" (Question Three, Q3), "I actively get involved in contributing towards residents' care planning" (Question Four, Q4) and "I am unable to help residents finish their meals due to work pressures" (Question Five, Q5). Responses were scored on an ascending five point scale using the following indicators: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree. The attitude scores for all questions were all significantly non normal.

3.6.3.1 HCA attitudes: Q3, feeding tubes, differences over time

The attitude ratings for Q3: "all residents with dementia, feeding and swallowing problems should have a feeding tube fitted" across NH1 $D(2) = 0.27$, $p < 0.05$, NH2, $D(2) = 0.28$, $p < 0.05$ and NH3, $D(2) = 0.32$, $p < 0.05$ were all significantly non normal (Appendix 1 Table 79, pg. 258).

HCA attitudes in NH1 regarding placement of feeding tubes in residents with a dementia and oral feeding difficulty changed significantly over the course of training, $\chi^2(2) = 41.4$, $p < 0.05$ and NH2 $\chi^2(2) = 13.85$, $p < 0.05$ (Appendix 1 Table 80, pg. 259). Over the course of training in NH1 there was a significant change in attitude, $z = -3.0$, $p < 0.0167$, $r = -0.55$ with HCAs over time becoming more 'strongly' opposed to PEG placement (Appendix 1 Table 81 pg. 260). Similarly in NH2, over the course of training there was a significant change in attitude observed ($z = -3.13$, $p < 0.0167$, $r = -0.5$) with HCAs over time becoming more 'strongly' opposed to PEG placement over time (Appendix 1 Table 83, pg. 261). Attitude towards the placement of feeding tubes remained unchanged for HCAs in NH3, $\chi^2(2) = 10.20$, *ns*. across testing (Appendix 1 Table 84, pg. 261). Visual inspection of the median scores suggests that pre- testing HCAs 'disagreed' in general to PEG placement. Towards the end of training the range of scores in the boxplots decreased with HCAs largely remaining ambivalent towards PEG placement, neither agreeing or disagreeing.

Figure 3-41 Attitudes Q3, NH1, boxplots of attitude scores, pre-, post- and follow up stages of testing.

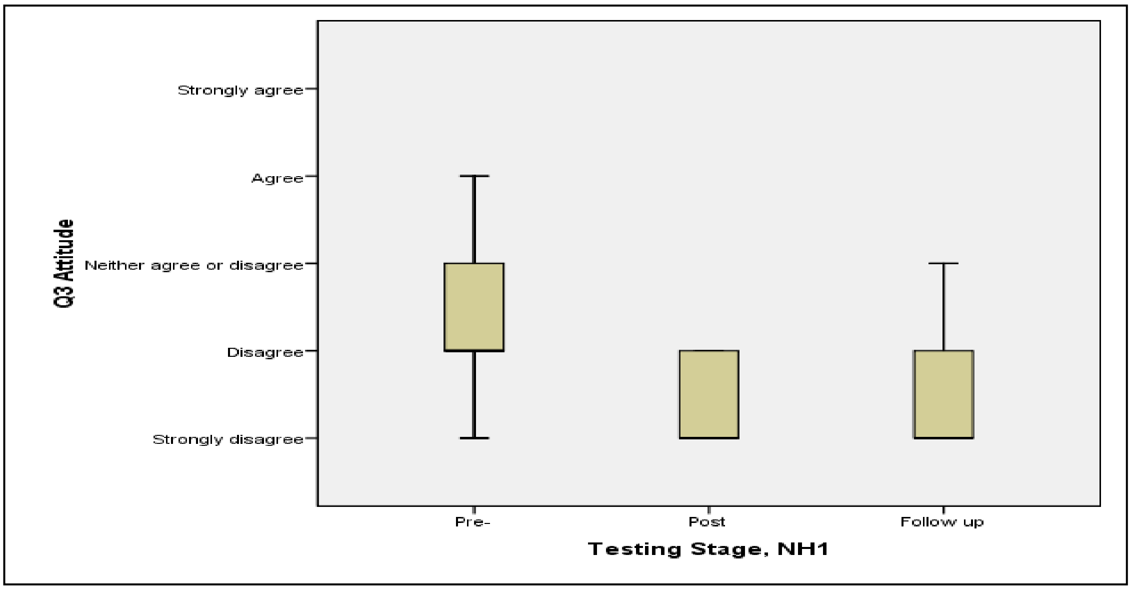


Figure 3-42 Attitudes Q3, NH2, boxplots of attitude scores, pre-, post- and follow up stages of testing.

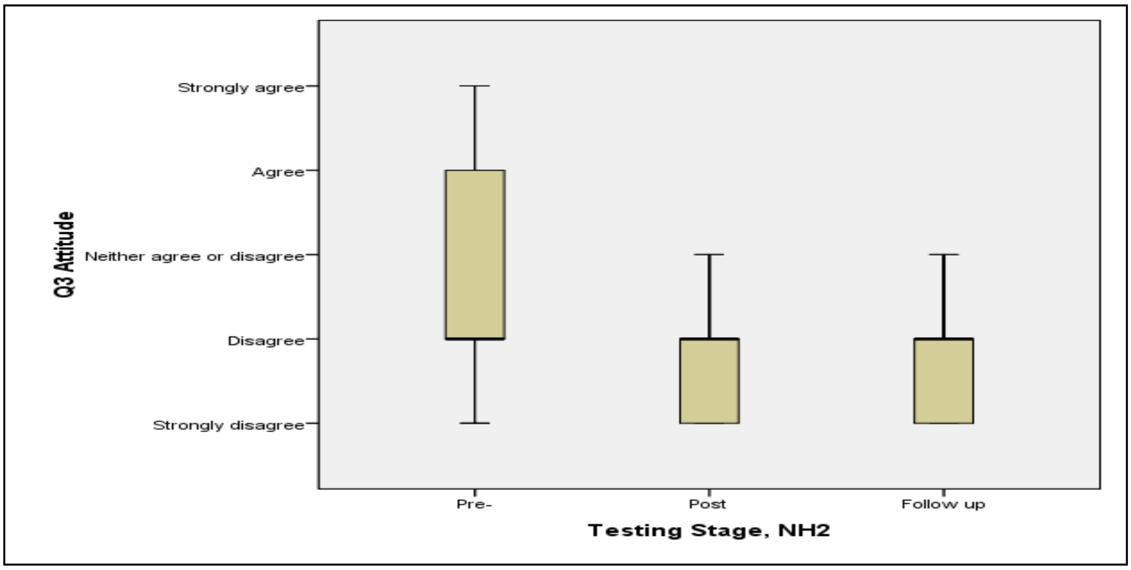
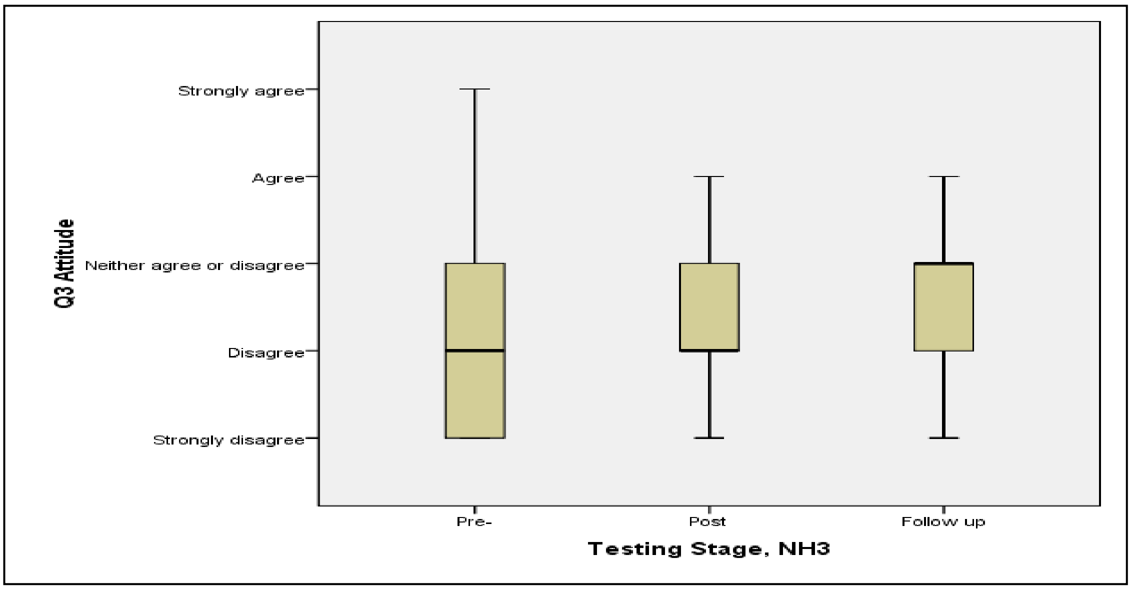


Figure 3-43 Attitudes Q3, NH3 boxplot of attitude scores, pre-, post and follow up stages of testing.



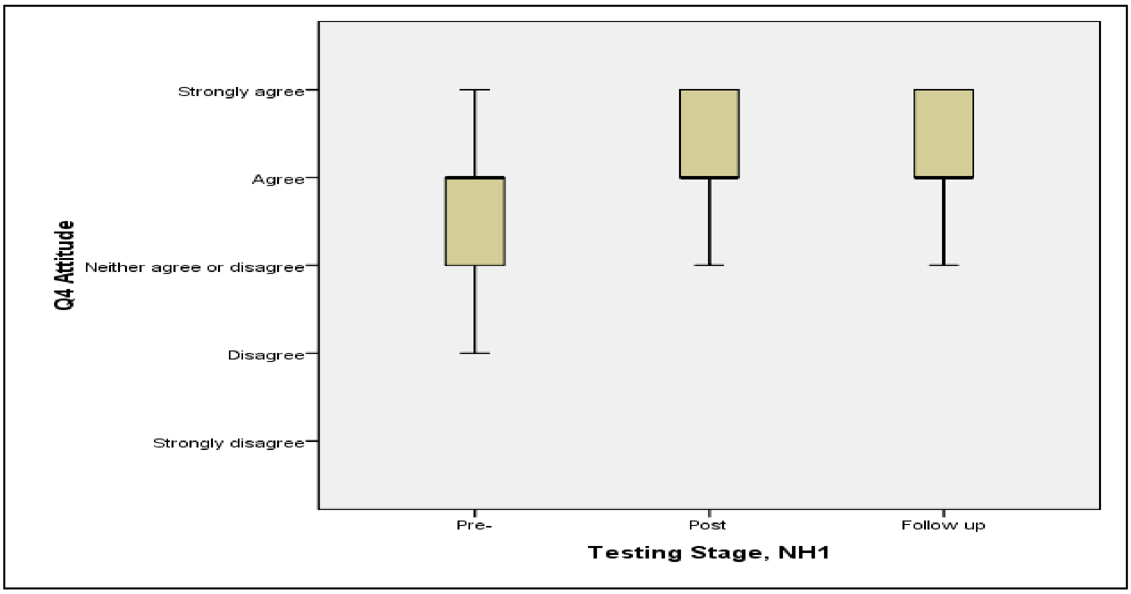
3.6.3.2 HCA attitudes: Q4, care planning

The attitude ratings for Question Four (Q4): "I actively get involved in contributing towards residents care planning" across NH1 D (2) = 0.26, $p < 0.05$, NH2, D (2) = 0.27, $p < 0.05$ and NH3, D (2) = 0.26, $p < 0.05$ were all significantly non normal (Appendix 1 Table 85, pg. 262).

Attitudes relating to contribution to the care plans of residents did not change significantly over the course of training for NH2, χ^2 (2) = 3.02, *ns*. or NH3, χ^2 (2) = 0.18, *ns*. (Appendix 1 Table 86, pg. 263). HCAs consistently 'agreed' that they actively participate in resident care plans. In NH1, HCA attitudes towards participation in residents' care plans over time significantly changed over time, χ^2 (2) = 6.1, $p < 0.05$ (Appendix 1 Table 86, pg. 263). Wilcoxon tests were used to follow up this significant finding in NH1. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. In

NH1, attitudes significantly improved from 'neither agree nor disagree' to 'strongly agree' at follow up stages of training, $z = -2.41$, $p < 0.0167$, $r = -0.44$. (Appendix 1

Table 87, pg. 264).



3.6.3.3 HCA attitudes: Q5, time pressures

The attitude rating for Question Five (Q5): "I am unable to help residents finish their meals due to work pressures" across NH1 $D(2) = 0.26$, $p < 0.05$, NH2, $D(2) = 0.27$, $p < 0.05$ and NH3, $D(2) = 0.26$, $p < 0.05$ (Appendix 1

Table 88, pg. 265) were all significantly non normal.

HCAs in NH1 and NH3 did not significantly change across testing and consistently disagreed with the statement (Q5) suggesting they have sufficient time to provide assistance to residents to help them finish their meals across testing (NH1, $\chi^2(2) = 1.4$, *ns*. & NH3, $\chi^2(2) = 2.08$, *ns*. Appendix 1 Table 89, pg. 265). HCAs in NH2, $\chi^2(2) = 9.71$, $p < 0.05$ changed their attitudes significantly across testing however post hoc testing did not reveal any significant findings. Visual inspection of the boxplots suggests that there is a reduction of the median scores from ambivalence ‘neither agreeing or disagreeing’ pre testing to ‘disagree’ median scores at post training and follow up training stages to the statement (Appendix 1 Table 90, pg. 267).

3.6.4 HCA attitudes: personalised feeding techniques

HCA attitudes towards the use of feeding techniques with residents with a dementia and oral feeding difficulties were analysed by responses to two statements “I feel confident using different techniques to help residents to eat and drink” (Question Six, Q6) and “It is important to change my method of feeding to suit the resident’s needs” (Question Eight, Q8). Responses were scored on an ascending five point scale using the following indicators: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree.

3.6.4.1 HCA attitudes: Q6, confidence in employing personalised feeding techniques.

The attitude ratings for Question Six (Q6): “I feel confident using different techniques to help residents to eat and drink” across NH1 $D(2) = 0.19$, $p < 0.05$, NH2, $D(2) = 0.31$, $p < 0.05$ and NH3, $D(2) = 0.21$, $p < 0.05$ were all significantly non normal (Appendix 1 Table 91 pg. 268).

Confidence levels to employ personalised feeding techniques and assist residents with a dementia and oral feeding difficulties changed significantly over the course of training for the HCAs in NH1, $\chi^2(2) = 14.38$, $p < 0.05$ and NH2 , $\chi^2(2) = 13.8$, $p < 0.05$ (Appendix 1 Table 92, pg. 268). Wilcoxon tests were used to follow up the significant changes in confidence over the course of training. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Over the course of training for HCAs in both NH1 and NH2 there is a significant positive change in confidence levels from ambivalence ‘neither agree nor disagree' to high levels of confidence (NH1, z = - 3.6, $p < 0.0167$, r = - 0.35 & NH2, χ^2 (2) = 13.83, $p < 0.05$ (Appendix 1 Table 94, pg. 270).

There is no significant change in confidence levels for HCAs in NH3, χ^2 (2) = 2.53, *ns*. (Appendix 1 Table 92, pg. 268). Pre – testing respondents remained ambivalent towards their ability to employ different feeding 'neither agreeing nor disagreeing'. At post and follow up stages of testing median scores indicated that participants 'agreed' that they felt confident however large boxplots and whiskers suggest wide variance in responses.

Figure 3-44 Attitudes Q6, NH1, boxplot of attitude scores, pre-, post and follow up stages of testing

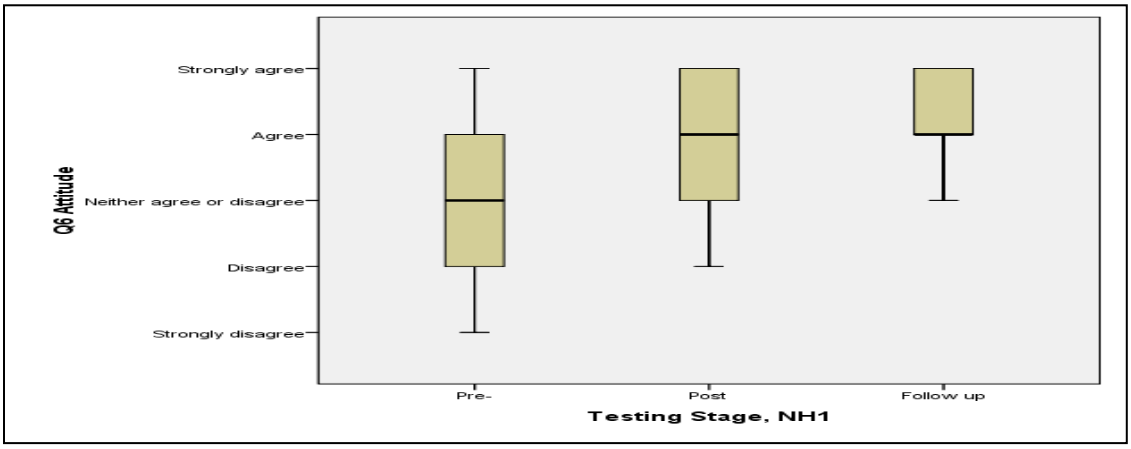


Figure: Attitudes Q6, NH2, boxplot of attitude scores, pre-, post- and follow up stages of testing

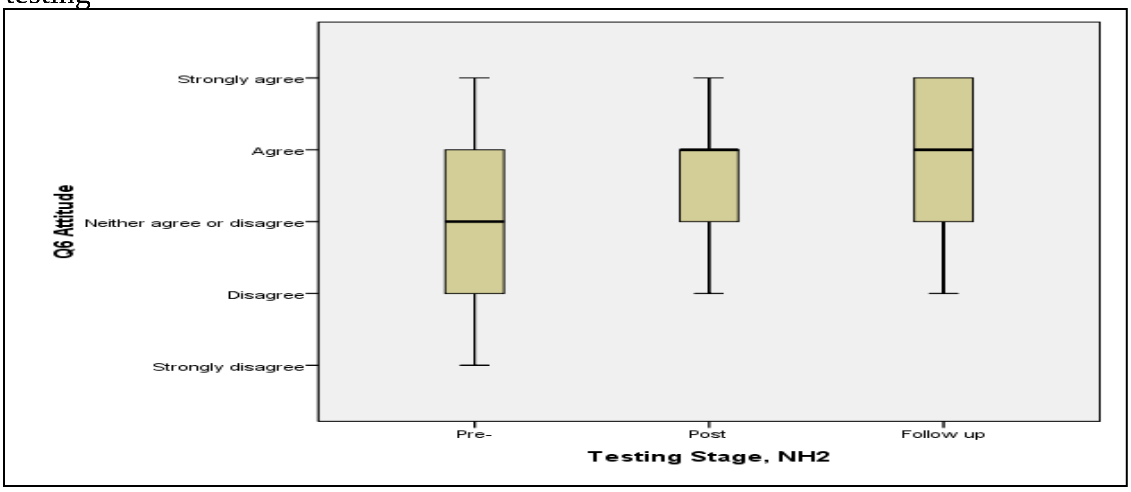
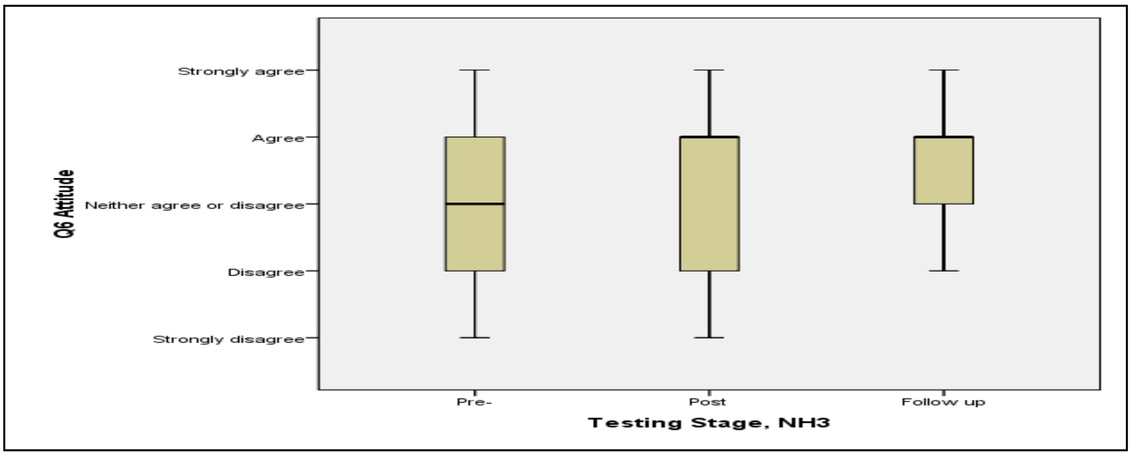


Figure: Attitudes Q6, NH3, boxplot of attitude scores, pre-, post- and follow up stages of testing



3.6.4.2 HCA attitudes: Q8, personalised feeding assistance

The attitude scores for Q8: "It is important to change my method of feeding to suit the resident's needs" across NH1 D (2) = 0.29, $p < 0.05$, NH2, D (2) = 0.29, $p < 0.05$ and NH3, D (2) = 0.25, $p < 0.05$ were all significantly non-normal (Appendix 1 Table 95, pg. 271).

Attitudes regarding the importance of changing feeding techniques to suit the needs of the resident did not change significantly over the course of training for the HCAs in any of the nursing homes NH1, χ^2 (2) = 0.53, *ns*, NH2, χ^2 (2) = 4.52, *ns* and NH3, χ^2 (2) = 1.55, *ns*. (Appendix 1 Table 96, pg. 271). Over the course of training, high levels of agreement with the statement over time indicate the importance HCAs place on changing their feeding techniques to suit the resident's individual needs.

3.7 Self reported daily care practices

3.7.1 Daily care practices: feeding techniques

HCA daily care practices regarding feeding techniques employed when working alongside residents with dementia, dysphagia and complex feeding disorders were analysed via responses to five statements: on a daily basis "How often do you change the feeding environment to suit the resident with feeding and swallowing difficulties? (Question One, Q1), How often would you be able to help the person with dementia, feeding and swallowing difficulties by sitting down to assist the person to eat? (Question Three, Q3), How often do you encourage eating and drinking by ensuring the resident is sitting upright? (Question Seven, Q7), How often do you support residents to help themselves to eat and drink? (Question Eight, Q8), Do you feed individual residents with dementia on regular basis? (Question Ten, Q10). Daily care practice scores were analysed on a five point scale: never, rarely, occasionally, frequently and always.

3.7.1.1 Daily care practice: Q1, changing the feeding environment.

The daily care practice ratings for Q1 'How often do you change the feeding environment to suit the resident with feeding and swallowing difficulties on a daily basis?' for NH1 D (30) = .22, $p < 0.05$, NH2, D (32) = 0.28, $p<0.05$ and NH3, D (34), = 0.26, $p < 0.05$ were all significantly non-normal (Appendix 1 Table 103, pg. 278).

The self rating daily care practice ratings of HCAs in NH1 did not significantly change over the five months of the training course, χ^2 = (2) = 2.72, *ns*. HCAs commonly reported that they 'occasionally' changed the environment to suit the needs of the resident across training. HCAs in NH2 reported practice changed significantly over the course of the six month duration of data collection χ^2 (2) = 14.3, $p < 0.05$. Post training, HCAs were significantly more likely to change the environment to suit the needs of the resident, T = -2.44, $p < 0.0167$, $r = 0.38$ with HCAs reporting that they 'frequently' changed the feeding environment to suit the needs of the residents with an oral feeding difficulty. The self rating daily care practice scores of HCAs in NH3 did not significantly change over the five months of the training course, $\chi^2 = (2) = 4.34$, ns. HCAs in NH3 reported that they 'rarely' changed the environment to suit the needs of the resident across training (Appendix 1 Table 104, pg. 279).

Figure 3-45 Daily reported practices, NH2, Q1, across testing

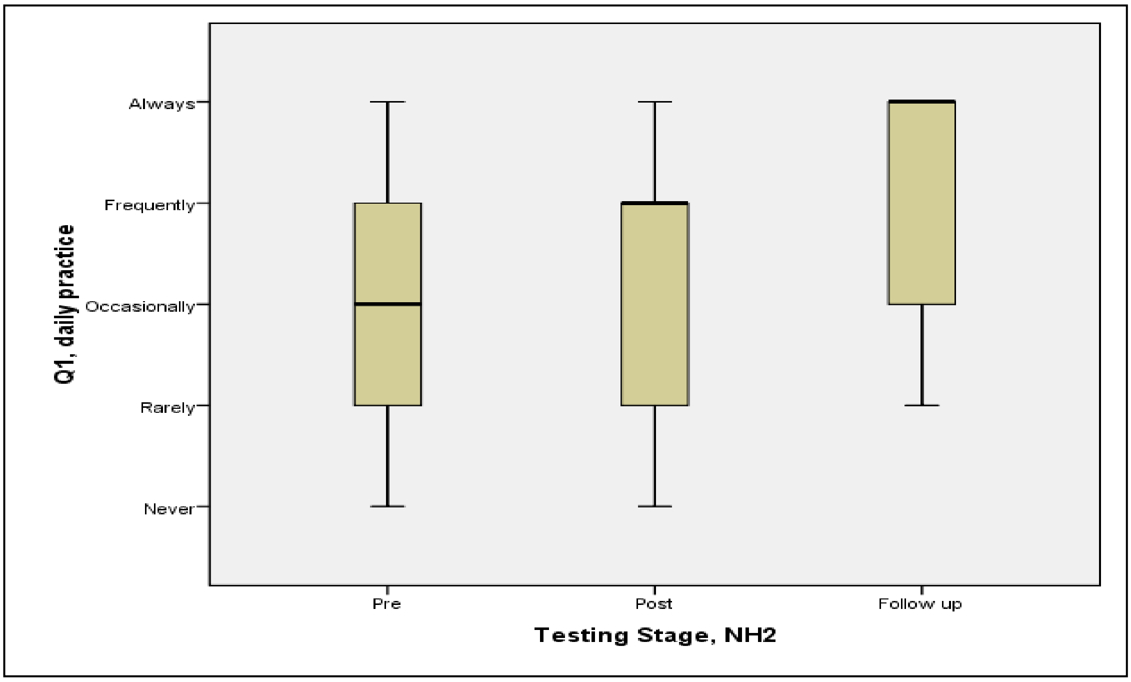
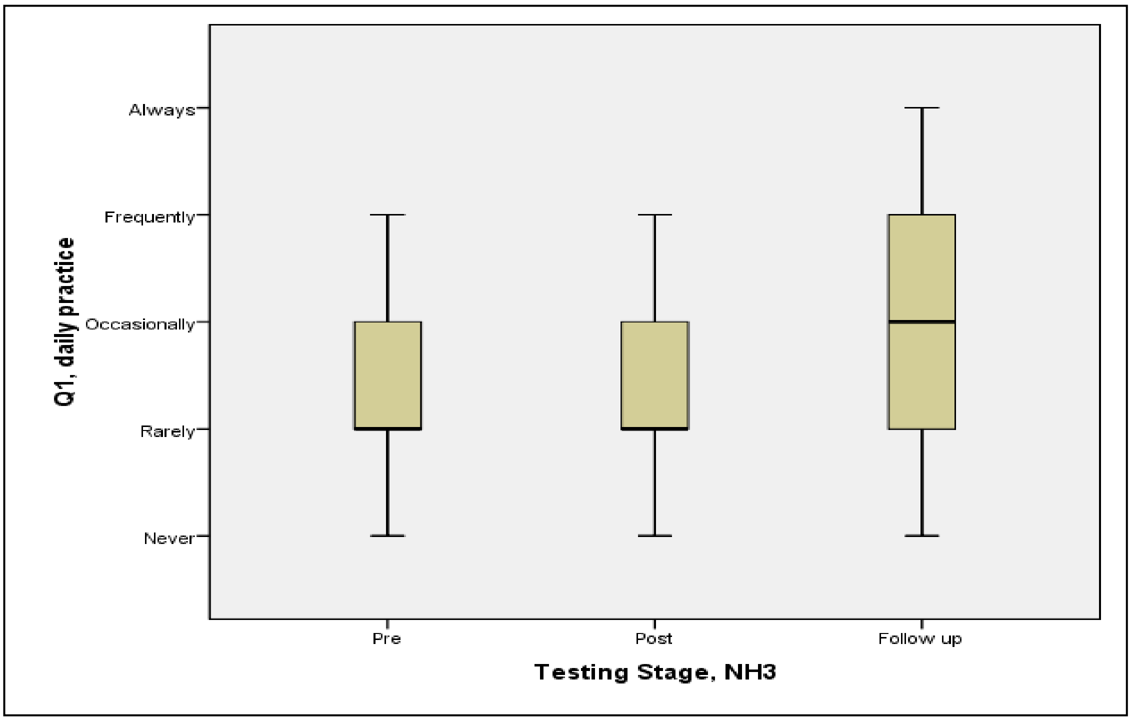


Figure 3-46 Daily reported practices, NH3, across testing



3.7.1.2 Daily care practices: Q3, seated feeding assistance.

The daily care practice scores for Question Three (Q3): 'how often would you be able to help the person with dementia, feeding and swallowing difficulties on a daily basis by sitting down to assist them to eat?' across NH1 D (2) = 0.31, $p < 0.05$, NH2, D (2) = 0.30, $p < 0.05$ and NH3, D (2) = 0.25, $p < 0.05$ were all significantly non normal (Appendix 1 Table 105 pg. 280). The self reported daily care practice scores regarding the feeding technique of sitting down to assisting the resident with an oral feeding difficulty to eat reported over time did not change significantly over the five months of the training for any of the nursing homes with HCAs in NH1 and NH2 reporting that they 'frequently' to 'always' sat down to assist the residents to eat and drink. HCAs in NH3 in the main reported 'frequently' sitting down to assist residents although wider box plots suggest variability in practice (NH1 (χ^2 (2) = 0.25, $p > 0.05$, NH2, (χ^2 (2) = 1.75, $p > 0.05$ and NH3 (χ^2 (2) = 0.4, $p > 0.05$, Appendix 1 Table 106, pg. 281).

3.7.1.3 Daily care practices: Q7, resident positioning during feeding.

The daily care practice rating for Question Seven (Q7): “How often on a daily basis do you encourage eating and drinking by ensuring the resident is sitting upright? ” across NH1 D (2) = 0.405, $p < 0.05$, NH2, D (2) = 0.31, $p < 0.05$ and NH3, D (2) = 0.38, $p < 0.05$ were all significantly non normal (Appendix 1 Table 107, pg. 281). Across nursing homes, HCAs reported ‘frequently to ‘always’ checking resident positioning during feeding across training.

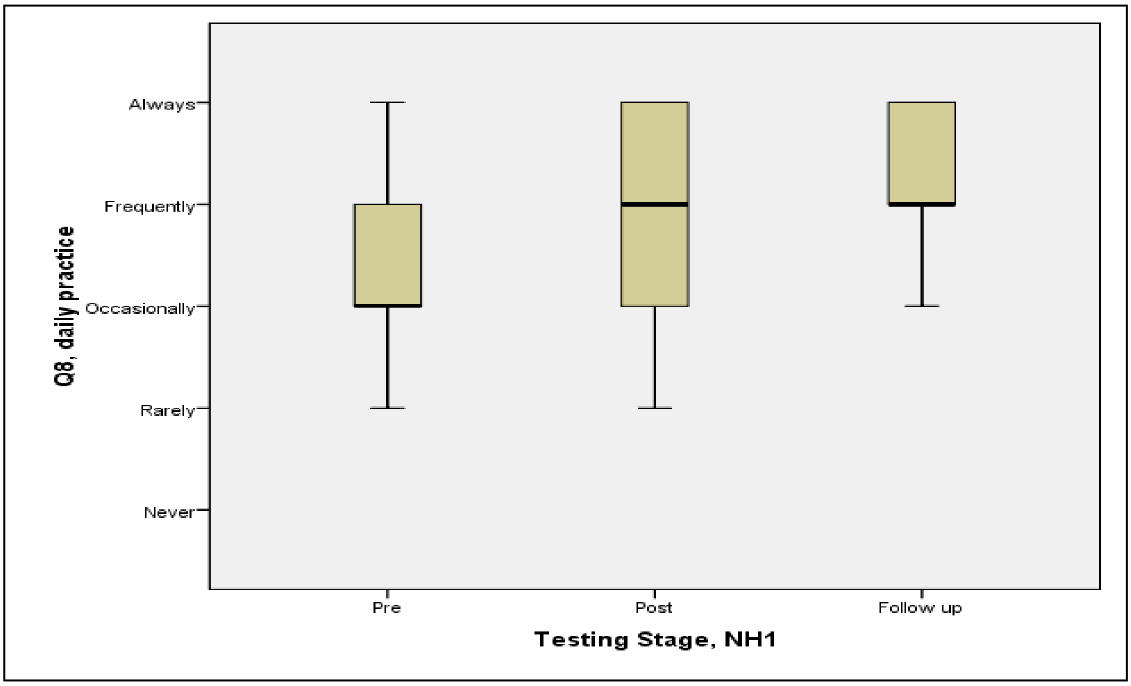
3.7.1.4 Daily care practices: Q8, promoting resident feeding independence.

The daily care practice scores for question eight: “How often do you support the resident to help themselves to eat and drink?” across NH1 D (2) = 0.32, $p < 0.05$, NH2, D (2) = 0.25 $p < 0.05$ and NH3, D (2) = 0.23, $p < 0.05$ were all significantly non normal (Appendix 1 Table 109 pg. 284).

Supporting independent eating and drinking practices by HCAs in NH1 changed significantly over the five months of training (χ^2 (2) = 66.45, $p < 0.05$ (Appendix 1 Table 108, pg. 283). Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. HCAs were significantly more likely to support the resident independently feed from pre- testing (Mdn = 3.0) to post stages of testing (Mdn = 4)(χ^2 (2) = -2.52, $p < 0.0167$, r = -0.5 and overall from pre- stages of testing (Mdn = 3.0) to follow up stages of testing (Mdn = 4.0) of testing (χ^2 (2) = -3.14, $p < 0.0167$, r = -0.57) with HCAs commonly reporting ‘frequent’ offers of assistance at the end of the five month period of training (Appendix 1 Table 111 pg. 287).

Daily care practices relating to how often HCAs in NH2 promoted self feeding in residents changed significantly over the five months of training, χ^2 (2) = 72.47, $p < 0.05$. Wilcoxon post hoc tests used to follow up this finding did not reveal any significant differences over the course of training. HCAs reported ‘frequently’ helping residents to help themselves to eat and drink over the course of training. HCAs in NH3 feeding techniques did not change significantly from pre- to post stages of testing (χ^2 (2) = 28.91, $p < 0.05$) with HCAs reporting 'frequent' offers of assistance to promote independent feeding (Appendix 1, Table 110 pg. 285).

Figure 3-47 Daily reported practice, NH1, Q8, across testing.



3.7.1.5 Daily care practices: Q10, feeder consistency.

The daily care practice scores for Question Ten (Q10): "Do you feed individual residents with dementia on regular basis?" across NH1 D (2) = 0.35, $p < 0.05$, NH2, D (2) = 0.24, $p < 0.05$, NH3, D (2) = 0.26, $p < 0.05$ were all significantly non normal (Appendix 1 Table 112 pg. 287)

Daily practice scores relating to the reported practice of consistent feeders for people with dementia over the course of the training did not significantly change for NH1 χ^2 (2) = 5.17, *ns*. or NH2 (χ^2 (2) = 2.67, *ns* with HCAs commonly reporting 'always' to 'frequently' providing consistent feeders. HCAs in NH3 reported significant changes in practice regarding feeding individual members consistently over the course of five months, $\chi2$ (2) = 26.73, $p < 0.0167$. Post hoc tests were used to follow up this significant finding in NH3. A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. It appeared that in NH3 from pre (Mdn = 4.0) to post (Mdn = 4.0) testing stages there was a significant decrease in the reported practice of feeding individual residents consistently, z = -3.40, p = < 0.0167, r = 0.6. However, from post stages of testing (Mdn = 4.0) to follow up stages of testing (Mdn = 4) there was a significant increase in the practice of feeding individual residents consistently, z = -4.03, p = < 0.0167, r= - 0.7 with HCAs reporting that they 'always' fed individual residents consistently.

3.7.2 Daily care practices: dietary modifications

HCA daily care practices working alongside residents with dementia, dysphagia and complex feeding disorders were analysed via responses to two statements: “How often do you change the resident’s diet to suit their swallowing difficulties on a daily basis?” (Question Two, Q2) and “How often do on a daily basis do you take the time to thicken fluids for residents who need it? (Question Four, Q4). Daily care practice scores were analysed on a five point scale: never, rarely, occasionally, frequently and always.

3.7.2.1 Daily care practices, Q2 dietary modifications to suit the residents needs.

The daily care practice scores for Q2: “how often do you change the resident’s diet to suit their swallowing difficulties on a daily basis”, across NH1 $D(2) = 0.26$, $p < 0.05$, NH2, $D(2) = .22$, $p < 0.05$ and NH3, $D(2) = 0.17$, $p < 0.05$ were all significantly non normal (Appendix 1 Table 114 pg. 289).

Care practices in NH1 changed significantly over the five months of the training $\chi^2(2) = 21.0$, $p < 0.05$ from more negative practices to positive practices. HCAs were significantly more likely to change the diet of residents with oral feeding difficulties at post testing stages (Mdn = 3) ($z = -3.3$, $p < 0.0167$, $r = -0.6$) and five months post (Mdn = 4.0) ($z = -4.0$, $p < 0.0167$, $r = -0.7$) training compared to pre- testing (Mdn = 3) (Appendix 1 Table 115 pg. 290, Table 116, pg. 290). The daily care practice scores of HCAs in NH2 did not change significantly over the five months of the training $\chi^2(2) = 8.18$, ns. Visual inspection of the data reveals that the HCAs in NH2 consistently reported ‘frequently’ changing the resident’s diet on a daily basis throughout the course of the training (Appendix 1 Table 117, pg. 291). HCAs in NH3 reported practices of changing a residents diet to suit their oral feeding difficulties were significantly lower post testing stages (Mdn = 2) $z = -3.75$, $p < 0.0167$, r – 0.64 compared to pre- testing (Mdn = 4.0). Five months later at follow up testing stages (Mdn = 3.0) initial high levels of changing the residents diet had resumed: there was no significant difference in reported practices between pre stages of testing (Mdn = 4.0) and at follow up stages of training (Mdn = 3.0) z = -2.0, *ns*. with staff frequently modifying residents diet (Appendix 1 Table 118 pg. 291 & Table 119 pg. 292).

Figure 3-48 Daily care practices, NH1, Q2, across testing

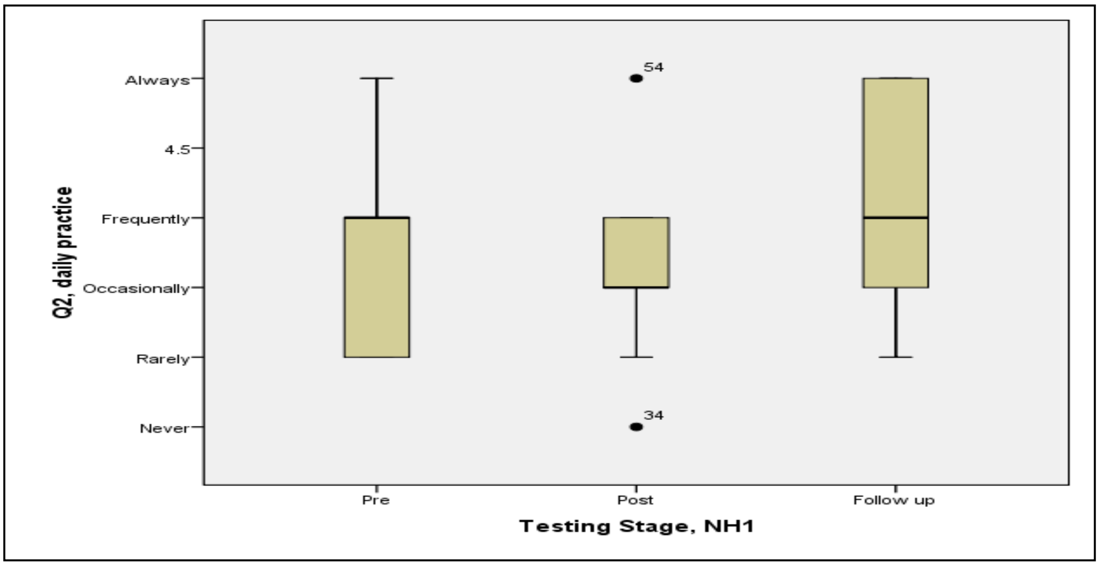


Figure 3-49 Daily care practices, NH2, Q2, across testing

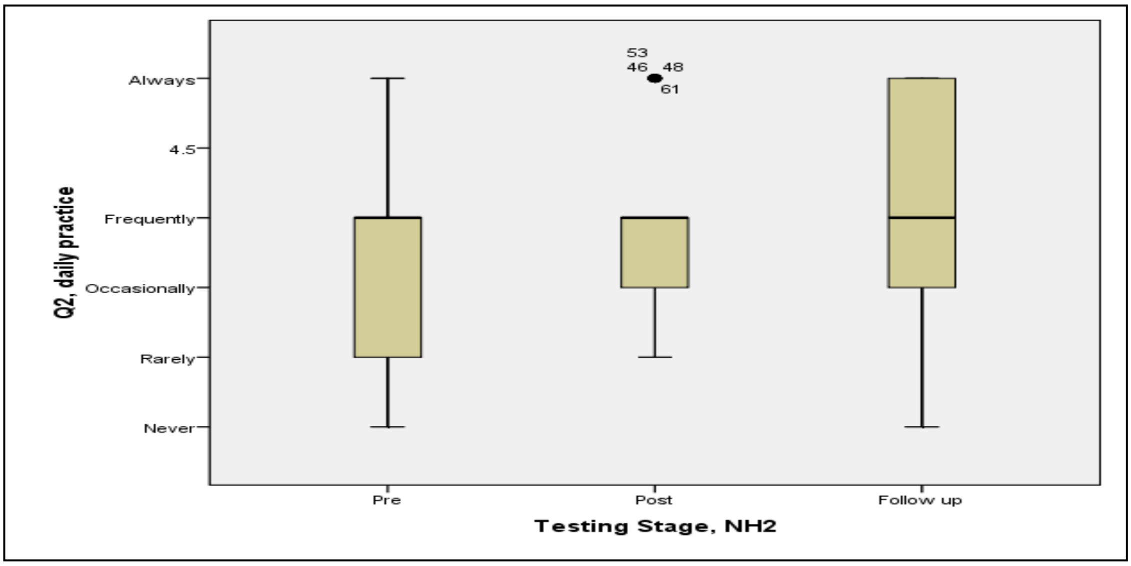
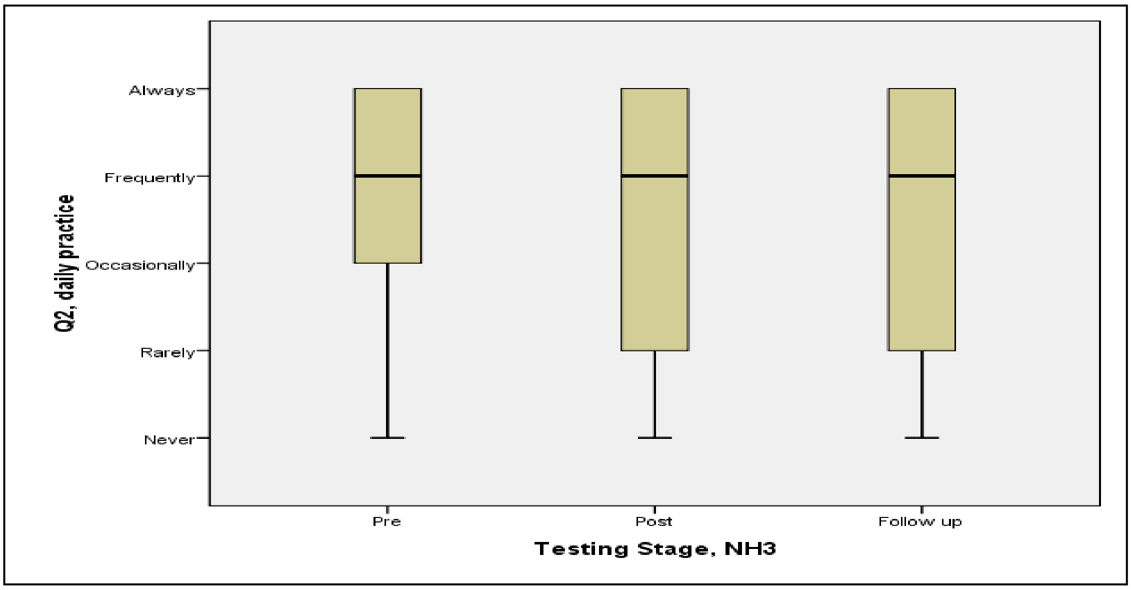


Figure 3-50Daily care practices, NH3, Q2, across testing

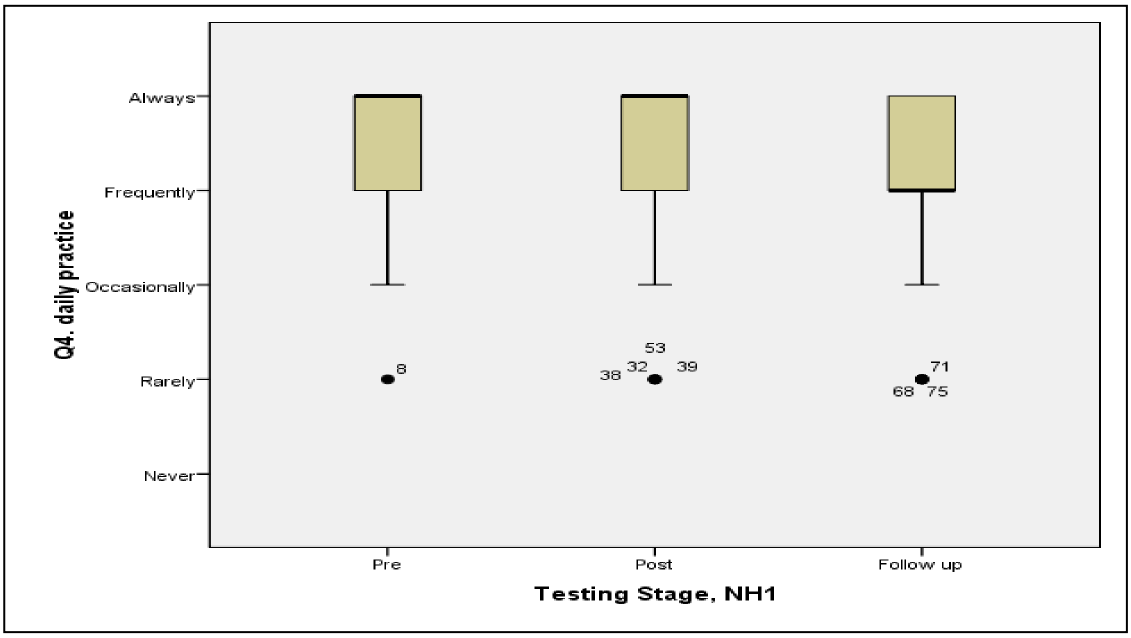


3.7.2.2 Daily care practices: Q4 thickening fluids for residents

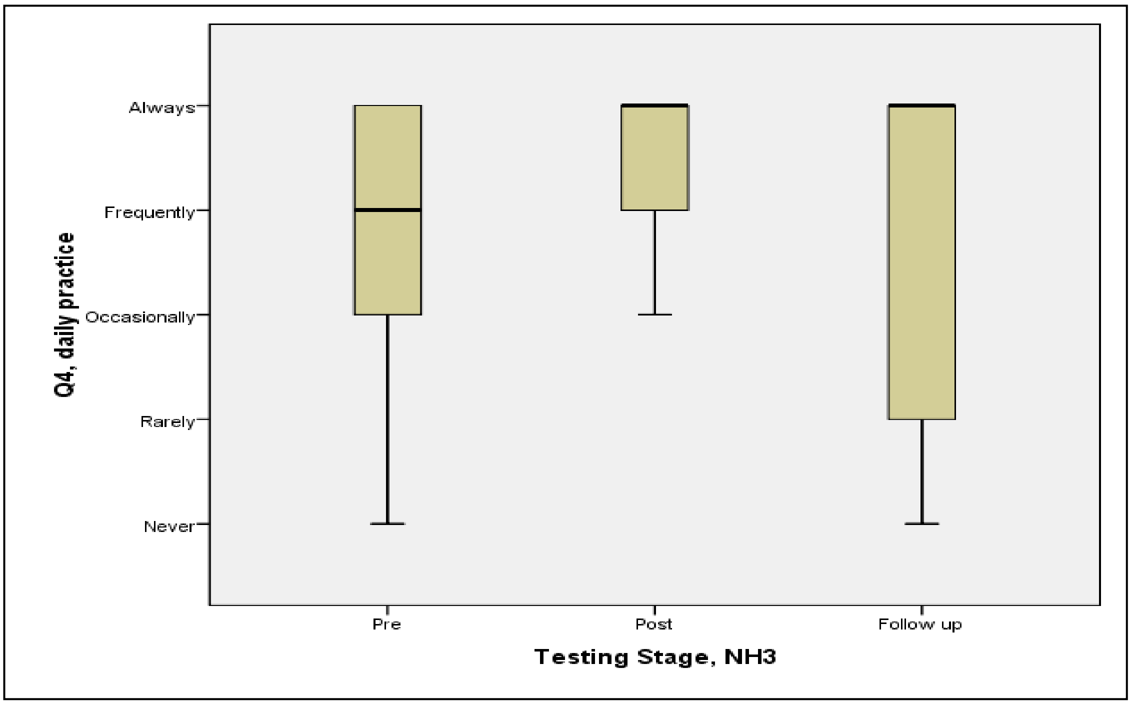
The daily care practice ratings for Question Four: "how often do you take the time to thicken fluids for residents who need it on a daily basis?" across NH1 D (2) = 0.242, $p < 0.05$, NH2, D (2) = .25, $p < 0.05$, NH3, D (2) = 0.25, $p < 0.05$ were all significantly non normal (Appendix 1 Table 120 pg. 293).

Daily care practice rating relating to the practice of thickening fluids for residents in NH1 changed significantly over the five months of the training (χ^2 (2) = 7.6, $p < 0.05$). HCAs were significantly likely to thicken fluids post training (Mdn =5.0) (χ^2 (2) = - 2.85, $p < 0.0167$, r = -0.52) compared to pre testing (Mdn = 3.0) with no significant differences in reported practices detected when comparing post testing practices (Mdn = 5.0) to follow up testing (Mdn =4.0) (χ^2 (2) = - 1.78, *ns*) (Appendix 1Table 121, pg. 293 & Table 122 pg. 295). NH2 did not change significantly over the five months of the training (χ^2 (2) = 1.42, *ns*) with respondents consistently reporting that they 'frequently' thickened fluids for residents (Appendix 1 Table 121 pg. 293). In NH3, from pre testing (Mdn = 3.0) to follow up stages of testing (Mdn = 4) HCAs were significantly more likely to 'frequently' thicken fluids for residents who needed it (χ^2 (2) = -2.61, $p < 0.0167$, r = -0.50).

Figure 3-51 Daily care practices, NH1, Q4, across testing



3-52 Daily reported practices, NH3, Q4 across testing



3.7.3 Daily care practices: management

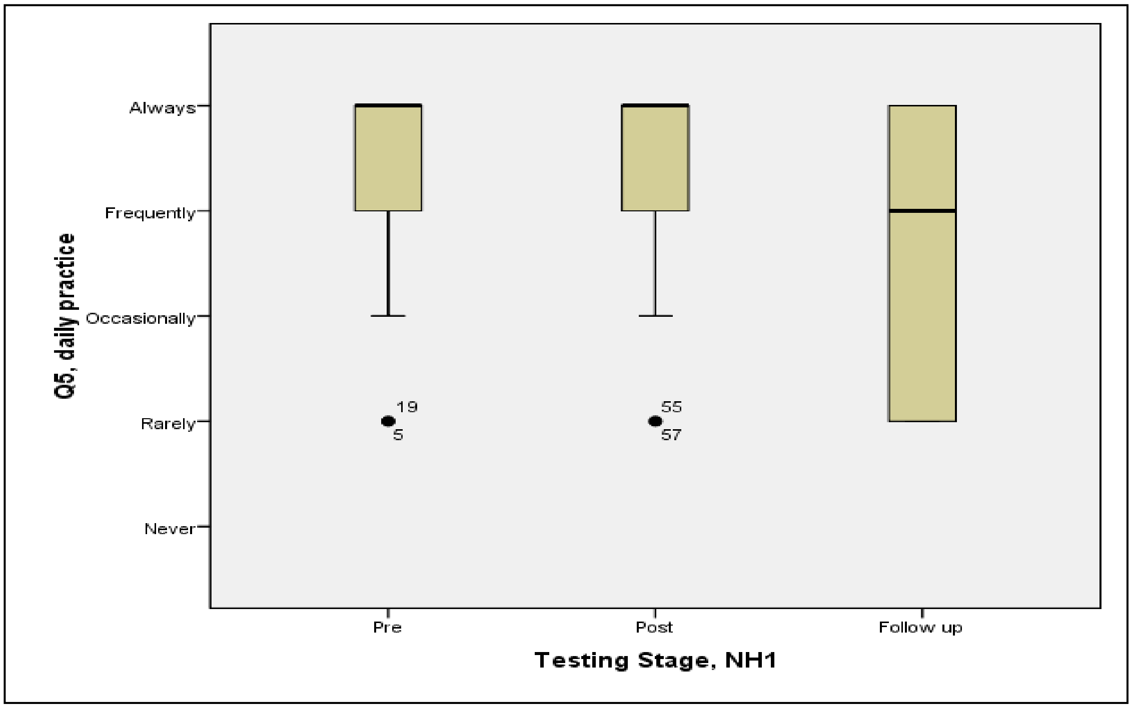
HCA daily care practices regarding management of residents with dementia, dysphagia and complex feeding disorders were analysed via responses to three statements: on a daily basis “how often do you get involved with the resident’s feeding care plan?” (Question Five, Q5), “How often do you check to ensure that the resident eats and drinks enough throughout the day?” (Question Six, Q6) and “How often do you document how the resident managed to eat and drink in the nursing notes?” (Question Nine, Q9).

3.7.3.1 Daily care practices, Q5, involvement in resident care plan

The daily care practice ratings for Q5: “How often on a daily basis do you get involved with the resident’s feeding care plan? across NH1 D (2) = 0.25, $p < 0.05$, NH2, D (2) = 0.23, $p < 0.05$, and NH3, D (2) = 0.35, $p < 0.05$ were all significantly non normal (Appendix 1 Table 124 pg. 296)

The HCA reported contribution to feeding care plans in NH1 changed significantly over the five months of the training (χ^2 (2) = 9.3, $p < 0.05$). Post hoc analysis revealed a significant decrease in HCA daily contribution to the resident care plans from ‘always’ to ‘occasionally’(Appendix 1 Table 126 pg. 296 & Table 126 pg. 297) HCAs in NH2 across training commonly reported contributing to the care plan ‘frequently’ with no significant difference in practices over testing, χ^2 (2) = 5.53, *ns*. (Appendix 1 Table 127 pg. 297). Similarly HCAs in NH3 commonly reported contributing to resident care plans as ‘always’ on a daily basis across the duration of the testing with no significant differences in working practice, χ^2 (2) = 3.25, *ns*.

Figure 3-53 Daily care practices, NH1, Q5, across testing.



3.7.3.2 Daily care practices: Q6 nutrition and hydration checks

Daily care practice scores for Q6: "How often do you check to ensure that the resident eats and drinks enough throughout the day?" across NH1 D (2) = 0.292, $p < 0.05$, NH2, D (2) = .29, $p < 0.05$ & NH3, D (2) = 0.19, $p < 0.05$ were all significantly non normal (Appendix 1 Table 129 pg. 298).

HCAs in NH1 (χ^2 (2) = 4.87, *ns*. and NH2, (χ^2 (2) = 4.87, *ns*.) reported 'frequent' daily checks to ensure that residents in their care had enough to eat and drink throughout the day with no change in daily practices over testing (Appendix 1 Table 130, pg. 299 & Table 131, pg. 299). HCAs in NH3 reported checks of oral intake significantly deteriorated from 'frequent' pre- testing checks (Mdn = 4.0) to 'occasional' checks at follow up stages of testing (Mdn = 3.0), χ^2 (2) = -3.22, p, 0.0167, r = -0.55 (Appendix 1 Table 132, pg. 299).

3.7.3.3 Daily care practices: Q9 documentation of food and fluid intake

Daily care practice ratings for Q9: "How often on a daily basis do you document how the resident managed to eat and drink in the nursing notes?" across NH1 D (2) = 0.25, $p < 0.05$, NH2, D (2) = 0.21, $p < 0.05$ and NH3, D (2) = 0.35, $p < 0.05$ were all significantly non normal (Appendix 1 Table 133 pg. 300).

The reported practice of documenting oral intake in the nursing notes did not change significantly over the course of training for any of the nursing homes, NH1: χ^2 (2) = 5.95, *ns*, NH2 : χ^2 (2) = 0.85, *ns* or NH3: χ^2 (2) = 5.59, *ns*. (Appendix 1 Table 134 pg. 300). Visual inspection of the data suggests that HCAs across nursing homes felt strongly about this issue and reported high levels of reporting oral intake tolerance in the nursing records.

Figure 3-54 Daily care practices, NH1, Q9, across testing.

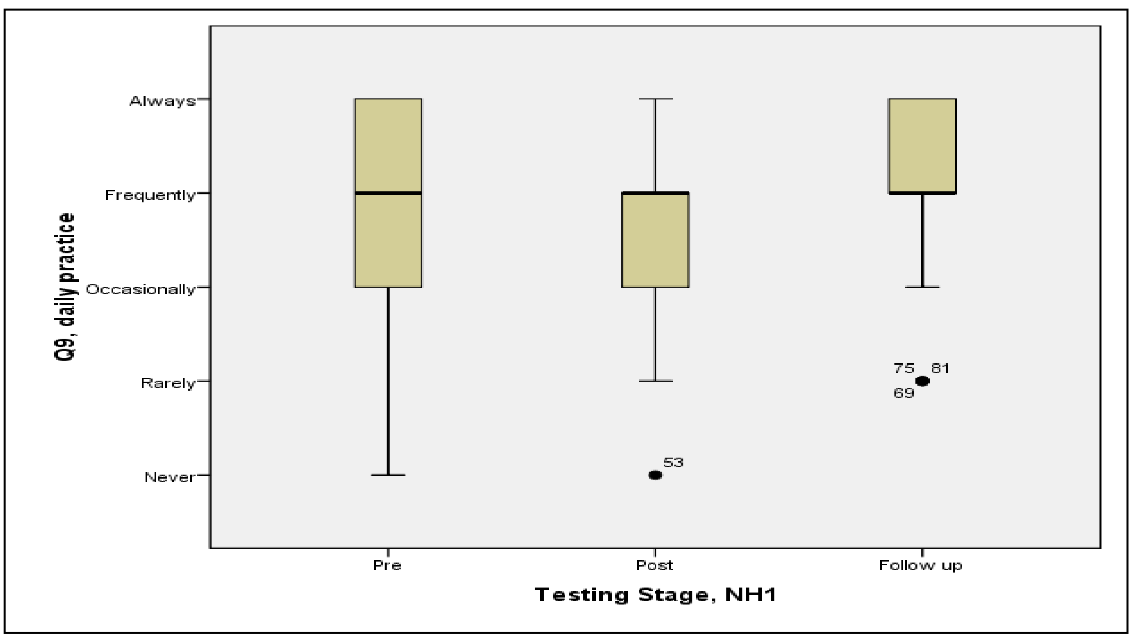


Figure 3-55 Daily care practices, NH2, Q9, across testing.

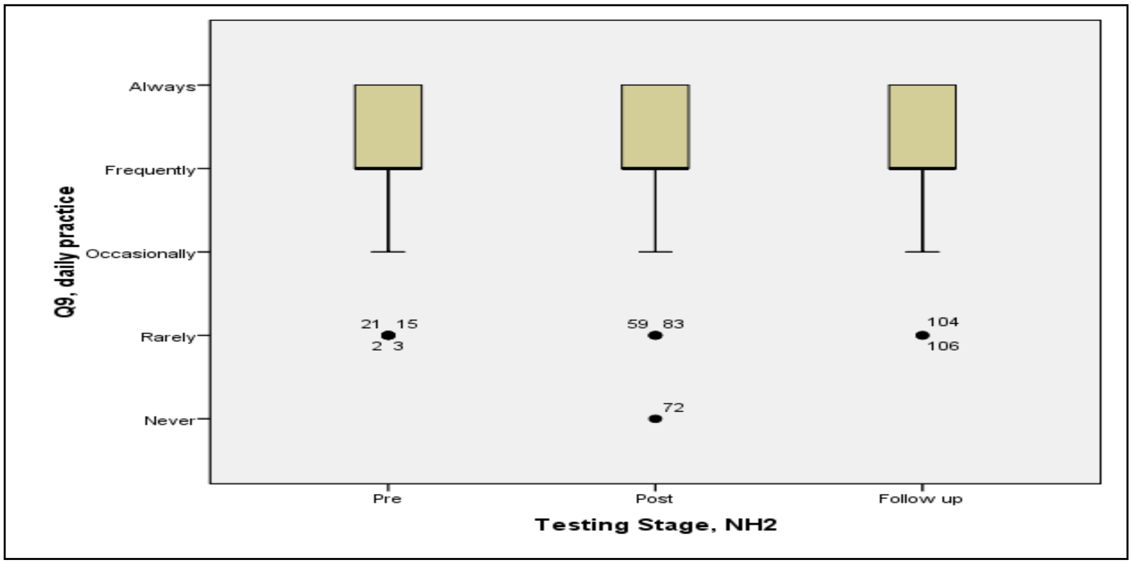
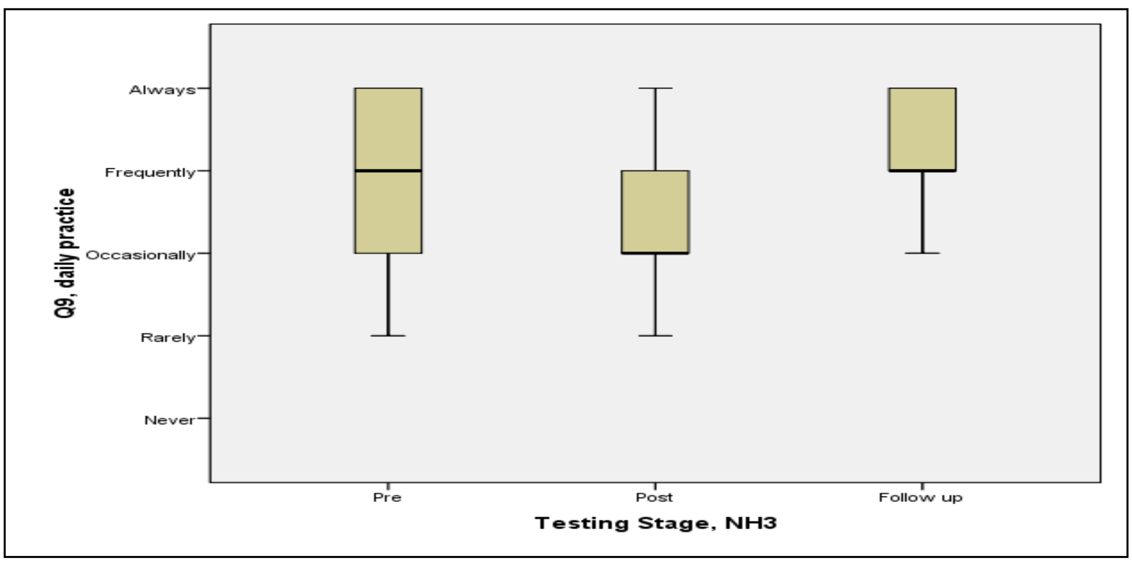


Figure 3-56 Daily care practices, NH3, Q9, across testing.



3.8 Discussion

This chapter evaluates the impact of a feeding assistance programme, 'Making meal times better for those with a Dementia' (MMB) delivered with five health professional led support forums (Nursing Home One, NH1) compared to a stand-alone three hour training programme (Nursing Home Two, NH2) or control conditions (Nursing Home Three, NH3) on the knowledge, competency, attitudes and daily reported care practices of HCAs working in three nursing homes.

The basic question addressed in the training experiments is whether the feeding assistance programme with or without the inclusion of five health care professional led support groups impacts upon HCA knowledge, competency, attitudes and reported daily care practices over time. The results indicate that the training group that received the feeding assistance training programme 'MMB' in addition to five health professional led support forums demonstrated significantly better knowledge, competency, attitudes and reported daily care practices five months post training, which is discussed in more detail below.

The reported changes in daily care practices for the most part are discussed in conjunction with the observational experiments in Chapter Four.

3.8.1 The HCA cohort: comparison with UK population as a whole

These findings taken from a purposive sample of HCAs in three dementia care settings suggest that the sex, years of experience, prior training and education of the participants in this study concur with that reported in the wider English HCA population. The sample is overwhelmingly female (70 – 80%) reflecting the wider national cohort of a female dominated HCA population (Thornley, 2000). HCAs have low levels of education with only 55% of staff reporting education to the level of secondary school and a minority presenting with formal qualifications. The majority of HCAs originate from a Black or Ethnic Minority

Group (77%), have a first language other than English (75%) and are non registered UK citizens (80-90%). The average length of time in the UK for HCAs in this study is 3.6 years with the participants in NH1 falling below the mean (two years). The majority of HCAs are in the job for one year, reflecting the key characteristic feature of this occupational group, that of a high staff turnover (Commission for Social Care Inspection, 2008). It is possible that this study may disproportionally represent the ethnic diversity of an inner city East London HCA population however emerging literature points to the shortage of HCA staff due to low status and career opportunities being filled by individuals from ethnic backgrounds with fewer educational qualifications, English as a second language, little previous work experience and ultimate high turnover rates in the UK (Commission for Social Care Inspection, 2008).

Longitudinal studies evaluating the impact of educational programmes are a keystone in describing the course of learning of HCA's in dementia (APPG, 2009). Potential bias due to a considerable attrition rate has potential implications for the validity of the research (Shadish & Campbell, 2002). Approximately 50% of the eligible HCA's (n = 205) continued participation until the final stage of data collection five months later. Characteristic features of the HCA's who remained in the cohort may differ substantially from those observed in HCAs who completed the study. High attrition rates in studies of HCA's are not uncommon, mainly attributable to high rates of turnover in nursing homes, lower educational levels and lower baseline scores in neurocognitive testing (Sheldon, 2006). HCA's failed to attend data collection sessions for a variety of reasons including termination of employment in the nursing home, inability to attend data collection due to incompatibility with training schedule and unwillingness to continue with the research data.

Every effort was made by researchers to maximise cohort retention and minimise resulting bias including following up HCA's who simply missed the data collection sessions on an individual basis as opposed to termination of employment contract. Due to limited resources of this study researchers were unable to contact HCA's who failed to attend further training sessions due to termination of contract of employment and remained uncontactable which may have implications for the representativeness of the sample and research outcomes. Similar rates of attrition were experienced in the pilot study (McCartney, 2005) and in anticipation large numbers of HCA's were included in the current study (n= 205) to compensate for potential bias. Further studies may wish to incorporate a separate analysis of the reasons for attrition bias which may lend further insights into the overall issue of high turnover of staff in nursing home environments and the impact on the efficacy of educational programmes.

None of the HCAs in this study had received prior training in dementia or oral feeding difficulties, supporting earlier evidence of the low exposure to training for HCAs who have little or no previous care experience, limited dementia knowledge and a lack of understanding of dementia or good dementia care in nursing home settings, even in specialist dementia care settings (APPG, 2009). Overwhelmingly HCAs described their role as the provision of 'direct care' to residents with a dementia , echoing findings in the literature alluding to the pivotal role of HCAs in the provision of 'virtually all of the direct care of residents' in a dementia care setting (Schneider, 2010). As a consequence, it is likely that HCAs in this study have limited knowledge of the nature of dementia and a negligible ability to recognise the array of the cognitive, physical, psychological, environmental and cultural factors associated with oral feeding difficulties in advanced dementia despite a majority of residents in their care presenting with an oral feeding difficulty.

The characteristics of the highly varied HCA workforce; mainly derived from overseas, from Black and Ethnic Minority Groups, possessing a first language other than English, low levels of education and little experience of the provision of care in the UK nursing setting is typical of the HCA cohort as a whole and presents challenges to educational providers. There is a growing recognition that HCAs are typically non traditional adult learners presenting with unique learning needs which are not aided by the paucity of evidence outlining effective methods of training delivery and engagement with a highly varied workforce who may need a much stronger grounding to improve interaction with residents in their care (All Party Parliamentary Group, 2009, Bryan et al., 2009)

3.8.2 MMB: the impact of training on HCAs over time

Data was collected from HCAs via self administered questionnaires developed in an extensive pilot study. Limitations in the use of self administered questionnaires to the HCAs cohort such as reduced literacy of the population, lack of engagement in questionnaires by respondents from Black and Ethnic minorities and the possibility that responses reflect the options presented to participants rather than their innate knowledge base have been explored earlier (Sheldon, 2006 & Bowling, 2005). The questionnaires in this study have been designed to target the characteristics and describe the knowledge, competencies, attitudes and daily care practices of HCAs which no other method of observation can provide. Furthermore, self administered questionnaires mean that similar data can be collected from groups and then interpreted comparatively (Adèr, 2008).

HCAs in NH1 who received the three hour MMB training programme plus five health professional led support groups demonstrated significantly improved knowledge of dementia and oral feeding difficulties five months after the initial training programme than those HCAs who received a three hour training programme in isolation (NH2) and those who received no training at all (NH3). Two weeks post the initial training HCAs in NH1 & NH2 demonstrated on par significantly improved knowledge of dementia and oral feeding difficulties. Longitudinally, a significant deterioration in training gains is evident for those HCAs in NH2 who did not receive ongoing training to develop newly acquired learning concurring with the evidence in the literature base that one off training programmes in isolation are ineffective long term (All Party Parliamentary Group, 2009). In control conditions, several significant improvements (knowledge and competency) from baseline were observed at post- training stages of data collection however these were small in effect and were not maintained at follow up stages of training. Reactivity of repeated exposure to the questionnaires known as the Hawthorne effect may account for these changes over time (Bowling, 2005).

Competency is used to purposefully describe practitioners capable of effectively delivering dementia care (Traynor et al., 2011). Educational literature for health professionals have demonstrated positive practice behaviours in response to clinical scenarios (Gifford et al., 1999). Hypothetical feeding scenarios of residents with an advanced dementia were used to illustrate competency in managing residents with a dementia and oral feeding difficulties. HCAs in NH1 and NH2 who received the initial MMB three hour training programme demonstrated significantly improved competency in dementia and oral feeding difficulties two weeks post training compared to baseline status and control conditions. At five months post training HCAs in NH1 with the help of ongoing training maintained significantly improved gains in competency whereas HCAs in NH2 demonstrated a significant deterioration in newly acquired learning in line with similar dementia education programmes although their performance remained significantly better than control conditions. In control conditions there is an overall significant improvement of small effect in competency across testing which is significantly less than in NH1 or NH2. Again, repeated exposure to the questionnaires may account for this small significant effect (Bowling, 2005).

HCA competency in managing residents with a dementia and oral feeding difficulty characterised by complex feeding behaviours such as oral stasis, reduced alertness, feeding apraxia, hearing and visual impairment (Clinical Oral Feeding Scenario One: ‘Bob’) were particularly challenging for HCAs who did not receive any training. Consistent baselines scores (zero) reflect the complexity and challenging nature of encouraging safe oral feeding for residents with a dementia and complex oral feeding difficulties. This example highlights the under-recognition and awareness of the actual needs of residents with a dementia for whom they are caring without training (APPG, 2009). HCAs in NH1who received the most exposure to training demonstrated effective learning and significantly better performance at managing complex feeding behaviours five months post initial training compared to HCAs in NH2 whereupon competency significantly deteriorated.

The lack of competency and working practices of untrained staff is particularly evident in Clinical Oral Feeding Scenario Two, ‘Elizabeth’ characterised by oral feeding difficulties and challenging behaviours e.g. wandering, better feeding performance with familiar feeders and suspected dysphagia. HCAs who received the most training (NH1) demonstrated maintained competency evidenced by significantly greater numbers of strategies than NH2 whereas NH3 at follow up stages of training are demonstrating working practices (negative scores) that may exacerbate oral feeding difficulties. Managing residents with an end stage dementia and oral feeding difficulties characterised by ‘Ruby’ Clinical Oral Feeding Scenario Three who presented with physical impairments, reduced alertness, eating and drinking minuscule amounts and considerable weight loss was extremely difficult for HCAs across the nursing homes. Those HCAs who received training performed significantly better than control conditions with staff in NH1 performing significantly better than other experimental groups over time. Across NH1, NH2 & NH3 confusion and uncertainty among HCAs even after training is evidenced by the wide variation in responses across all nursing homes at post and follow up stages of testing. Negative and zero scores indicating poor or incorrect practice was evident in HCAs in NH3 who did not receive any training resulting in poor management and unmet needs of the person dying with an advanced dementia in nursing homes which are in effect key providers of palliation in the UK. Confusion may reflect the complexity of managing individuals with advanced dementia who are palliative, lacking advanced care planning alongside a lack of wider support services by health bodies and professionals for staff and residents in the nursing home setting (Thune-Boyle et al., 2011 & Sackley, 2009).

Recent research exploring the nature of HCA and resident relationships suggests that ‘relationship-centred care’ may be a better framework for understanding the work of HCAs in a dementia care setting rather than ‘person-centred care’ due to the complexity of the network of relationships involved in caring for those with a dementia (Schneider, 2010). Several trends in HCA attitudes were evident that were consistent with themes explored in the HCA literature. HCAs placed a high value on their role of helping the resident and felt strongly that they had a good relationship with residents in their care throughout testing. HCAs across nursing homes empathized strongly with residents in their care across testing. For HCAs who received the most training (NH1), feelings of empathy with the resident with a dementia and oral feeding difficulty were significantly greater five months after training implying that training may have instilled a greater awareness of the impairments and needs of the residents in their care with a dementia.

Contrary to study hypothesis, training did not result in significant reductions in the consistently high levels of stress and guilt experienced by HCAs working with residents with a dementia and oral feeding difficulties particularly when they did not eat or drink sufficient amounts. This research highlights the personalization of care and burden experienced by HCAs working with residents with a dementia and complex oral feeding difficulties despite training (Caudill, 1989) (Grant, 1996, Proctor, 1998). The complexity of oral feeding difficulties in residents with a dementia may provide further insight into the contributing factors resulting in high staff turn-over of HCAs in dementia care settings.

Attitudes regarding the management of residents with a dementia and oral feeding difficulty were explored. HCAs were unanimously opposed to the placement of enteral feeding (percutaneous endoscopic gastrostomy) in residents with dementia in contrast to earlier studies (McCartney, 2005). HCAs in NH1 and NH2 remained strongly opposed to the procedure with control groups becoming significantly more undecided across testing. The application of recent policy procedures regarding medical management of advanced dementia to the nursing home setting (Royal College of Physicians, 2010) may account for these findings although without training the rationale for decision making is less certain, supporting evidence of lack of translation of knowledge and poor intra-professional collaboration (Kontos et al., 2009). HCAs are aware of the importance of contributing towards care planning for residents and across nursing homes they strongly agreed that they actively were involved in the process. NH1 significantly felt higher levels of agreement with the importance of care planning following training than NH2 or NH3. HCAs agreed that they were provided with sufficient time to assist the residents in their care during mealtimes to eat and drink which was in contrast to previous studies (Bertrand, 2007b). This suggests organisational barriers to care provision and delivery in the attitudes of nursing home providers.

HCAs across testing unanimously felt strongly that feeding assistance should be personalised and suit the needs of the residents. Following training, HCAs in NH1 reported significantly greater confidence levels in working with residents with dementia and oral feeding difficulties compared to those who received a stand-alone three hour training programme (NH2) and in contrast to the ambivalence expressed by HCAs in control conditions (NH3).

Several daily care practices were shared by HCAs across nursing homes providing further evidence of their role as providers of direct care in dementia settings and crucial role in assisting residents with oral intake (Chang & Roberts, 2011 & Schneider, 2010). HCAs frequently provide feeding assistance whilst sitting down, ensure the resident is in an upright position, contribute to care plans, provide consistent feeders and always document the oral intake of residents. Following training HCAs who were exposed to the most training reported more beneficial changes in daily care practices. In NH1, HCAs were significantly more likely to make dietary modifications based on need, thicken fluids, independently promote independent feeding and provide a consistent feeder for residents when needed. By comparison the daily care routines of NH2 and NH3 remained largely unchanged as a consequence of training. HCAs in NH2 were more significantly likely to change the feeding environment of residents. HCAs in control conditions were more significantly likely to thicken fluids although several negative daily care practices became evident. Across testing these HCAs were significantly less likely to provide consistent feeders for residents or check the oral intake of residents. Reports of the daily care practices of HCAs are limited in that they do not account for the reported discrepancy between what health care providers report and what they actually do in practice (Simmons & Reuben, 2000 & Pokrywka, 1997). Nevertheless, changes in daily care routines provide positive evidence of the increasing awareness of the needs of residents in the care of HCAs.

3.8.3 HCAs as atypical learners: effective training methods

The maintained benefits following a feeding assistance programme ‘Making mealtimes better for those with a dementia’ followed by five health professional led support forums provides some clarity and direction about the delivery of training that could be provided to ensure improved knowledge, competency, reported daily care practices and attitudes of a highly varied workforce of HCAs working in a dementia care setting with residents with oral feeding difficulties. In the management of a dementia and oral feeding difficulties, Speech and Language Therapists have a pivotal consultative role in providing specialist training for HCAs to develop good feeding assistance and dementia care skills (Vitale et al., 2011). This section will explore training delivery and methods incorporated in MMB to improve the dementia care skills of a highly variable workforce of HCAs in a dementia care setting.

The three hour MMB feeding assistance programme targeted knowledge, increased awareness and management of dementia, dysphagia and the array of feeding disorders via practical sessions and practice scenarios discussed in group environments. Pictorial icons (e.g. picture of food or dining room) were used consistently to cue HCAs to associate strategies with an aspect of feeding assistance (e.g. dietary and environmental modifications). These cues were continued throughout the training and in HCA training manuals.

Health professional led support groups seem to have facilitated maintenance of HCA learning over time. This is contrary to previous literature which explored the use of peer led support groups in dementia care (Davison, 2007). Characteristic features of the HCA population such as low interest in academic learning and their marginalised role within larger multidisciplinary teams may serve as barriers to their ability to self initiate ongoing learning (Lloyd et al., 2011). The presence of a health professional during support forums may have served to facilitate, guide and support learning chosen by HCAs enabling improved awareness of dementia and oral feeding difficulties.

Video footage of residents known to the HCAs being fed at mealtimes was designed to influence care delivery directly and encourage reflective practice. This method enabled HCAs as a group to collaborate and identify individualised feeding strategies and specific skills effective to facilitating positive feeding experiences for the resident with a dementia. Following analysis of the video footages, the production of specific feeding care plans for residents with challenging oral feeding difficulties may account for significantly higher levels of competency over time in (NH1) whereas the competency of those HCAs (NH2) exposed to a one off training programme significantly deteriorated five months post training. Care plans produced by HCAs were rich with unique contributions to assessment, incorporating biographical / cultural information, individual feeding techniques and preferences subsequent to proximal familiarity with the resident. This has significant implications for dementia care where knowledge of individual preference, style, feeding preferences is critical to accurately deciphering the meaning of behaviour (Kontos & Naglie, 2009).

The MMB feeding assistance programme had several methodological training limitations. There were no opportunities to practice specific assessment and diagnostic skills on residents during meal times. This would have further served to monitor learning of the HCA's feeding assistance and techniques used. Future training will incorporate this aspect of training into the training package.

3.8.4 Summary

'Making meal times better for those with a Dementia' an innovative feeding assistance programme designed to meet the unique characteristics of the varied HCA workforce demonstrated that delivery and method of training are key components to successful improvement of knowledge, competency, attitudes and daily care practices in HCAs working with a dementia and oral feeding difficulty.

The specialist role and distinctive contribution of HCAs as key health providers is increasingly notable in the literature as is the need for substantial training programmes to develop the skills and attitudes necessary to provide excellent care to individuals with a dementia in nursing home settings (All Party Parliamentary Group, 2009). Research has questioned the readiness of HCAs to provide personalised dementia care and in particular to provide feeding assistance and management of those residents with an oral feeding difficulty (APPG, 2009; Simmons, 2007; Simmons, 2001). The need for feeding assistance training for HCAs to meet the challenges of this population is a priority (DoH, 2009). Although the key characteristics of this pivotal group alongside the increasing need for professional development and regulation of HCAs are apparent, the methods of improving the practice and competencies of this varied workforce regarding management of a dementia and oral feeding difficulties is less certain. The key characteristics of the HCAs in this study reflect the key characteristics of those presented in the literature base. The cohort is overwhelmingly female; they have lower levels of education, typically from Black or Ethnic Minority Groups with English as a second language, are non traditional learners and therefore require specialised engagement with training. This research provides evidence regarding the delivery of training and methods of engagement necessary to demonstrate improved knowledge, competency, reported daily care practices and attitudes of HCAs based on a substantial training programme, 'Making meal times better for those with a dementia'.

The MMB feeding assistance programme, incorporated into an ongoing training and development programme, encouraged a learning culture and reflective practice within the HCA cohort, which in turn enabled them to produce a collaborative management strategy for residents with challenging oral feeding difficulties. Training took account of the characteristics of the HCAs such as their potentially low interest in academic learning and employed less theory-based didactic teaching and instead focused on experiential and reflective learning, drawing upon the existing skills of adult learners. Visual learning materials and in particular video footage of residents known to havechallenging oral feeding difficulties encouraged collaboration and consensus among HCAs to produce highly individualised care plans promoting good dementia care with the ultimate aim of improving the lives of the individuals with a dementia.

The effectiveness of this feeding assistance programme is limited by the small purposive sample of three specialised dementia care settings. The very nature of the HCA population working with those with dementia makes it difficult to access using a randomised control trial. The selection of nursing homes based on several characteristics (containment of a specialized dementia unit, unit size, staffing and staff to resident ratio) and the large numbers of HCA participants (n = 106) aimed to compensate for shortfalls in research methodologies. Future evaluation of the effectiveness of the MMB feeding assistance programme will aim to utilise a controlled research methodology and recruit from a larger number of nursing homes across a widespread geographical location.

Due to resource limitations this study did not expand the role of nursing home management or local collaborators. The importance of management and local collaborators to ensure the effective training of HCAs cannot be underestimated in the management of advanced dementia (Department of Health, 2009 & Sackley, 2009). Institutional barriers to provision of training for HCAs were at times very challenging. The lack of support to enable HCAs to leave the 'floor' to participate in data collection and training forums plus the logistical requirements of training such as training rooms were at times almost insurmountable, and required delicate negotiations with managerial teams. Several institutional barriers preventing a learning culture and reflective practice were noted by the researchers during the course of research that merit further research. Furthermore, defining features of the HCA population, particularly high staff turn-over, served to militate against effective training interventions; a significant proportion of HCAs were lost to drop out rates and replaced by untrained personnel in the dementia care units.

HCAs exposed to the most training demonstrated increased awareness and insight to the needs of residents and were able to identify theoretically beneficial changes to the residents with oral feeding difficulties as evidenced by increased knowledge, competency and the ability to utilize these strategies into daily care practices. The outcomes of this study are novel in suggesting a substantial method of training delivery using a learning style suitable for non traditional learners, effective in sustaining improved knowledge, competency, daily feeding care practices and attitudes longitudinally whereas without continued support the results reflect the wider body of evidence in the literature base, which is that of initial improvement followed by a gradual loss of skill post training (Davison, 2007).

This study is part of continued efforts to identify and develop core competencies for HCAs caring for residents with an oral feeding difficulty in nursing homes settings consistent with their role. This project aimed to address a documented need for training in providing feeding assistance and holistic management of residents with a dementia and oral feeding difficulties by exploring innovative, effective training interventions for HCAs in nursing care facilities that can be realistically implemented and sustained with the support of nursing home management as part of a larger national accredited training programme for HCAs. This study demonstrates that given the right support HCAs can demonstrate specialised knowledge, competencies and daily care practices regarding dementia and oral feeding difficulties necessary to provide good quality feeding assistance and dementia care.

The observational component of this study will evaluate the clinical outcomes that might result from improved HCA knowledge, competency, attitudes and daily care practices to the quality of life of residents in their care particularly during feeding assistance. Furthermore the observational comment will permit analysis of the unique contribution to individualised care made by HCAs and assess whether this is conveyed back to the inter-professional team or lost as a consequence of institutional barriers to the successful translation of knowledge in care institutions (Kontos et al., 2009, Lloyd et al., 2011).

Chapter: 4 'Making meal times better for those with a dementia': a feeding assistance training programme for HCAs: the impact on residents.

4.1.1 Introduction to the observational study

The previous chapter evaluated the impact of a feeding assistance programme, 'Making meal times better for those with a Dementia' (MMB) delivered with five health professional led support forums (Nursing Home One, NH1) compared to a stand-alone three hour training programme (Nursing Home Two, NH2) and control conditions (Nursing Home Three, NH3) on the knowledge, competency, attitudes and daily reported care practices of HCAs working in three nursing homes. This chapter evaluates the impact of the feeding assistance training programme explored in Chapter Three, via observation of the quality of feeding assistance delivered to residents during mealtimes in the three targeted experimental nursing homes using a standardized feeding observational tool: Continuous Quality Improvement for Meals: An Observational Tool (CQI) (Simmons, Babineau, Garcia & Schnelle, 2002a) pre- and five months post training.

The insufficiency of mealtime assistance to residents with a dementia and oral feeding difficulties has been highlighted in the literature (Bertrand, 2007a, Schnelle et al., 2009(Simmons, 2001). MMB accompanied by five health professional led support forums is designed to provide HCAs with the necessary knowledge and competencies to deliver quality dementia feeding assistance to residents with a dementia and oral feeding difficulties. Few controlled studies aiming to improve the knowledge and competencies of HCAs in dementia and oral feeding difficulties have evaluated the impact of training on the quality of feeding assistance delivered to residents in the nursing home setting over time. This Chapter will explore the impact of the outcomes of MMB feeding assistance training programme for

HCAs working in dementia care on the actual quality of feeding assistance delivered to residents during mealtimes pre- and post training.

Observational methodologies have been applauded as a method of inspecting ‘inputs’ such as training and evaluating ‘outcomes’ such as the quality of life of individuals with a dementia (APPG, 2009). The CQI tool provides a method of inspecting the delivery of feeding assistance before training and assesses the outcomes of MMB a feeding assistance programme delivered in different formats. The primary goal of this evaluative chapter is an analysis of the ‘outcomes’ of the MMB feeding assistance training for HCAs in terms of the quality of meal time experience of the residents with a dementia and oral feeding difficulty.

CQI quality improvement for meals observational protocol is used by supervisory staff to monitor the quality of feeding assistance provided to residents as well as the accuracy of corresponding medical record documentation (Simmons, 2002). Key aspects of feeding assistance; the provision of verbal and social cues; physical assistance; environmental and dietary modifications, and duration of feeding assistance have been found to be among the key parameters crucial to improving quality of the meal time experience and improving the oral intake of residents with dementia and oral feeding difficulties until the advanced stages of dementia (Chang & Roberts, 2011, Aselage, 2009 & Bertrand, 2007). Information from the CQI observational protocol can be summarised as feeding assistance care Quality Indicator scores (QI) as a measure of nursing home performance over time.

Initial observations were made piloted in one nursing home in an East London NHS health borough. Aims of the pilot study were to establish inter-rater reliability and consensus regarding the use of the CQI observational tool and key terminology. Of particular interest was the use of the observational tool developed in American Medicare Nursing Homes and its versatility for use in UK nursing homes. As a result of the pilot study changes were made to the observational tool for use in UK nursing homes. These changes are described in Section 4.2.4.

Section 4.1.2 outlines a full description of the CQI observational tool, supporting evidence and its use in gauging nursing home wide comparative information on the quality of feeding assistance delivered to residents in nursing homes, procedures used for both pilot and principal observational studies, the changes made to the tool to suit UK nursing homes and the observational criteria used. The results presented in Section 4.3.2 (food consumption in NH1, NH2 and NH3, pre and post training), Section 4.3.3.1 (feeding assistance care processes pre and post training), Section 4.3.3 (food consumption: the influence of feeding assistance), Section 4.3.5 (quality of feeding assistance) and Section 4.3.6 (malnutrition in nursing homes) are those of the principal study; and statistical analysis of the measurements are presented in these sections. Discussion of the influence of MMB feeding assistance training programme on feeding care processes at the experimental nursing homes and those associated with malnutrition and the influence of the HCAs on feeding is included in Section 4.4.

4.1.2 Continuous Quality Improvement for meals: an observational tool

The Continuous Quality Improvement for Meals observational tool (CQI) is a time efficient, informative, observational tool that has been developed and used in multiple nursing homes allowing supervisors to collect accurate information necessary to effectively manage daily feeding assistance care delivery and monitor the accuracy of related medical record documentation (Table 10, pg. 161) (Simmons et al., 2002a). It is focused on the care processes under the direct control of HCAs (e.g. feeding assistance) as opposed to clinical outcome (e.g. weight loss) and is therefore a useful tool to monitor care provision over time, and feeding assistance care processes and to generate nursing home wide data representative of the quality of feeding assistance (Simmons & Reuben, 2000). The CQI is feasible to implement by external and internal trained observers familiar with the rules for measurement (Table 10 pg. 25) following a user support programme from The Centre for Medicaid and State Operations (Simmons, 2011). Each supervisor can observe between 5 – 8 residents at a time and residents are chosen at random. Nursing home wide observational data is obtained by joint and individual supervisor observations across all three mealtimes (breakfast, lunch and dinner) and in all locations (dining hall and bedroom) with a minimum of two sets of observations per mealtime, per location ensuring that data is representative of each of the homes.

The information generated by the CQI observational protocol can be summarised as feeding assistance care Quality Indicators (QI) scores. QI's are categorical statements that allow comparisons to be made about feeding assistance quality, permitting valid comparisons between nursing homes (Simmons, 2007). These processes can be used to evaluate care processes delivered over time. Quality indicator scores have the potential to highlight clinically significant care quality problems and efficiently summarize data into understandable quality categories for which feeding assistance can be scored as either ‘passing’ or ‘failing’ for mealtime periods, useful for making comparisons within a home over time and evaluating staff education and training (Simmons et al., 2002a). QIs allow researchers to evaluate the outcomes of the MMB feeding assistance programme delivered in three formats as it provides an objective and specific way to track changes in staff behaviour and identify the outcomes of training (Simmons, 2011).

Simmons (2007) has identified a graduated prompting protocol to promote independence and encourage residents to feed themselves (Table 9, pg. 160). This procedure guides staff members in providing adequate feeding assistance; to try simple tray set up and verbal prompts to encourage residents to eat before offering physical guidance or assistance thereby allowing staff to determine each resident’s true feeding assistance care needs.

Table 9 Summary of the descriptors for feeding assistance in the CQI mealtime observational protocol (Simmons et al., 2002a)

Column #	**Observational Definitions** **Record all types of assistance provided by any type of staff during the meal (from tray delivery to tray pick up), even if it only occurs once**	
1	Physical assistance/ physical guidance	Staff holds utensil/cup and/or helps resident to hold utensil/cup to eat or drink (e.g. aide feeds physically assists resident to feed him/herself)
2	Verbal Instruction (cueing, reminders)	A comment made by staff specifically directed toward eating (e.g. ‘pick up your spoon and take a bite’, ‘try some soup’)
3	Social Stimulation	A social comment made by staff NOT specifically directed toward eating (e.g. ‘How are you today? It’s good to see you’)
4	Supplement	Record any type of oral liquid nutritional supplement (e.g. Resource, Ensure) given with the meal and amount consumed by resident
5	Assist time	Record estimated time spent by any type of staff providing any type of assistance to encourage eating during the meal
6	Total % eaten	Calculate on a 0% to 100% metric scale estimate of food and fluids consumed
7	Medical record	Documentation of total % eaten and assistance provided by nurse aide or staff for the observed meal
8	Comments	Record resident complaints about meal service or appetite, staff offerings or substitutions for served meal or other relevant observations (e. g. refusal or food or help)

Table 10 Continuous Quality Improvement for Meals: An Observational Tool

CONTINUOUS QUALITY IMPROVEMENT FOR MEALS: AN OBSERVATIONAL TOOL

Date: ____ / ____ / _____ Begin Time: ____:____ am pm Staff Observer: ______________

Meal: ___Breakfast ___Lunch ___Dinner Location: ___ Dining Room ___ Room/Hall End Time: ____:____ am pm

Identify 4-8 residents who should receive feeding assistance (e.g., rated on MDS as requiring assistance to eat, history of weight loss).

Observe during the meal and record all information below.

	1	2	3	4		5		6		7	8	
				Supplement		**Assist Time**		**Total % Eaten**		Medical Record		
Resident Name	**Physical Assist**	**Verbal Instruction**	**Social Stimulation**	**Yes**	**Consumed**	**>5 min**	**<5 min**	**>50**	**<50**	Total % Eaten	Assistance Provided	Comments (resident complaints about meal or staff offers of substitutions?)
					oz							
					oz							
					oz							
					oz							
					oz							
					oz							

Calculate Feeding Assistance Care Process Measures Below as a Percentage (0% to 100%) for Residents Observed During This Meal:

1. What proportion of resident population is eating in the dining room? (total number in dining room(s) / total residents capable of oral intake) _____%
2. Of those who received physical assistance (column 1), how many also received verbal instruction (column 2)? _____%
3. Of the total number of observed residents, how many received at least one episode of social stimulation from staff (column 3)? _____%
4. Of those who were given a supplement (column 4. yes), how many received more than 5 minutes of assistance (column 5. > 5)? _____%
5. Of those who ate less than 50% (column 6. <50), how many received more than 5 minutes of assistance (column 5: >5)? _____%
6. Of those who ate less than 50% (column 6. <50), how many had documentation equal to or less than 60% (column 7: total % eaten)? _____%
7. Of those who ate less than 50% (column 6. <50), how many were offered a substitution (see comments)? _____%
8. Of those who had documentation assistance was provided (column 8), how many received more than 5 minutes of assistance (column 5: > 5)? _____%

Observational Definitions	Record all types of assistance provided by any type of staff during the meal (from tray delivery to tray pick up), even if it only occurs once.
Physical Assistance/Physical Guidance	Staff holds utensil/cup and/or helps resident to hold utensil/cup to eat or drink (e.g., Aide feeds resident or physically assists resident to feed him or herself).
Verbal Instruction (cueing, reminders)	A comment made by staff specifically directed toward eating (e.g., “pick up your spoon and take a bite”; “try some more of your soup”).
Social Stimulation	A social comment made by staff NOT specifically directed toward eating (e.g., How are you today? It’s good to see you. You look nice today”).
Supplement	Record any type of oral liquid nutritional supplement (e.g., Resource, High Protein Nourishment, Ensure) given with the meal and amount consumed by resident.
Assistance	Record estimated time spent by any type of staff (nurse aide, licensed nurse, feeding assistant) providing any type of assistance to encourage eating during the meal.
Total Percent Eaten	Calculate on a 0% to 100% metric using the same measurement system required of nurse aides, or other designated staff, in the facility.
Medical record	Documentation of total percent eaten and assistance provided by nurse aide or other staff for the same day and meal as observation.
Comments	Record resident complaints about meal service or appetite, staff offerings of substitutions for served meal or other relevant observations (e.g., refusal of food or help).

Table 11 CQI observational protocol, Quality Indicators, a summary of the descriptors.

Number	**Quality Indicator:**	**Score:**	**Rationale:**
1	Proportion of residents eating in the dining room	No rule	Residents report a preference to eat their meals in the dining room if given a choice. Presence in the dining room allows the staff to provide time efficient feeding assistance to small groups of residents. Dining in a common area promotes social interaction among residents and staff, which in turn stimulates food and fluid intake. Residents who eat in the dining room also receive more attention from staff, better feeding assistance care and more accurate documentation of their oral intake during meals.
2	Staff ability to provide assistance to at risk residents.	Score as 'fail' residents who eat less than 50% of their food and receive less than five minutes of staff assistance during the meal.	Inadequate feeding assistance is detrimental to residents who consistently eat less than 50% of each meal and thus are at especially high risk for weight loss and under nutrition.
3	Staff ability to document clinically significant low food and fluid intake among residents	Score as 'fail' residents who eat less than 50% of their meal based on the supervisor's observations, but who are reported by nurse aides to have consumed more than 60%.	Evidence suggests that those who consistently eat less than 50% are at a significantly higher risk for weight loss. Thus if staff document that a resident consumed more than 60% of a meal when, in fact, the resident ate less than 50% , they are likely failing to identify a clinically significant intake problem for that resident.
4	Staff ability to provide verbal instruction to resident who receive physical assistance at mealtimes.	Score as 'fail' any resident who receives physical assistance from staff during the meal without also receiving at least one verbal prompt directed towards eating. This QI can be scored only for residents who eat meals in the dining room due to the difficulty in observing directly multiple nurse aide resident interactions when the resident is eating in their room.	Studies show that verbal prompting encourages resident to eat independently and to eat more. There is growing consensus that verbal prompting alone or, if physical assistance is needed, verbal prompting that precedes and is coupled with physical assistance defines optimal feeding assistance. Research suggests that nursing home staff often provide excessive physical assistance to residents who could otherwise eat independently with just verbal prompting or encouragement
5	Staff ability to provide social stimulation to all residents during meals.	Score as 'fail' any resident who does not receive at least one episode of social stimulation from staff during the meal.	Studies show that social stimulation improves food and fluid intake, thus staff should socially interact with all residents throughout the meal. Social interaction differs from verbal instruction in that it consists of simple statements that are not specifically directed toward eating, for example, greeting a resident by name: 'Hello, Mrs Smith, it's good to see you today.' This QI can only be scored for residents who eat meals in the dining room.
6	Staff ability to accurately document feeding assistance.	Compare how nurse aides describe the provision of feeding assistance in residents' charts with the supervisor's description	This QI enables supervisors to evaluate the accuracy of medical record documentation of feeding assistance and identify strategies to prevent documentation errors. Documentation that feeding assistance was provided 'as needed,' is not sufficient as it is not informative from a quality improvement perspective.

4.1.3 The aims of the observational experiments

This project will evaluate the impact of 'Making meal times better for those with a dementia' (MMB) a feeding assistance programme delivered to a purposive sample of HCAs working in three nursing homes in three different formats: MMB three hour training programme alongside five health professional led support groups (Nursing Home One, NH1), a stand-alone three hour programme (Nursing Home Two, NH2) and control conditions (Nursing Home Three, NH3) via observation of 452 plated meal time observations using a standardized protocol to measure the quality (amount of time) and quality (presence of verbal cueing) of feeding assistance care provision at nursing home level, pre and post training.

4.1.3.1 Research questions:

The following specific research questions were addressed:

1. How do feeding assistance care processes at the nursing home level i.e. adequacy (amount of time) and quality (presence of cueing) of feeding assistance provision for residents change following delivery of different versions of MMB feeding assistance programme from one month prior to five months post training?
2. Does the total food consumed by residents in each nursing home increase following delivery of different versions of MMB feeding assistance programme: MMB with five health professional led support groups (NH1), a three hour MMB training programme (NH2) and control conditions (NH3)?
3. Has the quality of feeding assistance improved in the nursing homes as a consequence of training as evidenced by changes in Quality Indicators?
4. Are feeding assistance factors: adequacy (amount of time) and quality (presence of cueing) correlated with the risk of malnutrition?

5. Following MMB a feeding assistance intervention programme are HCAs able to identify residents at risk of malnutrition as evidenced by documentation of less than 50% of food and fluids consumed in medical documentation?

4.2 Experimental design:

4.2.1.1 Observational experiments: Method

The observational studies employ the same methodology as the principal study (Chapter Three, Method: pg. 63). A quasi- experimental, mixed design study with repeated measures is employed to test for differences between the quality of feeding assistance delivered across the three specialised dementia nursing homes for residents with a diagnosis of dementia.

4.2.1.2 Pilot study:

NH1 was chosen to test the CQI observational protocol and establish inter-rater reliability among the five research staff for the observational protocol. Five members of the research team were trained in the observational form and behavioural definitions used to guide the observations using training tools and online resources from the Centre for Medicaid and State Operations.

4.2.1.3 Observational method and material

The CQI for meals: an observational tool uses a standardized observational form with definitions based on a comprehensive training initiative for supervisors (Simmons, 2011). Pre-requisites for training include the observational forms, training video Centre for Medicaid and State Operations Web-cast and a designated training person (e.g. licensed nurse or health professional).

4.2.1.4 Observation and analysis

Video footage of five residents across meal times were shown to five observers to rate independently using the observational protocol.

4.2.2 Results

Inter-observer reliability agreement between subjects was high ensuring that research staff clearly understood the data sources and scoring rules that led to conclusions about care quality before the principal site visits. Inter-observer agreement was established between research staff at a level of 90% and above for the observational protocol.

4.2.3 Discussion of results and implications for principal study

A pre-requisite to attaining inter-rater agreement is specific definitions of care quality domains and the use of standardized methods of observation to record findings (Schnelle et al., 2009). The observational protocol included specific instruction as to what defined sufficient amount of assistance (more or less than five minutes) plus what staff behaviours defined quality assistance. High inter observer agreement obtained during the pilot stage via comprehensive training ensured that the observers were able to reach agreement on quality conclusions when observing the same resident and care episode.

4.2.4 CQI for meals: an observational tool, changes for principal study

The mealtime observational protocol was developed in the USA and requires the minimum data set (MDS) assessment of food and fluid intake. The MDS assessment is a federally mandated resident assessment that nursing homes must complete for every new admission and then quarterly thereafter or whenever there is a significant change in a resident's condition. Research staff did not have access to information that would identify 'at risk' residents therefore in compliance with the observational protocol guidelines, 'at risk' is defined as low food and fluid intake (i.e. consumed <50% of served meal) based on observation.

4.2.5 Principal experiment: method

4.2.5.1 Observation methods and analysis

Meal time observations were collected from targeted nursing homes: NH1, NH2 and NH3, one month prior and five months post training by trained research staff using the modified version of CQI for Meals: an observational tool (Simmons et al., 2002a). The observational protocol required the five trained observational supervisors to observe the following aspects of mealtime assistance: a resident's total percentage eaten (foods and fluids), type of assistance provided by any home staff (e.g. verbal cueing, physical help to eat), duration of assistance (minutes) and whether an alternative to the served meal was offered by staff at any point during the meal period (Schnelle et al., 2009). In order to generate home wide data two observations per meal (breakfast, lunch and dinner) per dining area (dining room or resident's room) was necessary. Typically one observer was designated to the dining room area while another observer was designated to the hallway area outside of residents' rooms.

Home wide observational data was collected from the three nursing homes by the five members of the research team over the course of two weeks one month prior and five months post the initial training course. All researchers but one (principal researcher) was blinded to the allocation of nursing homes to training programme provision. To compensate for researcher bias the principal researcher did not collect any observations in the nursing home which received the most amount of training (NH1). A total of 452 direct meal times across the three nursing homes were observed. Both individual and paired observations were conducted across all meal time with observations lasting approximately 60 minutes per meal.

Observers selected a random sub group of residents who were physically dependent or independent eaters. Each researcher observed between 5-8 residents. Residents eating in the dining room were continuously observed throughout the meal time period, from the time of tray delivery to the time of tray pick up by HCA staff. Staff observing residents in their rooms stayed in the hallway throughout the meal period.

Researchers photographed the meal tray both before and after the meal and then compared the photos to estimate intake levels, establish inter rater reliability over time and investigate evidence of inter - rater drift. ‘Before’ photos were taken as the meal tray was placed in front of the resident and ‘after’ photos were taken as the trays are picked up at the end of each meal. The researcher identified each tray with a number, date, and the meal type before taking each photo. The before and after photos were taken for all meals observed and comprised breakfast, lunch and dinner meals to represent oral intake across all scheduled meals. Photos were taken so that volume of foods and fluids remaining in containers on the tray were visible. Before and after photographs for each meal were rated by four researchers to ensure reliable estimates.

4.2.6 Subjects:

Residents observed were recruited from the three nursing homes targeted in Chapter Three and in the care of the HCAs who had received MMB feeding assistance programme in various formats. These nursing homes were matched on the basis of containing a specialised dementia care unit, unit size and staffing to resident ratios (Table 4, pg. 70). Residents in the nursing homes had a certified diagnosis of dementia. The numbers of residents in each dementia unit varied over time due to hospitalizations or death (Table 12). A total of 452 plated mealtime observations of the residents were made, 209 pre- and 243 post training.

Table 12 Total number of residents in NH1, NH2 & N3, pre- and post observations

Nursing home	**Total number of residents**	
	Pre	Post
NH1	21	16
NH2	13	15
NH3	30	24

Table 13 Total number of plated meal observations, NH1, NH2 & NH3

	Breakfast		**Lunch**		**Dinner**		**Total**
	Pre	Post	Pre	Post	Pre	Post	
NH1	26	14	22	24	21	37	144
NH2	23	28	21	28	17	20	137
NH3	22	33	28	27	29	32	171
Total	71	75	71	79	67	89	452

4.2.7 Consent:

Approval for the study was obtained from the Essex 2 Research Ethics Committee, Reference no: 09/H0302/79. Written information about the research aims / purpose was provided to those residents deemed to have capacity or alternatively their next of kin. Consent was obtained from those residents deemed as having capacity to consent to the research. Written consent from the family members of the residents was provided in cases where residents could not consent.

4.2.8 Data analysis:

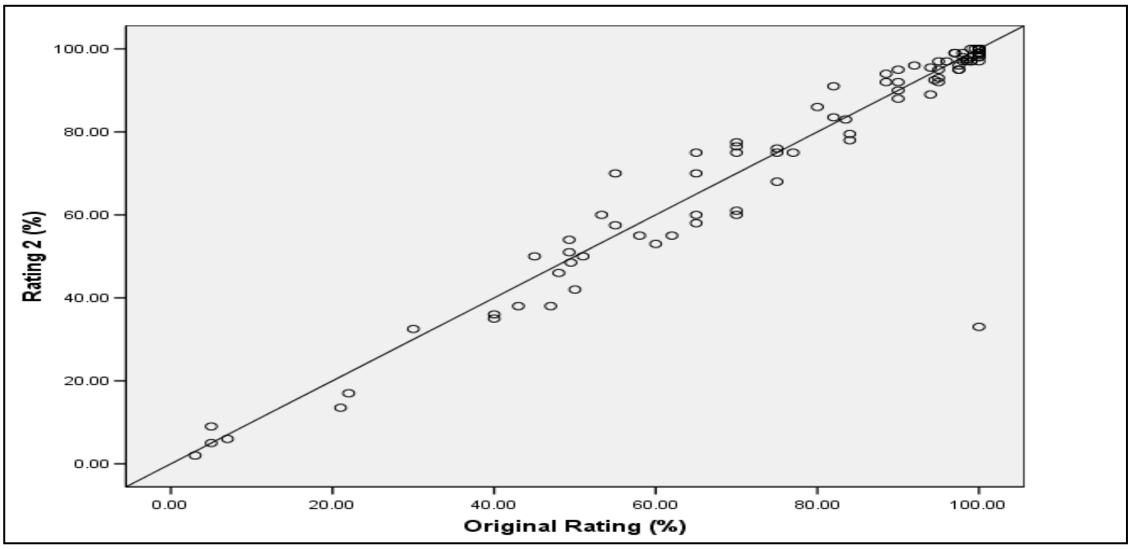
Data was analysed using SPSS version 17.

4.3 Results

4.3.1 Inter- & intra-rater reliability

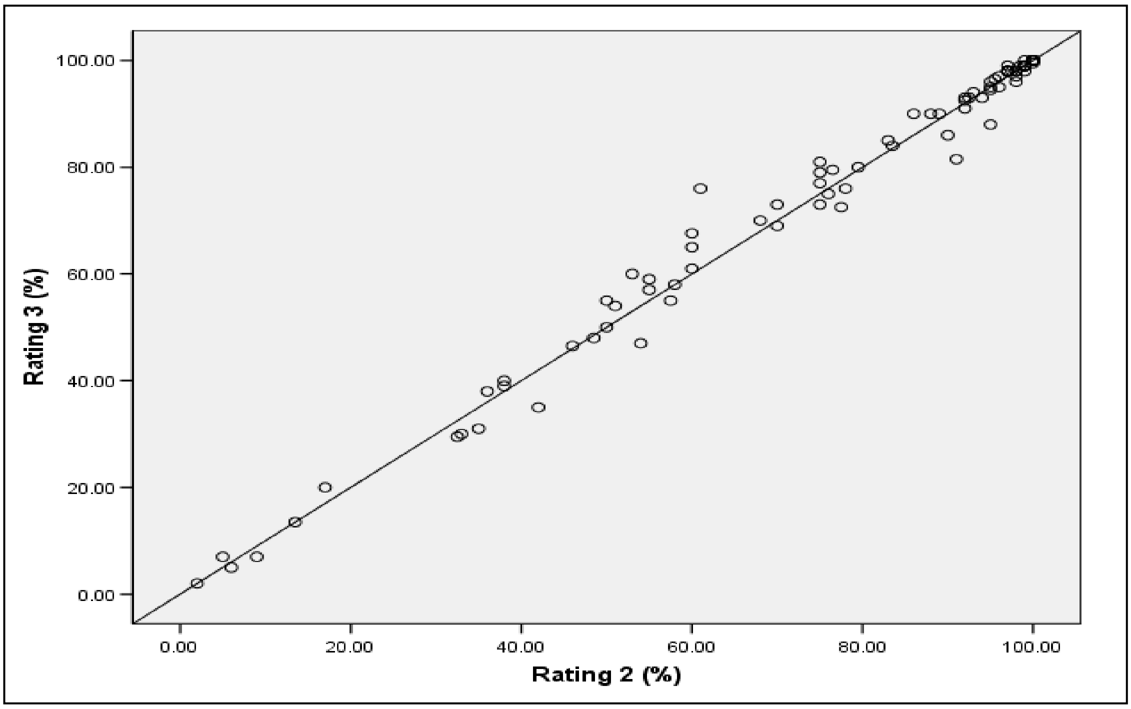
The initial percentages for amount eaten were calculated by the researcher during the meals, and photographs of the plates taken before and after the meal. These photos were coded so that they could be identified and matched with the observation but still maintain resident confidentiality. Inter-rater reliability was established by re-rating half of each set of observations (pre and post-training) ensuring that all homes, mealtimes and locations were represented in the sample. The observations were re-rated in a consecutive manner; if an observation had any missing data the next observation was taken. In total, 99 pre-training observations were re-rated and 92 post-training observations. The original ratings and the second ratings were compared to check if there was agreement between the ratings. Spearman's Correlation Coefficient was used to test the correlation. A strong correlation exists between the original and second ratings of the percentage of food consumed ($r= 0.931$, $p = 0.01$) therefore there is good inter-rater reliability of pre-training observations for the percentage of food consumed.

Figure 4-1 Correlation between original ratings and second ratings, pre- training.



The same method was repeated after one week to ensure intra-rater reliability was accurate. The results of the correlation analysis (Spearman's Correlation Coefficient) suggest another strong correlation between the second and third ratings of percentage of food consumed (r = 0.01) meaning that there is also good intra-rater reliability of observers for mealtime percentage of food consumed when estimating from photographs taken.

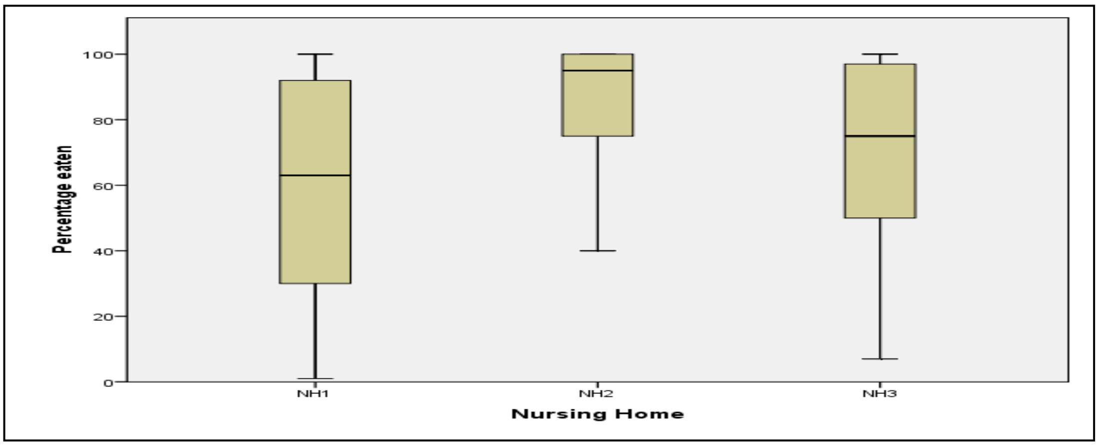
Figure 4-2 Correlation between the percentages eaten estimates of food eaten between a 2nd and 3rd rating, post training.



4.3.2 Food consumption in nursing homes: pre- and post training

The data collected across NH1 D (2) = 0.12, $p < 0.05$, NH2, D (2) = 0.25, $p < 0.05$ and NH3, D (2) = 0.13, $p < 0.05$ were all significantly non normal indicating that non – parametric methods of data analysis are warranted (Appendix 1: Data, Table 136 pg. 301). There is a significant difference (H, (2) = 23.86, $p < 0.05$) in the amount of food consumed by residents in NH1, NH2 or N3 at pre- stages of training. Mann – Whitney tests were used to follow up this finding (Appendix 1: Data, Table 137, pg. 302). A Bonferroni correction was applied and so all effects are reported at a 0.0167 level of significance. Pre- training, residents in NH2 (Mdn= 95) consumed greater amounts of food compared to NH1 (Mdn= 63.0) (U = 1131, z= -4.57, p < 0.0167, r = 0.37) and NH3 (U = 1630.5, z = -3.30, p < 0.0167, r = -0.3) (Appendix 1: Data, Table 139, pg. 303). There is no significant difference in the amount of food consumed by residents in NH1 (Mdn = 63.0) and NH3 (Mdn= 75.0), U = 2133.5, z = -2.28, *ns.* (Appendix 1, Table 140 pg. 303). It is apparent that there are systemic significant differences in the oral intake of residents from NH1, NH2 and NH3. For this reason it is not useful to compare between group differences over time, instead within group differences will be analysed for increases in oral intake over the course of training.

Figure 4-3 Boxplots total food consumption, NH1, NH2 and NH3, pre- training.



4.3.2.1 Nursing Home 1 (NH1): Food consumption, pre and post training

There is no significant difference in the amount of food consumed from pre- (Mdn = 63.0) to post stages (Mdn = 70.0) of testing in NH1, z = - 0.99, *ns*. (Appendix 1 Table 141 pg. 304). Pre training on average 58% of all meals served were consumed. Pre training, there is a higher percentage of 'at risk eaters' i.e. those residents who consume less than 50% of the meal and at risk of malnutrition, with 40% of all meals served having less than half of the meal consumed.

Post training in NH1, on average 64% of all plated meals was consumed in its entirety. Visual inspection of the boxplots suggests a greater median food consumption score, reduced variability in the total food consumed by residents with fewer counts of less than 50% of the meal eaten (25) and greater increase in the incidence of 100% of meals consumed (Figure 4-4, pg. 172). There is decrease in the percentage of at risk eaters (i.e. those residents who ate 50% of the meal or less) with 27% of meals having fifty percent or less eaten.

Figure 4-4 NH1, food consumption, pre- and post- training

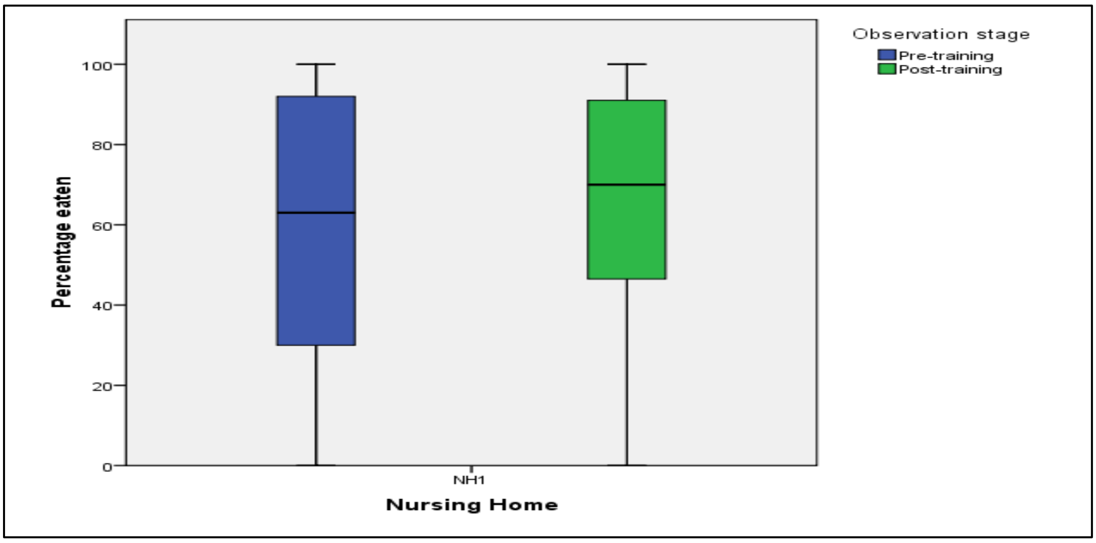


Figure 4-5 Histogram, NH1 total food consumption (%), pre- training.

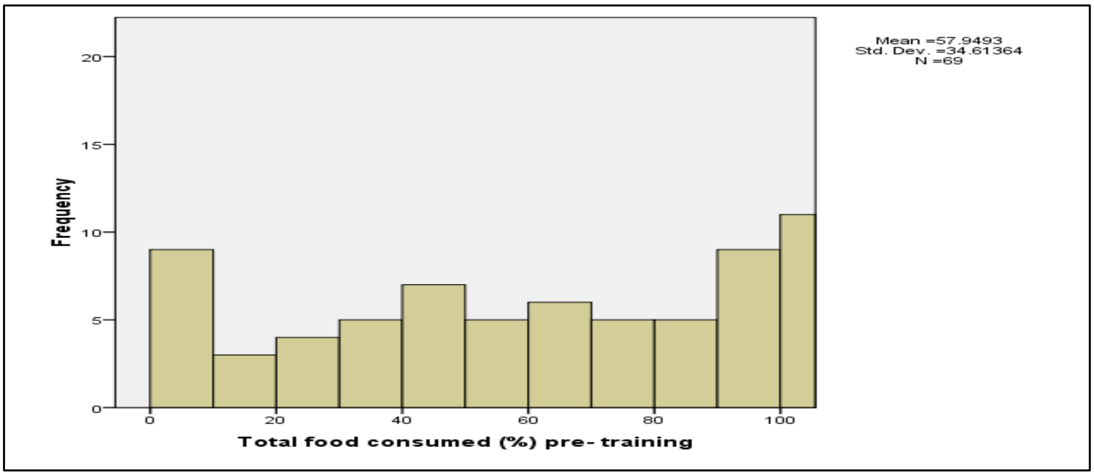


Figure 4-6 Histogram, NH1, total food consumption (%), post training.

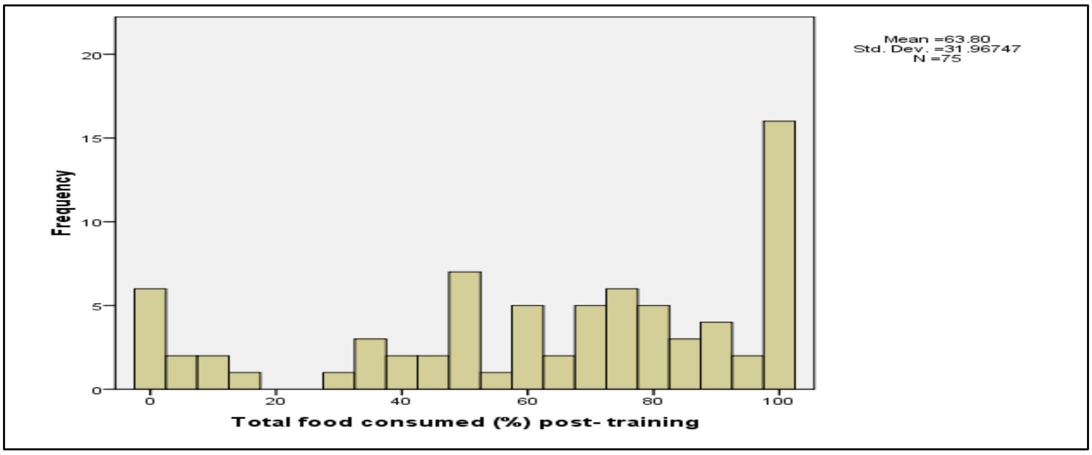
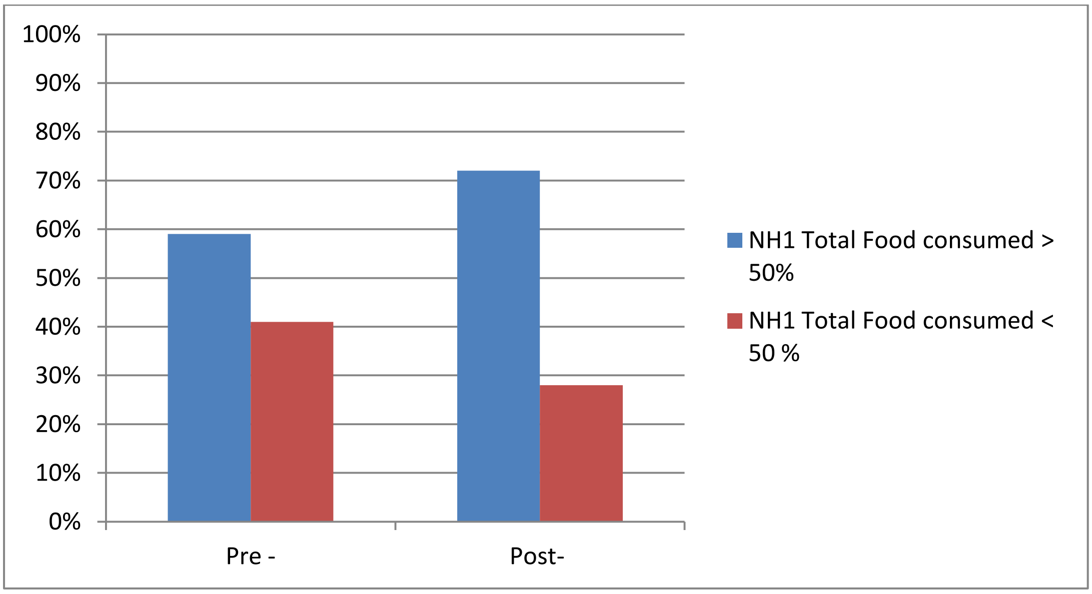


Figure 4-7 Histogram, NH1, 'at risk eaters' consuming less than 50% of meals, pre- and post training.



4.3.2.2 Nursing Home 2 (NH2): Feeding consumption, pre- and post training.

Total food consumed over the course of observations did not differ significantly from pre- (Mdn = 85.0) to post stages of observations (Mdn = 100), z = -0.5, *ns*. (Appendix 1 Table 142 pg. 305). On average across training residents consumed between 80 – 85% of meals. Oral intake of residents is fairly stable across the observation period. Post training there is greater variability in the number of people eating 60-100% as suggested by wider boxplots and more outliers, however a greater proportion of residents are completing 100% of meals. NH2 also contains several very high risk residents as evidenced by four outliers eating less than 10% of meals and the lower whisker plots extending to 20% of meal consumption.

Figure 4-8 Boxplots, NH2, total food consumption (%), pre- and post training

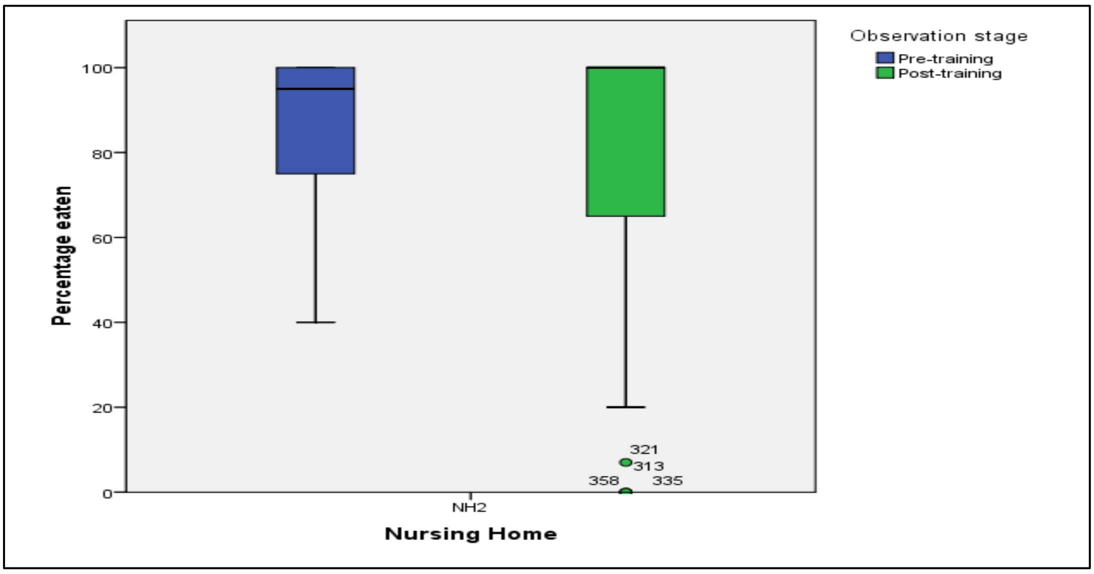


Figure 4-9 Histogram, NH2, food consumption (%), pre- training.

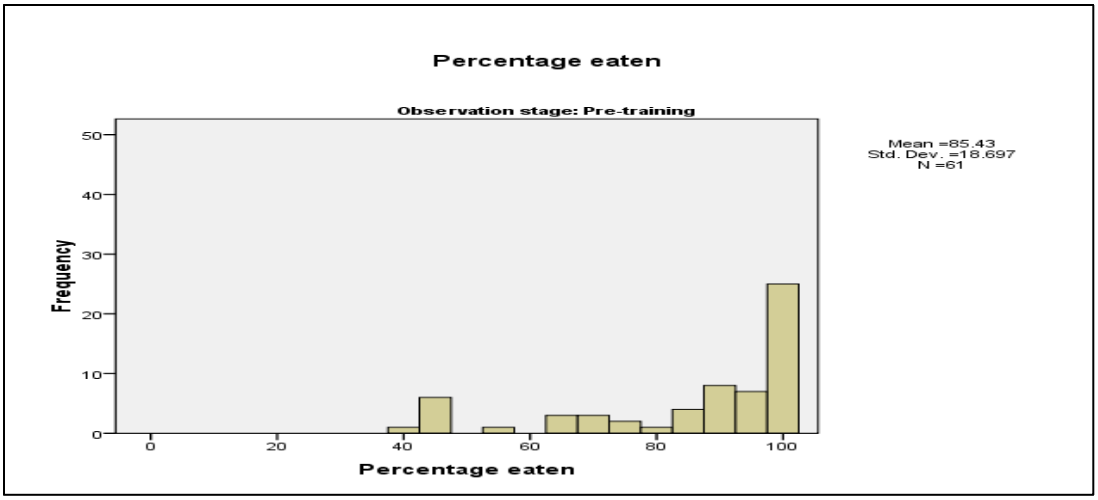
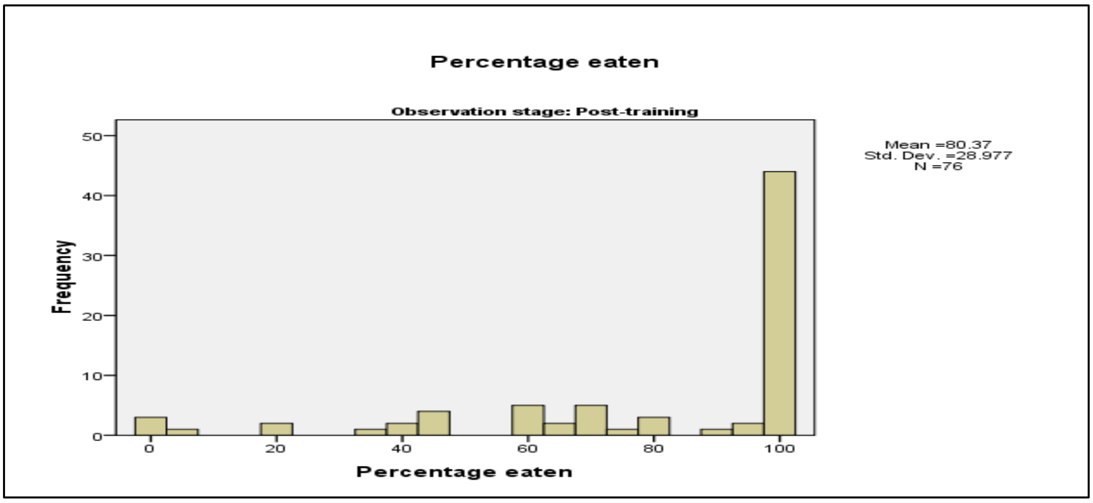


Figure 4-10 Histogram, NH2, percentage of food consumed (%), post training.



4.3.2.3 Nursing Home 3 (NH3): Food consumption, pre and post training

Total food consumed over the course of observations did not differ significantly from pre- (Mdn = 75.0) to post stages of observations (Mdn = 70), z = -0.90, *ns*. (Appendix 1: Table 143, pg. 305) Overall on average 68% of meals were consumed. Wide whisker plots suggest wide variability in the amounts of food eaten.

Pre training approximately 21 instances meals when less than 50% of the meal was eaten this had increased to 35 instances post training. Visual inspection of total amounts of food consumed suggests the majority of residents ate between 50 - 95% of their meals with greater variability and greater numbers of residents eating less than 50% of meals at post training stages.

Figure 4-11 NH3, boxplots, food consumption (%), pre & post training

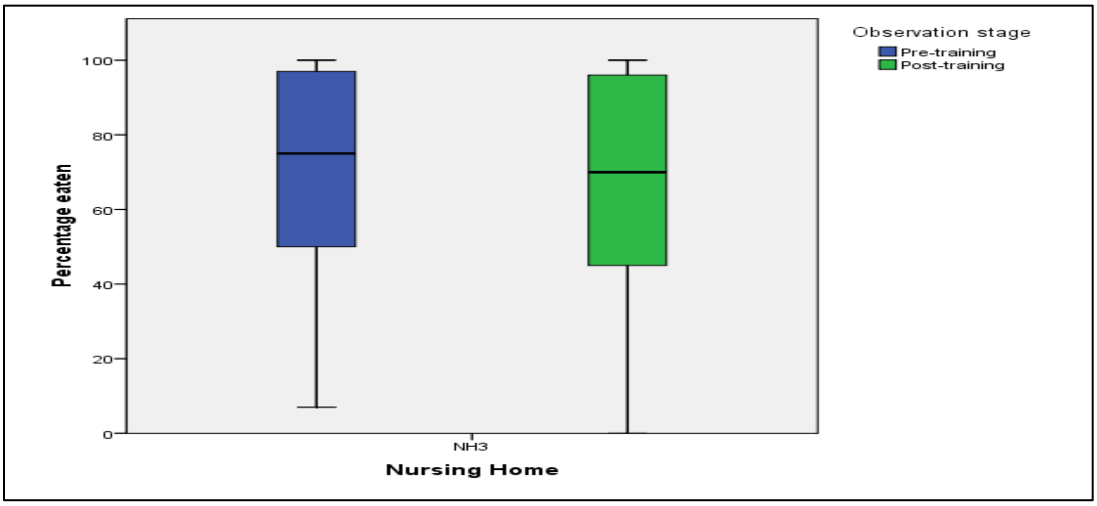


Figure 4-12 Histogram, NH3 food consumption (%), pre - training.

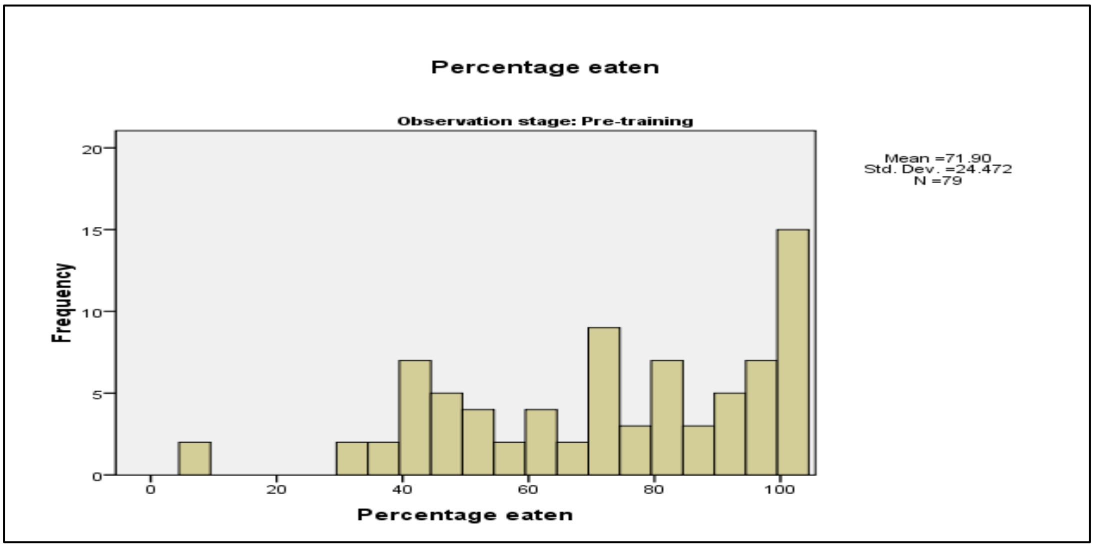
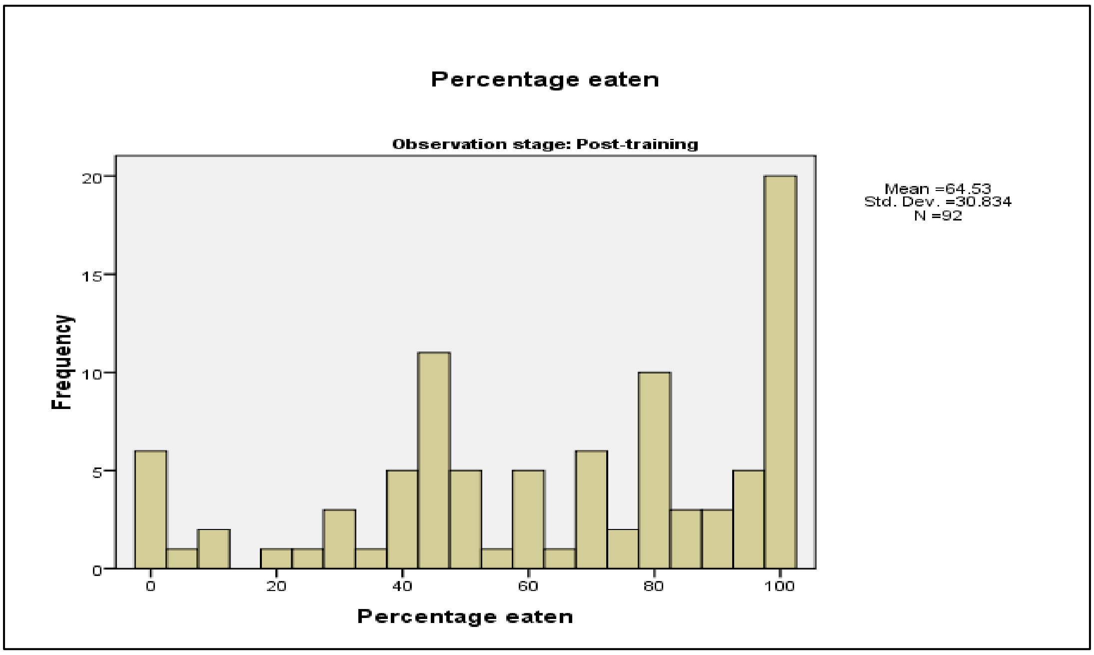


Figure: Histogram – NH3, post - training, percentage of food consumed



4.3.3 Food consumption: the influence of feeding assistance

Data from nursing homes was collated to identify any potential influence of the following feeding techniques observed on total food consumption by residents: physical assistance (PA), verbal instruction (VI), social stimulation (SS) and assistance time (AT). Spearman's correlation coefficient, r_s is a non-parametric statistic and requires ordinal data for both variables. Percentage of food consumed by residents was significantly related to social stimulation, $r_s = -.11$, $p < 0.05$ and assistance time, $r_s = -.18$, $p < 0.05$ (Appendix 1, Table 145, pg. 307).

Food consumption was significantly greater when social stimulation was provided (Mdn = 85) compared to when social stimulation was not provided (Mdn = 73.5), z = -2.4, $p < 0.05$, r = -0.12 (Table 144, pg.306). Furthermore, food consumption was significantly greater when more than five minutes of assistance time was provided (Mdn = 84) than less than five minutes (Mdn =74), z = -2.5, $p < 0.05$, r = -0.12 (Table 145, pg.307). Physical assistance, z = -1.5, *ns*. and verbal assistance, z = -1.46, *ns.* did not significantly impact the total food consumption of residents (Table 146 & Table 147, pg.308).

Figure 4-13 boxplots, food consumption (%) with and without social stimulation

Figure 4-14 Boxplots, food consumption (%), assistance time; more and less than five minutes.

Figure 4-15 boxplots, food consumption, with and without verbal stimulation

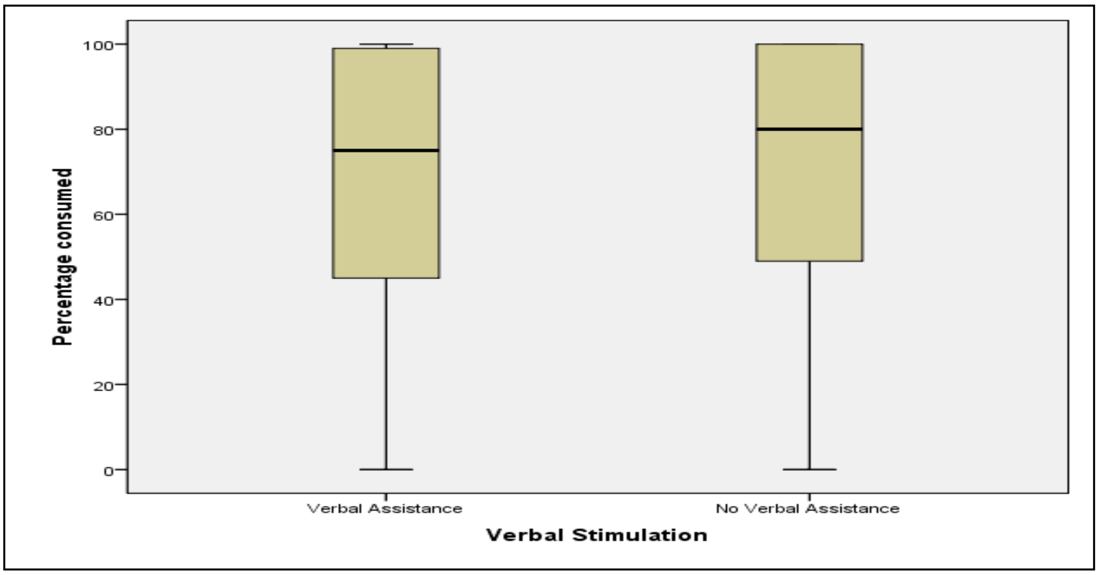
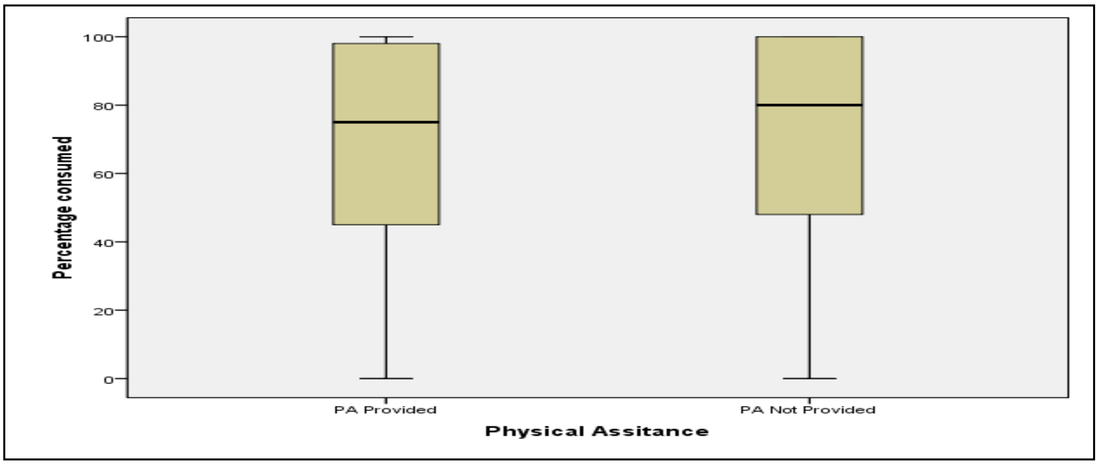


Figure 4-16 Boxplots, food consumption (%) with and without physical assistance.



4.3.3.1 Nursing home one (NH1): feeding assistance care processes: pre and post training.

Several beneficial changes in the adequacy and quality of feeding care processes delivered to residents by HCAs were evident in NH1 following delivery of MMB a feeding assistance programme alongside five monthly sixty minute support training forums.

Pre- training, residents were receiving insufficient physical assistance (actual count = 36, expected count = 42) with approximately 52% of residents receiving physical assistance at meal times (Table 148, pg. 309). Residents were receiving expected amounts of verbal assistance (count = 50 expected count = 50.3) with approximately 71% of residents receiving a verbal cue at mealtimes (Table 149, pg.310). Approximately 70% of residents received less than five minutes of feeding assistance at meal-times. Residents received more than expected social stimulation at meal times with 51% of residents receiving a social cue at mealtimes (count = 35 expected count = 26.8) (Table 150, pg. 311).

Post training, residents received significantly greater amounts of physical assistance, (actual count = 52, expected count = 46) $\chi^2\,(1) = 4.5$, $p < 0.05$ with 68% of residents receiving physical assistance at mealtimes (Appendix 1, Table 148, pg. 309). Residents received significantly greater assistance time from HCAs during meals at post stages of testing (i.e. greater counts of more than five minutes of assistance) $\chi2\,(1) = 2.67$, $p < 0.05$ with 55% of residents receiving more than five minutes of feeding assistance at meal times. Observations suggest that HCAs in NH1 post training are demonstrating increased recognition of residents at risk of low oral intake and are actively targeting this vulnerable population for increased feeding assistance.

There is no significant difference in the amount of verbal instruction provided pre and post training in NH1, χ^2 (1) = 0.01, *ns* (Appendix 1, Table 149, pg. 310). Residents were provided with high levels of verbal stimulation approximately 70% of the time (pre and post training). The levels of social stimulation provided to residents at mealtimes significantly decreased from pre to post stages of training, χ^2 (1) = 0.01, p < 0.05 (Appendix 1, Table 150, pg.311). Analysis of the data reveals HCAs under-performing, with 28% of residents receiving an observed instance of social stimulation (count = 21 expected count = 29.2).

The data reveals that in NH1 feeding assistance care process changed significantly over the course of observations with HCAs selectively targeting those residents at risk of malnutrition providing significantly greater duration of assistance and physical assistance. Feeding in the nursing home seems to adhere to a task based approach to care with less than 50% of residents receiving social cueing pre- training. Training may have inadvertently exacerbated the task approach to care with significantly less social cueing provided following training.

Figure 4-17 NH1, Physical assistance provided (%), pre- and post training

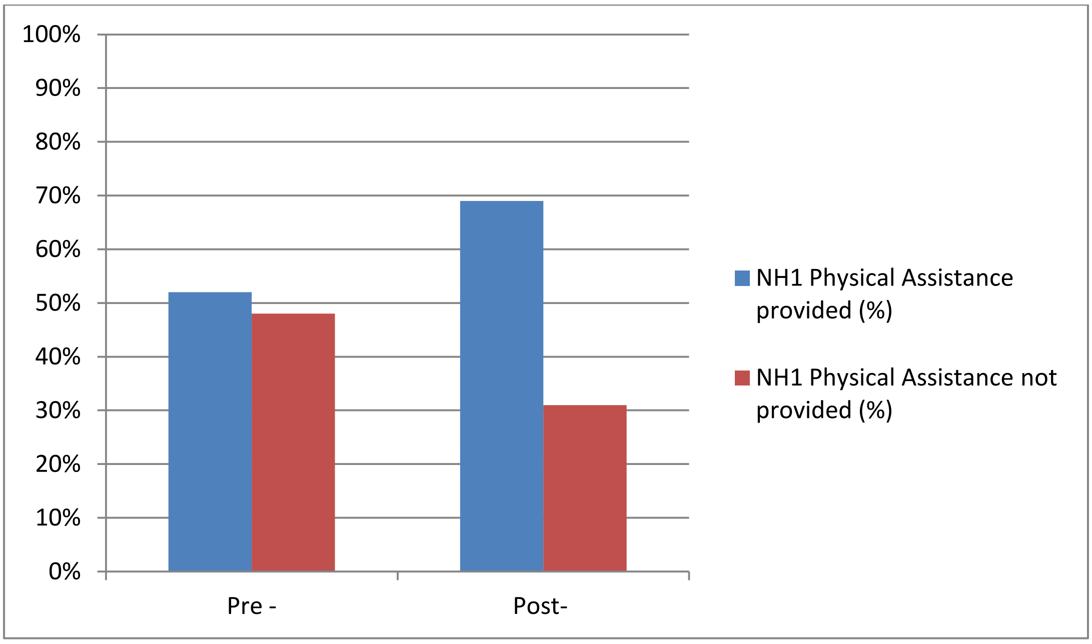


Figure 4-18 NH1, Verbal stimulation provided (%), pre- and post testing

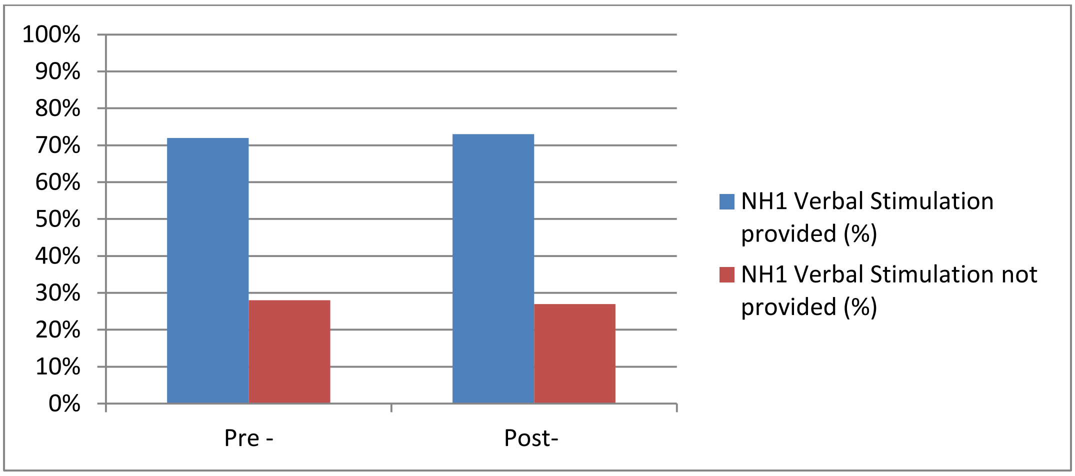


Figure 4-19 NH1 social stimulation provided during mealtimes (%), pre- and post training.

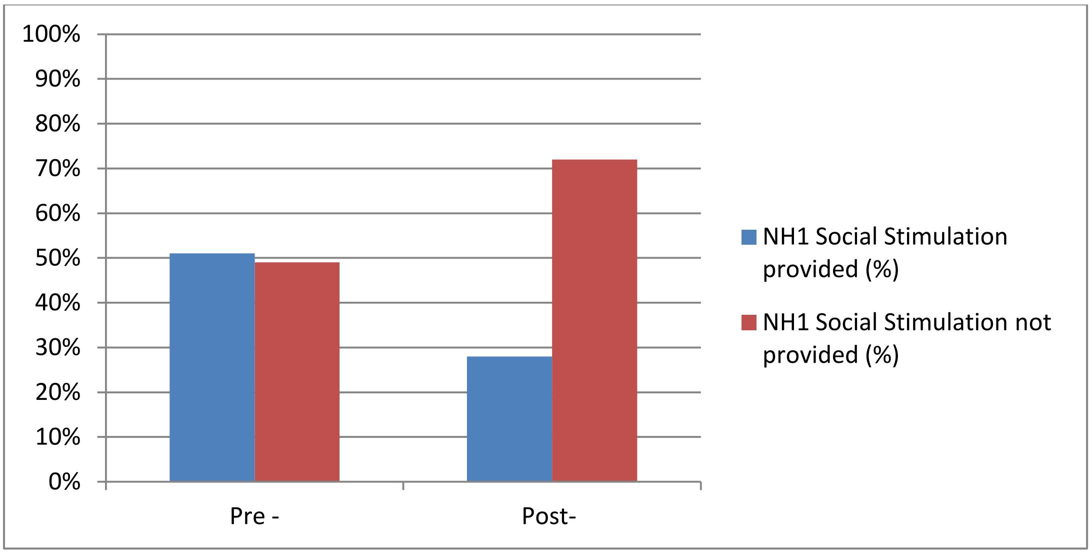
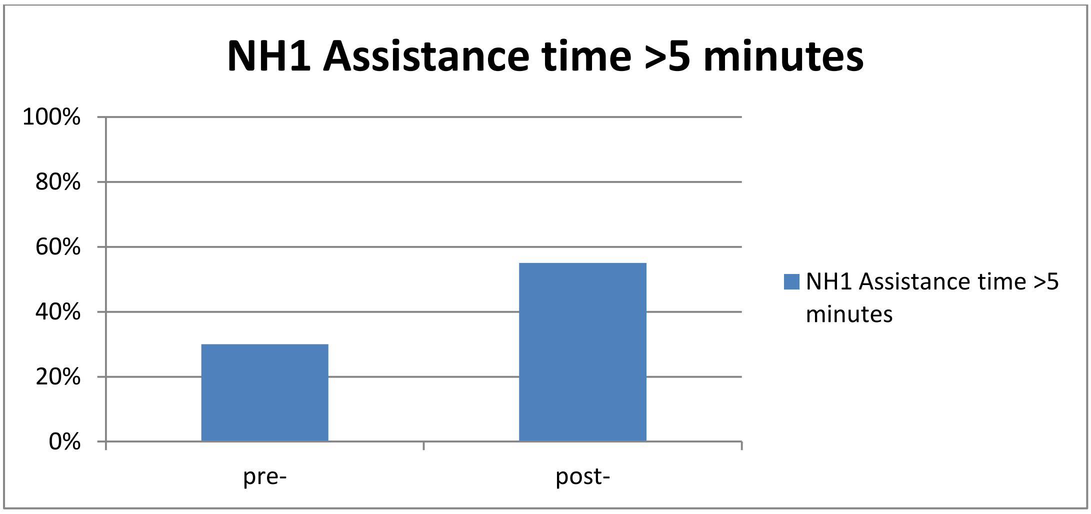


Figure 4-20 NH1, feeding assistance duration, (%) pre- and post training.



4.3.3.2 Nursing Home 2 (NH2): Feeding assistance care processes, pre and post training

In NH2, there is no significant change from pre- to post- stages of training in the observed provision of physical assistance χ^2 (1) = 0.77, *ns*. (Appendix 1, Table 151, pg. 312). Residents were provided with physical assistance for 55% of all meals across training with HCAs performing as expected (pre training: actual count = 33 expected count =33.8), post training: actual count = 43.0 expected count = 42.2). Verbal assistance was provided for residents at mealtimes approximately 60% of the time with no significant differences observed across testing, χ^2 (1) = 0.62, *ns*. (Appendix 1, Table 152, pg. 313). Again, HCAs were performing as expected, pre training: actual count = 36 expected count = 37.4, post training: actual count: 48 expected count = 46.6. There was no significant difference in the provision of social cues to residents during meal times from HCAs in NH2, χ^2 (1) = 0.50, *ns*. (Appendix 1, Table 153, pg. 314). Residents received a social cue 50-55% of the time at meal times across training again performing on target (pre-training: count = 34 expected count = 32.1, post training: count = 38, expected count = 39.9. Residents received significantly more assistance time from HCAs post training χ^2 (1) = 5.2, $p< 0.05$ (Appendix 1,Table 154, pg. 315). Pre training HCAs were underperforming providing less feeding assistance than expected (count = 25 expected count = 31.6). Post training HCAs were considerably over- performing providing significantly greater counts of more than five minutes of feeding assistance to residents (count = 46 expected count = 39.4).

The data reveals that in NH2 feeding assistance care process remained largely stable over the course of observations however post training residents received significantly greater feeding assistance time.

Figure 4-21 Physical assistance provided at mealtimes (%) pre- and post training.

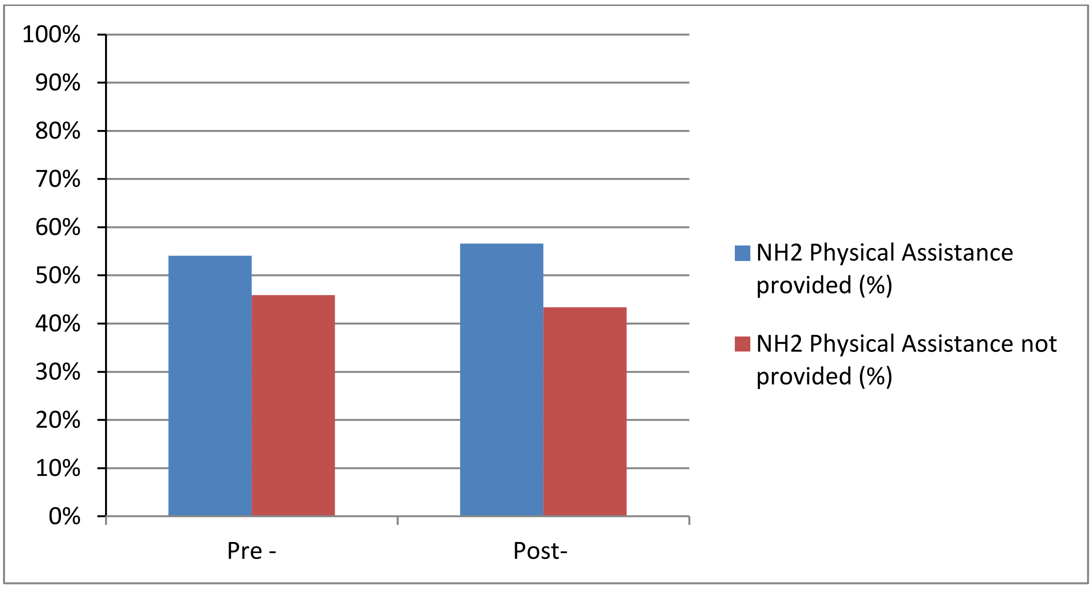


Figure 4-22 NH2 Verbal stimulation provided at mealtimes, pre- and post training

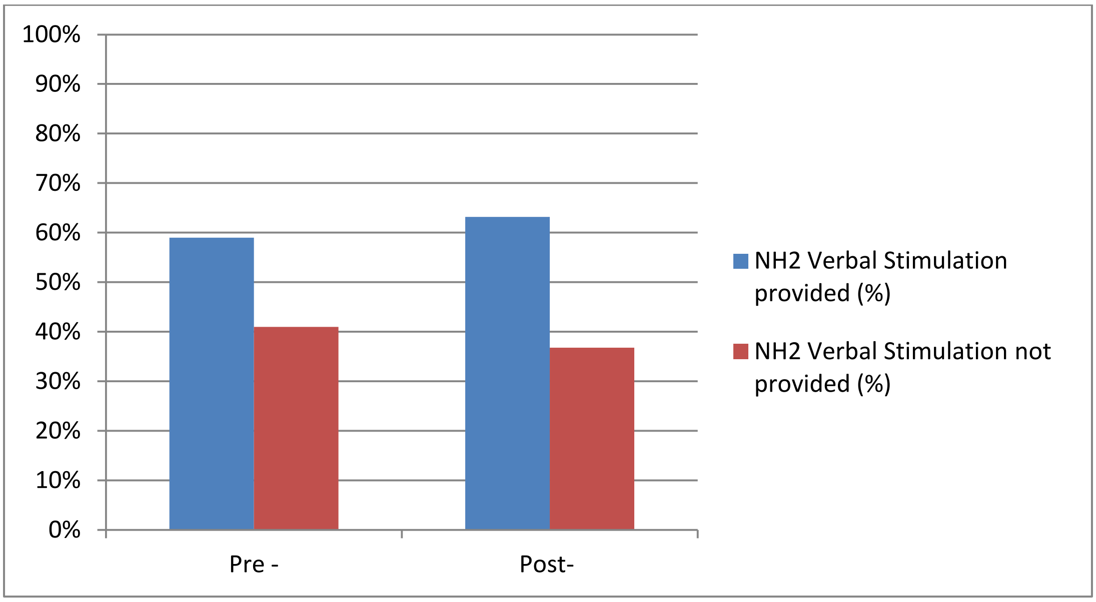


Figure 4-23 NH2, social stimulation provided at mealtimes (%), pre and post training.

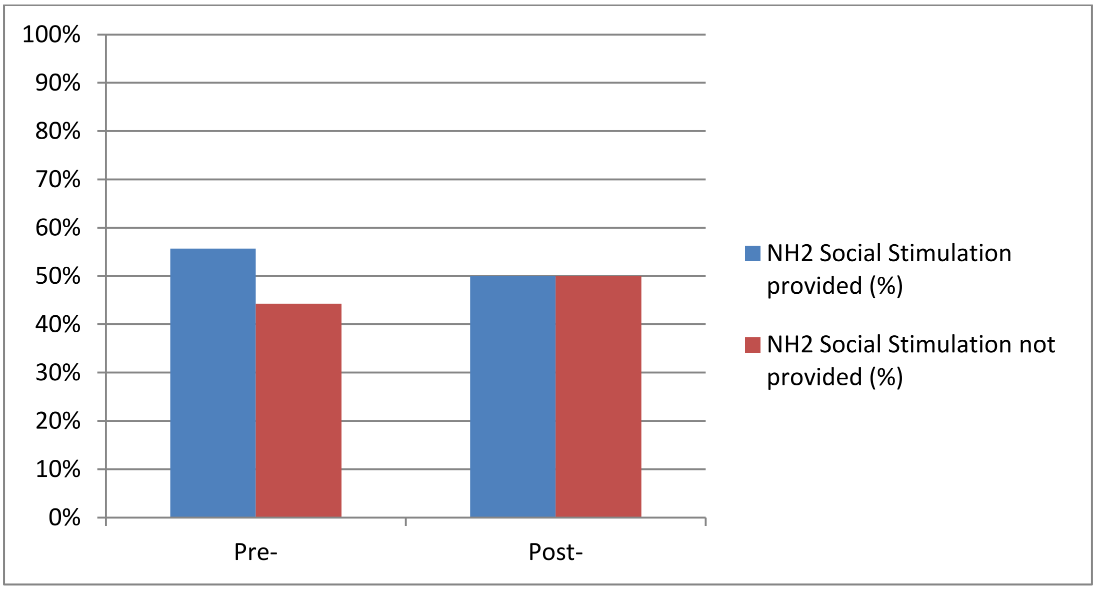
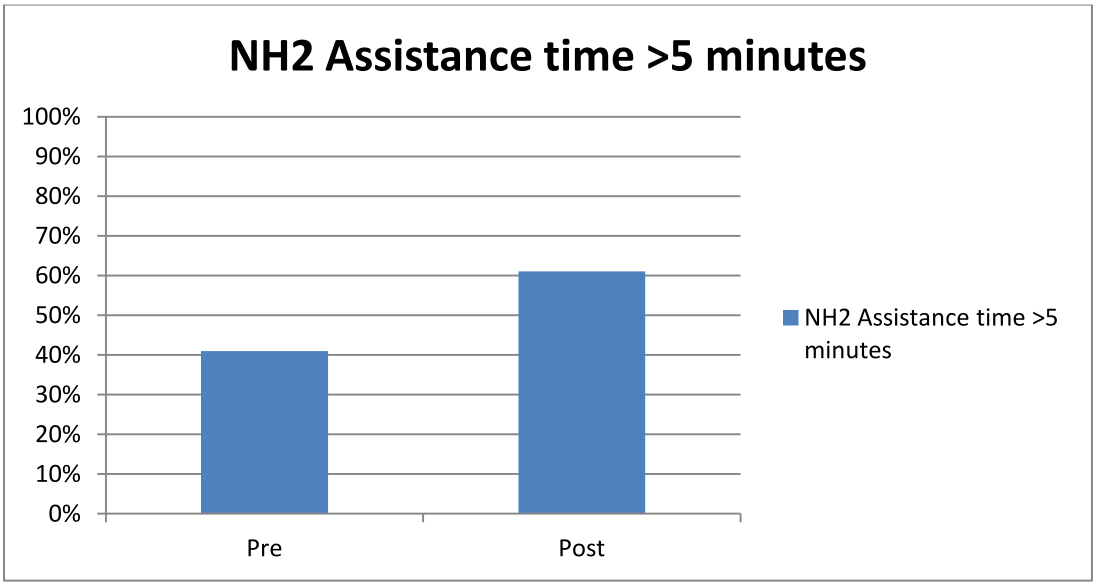


Figure 4-24 NH2, assistance time at mealtimes, pre- and post training



4.3.3.3 Nursing Home 3 (NH3): Feeding assistance care processes, pre and post training

Several changes in the feeding care processes delivered to residents by HCAs in control conditions (NH3) were observed. Pre- training HCAs provided 40% of residents with physical assistance during meal times (actual count: 32, expected count: 42) a significant underperformance (Appendix 1, Table 156, pg. 317). They provided adequate counts of verbal stimulation (actual = 38, expected count = 39) with residents receiving a verbal cue at 48% of meal times (Appendix 1, Table 157, pg. 318). Only 19% of residents received a social cue during the meal time, again HCAs are underperforming (actual count = 15 expected count = 18) (Appendix 1, Table 155, pg. 316). Residents were receiving insufficient amounts of feeding assistance time from HCAs with only 19% of residents receiving five minutes or more of assistance time, (actual count = 15 expected count = 24) (Appendix 1, Table 158, 319).

At post stages of observation testing, 63% of residents received physical assistance at meal times at post stages of observation. There is a significant increase in the amount of physical assistance provided to residents, $\chi^2(1) = 8.7$, $p < 0.05$ with HCAs providing excessive physical assistance (actual count = 58, expected count = 48) (Appendix 1, Table 156, pg. 317). HCAs provided sufficient levels of verbal stimulation to residents during mealtimes (actual count = 47 expected count = 45) with residents receiving a verbal cue at 50% of mealtimes, this remained fairly constant from pre- to post- stages of testing with no significant differences detected $\chi^2(1) = 0.15$, *ns.* (Appendix 1, Table 157, pg. 318). There is no significant difference in the amount of social stimulation provided to residents during mealtimes across testing, $\chi^2(1) = 0.89$, *ns.* (Appendix 1, Table 155, pg. 316). Across testing residents in NH3 received a paucity of social stimulation with only 20 – 25% of residents receiving a social cue at meal-times. Post stages of testing, HCAs were providing significantly greater duration of feeding assistance with residents receiving significantly greater counts of five minutes or more of assistance, χ^2 (1) = 0.89, $p < 0.05$, (actual count = 37 expected count = 28) (Appendix 1, Table 158, pg. 319). Accounting for the significant increase in feeding assistance only 40% of residents received five minutes or more of feeding assistance from HCAs in NH3.

Figure 4-25 NH3 Physical assistance provided (%) pre and post training.

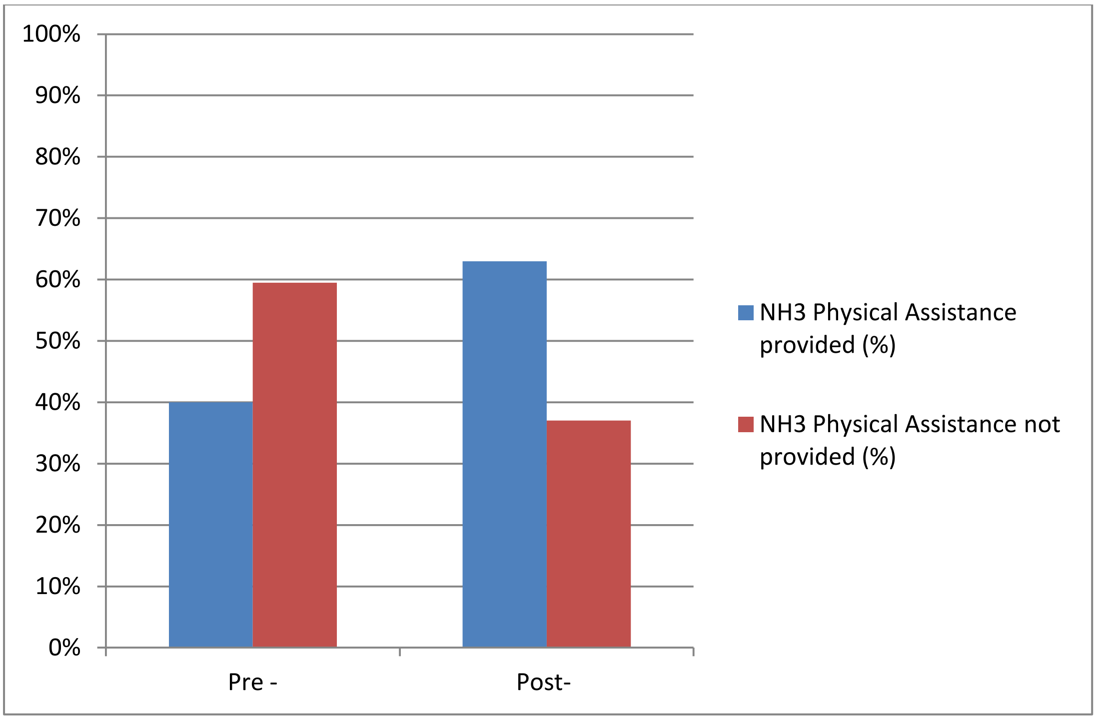


Figure 4-26 NH3, Verbal stimulation provided (%), pre and post training.

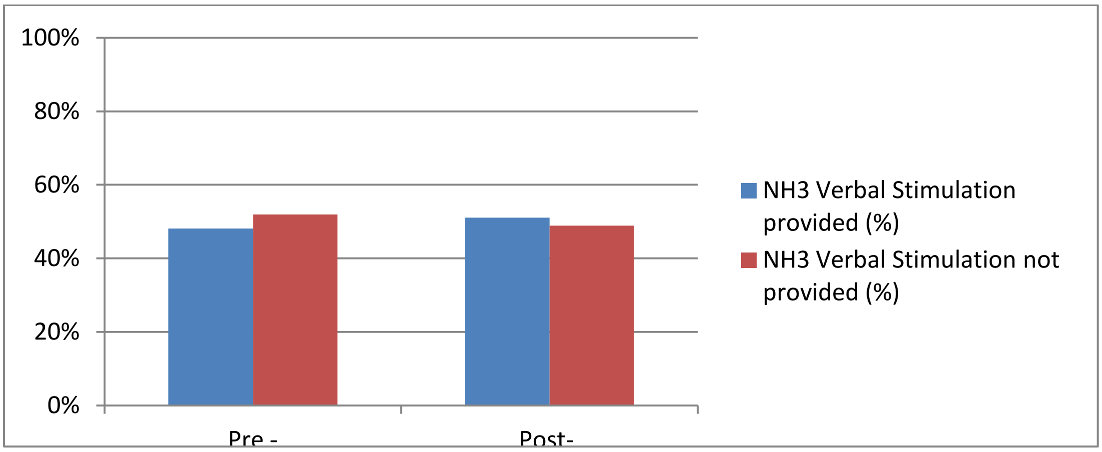


Figure 4-27 NH3 Social stimulation provided (%) pre and post training

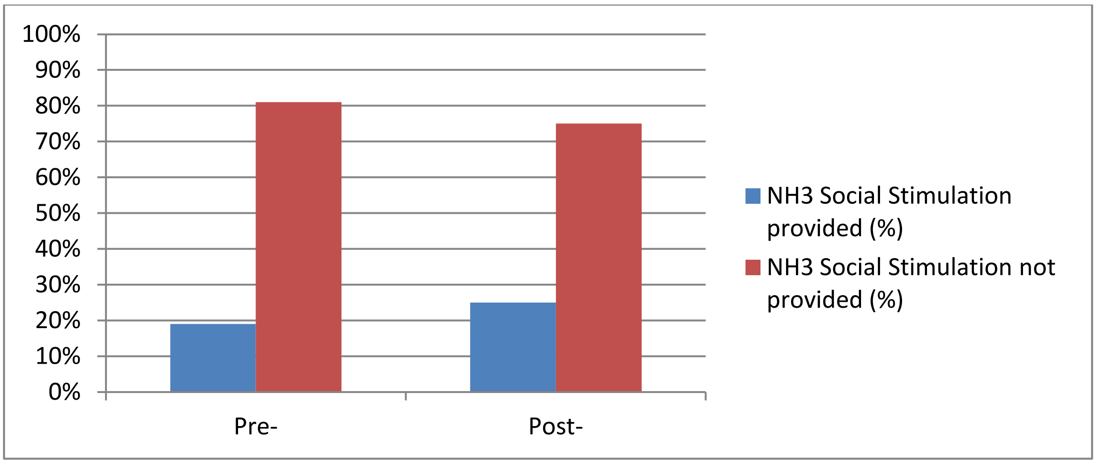
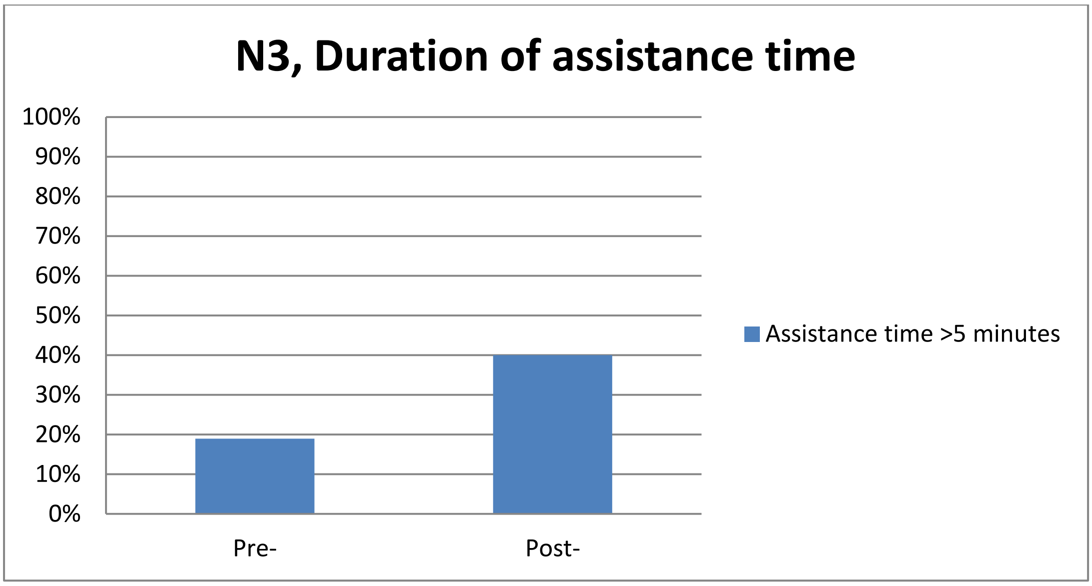


Figure 4-28 NH3 Assistance time provided more than five minutes (%), pre and post training.



4.3.4 Quality of feeding assistance: Quality indicators, NH1, NH2 & NH3

Table 14 shows the results for the six feeding assistance continuous QI measures comparing NH1 (144 resident meals), NH2 (137 resident meals) and NH3 (171 resident meals) pre- and post- training, using proportion and frequency analysis (percentage who met the criteria for each measure).

Table 14 Comparison of percentages of feeding assistance care quality indicator scores between NH1, NH2 & NH3

Feeding Assistance Quality Indicator	NH1 (n = 144) resident meals		NH2 (n = 137) resident meals		NH3 (n = 171) resident meals	
	Pre training (n = 69) resident meals	Post training (n = 75) resident meals	Pre training (n = 61) resident meals	Post training (n = 76) resident meals	Pre training (n = 79) resident meals	Post training (n = 92) resident meals
1. Proportion of resident population eating in the dining room?	52 % (36)	65 % (49)	38 % (23)	41% (31)	91% (72)	86% (79)
2. Resident eats less than 50% of meal and receives less than five minutes of assistance	33 % (23)	17 % (13)	11% (7)	9% (7)	22% (17)	23% (21)
3. Resident eats less than 50% of meal and nursing notes document equal to or more than 60% of food consumption	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
4. Resident receives physical assistance without verbal cue	12% (8)	20% (15)	18% * (11)	9 %* (7)	19 % (15)	24% (22)
5. Resident receives no social stimulation from staff during meal	49% (34)	72% (54)	44% * (27)	50%* (38)	81% (64)	75% (69)
6. Staff accurately documents oral intake and feeding assistance provided	3% (2)	0% (0)	2% (1)	0% (0)	0% (0)	0% (0)

Notes: Data are a percentage of (*n*) or resident meals. NH1 = Nursing home one; NH2 = Nursing home; NH3 = Nursing home three. *indicates residents observed in the dining room and not the residents rooms.

4.3.5 Feeding Assistance Quality Indicator Scores:

4.3.5.1 Feeding Assistance Quality Indicator Score One:

In NH1, a greater proportion of residents are eating in the dining room post training, (pre testing: 52%, post testing: 65%). In NH2, across training the majority of residents ate in their bedrooms (approximately 60%). Almost all residents in NH3 across training ate in the dining room (85-90%). NH1 demonstrated improvements in Quality Indicator (QI) no. one over time.

4.3.5.2 Feeding Assistance Quality Indicator Score Two:

Post training, HCAs in NH1 identified and spent more time providing help to residents at risk of malnutrition (i.e. those residents who consumed less than 50% of meals), pre training = 33%, post training: 17%. Across training HCAs in NH1 provided significantly more physical assistance and assistance time duration suggesting that they are actively targeting ‘at risk’ residents with low oral intake. In NH2, there is no change in QI Two across observations with approximately 10% of at risk residents receiving less than five minutes of assistance. In NH3, the care process measure remains unchanged with approximately 20% of residents who eat less than 50% of the meal receiving less than five minutes of assistance.

4.3.5.3 Feeding Assistance Quality Indicator Score Three and Six:

HCAs across NH’s are comparable on Quality Indicators (QI) requiring documentation of oral intake (Quality Indicators: Three and Six). HCAs constantly failed to adequately document oral intake, type of assistance provided and identify residents who ate less than fifty percent of meals across all observations. Oral intake was rarely documented.

4.3.5.4 Feeding Assistance Quality Indicator Score Four:

Pre training NH1 provided fewer instances of physical feeding assistance without an episode of verbal assistance (12%) to promote independent eating compared as compared to NH2 and NH3 (18% & 19%). Post training, NH1 and NH3 demonstrated an increase in the amount of physical assistance provided without verbal cues (20% and 24% respectively) whereas HCAs in NH2 rarely provided physical assistance without verbal cueing (9%).

4.3.5.5 Feeding Assistance Quality Indicator Score Five:

All three nursing homes failed to provide adequate levels of social stimulation to residents at meal times. HCAs in NH1 provided significantly fewer episodes of social stimulation per meal to residents post training (72% vs. 49%) whereas in NH2 provision of social stimulation was comparable (44% - 50%). In NH3, control conditions, lack of social stimulation remained high throughout training (81-75% of time).

4.3.6 Malnutrition in nursing homes: associated feeding assistance factors

The relationship between variables can be measured using correlation coefficients, these correlations lie between -1 and +1. Spearman's correlation coefficient, r_s, is a non-parametric statistic requiring ordinal data for both variables. Risk of malnutrition in this study was identified as less than 50% of meal consumption (Simmons et al 2002).This criterion was used to categorise the data into total eaten categories, 'at risk' = less than 50% and 'not at risk' = more than 50%. Predictor variables tested included: physical assistance, verbal stimulation, social stimulation, assistance time.

Several feeding care processes were identified as being associated with the risk of malnutrition. Assistance time of less than five minutes is significantly related to risk of malnutrition in nursing homes, $r_s = -.12$, $p < .01$. Social stimulation was almost significantly related to risk of malnutrition in nursing homes, $r_s = -.09$, *ns*. The feeding assistance techniques; physical assistance, $r_s = -.54$, ns and verbal stimulation, $r_s = -.47$ are not significantly related to the risk of malnutrition in nursing homes (Appendix 1, Table 135, pg. 301).

4.4 Discussion

This evaluation study conducted on a purposive sample of three nursing homes in one NHS borough of East London showed that the training 'inputs' of MMB a feeding assistance programme delivered alongside five health professional led support groups demonstrated the most beneficial 'outputs' to the quality of feeding assistance provided to residents at meal times as measured by improvements in two care Quality Indicators measures: QI one: eating in communal dining areas and QI two, assisting those residents at risk of malnutrition with eating and drinking. By comparison the feeding assistance provided to residents in nursing homes where HCAs were exposed to a standalone three hour MMB programme (NH2) and control conditions (NH3) demonstrated few improvements to the quality of feeding assistance. This study offers a unique insight to the outcomes of a feeding assistance programme MMB delivered to HCAs on the quality of feeding assistance delivered to residents in their care in the nursing home setting.

This section discusses findings from the observational experiments using a standardised protocol: Continuous Quality Improvements for meals: An observational tool (Simmons et al., 2002a). The basic questions addressed in the observational experiments are whether provision of MMB training in various formats impacts on feeding assistance techniques at nursing home level, resident food consumption and the overall quality of feeding assistance as measured by Quality Indicators (QIs). The ability of HCAs to identify residents at risk of malnutrition and factors associated with low oral intake will also be explored.

4.4.1.1 The influence of MMB training delivery on feeding care processes in Nursing Homes: One, Two and Three.

This section describes the impact of MMB accompanied by five health professional led support forums (NH1), versus standalone MMB training (NH2) and control conditions (NH3) on the feeding assistance (adequacy and type) delivered by HCAs to residents in their care via mealtime observations. All nursing homes including control conditions witnessed significant changes in the delivery of feeding assistance over time and significant variation was found in the adequacy and quality of assistance provided by trained HCAs versus non trained HCAs.

Observational data in this study supports the indispensible role of HCA provision of feeding assistance to help residents with a dementia to eat and drink (Chang, 2011). In this study reduced feeding assistance duration is associated with malnutrition in nursing homes and the lack of social stimulation was almost significantly associated with reduced oral intake (Appendix 1 Table 135, pg. 301). These findings are similar to that proposed in earlier research suggesting that feeding assistance factors can significantly improve the food consumption at mealtimes of residents (Simmons et al., 2002a)

Based on observation of 144 resident- meals, residents in NH1 received demonstrable beneficial changes to the adequacy and quality of feeding assistance following training. HCAs provided high levels of verbal stimulation throughout mealtimes promoting independent eating (73%). HCAs spent significantly more time feeding residents post as compared to pre- training and provided significantly more physical assistance. Research suggests that verbal prompting coupled with physical assistance defines optimal feeding assistance care (Simmons et al., 2002a, Simmons et al., 2001, Simmons & Schnelle, 2004a).

Post training residents received a significant decrease in social stimulation provided during meals (50% pre- versus 28% post training) indicating a ‘fail’ in a care Quality Indicator (QI). This may be explained by a higher proportion of residents eating in the communal dining area (QI One), 52% pre- and 65% post- training. However it may indicate HCAs are focusing on task based delivery of care and neglecting the social aspects of care which have been shown to enhance oral food and fluid intake in nursing home residents (Simmons et al., 2007).

In terms of how HCAs in NH1 respond to ‘at risk’ eaters observation reveals that HCAs are providing more concerted feeding assistance to this population thereby recognising dementia and showing insight into the associated complex oral feeding difficulties facing these residents. This is evidenced by a lower proportion of residents eating less than half of the meal and receiving less than five minutes of feeding assistance (17%) when assisted by HCAs who had received the MMB training programme and five health professional led support forums (post-training) as compared to when assisted pre- training (33%). Although total food consumption is not significantly affected in NH3 by training, there is a greater median food consumption rating, reduced variability in the total food consumed, fewer counts of ‘at risk residents’ and an increase in the incidence of 100% of meals consumed. This data is unique in demonstrating that effective inputs of training i.e. MMB feeding assistance programme for HCAs targeting feeding assistance can beneficially impact the oral intake of those residents with oral feeding difficulties and deemed ‘at risk’ of malnutrition.

There are few significant changes in the adequacy and quality of feeding assistance delivered by HCAs in NH2 who received a standalone three hour version of MMB. Feeding assistance measures: physical assistance; verbal stimulation, and social stimulation provided to residents remained largely unchanged across observations in NH2. Residents in NH2 received physical assistance for approximately 55% of meals, verbal cueing was provided at approximately 60% of meals and social stimulation at 50-55% of meal times across observations. In terms of how HCAs in NH2 responded to at risk eaters observations reveal that residents received greater feeding assistance duration post training (60%) compared to pre- training (40%) and provided more verbal prompts alongside physical assistance (QI Four) demonstrating that HCAs are actively encouraging residents to self feed. Feeding assistance does not appear to be targeted at low risk eaters but rather to the entire cohort, suggesting a limitation of training.

A high proportion of residents in NH2 ate their meals in their bedrooms (60%) as opposed to the communal dining room, across mealtime observations. In NH2, residents who were physically impaired with complex needs including suspected feeding and swallowing disorders were typically fed in their bedrooms requiring high levels of 1:1 feeding assistance. This observation is reflected in the data. This high proportion of people with complex physical impairments, potential oral feeding difficulties and high physical feeding assistance requirements eating alone highlights the potential risk of isolation, reduced quality of life and the risk of a lack of recognition of potential feeding difficulties by trained health professional staff (Simmons & Levy-Storms, 2007). This is further reinforced by the finding in this study that lack of social stimulation is almost significantly correlated with the risk of malnutrition. Despite training, in NH2 consistent ‘failure’ of Quality Indicator One highlights a failure of HCAs and management staff to individualise feeding assistance and consider the influence of established care practices on residents’ dining location preferences. Communication skills and rapport with residents are crucial in the personalisation of care for residents with dementia and illuminate the need for holistic training in dementia care skills incorporating communication skills alongside those of dysphagia and feeding difficulties and other care skills core to the professional development of HCAs (Bryan, 2002).

In NH2 residents consumed significantly greater amounts of food compared to NH1 and NH2 but food consumption did not increase over the course of training. Factors such as increased lower resident numbers on the unit, higher ratio of staff and smaller resident numbers may account for the systemic differences in oral intake between nursing homes. The quality and adequacy of mealtime assistance remained largely unchanged across observations in NH2 and failed to improve feeding assistance quality for residents, tending to confirm the limited impact of a standalone training package in influencing practice, and supported by earlier evidence in the literature (APPG, 2009).

NH3 constituted control conditions and HCAs did not receive the MMB feeding assistance programme aimed at improving the meal time experience for residents. Several changes in feeding assistance adequacy provided by HCAs were evident although the overall quality of feeding assistance remained unchanged. Residents' total food consumption in NH3 remained stable over the course of observations with 65-70% of all meals being more than 50% consumed (pre- and post- observation). Pre- stages of observation reveal a pattern of inadequate and poor quality feeding assistance. Residents received insufficient physical assistance (count = 32, expected = 41.6) with only 40% receiving physical assistance during mealtimes. Feeding assistance when present was typically of short duration, and only 20% of residents received more than five minutes of feeding assistance at meal times. Verbal cueing was provided at approximately 50% and social cueing at 20% of mealtimes. This level of feeding assistance is in stark contrast to the relatively high percentage of residents in NH3 who are high risk eaters and receive less than five minutes of assistance (Quality Indicator Two) (20%), suggesting insufficient allocation of resources and staff.

During the course of the experiments a clinical incident alerted nursing home managers in NH3 to the importance of improving oral intake for residents as part of a drive to improve nutritional care quality. Observations revealed definite changes in the adequacy of feeding care assistance although the overall quality remained compromised. At post stages of observation residents received physical assistance at 63% of all mealtimes, a significant over-performance (count = 58 expected count = 48). This change is accompanied by a significant increase in assistance time compared to pre- observation testing, however only 40% of all residents received more than five minutes of feeding assistance time. Observations suggest residents were receiving a lot of physical assistance of short duration. Throughout observations verbal cueing (50% of mealtimes) and social stimulation (20 -25% of mealtimes) remained static. Consistent failure of QI Four (20-25% across observations) suggests residents were receiving too much physical assistance without verbal or social cues to promote independence thus providing inappropriate and non individualized feeding assistance. Despite widespread increases in the quantity of feeding assistance, HCAs were unable to identify 'at risk' low oral intake residents as evidenced by the unchanged high percentage of residents (approximately 20% across observations) who ate less than 50% of the meal and received less than five minutes of assistance (QI Two). It is likely that the corresponding changes in feeding assistance were attributable to HCAs attempting to improve the oral intake of residents in response to management initiatives. Despite significant changes in the adequacy of feeding assistance there was considerable evidence of poor practice, with HCAs failing to identify those residents with oral feeding difficulties at risk of malnutrition, providing potentially substandard feeding assistance. It is striking that without training the attempts of HCAs to improve resident oral intake were unintentionally inappropriate.

This study is novel in that it explores the outcomes of an educational initiative on residents longitudinally. Resident total food consumption did not increase as a result of feeding assistance training for HCAs, but this is not surprising. A multifaceted approach targeting food delivery and service, feeding provision and training all staff members may prove effective but this is beyond the scope of this study. A significant proportion of residents in all nursing homes are not responsive to feeding assistance (QI 2) and without training their difficulties are not recognised or managed. NH1 which received the most training input demonstrated significantly improved adequacy and quality of feeding assistance and accompanying increases in the oral intake of those residents at risk of malnutrition suggesting positive changes in staff behaviour and care delivery. Given the nature of the QI changes it is apparent that HCAs are translating newly acquired knowledge and skills in training into practice, recognising oral feeding difficulties, responding with appropriate feeding assistance and attempting to improve the mealtime environment of residents in their care.

4.4.1.2 Barriers to the provision of quality dementia care

Despite providing the majority of feeding assistance to residents across 453 observed mealtimes there are only three instances across all three nursing homes of HCAs documenting in the nursing notes the specific amount of resident oral intake and the type of feeding assistance provided, despite the observed instance of 128 (28%) of residents meals where the resident ate less than 50% of meals. The sparsity of specific feeding documentation, unaffected by training, points to underlying factors, supported by the data, such as the possible marginalised status of HCAs and the existence of possible potential institutional barriers preventing them from translating knowledge and insights from direct care into practice, thus limiting intra-professional care of the residents in dementia care settings (Lloyd et al., 2011). In turn, professional staff are not receiving valuable information from HCAs which could help to identify potentially malnourished residents at risk of low oral intake.

The omission of specific documented HCA feeding assistance observations impedes the ability of nursing home staff to formulate individualised care plans and provide advanced care planning to residents with dementia and oral feeding difficulties in the nursing home setting. This highlights the limited ability of HCAs to put into practice strategies that they have learned during training as working practices do not allow it. Further investigation into the role of nursing staff and nursing home managers in creating barriers to good practice such as inflexible daily routines and reward systems that focus on physical tasks rather than quality of interaction or outcomes for the individual with a dementia may shed light on this clear trend and breakdown in knowledge transfer from the direct care provided by HCAs to the rest of the team (APPG, 2009).

4.4.1.3 Summary:

The HCAs which were the subject of this study reflect the larger cohort of staff working in dementia care units, who provide the majority of direct care to residents with a dementia whilst not recognising dementia as a terminal illness or having any previous exposure to any dementia care training (Schneider, 2010 & All Party Parliamentary Group, 2009). HCAs who had received training 'inputs' i.e. MMB, a feeding assistance programme supported by health professional led support forums demonstrated significantly improved resident centred 'outcomes', specifically improved feeding assistance adequacy and quality, and they were also able to recognise and improve the oral intake of those residents at risk of malnutrition. This research backs earlier observational research outlining the integral role HCAs play in providing direct care to residents including essential feeding assistance and points to the marginalised role of HCAs within the multidisciplinary team in dementia care settings (Lloyd et al., 2011 & Schneider, 2010).

The results of these observational experiments provide vital insight into the essential nature and influence of feeding assistance care provision which, if not provided appropriately, contributes to low oral in-take and may exacerbate the risk of malnutrition through inadequate and poor quality feeding assistance. The interventions used in this study can be used to improve and individualise feeding assistance by enabling HCAs to recognise and identify those residents at risk of low oral intake. The observations highlighted aspects of care under the direct control of HCAs but allude to aspects of care that may be beyond the scope of HCAs i.e. medical documentation and environmental changes to feeding routines. Given exposure to MMB supported by health professional led forums, HCAs can alter the adequacy and quality of feeding assistance care which in turn can influence and contribute to oral intake in nursing home residents. However there are clearly care quality issues highlighted in the study that are beyond the realm of a training programme and may relate more to institutional and organisational barriers to change.

This small purposive sample highlights the complexity of nursing home environments and the array of factors that may influence the resident's meal time experience and alludes to barriers to promoting change in an institutional setting. Research exploring barriers to the transfer of knowledge, specifically regarding the clear trend of HCAs not documenting feeding assistance, may provide insight to the barriers that exist in effective care planning, lack of advanced care planning and institutional barriers to good dementia care in UK nursing homes. Future studies exploring engagement of nursing home managers and nursing staff at pre-stages of observation regarding quality care issues may help to influence quality improvement efforts and promote steps to promote oral intake and quality of life for residents (Simmons, 2007).

Chapter: 5 Conclusions

The first principal hypothesis outlined in Chapter Three was that a feeding assistance programme MMB supported by five, sixty minute health professional led support forums would improve the knowledge and competencies of HCAs as compared to those who received standalone MMB training and no training (control conditions). A secondary hypothesis was that training would beneficially impact attitudes and daily care practices. These hypotheses were tested in Chapter Three and the results presented in section 3.5 show that the principal hypothesis was upheld: those HCAs exposed to the most training (NH1) demonstrated significantly improved knowledge and competency in managing individuals with a dementia and oral feeding difficulties at five months post initial training as compared to those HCAs who received a one off, three hour MMB training package (NH2) and control conditions (NH3). Without ongoing supported reflective learning to develop staff skills five months after training, a significant deterioration in newly acquired learning is evident in those HCAs who did not receive ongoing supported learning. HCAs in NH1 maintained their significantly improved levels of knowledge and competency across testing. In control conditions, HCAs in NH3 demonstrated improvements in knowledge and competency over the course of testing. Significant findings were very small in effect with the gains significantly smaller in comparison to those HCAs experimental groups, NH1 and NH2. Significant gains are likely to be attributable to the Hawthorne effect and exposure to the questionnaires over time (Bowling, 2005).

The secondary hypothesis in Chapter Three was that training would serve to alleviate potential stress experienced by HCAs during difficult feeding situations. The results of this investigation presented in Chapter Three (section 3.3.2.3) show that this hypothesis is disputed. HCAs across nursing homes continued to experience high levels of guilt and stress when working with residents with oral feeding difficulties, which was unaffected by exposure to training. High levels of stress and guilt experienced by HCAs working with residents in a dementia care setting in this study are similar to the high levels of stress reported in the literature and closely correlated with high staff turnover in nursing home settings (Brodaty, 2003). Post training those HCAs exposed to the most training reported several beneficial aspects of training including greater understanding of the resident and increasing empathy to their needs. This study provides a unique insight into the challenging nature of oral feeding difficulties and the pressure felt by direct carers to ensure that residents eat and drink sufficient amounts as a potential source of stress and guilt for HCAs in the nursing home setting.

The second principal hypothesis was that daily care practices will be impacted beneficially subsequent to training. The results presented in Section 3.3.2.4 showed that HCAs who received the most training (NH1) reported the most beneficial changes to daily care practices including: promoting independent resident eating; thickening fluids; changing diet consistency as required, and ensuring feeder consistency. By comparison the HCAs in NH2 and NH3 did not report changes to daily care practice routines.

It can thus be concluded that the feeding assistance programme, ‘Making meals better for those with a dementia’ supported by five, sixty minute health professional led support forums has been shown to improve and support HCA knowledge and competencies and impact aspects of attitudes and daily care practices beneficially five months post training. This research outlines the insufficiency of half day training courses in isolation supporting earlier findings that duration of training is key and that one off training programmes are of limited benefit long term without supportive mechanisms to promote reflective practice and ongoing learning (APPG, 2009 & McCartney, 2005).

The first principal hypothesis concerns an inspection of the ‘inputs’ of training i.e. the knowledge and competencies necessary to support learning in non-traditional HCA populations working in a specific dementia care setting. The second principal hypothesis concerns an evaluation of the outcomes of the feeding assistance programme MMB, specifically the adequacy and quality of feeding assistance delivered by HCAs to residents in their care at mealtimes. This second hypothesis was tested using a standardised mealtime observational tool, Continuous Quality Improvement for meals: an observational tool (Simmons et al., 2002a) a method of analysis applauded for assessing the strengths and weaknesses of staff feeding practices and enabling informed decision making regarding the effectiveness of inputs, specifically staff training.

The first principal hypothesis outlined in Chapter Four was that the feeding assistance programme MMB supported by five health professional led support forums delivered to HCAs would improve the adequacy and quality of feeding assistance experienced by residents in the care of targeted HCAs at mealtimes. The results of this observational investigation outlined in Chapter Four section 4.2.2 show that this hypothesis was upheld. HCAs who received the most training (NH1) were shown to actively target those residents at risk of malnutrition ensuring that they received more oral intake, supported by increased physical and total feeding assistance duration.   HCAs that received a one off training programme (NH2) provided significantly more feeding assistance time dispersed non specifically across all residents suggesting a reduced level of personalised feeding assistance. In control conditions (NH3), HCAs who did not receive training and were coincidently subject to management initiatives within the nursing home to increase the oral intake of residents failed to identify those residents with oral feeding difficulties providing unintentionally inappropriate and substandard feeding assistance in the absence of training.

The results showed that those HCAs who received the most training were shown to identify residents at risk of malnutrition and provide them with more supportive and appropriate feeding assistance thereby demonstrating increased knowledge underpinning competencies, appropriate attitudes and an increased awareness of the needs of individuals with a dementia and oral feeding difficulty. This exploratory study provides insight into the specific nature of the training delivery and methods necessary to meet the learning needs of a UK based HCA cohort working with residents with oral feeding difficulties with the ultimate aim of providing quality dementia feeding assistance and care in nursing home settings

The second hypothesis in Chapter Four concerned HCA feeding assistance factors associated with risk of malnutrition in nursing homes. It was hypothesized that the risk of malnutrition is associated with HCA feeding assistance techniques such as physical assistance, verbal cueing, and social cues. The results presented and discussed in Sections 4.2.2 show that this hypothesis was supported at the level of significance in the case of one of the feeding assistance techniques, which was reduced duration of feeding assistance, and that it approached significance in relation to lack of social stimulation. The provision of physical assistance is not a feeding assistance risk factor associated with malnutrition which tends to confirm the complex nature of feeding assistance provision and the tendency of HCAs to provide physical assistance when it is not required (Simmons, 2007).

The third hypothesis in Chapter Four concerned the ability of HCAs to identify those residents at risk of malnutrition. It was hypothesized that HCAs would identify those residents who ate less than 50% of meals by documenting accurate oral intake and feeding assistance techniques in the nursing notes. This hypothesis was unanimously rejected across all nursing homes. HCAs in NH1 identified those residents at risk of malnutrition by providing directed feeding assistance and demonstrating improvement in Quality Indicator Two across testing. Despite increased insight into the needs of the residents in their care noted in observational data, there is a clear trend of HCAs not documenting resident oral intake and feeding assistance in the medical notes across nursing homes which is unaffected by training.

The clear lack of participation by HCAs in notes suggests a trend and leads to the conclusion that a barrier exists to the transfer of direct carer knowledge of the provision of individualised quality dementia care, the origins of which may lie in wider national, local or HCA organisational level. Lack of contribution to notes and care planning in this study supports recent research suggesting that HCAs are rarely approached for information, and that there is a lack of organisational support and systems in nursing homes to facilitate knowledge transfer between HCAs and health and social professionals (Caspar & O'Rourke, 2008 & Kontos, 2009). Training for HCAs is an ineffective pursuit if organisational systems are not in place to support the transfer of direct care knowledge to the wider health and social professional teams to support the needs of residents with complex oral feeding difficulties at risk of malnutrition. This evidence outlines a clear barrier to effective quality dementia care with devastating consequences that warrant further and urgent investigation. The consequences of a lack of specific HCA medical documentation across nursing homes has far reaching hazardous consequences for the quality of dementia care in nursing homes provided to residents with oral feeding difficulties at risk of malnutrition.

This study shows that an educational feeding assistance programme for HCAs, Making mealtimes better for those with a Dementia' supported by five health professional led support forums over the course of five months is effective in supporting significant improvements in knowledge, competencies and daily care practices of HCAs. The value of these training 'inputs' was demonstrated in terms of improved adequacy and quality of feeding assistance delivered to residents during mealtimes. This study shows that, when provided with a supported training programme in oral feeding difficulties in dementia, HCAs are able to identify, target and manage the oral feeding needs of people with dementia and the complex feeding and swallowing problems that are highly prevalent and a cause of death in advanced dementia. This research enhances previous research documenting the essential contribution of HCAs to the direct care of those with a dementia which is undervalued and underutilised in dementia care (Lloyd et al., 2011). The improved knowledge and insightfulness HCAs demonstrated in the study went unnoticed by the larger dementia care team as evidenced by a lack of contribution to notes or knowledge exchange. Working as a HCA requires specific skills – this study is based on a conviction that minimal training in oral feeding difficulties and dementia care awareness is essential for HCAs in nursing home settings.

This research has highlighted the complex needs of individuals with dementia, dysphagia and oral feeding difficulties and the essential role of HCA's who prior to training are ill equipped to meet the needs of these residents in their care (APPG, 2009).   At present there are no regulatory systems outlined by the Commission for Social Care Inspection to ensure good care practice in nursing homes or support, review or advise on minimum standards of care and regulation of training of health care assistants in nursing homes. The APPG (2009) calls for clear guidance on the level of training that must be provided and outcomes for those with a dementia that should result from training (APPG, 2009. Pg. 43). This research has identified dysphagia and oral feeding difficulties as a particular area of focus in need of training for HCA's. Furthermore this research provides clear and specific guidance about the minimum level and type of training that is required to ensure improvements in the quality of care for residents in the care of HCA's and an inspection of the effectiveness of training in terms of staff and resident outcomes and approaches to quality of care. Given these findings it is recommended that this training programme forms the basis of a compulsory training module in oral feeding difficulties in dementia as part of a wider national core training programme for HCA's conducted by health professional in nursing homes.

Staff training is only one part of the solution to providing quality dementia care in nursing homes (APPG, 2009. Pg. 47). The researchers support the findings of the APPG (2009) that is only as part of a wider national accredited training programme specific to dementia for HCA's considering the organisational principles of nursing homes whereupon HCA's can implement what they have learned thereby removing the inconsistencies in the quality of training programmes. The researchers advocate that 'Making Meal Times Better for those with a Dementia' is incorporated as an evidenced based essential module in the development of the Qualifications and Credit Framework which it is anticipated will replace the NVQ with a new qualification dementia pathway for HCA's.

The delay in registration of care workers, and the lack of Government standards outlining the essential level of dementia care training HCAs need, are strong disincentives to any structured development programme for HCAs, and permit the continuing provision of inappropriately low levels of training (APPG, 2009). In turn there is no clarity specifying the time nursing home organisations must spend on HCA training or the most effective mode of delivery in order to obtain an acceptable change in staff behaviours and resident outcomes. In this regard, this research offers a carefully designed, evidence based solution to support the learning of HCAs and enable them to recognise the symptoms and meet the complex needs of those with a dementia and oral feeding difficulties thereby improving quality of life of residents. This research supports a learning model that supports continuous on-going learning in the workplace supported by participation in directed health professional led support forums that enable HCAs to build personal profiles of residents with complex oral feeding difficulties resulting in maintenance of skills and enhancement of' provision of feeding assistance.

Speech and language therapists can play an integral role in facilitating the development of a plan of care within nursing homes providing regulated and quality training programmes (Vitale et al., 2011). Good dementia care is reliant on well integrated training from health and social regulators to combat inconsistencies in the quality of training provision (APPG, 2009). This research is presented in support of the development of a module of training for HCAs in oral feeding difficulties as part of a wider nationalised accredited core programme of substantial training for HCAs in nursing homes with health and social collaborators. The training module, Making Mealtimes better for those with a Dementia, targeting personalised outcomes for improved quality of life, identifies relevant competencies enabling HCAs to provide quality dementia care and a makes a contribution to the curriculum and a standardised dementia care skills training package for a regulated HCA population.

Further work in certain areas would provide additional evidence to clarify some of the issues discussed here. Examination of MMB feeding assistance programme can be extended to cover a larger population of HCAs across regional and national areas and private and public nursing home sectors plus the impact of management involvement on training to see whether these factors may impact the effectiveness of training implementation and patient centred outcomes in dementia. The larger the number of parameters examined the clearer the picture will be as to which of the multiplicity of factors of feeding are under the direct control of the HCA and which are under the control of the nursing home institution. This research will promote 'kite marking' of good practice in the specialist area of dementia, dysphagia and oral feeding difficulties.

This research has contributed to the evolving evidence base surrounding the daily care practice of training for HCAs working with individuals with dementia, dispelling some of the ambiguity by identifying core competencies, effective delivery and training methods for HCAs in dementia, dysphagia and complex feeding disorders enabling the workforce to demonstrate observable care skills necessary to support people with dementia. This research also serves as a reminder and model for the Quality Care Commission, health service providers and advisory boards that developing care skills in dysphagia and complex feeding disorders in adults with a dementia is an integral component of a larger dementia training programme promoting holistic skills and supporting adults with a dementia. It is a sobering reminder that HCAs are the main providers of direct care to people with dementia yet they are provided with limited training even in specialist care setting and as this research illustrates “behind the statistics are real people who need good care and their families who need support” (APPG, 2009, pp.1).

Appendix 1: Data

Table 15 HCA, length of stay in current job, NH1, NH2 & NH3

Test Statistics[b,c]

			Length of time in current job
Chi-Square			2.222
Df			2
Asymp. Sig.			.329
Monte Carlo Sig.	Sig.		.337[a]
	99% Confidence Interval	Lower Bound	.325
		Upper Bound	.349

a. Based on 10000 sampled tables with starting seed 299883525.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 16 Total knowledge scores: tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre Total Knowledge Score	NH1	.181	30	.013	.903	30	.010
	NH2	.188	42	.001	.905	42	.002
	NH3	.203	34	.001	.874	34	.001
Post Total Knowledge Score	NH1	.160	30	.048	.917	30	.023
	NH2	.159	42	.009	.947	42	.052
	NH3	.224	34	.000	.922	34	.019
Follow up Total Knowledge Score	NH1	.159	30	.051	.911	30	.016
	NH2	.168	42	.004	.925	42	.009
	NH3	.162	34	.023	.938	34	.053

a. Lilliefors Significance Correction

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Table 17: Total knowledge scores: test of homogeneity of variance

		Levene Statistic	df1	df2	Sig.
Pre Total Knowledge Score	Based on Mean	.428	2	103	.653
	Based on Median	.358	2	103	.700
	Based on Median and with adjusted df	.358	2	96.914	.700
	Based on trimmed mean	.482	2	103	.619
Post Total Knowledge Score	Based on Mean	1.228	2	103	.297
	Based on Median	.993	2	103	.374
	Based on Median and with adjusted df	.993	2	94.086	.374
	Based on trimmed mean	1.292	2	103	.279
Follow up Total Knowledge Score	Based on Mean	4.023	2	103	.021
	Based on Median	2.325	2	103	.103
	Based on Median and with adjusted df	2.325	2	84.128	.104
	Based on trimmed mean	3.746	2	103	.027

Table 18 Knowledge scores: pre- post & follow up stages of testing

Test Statistics[b,c]

			Pre Total Knowledge Score	Post Total Knowledge Score	Follow up Total Knowledge Score
Chi-Square			1.954	29.100	48.420
Df			2	2	2
Asymp. Sig.			.376	.000	.000
Monte Carlo Sig.	Sig.		.385[a]	.000[a]	.000[a]
	99% Confidence Interval	Lower Bound	.373	.000	.000
		Upper Bound	.398	.000	.000

a. Based on 10000 sampled tables with starting seed 2000000.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 19 Total knowledge score trends, pre-, post and follow up stages of training.

Jonckheere-Terpstra Test[b]

			Pre Total Knowledge Score	Post Total Knowledge Score	Follow up Total Knowledge Score
Number of Levels in Nursing home			3	3	3
N			106	106	106
Observed J-T Statistic			2034.500	1046.500	804.500
Mean J-T Statistic			1854.000	1854.000	1854.000
Std. Deviation of J-T Statistic			166.130	169.088	169.112
Std. J-T Statistic			1.086	-4.776	-6.206
Asymp. Sig. (2-tailed)			.277	.000	.000
Monte Carlo Sig. (2-tailed)	Sig.		.278[a]	.000[a]	.000[a]
	99% Confidence Interval	Lower Bound	.266	.000	.000
		Upper Bound	.290	.000	.000
Monte Carlo Sig. (1-tailed)		Sig.	.140[a]	.000[a]	.000[a]
	99% Confidence Interval	Lower Bound	.131	.000	.000
		Upper Bound	.149	.000	.000

a. Based on 10000 sampled tables with starting seed 2000000.

b. Grouping Variable: Nursing home

Table 20 Total knowledge scores, post testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post Total Knowledge Score	NH1	30	43.63	1309.00
	NH3	34	22.68	771.00
	Total	64		

Test Statistics[a]

	Post Total Knowledge Score
Mann-Whitney U	176.000
Wilcoxon W	771.000
Z	-4.572
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Nursing home

Table 21 Total knowledge scores: follow up stages of testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Follow up Total Knowledge Score	NH1	30	46.27	1388.00
	NH3	34	20.35	692.00
	Total	64		

Table 22 Total knowledge scores, follow up stages of testing, NH1 & NH2

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Follow up Total Knowledge Score	NH1	30	47.35	1420.50
	NH2	42	28.75	1207.50
	Total	72		

Test Statistics[b]

			Follow up Total Knowledge Score
Mann-Whitney U			304.500
Wilcoxon W			1207.500
Z			-3.794
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 926214481.

b. Grouping Variable: Nursing home

Table 23 Knowledge scores over time, NH1, NH2 & NH3

Ranks

Nursing home		Mean Rank
NH1	Pre Total Knowledge Score	1.03
	Post Total Knowledge Score	2.47
	Follow up Total Knowledge Score	2.50
NH2	Pre Total Knowledge Score	1.13
	Post Total Knowledge Score	2.55
	Follow up Total Knowledge Score	2.32
NH3	Pre Total Knowledge Score	1.50
	Post Total Knowledge Score	2.29
	Follow up Total Knowledge Score	2.21

Test Statistics[a]

NH1			N	30
			Chi-Square	45.071
			df	2
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH2			N	42
			Chi-Square	54.859
			df	2
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH3			N	34
			Chi-Square	16.846
			df	2
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 24 Total knowledge scores, NH1, pre- to follow up stages of testing

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Follow up Total Knowledge Score - Pre Total Knowledge Score	Negative Ranks	0[a]	.00	.00
		Positive Ranks	30[b]	15.50	465.00
		Ties	0[c]		
		Total	30		

a. Follow up Total Knowledge Score < Pre Total Knowledge Score

b. Follow up Total Knowledge Score > Pre Total Knowledge Score

c. Follow up Total Knowledge Score = Pre Total Knowledge Score

Test Statistics[b,c]

Nursing home				Follow up Total Knowledge Score - Pre Total Knowledge Score
NH1	Z			-4.815[a]
	Asymp. Sig. (2-tailed)			.000
	Monte Carlo Sig. (2-tailed)	Sig.		.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
	Monte Carlo Sig. (1-tailed)		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1535910591.

Table 25 Total knowledge scores, NH1, pre- to post stages of testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Post Total Knowledge Score - Pre Total Knowledge Score	Negative Ranks	1[a]	2.00	2.00
		Positive Ranks	29[b]	15.97	463.00
		Ties	0[c]		
		Total	30		

a. Post Total Knowledge Score < Pre Total Knowledge Score

b. Post Total Knowledge Score > Pre Total Knowledge Score

c. Post Total Knowledge Score = Pre Total Knowledge Score

Test Statistics[b,c]

Nursing home				Post Total Knowledge Score - Pre Total Knowledge Score
NH1	Z			-4.767[a]
	Asymp. Sig. (2-tailed)			.000
	Monte Carlo Sig. (2-tailed)	Sig.		.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
	Monte Carlo Sig. (1-tailed)		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 329836257.

Table 26 Total knowledge scores, NH1, post to follow up stages of testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Follow up Total Knowledge Score - Post Total Knowledge Score	Negative Ranks	11[a]	9.14	100.50
		Positive Ranks	11[b]	13.86	152.50
		Ties	8[c]		
		Total	30		

a. Follow up Total Knowledge Score < Post Total Knowledge Score

b. Follow up Total Knowledge Score > Post Total Knowledge Score

c. Follow up Total Knowledge Score = Post Total Knowledge Score

Test Statistics[b,c]

Nursing home				Follow up Total Knowledge Score - Post Total Knowledge Score
NH1	Z			-.878[a]
	Asymp. Sig. (2-tailed)			.380
	Monte Carlo Sig. (2-tailed)	Sig.		.376
		99% Confidence Interval	Lower Bound	.364
			Upper Bound	.389
	Monte Carlo Sig. (1-tailed)		Sig.	.184
		99% Confidence Interval	Lower Bound	.174
			Upper Bound	.194

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1993510611.

Table 27 Total knowledge scores: NH2, pre- post & follow up stages

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH2	Post Total Knowledge Score - Pre Total Knowledge Score	Negative Ranks	1[a]	12.00	12.00
		Positive Ranks	39[b]	20.72	808.00
		Ties	2[c]		
		Total	42		
	Follow up Total Knowledge Score - Pre Total Knowledge Score	Negative Ranks	2[d]	8.25	16.50
		Positive Ranks	37[e]	20.64	763.50
		Ties	3[f]		
		Total	42		
	Follow up Total Knowledge Score - Post Total Knowledge Score	Negative Ranks	18[g]	16.17	291.00
		Positive Ranks	10[h]	11.50	115.00
		Ties	14[i]		
		Total	42		

Test Statistics[c,d]

Nursing home				Post Total Knowledge Score - Pre Total Knowledge Score	Follow up Total Knowledge Score - Pre Total Knowledge Score	Follow up Total Knowledge Score - Post Total Knowledge Score
NH2	Z			-5.375[a]	-5.247[a]	-2.031[b]
	Asymp. Sig. (2-tailed)			.000	.000	.042
	Monte Carlo Sig. (2-tailed)	Sig.		.000	.000	.042
		99% Confidence Interval	Lower Bound	.000	.000	.036
			Upper Bound	.000	.000	.047
	Monte Carlo Sig. (1-tailed)		Sig.	.000	.000	.020
		99% Confidence Interval	Lower Bound	.000	.000	.016
			Upper Bound	.000	.000	.023

a. Based on negative ranks.

b. Based on positive ranks.

c. Wilcoxon Signed Ranks Test

d. Based on 10000 sampled tables with starting seed 1241531719.

Table 28 Total knowledge scores, NH3, pre-, post and follow up stages of testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH3	Post Total Knowledge Score - Pre Total Knowledge Score	Negative Ranks	5[a]	6.10	30.50
		Positive Ranks	21[b]	15.26	320.50
		Ties	8[c]		
		Total	34		
	Follow up Total Knowledge Score - Pre Total Knowledge Score	Negative Ranks	2[d]	16.50	33.00
		Positive Ranks	20[e]	11.00	220.00
		Ties	12[f]		
		Total	34		
	Follow up Total Knowledge Score - Post Total Knowledge Score	Negative Ranks	15[g]	14.07	211.00
		Positive Ranks	11[h]	12.73	140.00
		Ties	8[i]		
		Total	34		

Test Statistics[c,d]

Nursing home				Post Total Knowledge Score - Pre Total Knowledge Score	Follow up Total Knowledge Score - Pre Total Knowledge Score	Follow up Total Knowledge Score - Post Total Knowledge Score
NH3	Z			-3.710[a]	-3.072[a]	-.914[b]
	Asymp. Sig. (2-tailed)			.000	.002	.361
	Monte Carlo Sig. (2-tailed)	Sig.		.000	.001	.373
		99% Confidence Interval	Lower Bound	.000	.000	.361
			Upper Bound	.000	.002	.386
	Monte Carlo Sig. (1-tailed)		Sig.	.000	.000	.189
		99% Confidence Interval	Lower Bound	.000	.000	.179
			Upper Bound	.000	.001	.199

a. Based on negative ranks.

b. Based on positive ranks.

c. Wilcoxon Signed Ranks Test

d. Based on 10000 sampled tables with starting seed 2000000.

Table 29 Total competency scores, tests of normality, NH1, NH2 & NH3

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre Total Competency Score	NH1	.144	30	.115	.961	30	.321
	NH2	.165	42	.005	.921	42	.007
	NH3	.134	34	.127	.961	34	.255
Post Total Competency Score	NH1	.092	30	.200*	.979	30	.811
	NH2	.078	42	.200*	.988	42	.933
	NH3	.229	34	.000	.862	34	.001
Follow up Total Competency Score	NH1	.143	30	.119	.934	30	.064
	NH2	.171	42	.004	.929	42	.012
	NH3	.173	34	.011	.927	34	.026

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Table 30 Total competency scores, homogeneity of variance

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Pre Total Competency Score	Based on Mean	.593	2	103	.554
	Based on Median	.310	2	103	.734
	Based on Median and with adjusted df	.310	2	101.706	.734
	Based on trimmed mean	.554	2	103	.576
Post Total Competency Score	Based on Mean	5.076	2	103	.008
	Based on Median	4.769	2	103	.010
	Based on Median and with adjusted df	4.769	2	84.706	.011
	Based on trimmed mean	5.100	2	103	.008
Follow up Total Competency Score	Based on Mean	9.245	2	103	.000
	Based on Median	6.734	2	103	.002
	Based on Median and with adjusted df	6.734	2	76.894	.002
	Based on trimmed mean	8.828	2	103	.000

Test Statistics[b,c]

			Pre Total Competency Score	Post Total Competency Score	Follow up Total Competency Score
Chi-Square			.993	47.540	53.864
Df			2	2	2
Asymp. Sig.			.609	.000	.000
Monte Carlo Sig.	Sig.		.605[a]	.000[a]	.000[a]
	99% Confidence Interval	Lower Bound	.592	.000	.000
		Upper Bound	.617	.000	.000

a. Based on 10000 sampled tables with starting seed 2000000.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 31 Total competency scores: NH1, NH2 & NH3, trends.

Jonckheere-Terpstra Test[b]

			Pre Total Competency Score	Post Total Competency Score	Follow up Total Competency Score
Number of Levels in Nursing home			3	3	3
N			106	106	106
Observed J-T Statistic			1958.500	707.000	531.500
Mean J-T Statistic			1854.000	1854.000	1854.000
Std. Deviation of J-T Statistic			169.730	171.451	171.416
Std. J-T Statistic			.616	-6.690	-7.715
Asymp. Sig. (2-tailed)			.538	.000	.000
Monte Carlo Sig. (2-tailed)	Sig.		.539[a]	.000[a]	.000[a]
	99% Confidence Interval	Lower Bound	.526	.000	.000
		Upper Bound	.552	.000	.000
Monte Carlo Sig. (1-tailed)		Sig.	.264[a]	.000[a]	.000[a]
	99% Confidence Interval	Lower Bound	.253	.000	.000
		Upper Bound	.275	.000	.000

a. Based on 10000 sampled tables with starting seed 2000000.

b. Grouping Variable: Nursing home

Table 32 Total competency scores, post stages of testing, NH1 & NH3.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post Total Competency Score	NH1	30	47.87	1436.00
	NH3	34	18.94	644.00
	Total	64		

Test Statistics[a]

	Post Total Competency Score
Mann-Whitney U	49.000
Wilcoxon W	644.000
Z	-6.214
Asymp. Sig. (2-tailed)	.000
Exact Sig. (2-tailed)	.000
Exact Sig. (1-tailed)	.000
Point Probability	.000

a. Grouping Variable: Nursing home

Table 33 Total competency scores, post stages of testing, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post Total Competency Score	NH2	42	53.88	2263.00
	NH3	34	19.50	663.00
	Total	76		

Test Statistics[a]

	Post Total Competency Score
Mann-Whitney U	68.000
Wilcoxon W	663.000
Z	-6.761
Asymp. Sig. (2-tailed)	.000
Exact Sig. (2-tailed)	.000
Exact Sig. (1-tailed)	.000
Point Probability	.000

a. Grouping Variable: Nursing home

Table 34 Total competency scores, follow up stages of testing, NH1 & NH2.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Follow up Total Competency Score	NH1	30	49.55	1486.50
	NH2	42	27.18	1141.50
	Total	72		

Test Statistics[a]

	Follow up Total Competency Score
Mann-Whitney U	238.500
Wilcoxon W	1141.500
Z	-4.482
Asymp. Sig. (2-tailed)	.000
Exact Sig. (2-tailed)	.000
Exact Sig. (1-tailed)	.000
Point Probability	.000

a. Grouping Variable: Nursing home

Table 35 Total competency scores; follow up stages of testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Follow up Total Competency Score	NH1	30	48.40	1452.00
	NH3	34	18.47	628.00
	Total	64		

Test Statistics[a]

	Follow up Total Competency Score
Mann-Whitney U	33.000
Wilcoxon W	628.000
Z	-6.430
Asymp. Sig. (2-tailed)	.000
Exact Sig. (2-tailed)	.000
Exact Sig. (1-tailed)	.000
Point Probability	.000

a. Grouping Variable: Nursing home

Table 36 Total competency scores over time, NH1, NH2 & NH3.

Ranks

Nursing home		Mean Rank
NH1	Pre Total Competency Score	1.00
	Post Total Competency Score	2.47
	Follow up Total Competency Score	2.53
NH2	Pre Total Competency Score	1.25
	Post Total Competency Score	2.81
	Follow up Total Competency Score	1.94
NH3	Pre Total Competency Score	2.50
	Post Total Competency Score	2.38
	Follow up Total Competency Score	1.12

Test Statistics[a]

NH1			N	30
			Chi-Square	45.831
			Df	2
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH2			N	42
			Chi-Square	52.871
			Df	2
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH3			N	34
			Chi-Square	42.438
			Df	2
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 37 Total competency scores, NH1, pre-, post and follow up stages of testing.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Post- total competency score - Pre- total competency score	Negative Ranks	0[a]	.00	.00
		Positive Ranks	30[b]	15.50	465.00
		Ties	0[c]		
		Total	30		
	Follow up- total competency score - Pre- total competency score	Negative Ranks	0[d]	.00	.00
		Positive Ranks	30[e]	15.50	465.00
		Ties	0[f]		
		Total	30		
	Follow up- total competency score - Post- total competency score	Negative Ranks	13[g]	15.15	197.00
		Positive Ranks	15[h]	13.93	209.00
		Ties	2[i]		
		Total	30		

Test Statistics[b,c]

Nursing home				Post- total competency score - Pre- total competency score	Follow up- total competency score - Pre- total competency score	Follow up- total competency score - Post- total competency score
NH1	Z			-4.786[a]	-4.787[a]	-.137[a]
	Asymp. Sig. (2-tailed)			.000	.000	.891
	Monte Carlo Sig. (2-tailed)	Sig.		.000	.000	.896
		99% Confidence Interval	Lower Bound	.000	.000	.888
			Upper Bound	.000	.000	.904
	Monte Carlo Sig. (1-tailed)		Sig.	.000	.000	.439
		99% Confidence Interval	Lower Bound	.000	.000	.426
			Upper Bound	.000	.000	.452

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 221623949.

Table 38 Total competency scores: NH2, pre-, post and follow up stages of testing.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH2	Post- total competency score - Pre- total competency score	Negative Ranks	0[a]	.00	.00
		Positive Ranks	42[b]	21.50	903.00
		Ties	0[c]		
		Total	42		
	Follow up- total competency score - Pre- total competency score	Negative Ranks	10[d]	12.30	123.00
		Positive Ranks	31[e]	23.81	738.00
		Ties	1[f]		
		Total	42		
	Follow up- total competency score - Post- total competency score	Negative Ranks	32[g]	21.30	681.50
		Positive Ranks	6[h]	9.92	59.50
		Ties	4[i]		
		Total	42		

Test Statistics[c,d]

Nursing home				Post- total competency score - Pre- total competency score	Follow up- total competency score - Pre- total competency score	Follow up- total competency score - Post- total competency score
NH2	Z			-5.650[a]	-3.991[a]	-4.514[b]
	Asymp. Sig. (2-tailed)			.000	.000	.000
	Monte Carlo Sig. (2-tailed)	Sig.		.000	.000	.000
		99% Confidence Interval	Lower Bound	.000	.000	.000
			Upper Bound	.000	.000	.000
	Monte Carlo Sig. (1-tailed)		Sig.	.000	.000	.000
		99% Confidence Interval	Lower Bound	.000	.000	.000
			Upper Bound	.000	.000	.000

a. Based on negative ranks.

b. Based on positive ranks.

c. Wilcoxon Signed Ranks Test

d. Based on 10000 sampled tables with starting seed 1335104164.

Table 39 Total competency scores; NH3, pre-, post- and follow up stages of testing.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH3	Post- total competency score - Pre- total competency score	Negative Ranks	7[a]	14.14	99.00
		Positive Ranks	22[b]	15.27	336.00
		Ties	5[c]		
		Total	34		
	Follow up- total competency score - Pre- total competency score	Negative Ranks	7[d]	7.93	55.50
		Positive Ranks	22[e]	17.25	379.50
		Ties	5[f]		
		Total	34		
	Follow up- total competency score - Post- total competency score	Negative Ranks	9[g]	11.72	105.50
		Positive Ranks	18[h]	15.14	272.50
		Ties	7[i]		
		Total	34		

Test Statistics[b,c]

Nursing home				Post- total competency score - Pre- total competency score	Follow up- total competency score - Pre- total competency score	Follow up- total competency score - Post- total competency score
NH3	Z			-2.578[a]	-3.517[a]	-2.050[a]
	Asymp. Sig. (2-tailed)			.010	.000	.040
	Monte Carlo Sig. (2-tailed)	Sig.		.007	.000	.037
		99% Confidence Interval	Lower Bound	.005	.000	.032
			Upper Bound	.009	.000	.042
	Monte Carlo Sig. (1-tailed)		Sig.	.003	.000	.018
		99% Confidence Interval	Lower Bound	.002	.000	.015
			Upper Bound	.005	.000	.022

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1993510611.

Table 40 Q1: competency scores, tests of normality.

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre- Q1, competency score	NH1	.273	30	.000	.868	30	.001
	NH2	.204	42	.000	.874	42	.000
	NH3	.310	34	.000	.825	34	.000
Post- Q1, competency score	NH1	.196	30	.005	.930	30	.049
	NH2	.107	42	.200*	.969	42	.299
	NH3	.280	34	.000	.865	34	.001
FU- Q1, competency score	NH1	.132	30	.191	.929	30	.046
	NH2	.212	42	.000	.887	42	.001
	NH3	.333	34	.000	.801	34	.000

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Table 41 Q1, competency score, pre- testing, NH1, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank
Pre- Q1, competency score	NH1	30	48.87
	NH2	42	58.69
	NH3	34	51.18
	Total	106	

Test Statistics[b,c]

			Pre- Q1, competency score
Chi-Square			2.312
df			2
Asymp. Sig.			.315
Monte Carlo Sig.	Sig.		.313[a]
	99% Confidence Interval	Lower Bound	.301
		Upper Bound	.325

a. Based on 10000 sampled tables with starting seed 2000000.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 42 Q1, competency scores, post testing, NH1, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank
Post- Q1, competency score	NH1	30	70.13
	NH2	42	66.60
	NH3	34	22.65
	Total	106	

Test Statistics[b,c]

			Post- Q1, competency score
Chi-Square			51.242
df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 926214481.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 43 Q1, competency scores, post stages of testing, NH1 & NH2

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post- Q1, competency score	NH1	30	37.47	1124.00
	NH2	42	35.81	1504.00
	Total	72		

Test Statistics[b]

			Post- Q1, competency score
Mann-Whitney U			601.000
Wilcoxon W			1504.000
Z			-.335
Asymp. Sig. (2-tailed)			.738
Monte Carlo Sig. (2-tailed)	Sig.		.742[a]
	99% Confidence Interval	Lower Bound	.731
		Upper Bound	.753
Monte Carlo Sig. (1-tailed)		Sig.	.368[a]
	99% Confidence Interval	Lower Bound	.356
		Upper Bound	.381

Table 44 Q1, competency scores, post testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post- Q1, competency score	NH1	30	48.17	1445.00
	NH3	34	18.68	635.00
	Total	64		

Test Statistics[b]

			Post- Q1, competency score
Mann-Whitney U			40.000
Wilcoxon W			635.000
Z			-6.388
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 334431365.

b. Grouping Variable: Nursing home

Table 45 Q1, competency scores, post testing, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post- Q1, competency score	NH2	42	52.29	2196.00
	NH3	34	21.47	730.00
	Total	76		

Test Statistics[b]

			Post- Q1, competency score
Mann-Whitney U			135.000
Wilcoxon W			730.000
Z			-6.093
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 1502173562.

b. Grouping Variable: Nursing home

Table 46 Q1, competency scores, follow up testing, NH1, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank
FU- Q1, competency score	NH1	30	72.60
	NH2	42	57.45
	NH3	34	31.76
	Total	106	

Test Statistics[b,c]

			FU- Q1, competency score
Chi-Square			30.186
df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 743671174.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 47 Q1, competency scores, follow up testing, NH1 & NH2

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU- Q1, competency score	NH1	30	43.78	1313.50
	NH2	42	31.30	1314.50
	Total	72		

Test Statistics[b]

			FU- Q1, competency score
Mann-Whitney U			411.500
Wilcoxon W			1314.500
Z			-2.515
Asymp. Sig. (2-tailed)			.012
Monte Carlo Sig. (2-tailed)	Sig.		.012[a]
	99% Confidence Interval	Lower Bound	.009
		Upper Bound	.015
Monte Carlo Sig. (1-tailed)		Sig.	.006[a]
	99% Confidence Interval	Lower Bound	.004
		Upper Bound	.008

a. Based on 10000 sampled tables with starting seed 112562564.

b. Grouping Variable: Nursing home

Table 48 Q1, competency scores, follow up stages of testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU- Q1, competency score	NH1	30	44.32	1329.50
	NH3	34	22.07	750.50
	Total	64		

Test Statistics[b]

			FU- Q1, competency score
Mann-Whitney U			155.500
Wilcoxon W			750.500
Z			-4.872
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 221623949.

b. Grouping Variable: Nursing home

Table 49 Q1, competency scores, follow up stages of testing, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU- Q1, competency score	NH2	42	47.65	2001.50
	NH3	34	27.19	924.50
	Total	76		

Test Statistics[b]

			FU- Q1, competency score
Mann-Whitney U			329.500
Wilcoxon W			924.500
Z			-4.136
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 303130861.

b. Grouping Variable: Nursing home

Table 50 Q2, Tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre- Q2, competency score	NH1	.185	30	.010	.878	30	.002
	NH2	.226	42	.000	.827	42	.000
	NH3	.250	34	.000	.860	34	.000
Post - Q2, competency score	NH1	.139	30	.147	.932	30	.056
	NH2	.164	42	.006	.929	42	.012
	NH3	.275	34	.000	.875	34	.001
FU, Q2, competency score	NH1	.227	30	.000	.857	30	.001
	NH2	.145	42	.027	.930	42	.013
	NH3	.180	34	.007	.919	34	.015

a. Lilliefors Significance Correction

Table 51 Q2, competency score, pre- testing, NH1, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank
Pre- Q2, competency score	NH1	30	57.35
	NH2	42	48.73
	NH3	34	56.00
	Total	106	

Test Statistics[b,c]

			Pre- Q2, competency score
Chi-Square			1.842
Df			2
Asymp. Sig.			.398
Monte Carlo Sig.	Sig.		.411[a]
	99% Confidence Interval	Lower Bound	.398
		Upper Bound	.423

a. Based on 10000 sampled tables with starting seed 926214481.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 52 Q2, competency score, post testing, NH1, NH3 & NH3.

Ranks

	Nursing home	N	Mean Rank
Post - Q2, competency score	NH1	30	68.47
	NH2	42	64.29
	NH3	34	26.97
	Total	106	

Test Statistics[b,c]

			Post - Q2, competency score
Chi-Square			38.158
Df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 624387341.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 53 Q2, competency score, post testing, NH1 & NH2

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post - Q2, competency score	NH1	30	37.67	1130.00
	NH2	42	35.67	1498.00
	Total	72		

Test Statistics[b]

			Post - Q2, competency score
Mann-Whitney U			595.000
Wilcoxon W			1498.000
Z			-.405
Asymp. Sig. (2-tailed)			.686
Monte Carlo Sig. (2-tailed)	Sig.		.684[a]
	99% Confidence Interval	Lower Bound	.672
		Upper Bound	.696
Monte Carlo Sig. (1-tailed)		Sig.	.339[a]
	99% Confidence Interval	Lower Bound	.327
		Upper Bound	.351

a. Based on 10000 sampled tables with starting seed 1502173562.

b. Grouping Variable: Nursing home

Table 54 Q2 competency score, post testing, NH1 & NH3.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post - Q2, competency score	NH1	30	46.30	1389.00
	NH3	34	20.32	691.00
	Total	64		

Test Statistics[b]

			Post - Q2, competency score
Mann-Whitney U			96.000
Wilcoxon W			691.000
Z			-5.621
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 743671174.

b. Grouping Variable: Nursing home

Table 55 Q2, competency score, post stages of testing, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post - Q2, competency score	NH2	42	50.12	2105.00
	NH3	34	24.15	821.00
	Total	76		

SPSS output:

Test Statistics[b]

			Post - Q2, competency score
Mann-Whitney U			226.000
Wilcoxon W			821.000
Z			-5.147
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 957002199.

b. Grouping Variable: Nursing home

Table 56 Q2, competency score, follow up stages of testing, NH1, NH2 and NH3.

Ranks

	Nursing home	N	Mean Rank
FU, Q2, competency score	NH1	30	80.02
	NH2	42	50.95
	NH3	34	33.25
	Total	106	

Test Statistics[b,c]

			FU, Q2, competency score
Chi-Square			38.187
df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 112562564.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 57 Q2, competency score, follow up stages of testing, NH1 & NH2.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU, Q2, competency score	NH1	30	49.28	1478.50
	NH2	42	27.37	1149.50
	Total	72		

Test Statistics[b]

			FU, Q2, competency score
Mann-Whitney U			246.500
Wilcoxon W			1149.500
Z			-4.419
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 303130861.

b. Grouping Variable: Nursing home

Table 58 Q2, competency score, follow up stages of testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU, Q2, competency score	NH1	30	46.23	1387.00
	NH3	34	20.38	693.00
	Total	64		

Test Statistics[b]

			FU, Q2, competency score
Mann-Whitney U			98.000
Wilcoxon W			693.000
Z			-5.607
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 92208573.

b. Grouping Variable: Nursing home

Table 59 Q2 competency score, follow up stages of testing, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU, Q2, competency score	NH2	42	45.08	1893.50
	NH3	34	30.37	1032.50
	Total	76		

Test Statistics[b]

			FU, Q2, competency score
Mann-Whitney U			437.500
Wilcoxon W			1032.500
Z			-2.945
Asymp. Sig. (2-tailed)			.003
Monte Carlo Sig. (2-tailed)	Sig.		.003[a]
	99% Confidence Interval	Lower Bound	.002
		Upper Bound	.005
Monte Carlo Sig. (1-tailed)		Sig.	.002[a]
	99% Confidence Interval	Lower Bound	.001
		Upper Bound	.003

a. Based on 10000 sampled tables with starting seed 1335104164.

b. Grouping Variable: Nursing home

Figure 0-1 Q3, competency scores, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre- Q3, competency score	NH1	.231	30	.000	.882	30	.003
	NH2	.282	42	.000	.853	42	.000
	NH3	.241	34	.000	.877	34	.001
Post- Q3, competency score	NH1	.207	30	.002	.930	30	.050
	NH2	.193	42	.000	.930	42	.013
	NH3	.311	34	.000	.819	34	.000
FU, Q3, competency score	NH1	.140	30	.140	.950	30	.165
	NH2	.220	42	.000	.860	42	.000
	NH3	.211	34	.001	.808	34	.000

a. Lilliefors Significance Correction

Table 60 Q3 competency scores, pre-testing, NH1, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank
Pre- Q3, competency score	NH1	30	58.43
	NH2	42	47.25
	NH3	34	56.87
	Total	106	

Test Statistics[b,c]

			Pre- Q3, competency score
Chi-Square			3.251
df			2
Asymp. Sig.			.197
Monte Carlo Sig.	Sig.		.204[a]
	99% Confidence Interval	Lower Bound	.194
		Upper Bound	.215

a. Based on 10000 sampled tables with starting seed 484067124.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 61 Q3, competency scores, post stages of testing, NH1, NH2 & NH3.

Ranks

	Nursing home	N	Mean Rank
Post- Q3, competency score	NH1	30	68.88
	NH2	42	60.99
	NH3	34	30.68
	Total	106	

Test Statistics[b,c]

			Post- Q3, competency score
Chi-Square			29.257
df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 1310155034.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 62 Q3 competency scores, post stages of testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post- Q3, competency score	NH1	30	44.73	1342.00
	NH3	34	21.71	738.00
	Total	64		

Test Statistics[b]

			Post- Q3, competency score
Mann-Whitney U			143.000
Wilcoxon W			738.000
Z			-5.016
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 726961337.

b. Grouping Variable: Nursing home

Test Statistics[b]

			Post- Q3, competency score
Mann-Whitney U			143.000
Wilcoxon W			738.000
Z			-5.016
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 726961337.

Table 63 Q3, competency score, post stages of testing, NH1 & NH2

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post- Q3, competency score	NH1	30	39.65	1189.50
	NH2	42	34.25	1438.50
	Total	72		

Test Statistics[b]

			Post- Q3, competency score
Mann-Whitney U			535.500
Wilcoxon W			1438.500
Z			-1.089
Asymp. Sig. (2-tailed)			.276
Monte Carlo Sig. (2-tailed)	Sig.		.276[a]
	99% Confidence Interval	Lower Bound	.264
		Upper Bound	.288
Monte Carlo Sig. (1-tailed)		Sig.	.134[a]
	99% Confidence Interval	Lower Bound	.125
		Upper Bound	.142

a. Based on 10000 sampled tables with starting seed 508741944.

b. Grouping Variable: Nursing home

Table 64 Q3 competency score, post stages of testing, NH1, NH2 & NH3.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
Post- Q3, competency score	NH2	42	48.24	2026.00
	NH3	34	26.47	900.00
	Total	76		

Test Statistics[b]

			Post- Q3, competency score
Mann-Whitney U			305.000
Wilcoxon W			900.000
Z			-4.332
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 113410539.

b. Grouping Variable: Nursing home

Table 65 Q3 competency score, follow up stages of testing, NH1, NH2 & NH3

Ranks

	Nursing home	N	Mean Rank
FU, Q3, competency score	NH1	30	78.28
	NH2	42	55.93
	NH3	34	28.63
	Total	106	

Test Statistics[b,c]

			FU, Q3, competency score
Chi-Square			43.216
df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 2000000.

b. Kruskal Wallis Test

c. Grouping Variable: Nursing home

Table 66 Q3 competency score, follow up stages of testing, NH1 & NH3

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU, Q3, competency score	NH1	30	48.13	1444.00
	NH3	34	18.71	636.00
	Total	64		

Test Statistics[b]

			FU, Q3, competency score
Mann-Whitney U			41.000
Wilcoxon W			636.000
Z			-6.402
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 257291219.

b. Grouping Variable: Nursing home

Table 67 Q3 competency score, follow up stages of testing, NH1 & NH2.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU, Q3, competency score	NH1	30	45.65	1369.50
	NH2	42	29.96	1258.50
	Total	72		

Test Statistics[b]

			FU, Q3, competency score
Mann-Whitney U			355.500
Wilcoxon W			1258.500
Z			-3.160
Asymp. Sig. (2-tailed)			.002
Monte Carlo Sig. (2-tailed)	Sig.		.001[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.002
Monte Carlo Sig. (1-tailed)		Sig.	.001[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.001

a. Based on 10000 sampled tables with starting seed 1585587178.

b. Grouping Variable: Nursing home

Table 68 Q3 competency score, follow up stages of testing, NH2 & NH3.

Ranks

	Nursing home	N	Mean Rank	Sum of Ranks
FU, Q3, competency score	NH2	42	47.46	1993.50
	NH3	34	27.43	932.50
	Total	76		

Test Statistics[b]

			FU, Q3, competency score
Mann-Whitney U			337.500
Wilcoxon W			932.500
Z			-4.052
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 126474071.

b. Grouping Variable: Nursing home

Table 69 HCA attitudes, Q1, tests of normality.

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q1, Pre- I feel empathetic towards residents with dementia, swallowing and feeding difficulties.	NH1	.223	30	.001	.873	30	.002
	NH2	.273	42	.000	.798	42	.000
	NH3	.238	34	.000	.810	34	.000
Q1, Post-, I feel empathetic towards residents with dementia, swallowing and feeding difficulties.	NH1	.272	30	.000	.804	30	.000
	NH2	.387	42	.000	.701	42	.000
	NH3	.222	34	.000	.880	34	.001
Q1, FU- I feel empathetic towards residents with dementia, swallowing and feeding difficulties.	NH1	.386	30	.000	.681	30	.000
	NH2	.305	42	.000	.769	42	.000
	NH3	.226	34	.000	.869	34	.001

a. Lilliefors Significance Correction

Table 70 HCA attitudes, Q1 empathy, NH1, NH2 & NH3, pre- post and follow up stages of testing

Ranks

Nursing home		Mean Rank
NH1	Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	1.65
	Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	1.92
	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	2.43
NH2	Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	1.87
	Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	2.05
	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	2.08
NH3	Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	2.12
	Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	1.87
	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	2.01

Test Statistics[a]

NH1			N	30
			Chi-Square	11.896
			df	2
			Asymp. Sig.	.003
	Monte Carlo Sig.		Sig.	.002
		99% Confidence Interval	Lower Bound	.001
			Upper Bound	.003
NH2			N	42
			Chi-Square	1.938
			df	2
			Asymp. Sig.	.380
	Monte Carlo Sig.		Sig.	.375
		99% Confidence Interval	Lower Bound	.362
			Upper Bound	.387
NH3			N	34
			Chi-Square	1.587
			df	2
			Asymp. Sig.	.452
	Monte Carlo Sig.		Sig.	.467
		99% Confidence Interval	Lower Bound	.454
			Upper Bound	.480

a. Friedman Test

Table 71 HCA attitudes, Q1 empathy, NH1, across testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties. - Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	Negative Ranks	9[a]	10.78	97.00
		Positive Ranks	14[b]	12.79	179.00
		Ties	7[c]		
		Total	30		
	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties. - Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	Negative Ranks	3[d]	9.50	28.50
		Positive Ranks	19[e]	11.82	224.50
		Ties	8[f]		
		Total	30		
	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties. - Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	Negative Ranks	6[g]	10.83	65.00
		Positive Ranks	16[h]	11.75	188.00
		Ties	8[i]		
		Total	30		

Test Statistics[b,c]

Nursing home				Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties. - Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties. - Q1, Pre- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.	Q1, FU- I feel empathetic towards resident's with dementia, swallowing and feeding difficulties. - Q1, Post-, I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.
NH1	Z			-1.325[a]	-3.408[a]	-2.117[a]
	Asymp. Sig. (2-tailed)			.185	.001	.034
	Monte Carlo Sig. (2-tailed)	Sig.		.204	.000	.042
		99% Confidence Interval	Lower Bound	.194	.000	.037
			Upper Bound	.214	.001	.047
	Monte Carlo Sig. (1-tailed)		Sig.	.105	.000	.022
		99% Confidence Interval	Lower Bound	.097	.000	.018
			Upper Bound	.113	.000	.026

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1241531719.

Table 72 HCA attitudes, Q2 relationship with resident, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q2, Pre-, I have developed a good relationship with the resident's I work with	NH1	.371	30	.000	.701	30	.000
	NH2	.271	42	.000	.786	42	.000
	NH3	.357	34	.000	.698	34	.000
Q2 Post-, I have developed a good relationship with the resident's I work with	NH1	.330	30	.000	.740	30	.000
	NH2	.233	42	.000	.801	42	.000
	NH3	.250	34	.000	.850	34	.000
Q2, FU-, I have developed a good relationship with the resident's I work with	NH1	.386	30	.000	.681	30	.000
	NH2	.305	42	.000	.769	42	.000
	NH3	.283	34	.000	.764	34	.000

a. Lilliefors Significance Correction

Table 73 HCA attitudes, Q2 relationship with residents, NH1, NH2 & NH3, across testing

Ranks

Nursing home		Mean Rank
NH1	Q2, Pre-, I have developed a good relationship with the resident's I work with	2.05
	Q2 Post-, I have developed a good relationship with the resident's I work with	1.88
	Q2, FU-, I have developed a good relationship with the resident's I work with	2.07
NH2	Q2, Pre-, I have developed a good relationship with the resident's I work with	2.06
	Q2 Post-, I have developed a good relationship with the resident's I work with	1.95
	Q2, FU-, I have developed a good relationship with the resident's I work with	1.99
NH3	Q2, Pre-, I have developed a good relationship with the resident's I work with	2.25
	Q2 Post-, I have developed a good relationship with the resident's I work with	1.66
	Q2, FU-, I have developed a good relationship with the resident's I work with	2.09

Test Statistics[a]

NH1			N	30
			Chi-Square	1.156
			df	2
			Asymp. Sig.	.561
	Monte Carlo Sig.		Sig.	.580
		99% Confidence Interval	Lower Bound	.567
			Upper Bound	.592
NH2			N	42
			Chi-Square	.400
			df	2
			Asymp. Sig.	.819
	Monte Carlo Sig.		Sig.	.828
		99% Confidence Interval	Lower Bound	.818
			Upper Bound	.838
NH3			N	34
			Chi-Square	9.705
			df	2
			Asymp. Sig.	.008
	Monte Carlo Sig.		Sig.	.008
		99% Confidence Interval	Lower Bound	.006
			Upper Bound	.011

a. Friedman Test

Table 74 HCA attitudes, Q2 relationship with resident, NH3, pre- post and follow up testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH3	Q2 Post-, I have developed a good relationship with the resident's I work with - Q2, Pre-, I have developed a good relationship with the resident's I work with	Negative Ranks	18[a]	12.06	217.00
		Positive Ranks	4[b]	9.00	36.00
		Ties	12[c]		
		Total	34		
	Q2, FU-, I have developed a good relationship with the resident's I work with - Q2, Pre-, I have developed a good relationship with the resident's I work with	Negative Ranks	9[d]	9.00	81.00
		Positive Ranks	6[e]	6.50	39.00
		Ties	19[f]		
		Total	34		
	Q2, FU-, I have developed a good relationship with the resident's I work with - Q2 Post-, I have developed a good relationship with the resident's I work with	Negative Ranks	7[g]	10.50	73.50
		Positive Ranks	16[h]	12.66	202.50
		Ties	11[i]		
		Total	34		

Test Statistics[c,d]

Nursing home				Q2 Post-, I have developed a good relationship with the resident's I work with - Q2, Pre-, I have developed a good relationship with the resident's I work with	Q2, FU-, I have developed a good relationship with the resident's I work with - Q2, Pre-, I have developed a good relationship with the resident's I work with	Q2, FU-, I have developed a good relationship with the resident's I work with - Q2 Post-, I have developed a good relationship with the resident's I work with
NH3	Z			-3.115[a]	-1.269[a]	-2.133[b]
	Asymp. Sig. (2-tailed)			.002	.204	.033
	Monte Carlo Sig. (2-tailed)	Sig.		.001	.211	.037
		99% Confidence Interval	Lower Bound	.000	.201	.032
			Upper Bound	.002	.222	.042
	Monte Carlo Sig. (1-tailed)	Sig.		.000	.102	.018
		99% Confidence Interval	Lower Bound	.000	.094	.014
			Upper Bound	.001	.109	.021

a. Based on positive ranks.

b. Based on negative ranks.

c. Wilcoxon Signed Ranks Test

d. Based on 10000 sampled tables with starting seed 1535910591.

Table 75 HCA attitudes, Q7, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	NH1	.219	30	.001	.808	30	.000
	NH2	.278	42	.000	.791	42	.000
	NH3	.272	34	.000	.782	34	.000
Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough	NH1	.328	30	.000	.765	30	.000
	NH2	.314	42	.000	.824	42	.000
	NH3	.244	34	.000	.799	34	.000
Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough	NH1	.254	30	.000	.794	30	.000
	NH2	.238	42	.000	.810	42	.000
	NH3	.193	34	.002	.863	34	.001

a. Lilliefors Significance Correction

Table 76 HCA attitudes, Q7 guilt, NH1, NH2 & NH3, pre-, post and follow up testing.

Ranks

Nursing home		Mean Rank
NH1	Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	1.97
	Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough	2.00
	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough	2.03
NH2	Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	2.15
	Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough	1.79
	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough	2.06
NH3	Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	2.24
	Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough	2.15
	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough	1.62

Table 77 HCA attitudes, Q7 guilt, NH3, pre-, post and follow up testing.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH3	Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough - Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	Negative Ranks	11[a]	10.82	119.00
		Positive Ranks	9[b]	10.11	91.00
		Ties	14[c]		
		Total	34		
	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough - Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	Negative Ranks	19[d]	12.92	245.50
		Positive Ranks	5[e]	10.90	54.50
		Ties	10[f]		
		Total	34		
	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough - Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough	Negative Ranks	20[g]	14.70	294.00
		Positive Ranks	8[h]	14.00	112.00
		Ties	6[i]		
		Total	34		

Table 78 HCA attitudes Q7 guilt, NH3, pre- post and follow up testing

Test Statistics[b,c]

Nursing home				Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough - Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough - Q7, Pre-, I feel guilty if a resident in my care does not manage to eat and drink enough	Q7, FU-, I feel guilty if a resident in my care does not manage to eat and drink enough - Q7, Post-, I feel guilty if a residents in my care does not manage to eat and drink enough
NH3	Z			-.565[a]	-2.794[a]	-2.120[a]
	Asymp. Sig. (2-tailed)			.572	.005	.034
	Monte Carlo Sig. (2-tailed)	Sig.		.646	.004	.032
		99% Confidence Interval	Lower Bound	.634	.002	.028
			Upper Bound	.659	.005	.037
	Monte Carlo Sig. (1-tailed)	Sig.		.323	.002	.015
		99% Confidence Interval	Lower Bound	.311	.001	.012
			Upper Bound	.335	.003	.018

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 745618922.

Table 79 HCA attitudes Q3 feeding tubes, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	NH1	.265	30	.000	.842	30	.000
	NH2	.270	42	.000	.863	42	.000
	NH3	.171	34	.013	.895	34	.003
Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	NH1	.423	30	.000	.597	30	.000
	NH2	.284	42	.000	.778	42	.000
	NH3	.216	34	.000	.877	34	.001
Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	NH1	.331	30	.000	.741	30	.000
	NH2	.285	42	.000	.776	42	.000
	NH3	.318	34	.000	.827	34	.000

a. Lilliefors Significance Correction

Table 80 HCA attitudes Q3 feeding tubes, NH1, NH2 & NH3, across testing

Ranks

Nursing home		Mean Rank
NH1	Nursing home	1.70
	Q3, Pre-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	3.43
	Q3, Post-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.28
	Q3, FU-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.58
NH2	Nursing home	2.68
	Q3, Pre-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.93
	Q3, Post-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.23
	Q3, FU-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.17
NH3	Nursing home	3.01
	Q3, Pre-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.28
	Q3, Post-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.25
	Q3, FU-, All resident’s with dementia and swallowing problems should have a feeding tube fitted.	2.46

Test Statistics[a]

NH1			N	30
			Chi-Square	41.426
			df	3
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH2			N	42
			Chi-Square	13.847
			df	3
			Asymp. Sig.	.003
	Monte Carlo Sig.		Sig.	.003
		99% Confidence Interval	Lower Bound	.001
			Upper Bound	.004
NH3			N	34
			Chi-Square	10.202
			df	3
			Asymp. Sig.	.017
	Monte Carlo Sig.		Sig.	.015
		99% Confidence Interval	Lower Bound	.012
			Upper Bound	.018

a. Friedman Test

Table 81 HCA attitudes Q3 feeding tubes, NH1, pre-, post and follow up testing.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	20[a]	12.00	240.00
		Positive Ranks	2[b]	6.50	13.00
		Ties	8[c]		
		Total	30		
	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	17[d]	10.74	182.50
		Positive Ranks	3[e]	9.17	27.50
		Ties	10[f]		
		Total	30		
	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	6[g]	8.00	48.00
		Positive Ranks	11[h]	9.55	105.00
		Ties	13[i]		
		Total	30		

Table 82 HCA attitudes Q3 feeding tubes, NH2, pre-, post and follow up testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH2	Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	21[a]	17.29	363.00
		Positive Ranks	8[b]	9.00	72.00
		Ties	13[c]		
		Total	42		
	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	23[d]	15.61	359.00
		Positive Ranks	6[e]	12.67	76.00
		Ties	13[f]		
		Total	42		
	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	13[g]	11.92	155.00
		Positive Ranks	12[h]	14.17	170.00
		Ties	17[i]		
		Total	42		

Table 83 HCA attitudes Q3 feeding tubes, NH2, pre- post and follow up testing

Test Statistics[c,d]

Nursing home				Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted.
NH2	Z			-3.206[a]	-3.134[a]	-.213[b]
	Asymp. Sig. (2-tailed)			.001	.002	.831
	Monte Carlo Sig. (2-tailed)	Sig.		.001	.002	.845
		99% Confidence Interval	Lower Bound	.000	.001	.836
			Upper Bound	.002	.002	.854
	Monte Carlo Sig. (1-tailed)	Sig.		.000	.001	.412
		99% Confidence Interval	Lower Bound	.000	.000	.399
			Upper Bound	.001	.002	.424

Table 84HCA attitudes Q3 feeding tubes, NH3, pre- post and follow up testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH3	Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	14[a]	14.50	203.00
		Positive Ranks	14[b]	14.50	203.00
		Ties	6[c]		
		Total	34		
	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	9[d]	10.83	97.50
		Positive Ranks	12[e]	11.13	133.50
		Ties	13[f]		
		Total	34		
	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Negative Ranks	10[g]	12.90	129.00
		Positive Ranks	14[h]	12.21	171.00
		Ties	10[i]		
		Total	34		

Test Statistics[c,d]

Nursing home				Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Pre-, All resident's with dementia and swallowing problems should have a feeding tube fitted.	Q3, FU-, All resident's with dementia and swallowing problems should have a feeding tube fitted. - Q3, Post-, All resident's with dementia and swallowing problems should have a feeding tube fitted.
NH3	Z			.000[a]	-.641[b]	-.617[b]
	Asymp. Sig. (2-tailed)			1.000	.522	.537
	Monte Carlo Sig. (2-tailed)	Sig.		1.000	.548	.544
		99% Confidence Interval	Lower Bound	1.000	.536	.531
			Upper Bound	1.000	.561	.557
	Monte Carlo Sig. (1-tailed)		Sig.	.512	.270	.271
		99% Confidence Interval	Lower Bound	.499	.258	.259
			Upper Bound	.525	.281	.282

Table 85 HCA attitudes, Q4, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Q4, Pre-, I actively get involved in contributing towards residents care planning	NH1	.263	30	.000	.843	30	.000
	NH2	.280	42	.000	.812	42	.000
	NH3	.337	34	.000	.817	34	.000
Q4, Post-, I actively get involved in contributing towards residents care planning	NH1	.239	30	.000	.806	30	.000
	NH2	.269	42	.000	.858	42	.000
	NH3	.233	34	.000	.838	34	.000
Q4, FU-, I actively get involved in contributing towards residents care planning	NH1	.239	30	.000	.806	30	.000
	NH2	.242	42	.000	.867	42	.000
	NH3	.260	34	.000	.839	34	.000

a. Lilliefors Significance Correction

Table 86 HCA attitudes, Q4 care planning, NH1, NH2 & NH3, pre-, post and follow up training.

Ranks

Nursing home		Mean Rank
NH1	Q4, Pre-, I actively get involved in contributing towards residents care planning	1.70
	Q4, Post-, I actively get involved in contributing towards residents care planning	2.18
	Q4, FU-, I actively get involved in contributing towards residents care planning	2.12
NH2	Q4, Pre-, I actively get involved in contributing towards residents care planning	2.12
	Q4, Post-, I actively get involved in contributing towards residents care planning	1.81
	Q4, FU-, I actively get involved in contributing towards residents care planning	2.07
NH3	Q4, Pre-, I actively get involved in contributing towards residents care planning	2.04
	Q4, Post-, I actively get involved in contributing towards residents care planning	1.96
	Q4, FU-, I actively get involved in contributing towards residents care planning	2.00

Test Statistics[a]

NH1			N	30
			Chi-Square	6.099
			df	2
			Asymp. Sig.	.047
	Monte Carlo Sig.		Sig.	.045
		99% Confidence Interval	Lower Bound	.039
			Upper Bound	.050
NH2			N	42
			Chi-Square	3.015
			df	2
			Asymp. Sig.	.221
	Monte Carlo Sig.		Sig.	.227
		99% Confidence Interval	Lower Bound	.217
			Upper Bound	.238
NH3			N	34
			Chi-Square	.175
			df	2
			Asymp. Sig.	.916
	Monte Carlo Sig.		Sig.	.921
		99% Confidence Interval	Lower Bound	.914
			Upper Bound	.928

a. Friedman Test

Table 87 HCA attitudes, Q4 care planning, NH1, pre-, post and follow up stages

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Q4, Post-, I actively get involved in contributing towards residents care planning - Q4, Pre-, I actively get involved in contributing towards residents care planning	Negative Ranks	4[a]	9.38	37.50
		Positive Ranks	15[b]	10.17	152.50
		Ties	11[c]		
		Total	30		
	Q4, FU-, I actively get involved in contributing towards residents care planning - Q4, Pre-, I actively get involved in contributing towards residents care planning	Negative Ranks	8[d]	8.50	68.00
		Positive Ranks	15[e]	13.87	208.00
		Ties	7[f]		
		Total	30		
	Q4, FU-, I actively get involved in contributing towards residents care planning - Q4, Post-, I actively get involved in contributing towards residents care planning	Negative Ranks	8[g]	8.50	68.00
		Positive Ranks	8[h]	8.50	68.00
		Ties	14[i]		
		Total	30		

Test Statistics[c,d]

Nursing home				Q4, Post-, I actively get involved in contributing towards residents care planning - Q4, Pre-, I actively get involved in contributing towards residents care planning	Q4, FU-, I actively get involved in contributing towards residents care planning - Q4, Pre-, I actively get involved in contributing towards residents care planning	Q4, FU-, I actively get involved in contributing towards residents care planning - Q4, Post-, I actively get involved in contributing towards residents care planning
NH1	Z			-2.413[a]	-2.223[a]	.000[b]
	Asymp. Sig. (2-tailed)			.016	.026	1.000
	Monte Carlo Sig. (2-tailed)	Sig.		.016	.029	1.000
		99% Confidence Interval	Lower Bound	.013	.024	1.000
			Upper Bound	.019	.033	1.000
	Monte Carlo Sig. (1-tailed)		Sig.	.007	.014	.538
		99% Confidence Interval	Lower Bound	.005	.011	.525
			Upper Bound	.009	.017	.550

a. Based on negative ranks.

Table 88 HCA attitudes, Q5 time management, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	NH1	.299	30	.000	.847	30	.001
	NH2	.189	42	.001	.878	42	.000
	NH3	.235	34	.000	.873	34	.001
Q5, Post-, I am unable to help residents finish their meals due to work pressures.	NH1	.244	30	.000	.854	30	.001
	NH2	.303	42	.000	.836	42	.000
	NH3	.271	34	.000	.851	34	.000
Q5, FU-, I am unable to help residents finish their meals due to work pressures.	NH1	.169	30	.029	.897	30	.007
	NH2	.319	42	.000	.802	42	.000
	NH3	.294	34	.000	.849	34	.000

a. Lilliefors Significance Correction

Table 89 HCA attitudes, Q5 time management, NH1, NH3 & NH3, pre- post and follow up stages of testing

Ranks

Nursing home		Mean Rank
NH1	Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	2.07
	Q5, Post-, I am unable to help residents finish their meals due to work pressures.	1.85
	Q5, FU-, I am unable to help residents finish their meals due to work pressures.	2.08
NH2	Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	2.35
	Q5, Post-, I am unable to help residents finish their meals due to work pressures.	1.82
	Q5, FU-, I am unable to help residents finish their meals due to work pressures.	1.83
NH3	Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	2.03
	Q5, Post-, I am unable to help residents finish their meals due to work pressures.	2.13
	Q5, FU-, I am unable to help residents finish their meals due to work pressures.	1.84

Test Statistics[a]

NH1			N	30
			Chi-Square	1.356
			Df	2
			Asymp. Sig.	.508
	Monte Carlo Sig.		Sig.	.526
		99% Confidence Interval	Lower Bound	.513
			Upper Bound	.539
NH2			N	42
			Chi-Square	9.708
			Df	2
			Asymp. Sig.	.008
	Monte Carlo Sig.		Sig.	.008
		99% Confidence Interval	Lower Bound	.005
			Upper Bound	.010
NH3			N	34
			Chi-Square	2.081
			Df	2
			Asymp. Sig.	.353
	Monte Carlo Sig.		Sig.	.362
		99% Confidence Interval	Lower Bound	.350
			Upper Bound	.374

a. Friedman Test

Table 90 HCA attitudes, Q5 time management, NH2, pre-, post and follow up stages of testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH2	Q5, Post-, I am unable to help residents finish their meals due to work pressures. - Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	Negative Ranks	25[a]	16.58	414.50
		Positive Ranks	10[b]	21.55	215.50
		Ties	7[c]		
		Total	42		
	Q5, FU-, I am unable to help residents finish their meals due to work pressures. - Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	Negative Ranks	24[d]	17.44	418.50
		Positive Ranks	10[e]	17.65	176.50
		Ties	8[f]		
		Total	42		
	Q5, FU-, I am unable to help residents finish their meals due to work pressures. - Q5, Post-, I am unable to help residents finish their meals due to work pressures.	Negative Ranks	11[g]	12.86	141.50
		Positive Ranks	11[h]	10.14	111.50
		Ties	20[i]		
		Total	42		

Test Statistics[b,c]

Nursing home				Q5, Post-, I am unable to help residents finish their meals due to work pressures. - Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	Q5, FU-, I am unable to help residents finish their meals due to work pressures. - Q5, Pre-, I am unable to help residents finish their meals due to work pressures.	Q5, FU-, I am unable to help residents finish their meals due to work pressures. - Q5, Post-, I am unable to help residents finish their meals due to work pressures.
NH2	Z			-1.661[a]	-2.101[a]	-.496[a]
	Asymp. Sig. (2-tailed)			.097	.036	.620
	Monte Carlo Sig. (2-tailed)	Sig.		.093	.029	.637
		99% Confidence Interval	Lower Bound	.085	.025	.625
			Upper Bound	.100	.034	.649
	Monte Carlo Sig. (1-tailed)		Sig.	.049	.015	.322
		99% Confidence Interval	Lower Bound	.044	.012	.310
			Upper Bound	.055	.018	.334

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 562334227.

Table 91 HCA attitudes, Q6 confidence using feeding techniques, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	NH1	.186	30	.010	.910	30	.015
	NH2	.244	42	.000	.861	42	.000
	NH3	.269	34	.000	.859	34	.000
Q6, Post-, I feel confident using different techniques to help residents' to eat and drink.	NH1	.266	30	.000	.816	30	.000
	NH2	.306	42	.000	.834	42	.000
	NH3	.275	34	.000	.872	34	.001
Q6, FU, I feel confident using different techniques to help residents' to eat and drink.	NH1	.302	30	.000	.785	30	.000
	NH2	.269	42	.000	.844	42	.000
	NH3	.208	34	.001	.882	34	.002

Table 92 HCA attitudes Q6, confidence, NH1, NH2 & NH3, pre-, post and follow up stages of testing

Test Statistics[a]

NH1			N	30
			Chi-Square	14.383
			Df	2
			Asymp. Sig.	.001
	Monte Carlo Sig.		Sig.	.001
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.001
NH2			N	42
			Chi-Square	13.836
			Df	2
			Asymp. Sig.	.001
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.001
NH3			N	34
			Chi-Square	2.534
			Df	2
			Asymp. Sig.	.282
	Monte Carlo Sig.		Sig.	.295
		99% Confidence Interval	Lower Bound	.283
			Upper Bound	.306

a. Friedman Test

Table 93 HCA attitudes, Q6 confidence, NH1.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH1	Q6, Post-, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Negative Ranks	2[a]	4.50	9.00
		Positive Ranks	16[b]	10.13	162.00
		Ties	12[c]		
		Total	30		
	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Negative Ranks	4[d]	7.00	28.00
		Positive Ranks	20[e]	13.60	272.00
		Ties	6[f]		
		Total	30		
	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Post-, I feel confident using different techniques to help residents' to eat and drink.	Negative Ranks	12[g]	12.38	148.50
		Positive Ranks	12[h]	12.63	151.50
		Ties	6[i]		
		Total	30		

Test Statistics[b,c]

Nursing home				Q6, Post-, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Post-, I feel confident using different techniques to help residents' to eat and drink.
NH1	Z			-3.382[a]	-3.569[a]	-.045[a]
	Asymp. Sig. (2-tailed)			.001	.000	.964
	Monte Carlo Sig. (2-tailed)	Sig.		.000	.000	.980
		99% Confidence Interval	Lower Bound	.000	.000	.976
			Upper Bound	.000	.000	.983
	Monte Carlo Sig. (1-tailed)	Sig.		.000	.000	.493
		99% Confidence Interval	Lower Bound	.000	.000	.480
			Upper Bound	.000	.000	.506

Table 94 HCA attitudes, Q6 confidence, NH2, pre-, post and follow up stages of testing

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH2	Q6, Post-, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Negative Ranks	11[a]	12.77	140.50
		Positive Ranks	22[b]	19.11	420.50
		Ties	9[c]		
		Total	42		
	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Negative Ranks	5[d]	17.70	88.50
		Positive Ranks	27[e]	16.28	439.50
		Ties	10[f]		
		Total	42		
	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Post-, I feel confident using different techniques to help residents' to eat and drink.	Negative Ranks	12[g]	13.42	161.00
		Positive Ranks	17[h]	16.12	274.00
		Ties	13[i]		
		Total	42		

Test Statistics[b,c]

Nursing home				Q6, Post-, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Pre-, I feel confident using different techniques to help residents' to eat and drink.	Q6, FU, I feel confident using different techniques to help residents' to eat and drink. - Q6, Post-, I feel confident using different techniques to help residents' to eat and drink.
NH2	Z			-2.554[a]	-3.364[a]	-1.284[a]
	Asymp. Sig. (2-tailed)			.011	.001	.199
	Monte Carlo Sig. (2-tailed)	Sig.		.010	.001	.218
		99% Confidence Interval	Lower Bound	.007	.000	.207
			Upper Bound	.013	.001	.229
	Monte Carlo Sig. (1-tailed)		Sig.	.004	.001	.108
		99% Confidence Interval	Lower Bound	.003	.000	.100
			Upper Bound	.006	.001	.116

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1066061003.

Table 95 HCA attitudes Q8 tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q8, Pre-, It is important to change my method of feeding to suit the resident's needs.	NH1	.285	30	.000	.789	30	.000
	NH2	.272	42	.000	.782	42	.000
	NH3	.261	34	.000	.792	34	.000
Q8, Post-, It is important to change my method of feeding to suit the resident's needs.	NH1	.292	30	.000	.772	30	.000
	NH2	.287	42	.000	.771	42	.000
	NH3	.283	34	.000	.764	34	.000
Q8, FU-, It is important to change my method of feeding to suit the resident's needs.	NH1	.268	30	.000	.790	30	.000
	NH2	.366	42	.000	.686	42	.000
	NH3	.244	34	.000	.797	34	.000

a. Lilliefors Significance Correction

Table 96 HCA attitudes Q8 adapting personalised feeding, NH1, NH2 & NH3, pre-, post and follow up stages of testing.

Test Statistics[a]

NH1			N	30
			Chi-Square	.525
			df	2
			Asymp. Sig.	.769
	Monte Carlo Sig.		Sig.	.788
		99% Confidence Interval	Lower Bound	.777
			Upper Bound	.798
NH2			N	42
			Chi-Square	4.517
			df	2
			Asymp. Sig.	.105
	Monte Carlo Sig.		Sig.	.105
		99% Confidence Interval	Lower Bound	.097
			Upper Bound	.113
NH3			N	34
			Chi-Square	1.551
			df	2
			Asymp. Sig.	.460
	Monte Carlo Sig.		Sig.	.468
		99% Confidence Interval	Lower Bound	.455
			Upper Bound	.481

a. Friedman Test

Table 97 HCA attitudes Q9 tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	NH1	.273	30	.000	.783	30	.000
	NH2	.312	42	.000	.758	42	.000
	NH3	.264	34	.000	.779	34	.000
Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	NH1	.295	30	.000	.764	30	.000
	NH2	.310	42	.000	.731	42	.000
	NH3	.277	34	.000	.859	34	.000
Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	NH1	.368	30	.000	.706	30	.000
	NH2	.341	42	.000	.732	42	.000
	NH3	.283	34	.000	.764	34	.000

a. Lilliefors Significance Correction

Table 98 HCA attitudes, Q9 job satisfaction, NH1, NH2 & NH3

Ranks

Nursing home		Mean Rank
NH1	Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	1.83
	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.00
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.17
NH2	Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	1.93
	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.04
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.04
NH3	Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.18
	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	1.59
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.24

Test Statistics[a]

NH1			N	30
			Chi-Square	2.703
			df	2
			Asymp. Sig.	.259
	Monte Carlo Sig.		Sig.	.262
		99% Confidence Interval	Lower Bound	.251
			Upper Bound	.274
NH2			N	42
			Chi-Square	.514
			df	2
			Asymp. Sig.	.773
	Monte Carlo Sig.		Sig.	.787
		99% Confidence Interval	Lower Bound	.776
			Upper Bound	.798
NH3			N	34
			Chi-Square	13.156
			df	2
			Asymp. Sig.	.001
	Monte Carlo Sig.		Sig.	.001
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.002

a. Friedman Test

Table 99 HCA attitudes Q9 job satisfaction, NH1, NH2 & NH3, pre-, post and follow up stages of testing.

Ranks

Nursing home		Mean Rank
NH1	Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	1.83
	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.00
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.17
NH2	Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	1.93
	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.04
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.04
NH3	Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.18
	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	1.59
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	2.24

Test Statistics[a]

NH1			N	30
			Chi-Square	2.703
			df	2
			Asymp. Sig.	.259
	Monte Carlo Sig.		Sig.	.262
		99% Confidence Interval	Lower Bound	.251
			Upper Bound	.274
NH2			N	42
			Chi-Square	.514
			df	2
			Asymp. Sig.	.773
	Monte Carlo Sig.		Sig.	.787
		99% Confidence Interval	Lower Bound	.776
			Upper Bound	.798
NH3			N	34
			Chi-Square	13.156
			df	2
			Asymp. Sig.	.001
	Monte Carlo Sig.		Sig.	.001
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.002

a. Friedman Test

Table 100 HCA attitudes Q9 job satisfaction, NH3, across testing.

Ranks

Nursing home			N	Mean Rank	Sum of Ranks
NH3	Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for - Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	Negative Ranks	17[a]	11.09	188.50
		Positive Ranks	4[b]	10.63	42.50
		Ties	13[c]		
		Total	34		
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for - Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	Negative Ranks	7[d]	7.57	53.00
		Positive Ranks	8[e]	8.38	67.00
		Ties	19[f]		
		Total	34		
	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for - Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	Negative Ranks	5[g]	12.50	62.50
		Positive Ranks	20[h]	13.13	262.50
		Ties	9[i]		
		Total	34		

Test Statistics[c,d]

Nursing home				Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for - Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for - Q9, Pre-, The work that I do matters and actually makes a difference to the lives of the resident's I care for	Q9, FU-, The work that I do matters and actually makes a difference to the lives of the resident's I care for - Q9, Post-, The work that I do matters and actually makes a difference to the lives of the resident's I care for
NH3	Z			-2.660[a]	-.423[b]	-2.846[b]
	Asymp. Sig. (2-tailed)			.008	.672	.004
	Monte Carlo Sig. (2-tailed)	Sig.		.006	.754	.003
		99% Confidence Interval	Lower Bound	.004	.743	.001
			Upper Bound	.008	.765	.004
	Monte Carlo Sig. (1-tailed)		Sig.	.003	.371	.001
		99% Confidence Interval	Lower Bound	.002	.359	.000
			Upper Bound	.004	.384	.002

a. Based on positive ranks.

b. Based on negative ranks.

c. Wilcoxon Signed Ranks Test

d. Based on 10000 sampled tables with starting seed 102891863.

Table 101 HCA attitudes Q10 stress, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q10, Pre-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	NH1	.254	30	.000	.857	30	.001
	NH2	.185	42	.001	.903	42	.002
	NH3	.295	34	.000	.861	34	.000
Q10, Post-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	NH1	.245	30	.000	.866	30	.001
	NH2	.208	42	.000	.888	42	.001
	NH3	.257	34	.000	.823	34	.000
Q10, FU-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	NH1	.227	30	.000	.876	30	.002
	NH2	.216	42	.000	.858	42	.000
	NH3	.203	34	.001	.839	34	.000

a. Lilliefors Significance Correction

Table 102 HCA attitudes Q10 stress, NH1, NH2 & NH3. pre- post and follow up stages of testing

Ranks

Nursing home		Mean Rank
NH1	Q10, Pre-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	2.32
	Q10, Post-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	1.75
	Q10, FU-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	1.93
NH2	Q10, Pre-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	2.04
	Q10, Post-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	1.87
	Q10, FU-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	2.10
NH3	Q10, Pre-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	1.75
	Q10, Post-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	2.46
	Q10, FU-, I find it stressful working with resident's with dementia who have feeding or swallowing difficulties	1.79

Test Statistics[a]

NH1		N	30
		Chi-Square	6.143
		df	2
		Asymp. Sig.	.046
	Monte Carlo Sig.	Sig.	.047
	99% Confidence Interval	Lower Bound	.041
		Upper Bound	.052
NH2		N	42
		Chi-Square	1.396
		df	2
		Asymp. Sig.	.498
	Monte Carlo Sig.	Sig.	.507
	99% Confidence Interval	Lower Bound	.494
		Upper Bound	.519
NH3		N	34
		Chi-Square	13.266
		df	2
		Asymp. Sig.	.001
	Monte Carlo Sig.	Sig.	.001
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.002

a. Friedman Test

Table 103 HCA daily care practices, Q1 environment, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q1, Pre-. How often do you change the envrionment to suit the resident?	NH1	.172	30	.024	.909	30	.014
	NH2	.230	42	.000	.888	42	.001
	NH3	.260	34	.000	.867	34	.001
Q1, Post-. How often do you change the envrionment to suit the resident?	NH1	.216	30	.001	.872	30	.002
	NH2	.284	42	.000	.872	42	.000
	NH3	.337	34	.000	.810	34	.000
Q1, FU-. How often do you change the envrionment to suit the resident?	NH1	.233	30	.000	.865	30	.001
	NH2	.308	42	.000	.775	42	.000
	NH3	.224	34	.000	.888	34	.002

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q1, Pre-. How often do you change the envrionment to suit the resident?	NH1	.172	30	.024	.909	30	.014
	NH2	.230	42	.000	.888	42	.001
	NH3	.260	34	.000	.867	34	.001
Q1, Post-. How often do you change the envrionment to suit the resident?	NH1	.216	30	.001	.872	30	.002
	NH2	.284	42	.000	.872	42	.000
	NH3	.337	34	.000	.810	34	.000
Q1, FU-. How often do you change the envrionment to suit the resident?	NH1	.233	30	.000	.865	30	.001
	NH2	.308	42	.000	.775	42	.000
	NH3	.224	34	.000	.888	34	.002

a. Lilliefors Significance Correction

Table 104 HCA daily care practices, Q1 environment, NH1, NH2 & NH3 changes over time.

Ranks

Nursing home		Mean Rank
NH1	Q1, Pre-. How often do you change the envrionment to suit the resident?	1.80
	Q1, Post-. How often do you change the envrionment to suit the resident?	2.03
	Q1, FU-. How often do you change the envrionment to suit the resident?	2.17
NH2	Q1, Pre-. How often do you change the envrionment to suit the resident?	1.60
	Q1, Post-. How often do you change the envrionment to suit the resident?	2.07
	Q1, FU-. How often do you change the envrionment to suit the resident?	2.33
NH3	Q1, Pre-. How often do you change the envrionment to suit the resident?	1.97
	Q1, Post-. How often do you change the envrionment to suit the resident?	1.79
	Q1, FU-. How often do you change the envrionment to suit the resident?	2.24

Test Statistics[a]

NH1		N	30
		Chi-Square	2.725
		df	2
		Asymp. Sig.	.256
	Monte Carlo Sig.	Sig.	.267
	99% Confidence Interval	Lower Bound	.256
		Upper Bound	.278
NH2		N	42
		Chi-Square	14.319
		df	2
		Asymp. Sig.	.001
	Monte Carlo Sig.	Sig.	.000
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.001
NH3		N	34
		Chi-Square	4.343
		df	2
		Asymp. Sig.	.114
	Monte Carlo Sig.	Sig.	.113
	99% Confidence Interval	Lower Bound	.105
		Upper Bound	.122

a. Friedman Test

Table 105 HCA, daily care practices, Q3, tests of normality, NH1, NH2 & NH3.

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q3, Pre-, How often do you sit down to assist the resident to eat?	NH1	.312	30	.000	.753	30	.000
	NH2	.298	42	.000	.769	42	.000
	NH3	.272	34	.000	.802	34	.000
Q3, Post-, How often do you sit down to assist the resident to eat?	NH1	.277	30	.000	.774	30	.000
	NH2	.305	42	.000	.769	42	.000
	NH3	.278	34	.000	.794	34	.000
Q3, FU-, How often do you sit down to assist the resident to eat?	NH1	.253	30	.000	.796	30	.000
	NH2	.352	42	.000	.721	42	.000
	NH3	.267	34	.000	.817	34	.000

a. Lilliefors Significance Correction

Table 106 HCA daily care practices, Q3, changes over time, NH1, NH2 and NH3.

Ranks

Nursing home		Mean Rank
NH1	Q3, Pre-, How often do you sit down to assist the resident to eat?	2.05
	Q3, Post-, How often do you sit down to assist the resident to eat?	2.00
	Q3, FU-, How often do you sit down to assist the resident to eat?	1.95
NH2	Q3, Pre-, How often do you sit down to assist the resident to eat?	1.99
	Q3, Post-, How often do you sit down to assist the resident to eat?	1.89
	Q3, FU-, How often do you sit down to assist the resident to eat?	2.12
NH3	Q3, Pre-, How often do you sit down to assist the resident to eat?	2.07
	Q3, Post-, How often do you sit down to assist the resident to eat?	1.96
	Q3, FU-, How often do you sit down to assist the resident to eat?	1.97

Table 107 HCA daily care practices, Q7, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q7, Pre-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	NH1	.405	30	.000	.653	30	.000
	NH2	.435	42	.000	.611	42	.000
	NH3	.394	34	.000	.671	34	.000
Q7, Post-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	NH1	.325	30	.000	.717	30	.000
	NH2	.313	42	.000	.755	42	.000
	NH3	.288	34	.000	.796	34	.000
Q7, FU-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	NH1	.219	30	.001	.808	30	.000
	NH2	.260	42	.000	.783	42	.000
	NH3	.378	34	.000	.693	34	.000

a. Lilliefors Significance Correction

Test Statistics[a]

NH1			N	30
			Chi-Square	.254
			df	2
			Asymp. Sig.	.881
	Monte Carlo Sig.		Sig.	.890
		99% Confidence Interval	Lower Bound	.881
			Upper Bound	.898
NH2			N	42
			Chi-Square	1.750
			df	2
			Asymp. Sig.	.417
	Monte Carlo Sig.		Sig.	.435
		99% Confidence Interval	Lower Bound	.422
			Upper Bound	.448
NH3			N	34
			Chi-Square	.392
			df	2
			Asymp. Sig.	.822
	Monte Carlo Sig.		Sig.	.842
		99% Confidence Interval	Lower Bound	.833
			Upper Bound	.851

a. Friedman Test

Table 108 HCA daily care practices, Q7, changes over time, NH1, NH2 & NH3

Ranks

Nursing home		Mean Rank
NH1	Nursing home	1.00
	Q7, Pre-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	3.23
	Q7, Post-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	3.10
	Q7, FU-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	2.67
NH2	Nursing home	1.00
	Q7, Pre-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	3.31
	Q7, Post-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	2.94
	Q7, FU-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	2.75
NH3	Nursing home	1.21
	Q7, Pre-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	3.12
	Q7, Post-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	2.60
	Q7, FU-, How often do you encourage eating and drinking by ensuring the resident is sitting upright?	3.07

Test Statistics[a]

NH1	N	30
	Chi-Square	66.724
	df	3
	Asymp. Sig.	.000
NH2	N	42
	Chi-Square	92.445
	df	3
	Asymp. Sig.	.000
NH3	N	34
	Chi-Square	59.135
	df	3
	Asymp. Sig.	.000

Test Statistics[a]

NH1	N	30
	Chi-Square	66.724
	df	3
	Asymp. Sig.	.000
NH2	N	42
	Chi-Square	92.445
	df	3
	Asymp. Sig.	.000
NH3	N	34
	Chi-Square	59.135
	df	3
	Asymp. Sig.	.000

a. Friedman Test

Table 109 HCA Daily care practices, Q8, independent eating, NH1, NH2 & NH3

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Q8, Pre-, How often do you support residents to help themselves to eat and drink?	NH1	.316	30	.000	.835	30	.000
	NH2	.258	42	.000	.790	42	.000
	NH3	.233	33	.000	.803	33	.000
Q8 Post-, How often do you support the residents to help themselves to eat and drink?	NH1	.242	30	.000	.857	30	.001
	NH2	.253	42	.000	.834	42	.000
	NH3	.196	33	.002	.909	33	.009
Q8, FU-, How often do you support the residents to help themselves to eat and drink?	NH1	.252	30	.000	.810	30	.000
	NH2	.244	42	.000	.797	42	.000
	NH3	.232	33	.000	.829	33	.000

a. Lilliefors Significance Correction

Table 110 HCA daily care practices, Q8, NH1, NH2 & NH3, changes over time.

Ranks

Nursing home		Mean Rank
NH1	Nursing home	1.00
	Q8, Pre-, How often do you support the resident to help themselves to eat and drink?	2.55
	Q8 Post-, How often do you support the resident to help themselves to eat and drink?	3.17
	Q8, FU-, How often do you support the resident to help themselves to eat and drink?	3.28
NH2	Nursing home	1.15
	Q8, Pre-, How often do you support the resident to help themselves to eat and drink?	3.08
	Q8 Post-, How often do you support the resident to help themselves to eat and drink?	2.69
	Q8, FU-, How often do you support the resident to help themselves to eat and drink?	3.07
NH3	Nursing home	1.74
	Q8, Pre-, How often do you support the resident to help themselves to eat and drink?	3.18
	Q8 Post-, How often do you support the resident to help themselves to eat and drink?	2.23
	Q8, FU-, How often do you support the resident to help themselves to eat and drink?	2.85

Test Statistics[a]

NH1			N	30
			Chi-Square	66.457
			df	3
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH2			N	42
			Chi-Square	72.466
			df	3
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000
NH3			N	33
			Chi-Square	28.914
			df	3
			Asymp. Sig.	.000
	Monte Carlo Sig.		Sig.	.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 111 HCA daily care practices Q8, NH1, changes over time

Test Statistics[b,c]

Nursing home				Q8 Post-, How often do you support the resident to help themselves to eat and drink? - Q8, Pre-, How often do you support the resident to help themselves to eat and drink?	Q8, FU-, How often do you support the resident to help themselves to eat and drink? - Q8, Pre-, How often do you support the resident to help themselves to eat and drink?	Q8, FU-, How often do you support the resident to help themselves to eat and drink? - Q8 Post-, How often do you support the resident to help themselves to eat and drink?
NH1	Z			-2.515[a]	-3.143[a]	-.625[a]
	Asymp. Sig. (2-tailed)			.012	.002	.532
	Monte Carlo Sig. (2-tailed)	Sig.		.012	.001	.561
		99% Confidence Interval	Lower Bound	.010	.000	.548
			Upper Bound	.015	.002	.573
	Monte Carlo Sig. (1-tailed)		Sig.	.007	.000	.281
		99% Confidence Interval	Lower Bound	.005	.000	.269
			Upper Bound	.009	.001	.292

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1042130385.

Table 112 HCA daily care practices, Q10, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q10, Pre-, Do you feed individual residents with dementia on regular basis?	NH1	.349	30	.000	.724	30	.000
	NH2	.313	42	.000	.755	42	.000
	NH3	.280	34	.000	.817	34	.000
Q10, Post-, Do you feed individual residents with dementia on regular basis?	NH1	.206	30	.002	.848	30	.001
	NH2	.237	42	.000	.841	42	.000
	NH3	.192	34	.003	.861	34	.000
Q10, FU-, Do you feed individual residents with dementia on regular basis?	NH1	.265	30	.000	.743	30	.000
	NH2	.222	42	.000	.845	42	.000
	NH3	.261	34	.000	.792	34	.000

a. Lilliefors Significance Correction

Table 113 HCA daily care practices, Q10, changes over time, NH1, NH2 & NH3

Ranks

Nursing home		Mean Rank
NH1	Q10, Pre-, Do you feed individual residents with dementia on regular basis?	2.27
	Q10, Post-, Do you feed individual residents with dementia on regular basis?	1.78
	Q10, FU-, Do you feed individual residents with dementia on regular basis?	1.95
NH2	Q10, Pre-, Do you feed individual residents with dementia on regular basis?	2.17
	Q10, Post-, Do you feed individual residents with dementia on regular basis?	1.98
	Q10, FU-, Do you feed individual residents with dementia on regular basis?	1.86
NH3	Q10, Pre-, Do you feed individual residents with dementia on regular basis?	2.24
	Q10, Post-, Do you feed individual residents with dementia on regular basis?	1.37
	Q10, FU-, Do you feed individual residents with dementia on regular basis?	2.40

Test Statistics[a]

NH1		N	30
		Chi-Square	5.167
		df	2
		Asymp. Sig.	.076
Monte Carlo Sig.		Sig.	.079
	99% Confidence Interval	Lower Bound	.072
		Upper Bound	.086
NH2		N	42
		Chi-Square	2.667
		df	2
		Asymp. Sig.	.264
Monte Carlo Sig.		Sig.	.271
	99% Confidence Interval	Lower Bound	.259
		Upper Bound	.282
NH3		N	34
		Chi-Square	26.736
		df	2
		Asymp. Sig.	.000
Monte Carlo Sig.		Sig.	.000
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Friedman Test

Table 114 HCA daily care practices, Q2, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	NH1	.263	30	.000	.836	30	.000
	NH2	.204	42	.000	.908	42	.002
	NH3	.214	34	.000	.876	34	.001
Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties?	NH1	.252	30	.000	.855	30	.001
	NH2	.217	42	.000	.874	42	.000
	NH3	.275	34	.000	.860	34	.000
Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties?	NH1	.246	30	.000	.824	30	.000
	NH2	.234	42	.000	.839	42	.000
	NH3	.177	34	.009	.918	34	.014

a. Lilliefors Significance Correction

Table 115 HCA daily care practices, Q2, NH1, changes over time

Ranks

Nursing home		Mean Rank
NH1	Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	1.45
	Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties?	2.00
	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties?	2.55

Test Statistics[a]

NH1	N			30
	Chi-Square			21.146
	Df			2
	Asymp. Sig.			.000
	Monte Carlo Sig.	Sig.		.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 116 HCA daily care practices, Q2, NH1, post hoc analysis

Test Statistics[b,c]

Nursing home				Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties? - Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties? - Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties? - Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties?
NH1	Z			-3.266[a]	-4.026[a]	-2.659[a]
	Asymp. Sig. (2-tailed)			.001	.000	.008
	Monte Carlo Sig. (2-tailed)	Sig.		.001	.000	.008
		99% Confidence Interval	Lower Bound	.000	.000	.005
			Upper Bound	.002	.000	.010
	Monte Carlo Sig. (1-tailed)		Sig.	.000	.000	.003
		99% Confidence Interval	Lower Bound	.000	.000	.002
			Upper Bound	.001	.000	.005

a. Based on negative ranks.

Table 117 HCA daily care practices, Q2, NH2, changes over time

Ranks

Nursing home		Mean Rank
NH2	Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	1.70
	Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties?	2.07
	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties?	2.23

Test Statistics[a]

NH2	N			42
	Chi-Square			8.176
	df			2
	Asymp. Sig.			.017
	Monte Carlo Sig.	Sig.		.017
		99% Confidence Interval	Lower Bound	.013
			Upper Bound	.020

a. Friedman Test

Table 118 HCA daily care practices, Q2, NH3, changes over time

Ranks

Nursing home		Mean Rank
NH3	Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	2.43
	Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties?	1.53
	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties?	2.04

Test Statistics[a]

NH3	N			34
	Chi-Square			16.732
	Df			2
	Asymp. Sig.			.000
	Monte Carlo Sig.	Sig.		.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 119 HCA daily care practices, Q2, NH3, post hoc analysis

Test Statistics[c,d]

Nursing home				Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties? - Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties? - Q2, Pre-, How often do you change the residents diet to suit their swallowing difficulties?	Q2, FU-, How often do you change the residents diet to suit their swallowing difficulties? - Q2, Post-, How often do you change the residents diet to suit their swallowing difficulties?
NH3	Z			-3.752[a]	-2.026[a]	-2.308[b]
	Asymp. Sig. (2-tailed)			.000	.043	.021
	Monte Carlo Sig. (2-tailed)	Sig.		.000	.044	.019
		99% Confidence Interval	Lower Bound	.000	.038	.016
			Upper Bound	.000	.049	.023
	Monte Carlo Sig. (1-tailed)		Sig.	.000	.023	.009
		99% Confidence Interval	Lower Bound	.000	.019	.006
			Upper Bound	.000	.026	.011

Table 120 HCA daily practices, Q4, tests of normality.

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q4, Pre-, How often do you thicken fluids for residents who need it?	NH1	.242	30	.000	.821	30	.000
	NH2	.225	42	.000	.842	42	.000
	NH3	.286	34	.000	.833	34	.000
Q4, Post-, How often do you thicken fluids for residents who need it?	NH1	.332	30	.000	.734	30	.000
	NH2	.252	42	.000	.829	42	.000
	NH3	.308	34	.000	.827	34	.000
Q4, FU-, How often do you thicken fluids for residents who need it?	NH1	.257	30	.000	.787	30	.000
	NH2	.244	42	.000	.798	42	.000
	NH3	.250	34	.000	.828	34	.000

a. Lilliefors Significance Correction

Table 121 HCA daily care practices, Q4, NH1, NH2 & NH3, changes over time

Ranks

Nursing home		Mean Rank
NH1	Q4, Pre-, How often do you thicken fluids for residents who need it?	1.68
	Q4, Post-, How often do you thicken fluids for residents who need it?	2.32
	Q4, FU-, How often do you thicken fluids for residents who need it?	2.00
NH2	Q4, Pre-, How often do you thicken fluids for residents who need it?	1.88
	Q4, Post-, How often do you thicken fluids for residents who need it?	2.05
	Q4, FU-, How often do you thicken fluids for residents who need it?	2.07
NH3	Q4, Pre-, How often do you thicken fluids for residents who need it?	1.71
	Q4, Post-, How often do you thicken fluids for residents who need it?	1.99
	Q4, FU-, How often do you thicken fluids for residents who need it?	2.31

Test Statistics[a]

NH1			N	30
			Chi-Square	7.600
			df	2
			Asymp. Sig.	.022
	Monte Carlo Sig.		Sig.	.020
		99% Confidence Interval	Lower Bound	.017
			Upper Bound	.024
NH2			N	42
			Chi-Square	1.421
			df	2
			Asymp. Sig.	.492
	Monte Carlo Sig.		Sig.	.500
		99% Confidence Interval	Lower Bound	.488
			Upper Bound	.513
NH3			N	34
			Chi-Square	7.869
			df	2
			Asymp. Sig.	.020
	Monte Carlo Sig.		Sig.	.019
		99% Confidence Interval	Lower Bound	.016
			Upper Bound	.023

a. Friedman Test

Table 122 HCA daily care practices, Q4, post hoc analysis

Test Statistics[c,d]

Nursing home				Q4, Post-, How often do you thicken fluids for residents who need it? - Q4, Pre-, How often do you thicken fluids for residents who need it?	Q4, FU-, How often do you thicken fluids for residents who need it? - Q4, Pre-, How often do you thicken fluids for residents who need it?	Q4, FU-, How often do you thicken fluids for residents who need it? - Q4, Post-, How often do you thicken fluids for residents who need it?
NH1	Z			-2.844[a]	-1.684[a]	-1.275[b]
	Asymp. Sig. (2-tailed)			.004	.092	.202
	Monte Carlo Sig. (2-tailed)	Sig.		.004	.095	.205
		99% Confidence Interval	Lower Bound	.002	.087	.194
			Upper Bound	.005	.102	.215
	Monte Carlo Sig. (1-tailed)		Sig.	.003	.050	.101
		99% Confidence Interval	Lower Bound	.001	.044	.093
			Upper Bound	.004	.055	.109

Table 123 HCA daily care practices, Q4, NH3, post hoc analysis.

Test Statistics[b,c]

Nursing home				Q4, Post-, How often do you thicken fluids for residents who need it? - Q4, Pre-, How often do you thicken fluids for residents who need it?	Q4, FU-, How often do you thicken fluids for residents who need it? - Q4, Pre-, How often do you thicken fluids for residents who need it?	Q4, FU-, How often do you thicken fluids for residents who need it? - Q4, Post-, How often do you thicken fluids for residents who need it?
NH3	Z			-1.645[a]	-2.615[a]	-1.250[a]
	Asymp. Sig. (2-tailed)			.100	.009	.211
	Monte Carlo Sig. (2-tailed)	Sig.		.117	.007	.236
		99% Confidence Interval	Lower Bound	.109	.004	.225
			Upper Bound	.125	.009	.247
	Monte Carlo Sig. (1-tailed)		Sig.	.061	.003	.124
		99% Confidence Interval	Lower Bound	.055	.002	.115
			Upper Bound	.067	.004	.132

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 562334227.

Table 124 HCA daily care practices, Q5, tests of normality

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Q5, Pre, How often do you contribute towards developing the residents care plan?	Based on Mean	3.967	2	103	.022
	Based on Median	1.220	2	103	.299
	Based on Median and with adjusted df	1.220	2	83.393	.300
	Based on trimmed mean	2.998	2	103	.054
Q5, Post, How often do you contribute towards developing the residents care plan?	Based on Mean	.342	2	103	.711
	Based on Median	.209	2	103	.812
	Based on Median and with adjusted df	.209	2	90.353	.812
	Based on trimmed mean	.294	2	103	.746
Q5, FU-, How often do you contribute towards developing the residents care plan?	Based on Mean	24.593	2	103	.000
	Based on Median	4.668	2	103	.011
	Based on Median and with adjusted df	4.668	2	52.646	.014
	Based on trimmed mean	21.352	2	103	.000

Table 125 HCA daily care practices, Q5, NH1, changes over time.

Test Statistics[a]

NH1	N			30
	Chi-Square			9.283
	Df			2
	Asymp. Sig.			.010
	Monte Carlo Sig.	Sig.		.009
		99% Confidence Interval	Lower Bound	.006
			Upper Bound	.011

a. Friedman Test

Table 126 HCA daily care practices, NH1, post hoc analysis.

Test Statistics[c,d]

Nursing home				Q5, Post, How often do you contribute towards developing the residents feeding care plan? - Q5, Pre, How often do you contribute towards developing the residents feeding care plan?	Q5, FU-, How often do you contribute towards developing the residents feeding care plan? - Q5, Pre, How often do you contribute towards developing the residents feeding care plan?	Q5, FU-, How often do you contribute towards developing the residents feeding care plan? - Q5, Post, How often do you contribute towards developing the residents feeding care plan?
NH1	Z			-1.674[a]	-2.025[b]	-2.980[b]
	Asymp. Sig. (2-tailed)			.094	.043	.003
	Monte Carlo Sig. (2-tailed)	Sig.		.119	.047	.003
		99% Confidence Interval	Lower Bound	.110	.042	.001
			Upper Bound	.127	.053	.004
	Monte Carlo Sig. (1-tailed)		Sig.	.058	.025	.001
		99% Confidence Interval	Lower Bound	.052	.021	.000
			Upper Bound	.064	.029	.002

a. Based on negative ranks.

b. Based on positive ranks.

c. Wilcoxon Signed Ranks Test

d. Based on 10000 sampled tables with starting seed 126474071.

Table 127 HCA daily care attitudes, Q5, changes over time

Test Statistics[a]

NH2	N			42
	Chi-Square			5.532
	Df			2
	Asymp. Sig.			.063
	Monte Carlo Sig.	Sig.		.060
		99% Confidence Interval	Lower Bound	.054
			Upper Bound	.066

a. Friedman Test

Table 128 HCA daily care practices, Q5, changes over time.

Test Statistics[a]

NH3	N			34
	Chi-Square			3.250
	Df			2
	Asymp. Sig.			.197
	Monte Carlo Sig.	Sig.		.202
		99% Confidence Interval	Lower Bound	.192
			Upper Bound	.212

a. Friedman Test

Table 129 HCA daily care practices, Q6, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q6, Pre-, How often do you check to ensure that the resident eats and drinks enough throughout the day?	NH1	.292	30	.000	.773	30	.000
	NH2	.258	42	.000	.791	42	.000
	NH3	.294	34	.000	.770	34	.000
Q6, Post-, How often do you check to ensure the resident eats and drinks enough throughout the day?	NH1	.279	30	.000	.794	30	.000
	NH2	.285	42	.000	.775	42	.000
	NH3	.284	34	.000	.856	34	.000
Q6, FU-, How often do you check to ensure the resident eats and drinks enough throughout the day?	NH1	.300	30	.000	.749	30	.000
	NH2	.219	42	.000	.848	42	.000
	NH3	.190	34	.003	.869	34	.001

a. Lilliefors Significance Correction

Table 130 HCA daily care practices, Q6, NH1 changes over time

Test Statistics[a]

NH1	N			30
	Chi-Square			63.453
	Df			3
	Asymp. Sig.			.000
	Monte Carlo Sig.	Sig.		.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 131 HCA daily care practices, Q6, NH2 changes over time

Test Statistics[a]

NH2	N			42
	Chi-Square			4.873
	Df			2
	Asymp. Sig.			.087
	Monte Carlo Sig.	Sig.		.098
		99% Confidence Interval	Lower Bound	.090
			Upper Bound	.106

a. Friedman Test

Table 132 HCA daily care practices, Q6, NH3 changes over time

Test Statistics[a]

NH3	N			34
	Chi-Square			36.694
	Df			2
	Asymp. Sig.			.000
	Monte Carlo Sig.	Sig.		.000
		99% Confidence Interval	Lower Bound	.000
			Upper Bound	.000

a. Friedman Test

Table 133 HCA daily care practices, Q9, tests of normality

Tests of Normality

	Nursing home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Q9, Pre-, How often do you document how the resident managed to eat and drink in the nursing notes?	NH1	.247	30	.000	.814	30	.000
	NH2	.298	42	.000	.769	42	.000
	NH3	.328	34	.000	.745	34	.000
Q9 Post-, How often do you document how the resident managed to eat and drink in the nursing notes?	NH1	.273	30	.000	.868	30	.001
	NH2	.212	42	.000	.824	42	.000
	NH3	.202	34	.001	.856	34	.000
Q9, FU-, How often do you document how the resident managed to eat and drink in the nursing notes?	NH1	.234	30	.000	.802	30	.000
	NH2	.243	42	.000	.807	42	.000
	NH3	.346	34	.000	.723	34	.000

a. Lilliefors Significance Correction

Table 134 HCA daily care practices, Q9, NH1, NH2 & NH3, changes over time

Test Statistics[a]

NH1			N	30
			Chi-Square	5.945
			Df	2
			Asymp. Sig.	.051
	Monte Carlo Sig.		Sig.	.051
		99% Confidence Interval	Lower Bound	.045
			Upper Bound	.056
NH2			N	42
			Chi-Square	.850
			Df	2
			Asymp. Sig.	.654
	Monte Carlo Sig.		Sig.	.673
		99% Confidence Interval	Lower Bound	.661
			Upper Bound	.685
NH3			N	34
			Chi-Square	5.588
			Df	2
			Asymp. Sig.	.061
	Monte Carlo Sig.		Sig.	.067
		99% Confidence Interval	Lower Bound	.060
			Upper Bound	.073

a. Friedman Test

Table 135 Correlation Malnutrition and Feeding assistance

Correlations

			Physical Assitance	Verbal Stimulation	Social Stimulation	Assistance time	Total eaten
Spearman's rho	Physical Assitance	Correlation Coefficient	1.000	.201**	.108*	.281**	.029
		Sig. (2-tailed)	.	.000	.021	.000	.539
		N	452	452	452	452	452
	Verbal Stimulation	Correlation Coefficient	.201**	1.000	.144**	-.011	-.034
		Sig. (2-tailed)	.000	.	.002	.823	.468
		N	452	452	452	452	452
	Social Stimulation	Correlation Coefficient	.108*	.144**	1.000	.103*	.092
		Sig. (2-tailed)	.021	.002	.	.028	.051
		N	452	452	452	452	452
	Assistance time	Correlation Coefficient	.281**	-.011	.103*	1.000	.124**
		Sig. (2-tailed)	.000	.823	.028	.	.008
		N	452	452	452	452	452
	Total eaten	Correlation Coefficient	.029	-.034	.092	.124**	1.000
		Sig. (2-tailed)	.539	.468	.051	.008	.
		N	452	452	452	452	452

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 136 Tests of Normality, NH1, NH2 & NH3

Tests of Normality

	Nursing Home	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Percentage eaten	NH1	.121	144	.000	.903	144	.000
	NH2	.252	137	.000	.736	137	.000
	NH3	.128	171	.000	.909	171	.000

a. Lilliefors Significance Correction

Table 137 Total Food Consumption, NH1, NH2 & NH3

Ranks

	Nursing Home	N	Mean Rank
Percentage eaten	NH1	69	82.31
	NH2	61	133.73
	NH3	79	102.63
	Total	209	

Test Statistics[b,c]

			Percentage eaten
Chi-Square			23.857
df			2
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

Table 138 Food consumption: NH1 and NH2

Ranks

	Nursing Home	N	Mean Rank	Sum of Ranks
Percentage eaten	NH1	69	51.39	3546.00
	NH2	61	81.46	4969.00
	Total	130		

Test Statistics[b]

			Percentage eaten
Mann-Whitney U			1131.000
Wilcoxon W			3546.000
Z			-4.572
Asymp. Sig. (2-tailed)			.000
Monte Carlo Sig. (2-tailed)	Sig.		.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000
Monte Carlo Sig. (1-tailed)		Sig.	.000[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.000

a. Based on 10000 sampled tables with starting seed 329836257.

b. Grouping Variable: Nursing Home

Table 139 Food consumption: NH2 and NH3

Ranks

	Nursing Home	N	Mean Rank	Sum of Ranks
Percentage eaten	NH2	61	83.27	5079.50
	NH3	79	60.64	4790.50
	Total	140		

Test Statistics[b]

			Percentage eaten
Mann-Whitney U			1630.500
Wilcoxon W			4790.500
Z			-3.300
Asymp. Sig. (2-tailed)			.001
Monte Carlo Sig. (2-tailed)	Sig.		.001[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.002
Monte Carlo Sig. (1-tailed)		Sig.	.001[a]
	99% Confidence Interval	Lower Bound	.000
		Upper Bound	.001

a. Based on 10000 sampled tables with starting seed 1993510611.

b. Grouping Variable: Nursing Home

Table 140 Food consumption: NH1 and NH3

Ranks

	Nursing Home	N	Mean Rank	Sum of Ranks
Percentage eaten	NH1	69	65.92	4548.50
	NH3	79	81.99	6477.50
	Total	148		

Test Statistics[b]

			Percentage eaten
Mann-Whitney U			2133.500
Wilcoxon W			4548.500
Z			-2.283
Asymp. Sig. (2-tailed)			.022
Monte Carlo Sig. (2-tailed)	Sig.		.023[a]
	99% Confidence Interval	Lower Bound	.019
		Upper Bound	.027
Monte Carlo Sig. (1-tailed)		Sig.	.010[a]
	99% Confidence Interval	Lower Bound	.007
		Upper Bound	.012

a. Based on 10000 sampled tables with starting seed 1535910591.

b. Grouping Variable: Nursing Home

Table 141 Food consumption, NH1

Ranks

		N	Mean Rank	Sum of Ranks
Percentage consumed post- training - Percentage consumed pre- training	Negative Ranks	32[a]	30.61	979.50
	Positive Ranks	35[b]	37.10	1298.50
	Ties	2[c]		
	Total	69		

a. Percentage consumed post- training < Percentage consumed pre- training

b. Percentage consumed post- training > Percentage consumed pre- training

c. Percentage consumed post- training = Percentage consumed pre- training

Test Statistics[b,c]

			Percentage consumed post- training - Percentage consumed pre- training
Z			-.997[a]
Asymp. Sig. (2-tailed)			.319
Monte Carlo Sig. (2-tailed)	Sig.		.316
	99% Confidence Interval	Lower Bound	.304
		Upper Bound	.328
Monte Carlo Sig. (1-tailed)		Sig.	.156
	99% Confidence Interval	Lower Bound	.147
		Upper Bound	.165

Table 142 NH2, food consumption

Ranks

		N	Mean Rank	Sum of Ranks
Percentage consumed post- training - Percentage consumed pre- training	Negative Ranks	19[a]	33.39	634.50
	Positive Ranks	29[b]	18.67	541.50
	Ties	13[c]		
	Total	61		

a. Percentage consumed post- training < Percentage consumed pre- training

b. Percentage consumed post- training > Percentage consumed pre- training

c. Percentage consumed post- training = Percentage consumed pre- training

Test Statistics[b,c]

			Percentage consumed post- training - Percentage consumed pre- training
Z			-.477[a]
Asymp. Sig. (2-tailed)			.633
Monte Carlo Sig. (2-tailed)	Sig.		.638
	99% Confidence Interval	Lower Bound	.625
		Upper Bound	.650
Monte Carlo Sig. (1-tailed)		Sig.	.318
	99% Confidence Interval	Lower Bound	.306
		Upper Bound	.330

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 745618922.

Table 143 NH3, food consumption, pre- and post training

Ranks

		N	Mean Rank	Sum of Ranks
Percentage consumed post- - Percentage consumed pre-	Negative Ranks	40[a]	41.99	1679.50
	Positive Ranks	37[b]	35.77	1323.50
	Ties	2[c]		
	Total	79		

Test Statistics[b,c]

			Percentage consumed post- - Percentage consumed pre-
Z			-.904[a]
Asymp. Sig. (2-tailed)			.366
Monte Carlo Sig. (2-tailed)	Sig.		.370
	99% Confidence Interval	Lower Bound	.358
		Upper Bound	.383
Monte Carlo Sig. (1-tailed)		Sig.	.184
	99% Confidence Interval	Lower Bound	.174
		Upper Bound	.194

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

c. Based on 10000 sampled tables with starting seed 1978014291.

Table 144 Food consumption and social stimulation

Ranks

	Social Stimulation	N	Mean Rank	Sum of Ranks
Percentage consumed	Social Stimulation Provided	166	245.30	40719.50
	No Social Stimulation	286	215.59	61658.50
	Total	452		

Test Statistics[b]

			Percentage consumed
Mann-Whitney U			20617.500
Wilcoxon W			61658.500
Z			-2.353
Asymp. Sig. (2-tailed)			.019
Monte Carlo Sig. (2-tailed)	Sig.		.019[a]
	99% Confidence Interval	Lower Bound	.015
		Upper Bound	.022
Monte Carlo Sig. (1-tailed)		Sig.	.010[a]
	99% Confidence Interval	Lower Bound	.007
		Upper Bound	.012

a. Based on 10000 sampled tables with starting seed 624387341.

b. Grouping Variable: Social Stimulation

Table 145 Food consumption and assistance duration

Ranks

	Assistance time	N	Mean Rank	Sum of Ranks
Percentage consumed	More than five minutes	185	244.72	45273.00
	Less than five minutes	267	213.88	57105.00
	Total	452		

Test Statistics[a]

	Percentage consumed
Mann-Whitney U	21327.000
Wilcoxon W	57105.000
Z	-2.492
Asymp. Sig. (2-tailed)	.013

a. Grouping Variable: Assistance time

Table 146 Food consumption and physical assistance

Ranks

	Physical Assitance	N	Mean Rank	Sum of Ranks
Percentage consumed	PA Provided	254	218.47	55492.00
	PA Not Provided	198	236.80	46886.00
	Total	452		

Test Statistics[b]

			Percentage consumed
Mann-Whitney U			23107.000
Wilcoxon W			55492.000
Z			-1.494
Asymp. Sig. (2-tailed)			.135
Monte Carlo Sig. (2-tailed)	Sig.		.142[a]
	99% Confidence Interval	Lower Bound	.133
		Upper Bound	.151
Monte Carlo Sig. (1-tailed)		Sig.	.073[a]
	99% Confidence Interval	Lower Bound	.066
		Upper Bound	.079

a. Based on 10000 sampled tables with starting seed 1314643744.

Test Statistics[b]

			Percentage consumed
Mann-Whitney U			23107.000
Wilcoxon W			55492.000
Z			-1.494
Asymp. Sig. (2-tailed)			.135
Monte Carlo Sig. (2-tailed)	Sig.		.142[a]
	99% Confidence Interval	Lower Bound	.133
		Upper Bound	.151
Monte Carlo Sig. (1-tailed)		Sig.	.073[a]
	99% Confidence Interval	Lower Bound	.066
		Upper Bound	.079

a. Based on 10000 sampled tables with starting seed 1314643744.

b. Grouping Variable: Physical Assitance

Table 147 Food consumption and verbal stimulation

Ranks

	Verbal Stimulation	N	Mean Rank	Sum of Ranks
Percentage consumed	Verbal Assistance	274	219.33	60096.50
	No Verbal Assistance	178	237.54	42281.50
	Total	452		

Test Statistics[b]

			Percentage consumed
Mann-Whitney U			22421.500
Wilcoxon W			60096.500
Z			-1.461
Asymp. Sig. (2-tailed)			.144
Monte Carlo Sig. (2-tailed)	Sig.		.142[a]
	99% Confidence Interval	Lower Bound	.133
		Upper Bound	.151
Monte Carlo Sig. (1-tailed)		Sig.	.074[a]
	99% Confidence Interval	Lower Bound	.067
		Upper Bound	.081

a. Based on 10000 sampled tables with starting seed 334431365.

b. Grouping Variable: Verbal Stimulation

Table 148, NH1, physical assistance, pre- & post training

Crosstab

			Physical Assitance		
			PA Provided	PA Not Provided	Total
Observation stage	Pre-training	Count	36	33	69
		Expected Count	42.2	26.8	69.0
		% within Observation stage	52.2%	47.8%	100.0%
		% within Physical Assitance	40.9%	58.9%	47.9%
		% of Total	25.0%	22.9%	47.9%
		Std. Residual	-.9	1.2	
	Post-training	Count	52	23	75
		Expected Count	45.8	29.2	75.0
		% within Observation stage	69.3%	30.7%	100.0%
		% within Physical Assistance	59.1%	41.1%	52.1%
		% of Total	36.1%	16.0%	52.1%
		Std. Residual	.9	-1.1	
Total		Count	88	56	144
		Expected Count	88.0	56.0	144.0
		% within Observation stage	61.1%	38.9%	100.0%
		% within Physical Assitance	100.0%	100.0%	100.0%
		% of Total	61.1%	38.9%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	4.453[a]	1	.035	.041	.026	
Continuity Correction[b]	3.760	1	.052			
Likelihood Ratio	4.471	1	.034	.041	.026	
Fisher's Exact Test				.041	.026	
Linear-by-Linear Association	4.422[c]	1	.035	.041	.026	.015
N of Valid Cases	144					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.83.

b. Computed only for a 2x2 table

c. The standardized statistic is -2.103.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 149 NH1, verbal stimulation, pre- & post testing

Crosstab

			Verbal Stimulation		
			Verbal Assistance	No Verbal Assistance	Total
Observation stage	Pre-training	Count	50	19	69
		Expected Count	50.3	18.7	69.0
		% within Observation stage	72.5%	27.5%	100.0%
		% within Verbal Stimulation	47.6%	48.7%	47.9%
		% of Total	34.7%	13.2%	47.9%
		Std. Residual	.0	.1	
	Post-training	Count	55	20	75
		Expected Count	54.7	20.3	75.0
		% within Observation stage	73.3%	26.7%	100.0%
		% within Verbal Stimulation	52.4%	51.3%	52.1%
		% of Total	38.2%	13.9%	52.1%
		Std. Residual	.0	.0	
Total		Count	105	39	144
		Expected Count	105.0	39.0	144.0
		% within Observation stage	72.9%	27.1%	100.0%
		% within Verbal Stimulation	100.0%	100.0%	100.0%
		% of Total	72.9%	27.1%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.014[a]	1	.907	1.000	.528	
Continuity Correction[b]	.000	1	1.000			
Likelihood Ratio	.014	1	.907	1.000	.528	
Fisher's Exact Test				1.000	.528	
Linear-by-Linear Association	.014[c]	1	.907	1.000	.528	.148
N of Valid Cases	144					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.69.

b. Computed only for a 2x2 table

c. The standardized statistic is -.117.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 150, NH1, social stimulation, pre- & post stages of testing

Crosstab

			Social Stimulation		
			Social Stimulation Provided	No Social Stimulation	Total
Observation stage	Pre-training	Count	35	34	69
		Expected Count	26.8	42.2	69.0
		% within Observation stage	50.7%	49.3%	100.0%
		% within Social Stimulation	62.5%	38.6%	47.9%
		% of Total	24.3%	23.6%	47.9%
		Std. Residual	1.6	-1.3	
	Post-training	Count	21	54	75
		Expected Count	29.2	45.8	75.0
		% within Observation stage	28.0%	72.0%	100.0%
		% within Social Stimulation	37.5%	61.4%	52.1%
		% of Total	14.6%	37.5%	52.1%
		Std. Residual	-1.5	1.2	
Total		Count	56	88	144
		Expected Count	56.0	88.0	144.0
		% within Observation stage	38.9%	61.1%	100.0%
		% within Social Stimulation	100.0%	100.0%	100.0%
		% of Total	38.9%	61.1%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	7.809[a]	1	.005	.006	.004	
Continuity Correction[b]	6.882	1	.009			
Likelihood Ratio	7.873	1	.005	.006	.004	
Fisher's Exact Test				.006	.004	
Linear-by-Linear Association	7.755[c]	1	.005	.006	.004	.003
N of Valid Cases	144					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.83.

b. Computed only for a 2x2 table

c. The standardized statistic is 2.785.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 151, NH2, physical assistance, pre- & post stages of testing

Crosstab

			Physical assistance		
			PA Provided	PA Not Provided	Total
Observation stage	Pre-training	Count	33	28	61
		Expected Count	33.8	27.2	61.0
		% within Observation stage	54.1%	45.9%	100.0%
		% within Physical Assitance	43.4%	45.9%	44.5%
		% of Total	24.1%	20.4%	44.5%
		Std. Residual	-.1	.2	
	Post-training	Count	43	33	76
		Expected Count	42.2	33.8	76.0
		% within Observation stage	56.6%	43.4%	100.0%
		% within Physical Assitance	56.6%	54.1%	55.5%
		% of Total	31.4%	24.1%	55.5%
		Std. Residual	.1	-.1	
Total		Count	76	61	137
		Expected Count	76.0	61.0	137.0
		% within Observation stage	55.5%	44.5%	100.0%
		% within Physical Assitance	100.0%	100.0%	100.0%
		% of Total	55.5%	44.5%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.084[a]	1	.772	.863	.453	
Continuity Correction[b]	.014	1	.907			
Likelihood Ratio	.084	1	.772	.863	.453	
Fisher's Exact Test				.863	.453	
Linear-by-Linear Association	.084[c]	1	.772	.863	.453	.132
N of Valid Cases	137					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.16.

b. Computed only for a 2x2 table

c. The standardized statistic is -.289.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 152, NH2, verbal stimulation, pre- & post stages of testing

Crosstab

			Verbal Stimulation		
			Verbal Assistance	No Verbal Assistance	Total
Observation stage	Pre-training	Count	36	25	61
		Expected Count	37.4	23.6	61.0
		% within Observation stage	59.0%	41.0%	100.0%
		% within Verbal Stimulation	42.9%	47.2%	44.5%
		% of Total	26.3%	18.2%	44.5%
		Std. Residual	-.2	.3	
	Post-training	Count	48	28	76
		Expected Count	46.6	29.4	76.0
		% within Observation stage	63.2%	36.8%	100.0%
		% within Verbal Stimulation	57.1%	52.8%	55.5%
		% of Total	35.0%	20.4%	55.5%
		Std. Residual	.2	-.3	
Total		Count	84	53	137
		Expected Count	84.0	53.0	137.0
		% within Observation stage	61.3%	38.7%	100.0%
		% within Verbal Stimulation	100.0%	100.0%	100.0%
		% of Total	61.3%	38.7%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.245[a]	1	.621	.724	.375	
Continuity Correction[b]	.101	1	.750			
Likelihood Ratio	.244	1	.621	.724	.375	
Fisher's Exact Test				.724	.375	
Linear-by-Linear Association	.243[c]	1	.622	.724	.375	.124
N of Valid Cases	137					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.60.

b. Computed only for a 2x2 table

c. The standardized statistic is -.493.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 153, NH2, social stimulation, pre- & post stages of testing

Crosstab

			Social Stimulation		
			Social Stimulation Provided	No Social Stimulation	Total
Observation stage	Pre-training	Count	34	27	61
		Expected Count	32.1	28.9	61.0
		% within Observation stage	55.7%	44.3%	100.0%
		% within Social Stimulation	47.2%	41.5%	44.5%
		% of Total	24.8%	19.7%	44.5%
		Std. Residual	.3	-.4	
	Post-training	Count	38	38	76
		Expected Count	39.9	36.1	76.0
		% within Observation stage	50.0%	50.0%	100.0%
		% within Social Stimulation	52.8%	58.5%	55.5%
		% of Total	27.7%	27.7%	55.5%
		Std. Residual	-.3	.3	
Total		Count	72	65	137
		Expected Count	72.0	65.0	137.0
		% within Observation stage	52.6%	47.4%	100.0%
		% within Social Stimulation	100.0%	100.0%	100.0%
		% of Total	52.6%	47.4%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.447[a]	1	.504	.606	.310	
Continuity Correction[b]	.246	1	.620			
Likelihood Ratio	.447	1	.504	.606	.310	
Fisher's Exact Test				.606	.310	
Linear-by-Linear Association	.444[c]	1	.505	.606	.310	.110
N of Valid Cases	137					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.94.

b. Computed only for a 2x2 table

c. The standardized statistic is .666.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 154, NH2, assistance time, pre- & post stages of testing

Crosstab

			Assistance time		
			More than five minutes	Less than five minutes	Total
Observation stage	Pre-training	Count	25	36	61
		Expected Count	31.6	29.4	61.0
		% within Observation stage	41.0%	59.0%	100.0%
		% within Assistance time	35.2%	54.5%	44.5%
		% of Total	18.2%	26.3%	44.5%
		Std. Residual	-1.2	1.2	
	Post-training	Count	46	30	76
		Expected Count	39.4	36.6	76.0
		% within Observation stage	60.5%	39.5%	100.0%
		% within Assistance time	64.8%	45.5%	55.5%
		% of Total	33.6%	21.9%	55.5%
		Std. Residual	1.1	-1.1	
Total		Count	71	66	137
		Expected Count	71.0	66.0	137.0
		% within Observation stage	51.8%	48.2%	100.0%
		% within Assistance time	100.0%	100.0%	100.0%
		% of Total	51.8%	48.2%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	5.176[a]	1	.023	.026	.018	
Continuity Correction[b]	4.423	1	.035			
Likelihood Ratio	5.206	1	.023	.026	.018	
Fisher's Exact Test				.026	.018	
Linear-by-Linear Association	5.139[c]	1	.023	.026	.018	.010
N of Valid Cases	137					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.39.

b. Computed only for a 2x2 table

c. The standardized statistic is -2.267.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 155 NH3, social stimulation, pre- & post testing

Crosstab

			Social Stimulation		
			Social Stimulation Provided	No Social Stimulation	Total
Observation stage	Pre-training	Count	15	64	79
		Expected Count	17.6	61.4	79.0
		% within Observation stage	19.0%	81.0%	100.0%
		% within Social Stimulation	39.5%	48.1%	46.2%
		% of Total	8.8%	37.4%	46.2%
		Std. Residual	-.6	.3	
	Post-training	Count	23	69	92
		Expected Count	20.4	71.6	92.0
		% within Observation stage	25.0%	75.0%	100.0%
		% within Social Stimulation	60.5%	51.9%	53.8%
		% of Total	13.5%	40.4%	53.8%
		Std. Residual	.6	-.3	
Total		Count	38	133	171
		Expected Count	38.0	133.0	171.0
		% within Observation stage	22.2%	77.8%	100.0%
		% within Social Stimulation	100.0%	100.0%	100.0%
		% of Total	22.2%	77.8%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.889[a]	1	.346	.363	.225	
Continuity Correction[b]	.575	1	.448			
Likelihood Ratio	.896	1	.344	.363	.225	
Fisher's Exact Test				.363	.225	
Linear-by-Linear Association	.884[c]	1	.347	.363	.225	.095
N of Valid Cases	171					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.56.

b. Computed only for a 2x2 table

c. The standardized statistic is -.940.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 156 NH3, physical assistance, pre- & post testing

Crosstab

			Physical assistance		
			PA Provided	PA Not Provided	Total
Observation stage	Pre-training	Count	32	47	79
		Expected Count	41.6	37.4	79.0
		% within Observation stage	40.5%	59.5%	100.0%
		% within Physical assistance	35.6%	58.0%	46.2%
		% of Total	18.7%	27.5%	46.2%
		Std. Residual	-1.5	1.6	
	Post-training	Count	58	34	92
		Expected Count	48.4	43.6	92.0
		% within Observation stage	63.0%	37.0%	100.0%
		% within Physical Assitance	64.4%	42.0%	53.8%
		% of Total	33.9%	19.9%	53.8%
		Std. Residual	1.4	-1.5	
Total		Count	90	81	171
		Expected Count	90.0	81.0	171.0
		% within Observation stage	52.6%	47.4%	100.0%
		% within Physical Assitance	100.0%	100.0%	100.0%
		% of Total	52.6%	47.4%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	8.659[a]	1	.003	.004	.003	
Continuity Correction[b]	7.779	1	.005			
Likelihood Ratio	8.725	1	.003	.004	.003	
Fisher's Exact Test				.004	.003	
Linear-by-Linear Association	8.609[c]	1	.003	.004	.003	.002
N of Valid Cases	171					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 37.42.

b. Computed only for a 2x2 table

c. The standardized statistic is -2.934.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 157 NH3, Verbal stimulation, pre- & post testing

Crosstab

			Verbal Stimulation		
			Verbal Assistance	No Verbal Assistance	Total
Observation stage	Pre-training	Count	38	41	79
		Expected Count	39.3	39.7	79.0
		% within Observation stage	48.1%	51.9%	100.0%
		% within Verbal Stimulation	44.7%	47.7%	46.2%
		% of Total	22.2%	24.0%	46.2%
		Std. Residual	-.2	.2	
	Post-training	Count	47	45	92
		Expected Count	45.7	46.3	92.0
		% within Observation stage	51.1%	48.9%	100.0%
		% within Verbal Stimulation	55.3%	52.3%	53.8%
		% of Total	27.5%	26.3%	53.8%
		Std. Residual	.2	-.2	
Total		Count	85	86	171
		Expected Count	85.0	86.0	171.0
		% within Observation stage	49.7%	50.3%	100.0%
		% within Verbal Stimulation	100.0%	100.0%	100.0%
		% of Total	49.7%	50.3%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.152[a]	1	.697	.760	.407	
Continuity Correction[b]	.056	1	.813			
Likelihood Ratio	.152	1	.697	.760	.407	
Fisher's Exact Test				.760	.407	
Linear-by-Linear Association	.151[c]	1	.698	.760	.407	.113
N of Valid Cases	171					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.27.

b. Computed only for a 2x2 table

c. The standardized statistic is -.388.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Table 158 NH3, assistance time provided, pre- & post stages of testing

Crosstab

			Assistance time		
			More than five minutes	Less than five minutes	Total
Observation stage	Pre-training	Count	15	64	79
		Expected Count	24.0	55.0	79.0
		% within Observation stage	19.0%	81.0%	100.0%
		% within Assistance time	28.8%	53.8%	46.2%
		% of Total	8.8%	37.4%	46.2%
		Std. Residual	-1.8	1.2	
	Post-training	Count	37	55	92
		Expected Count	28.0	64.0	92.0
		% within Observation stage	40.2%	59.8%	100.0%
		% within Assistance time	71.2%	46.2%	53.8%
		% of Total	21.6%	32.2%	53.8%
		Std. Residual	1.7	-1.1	
Total		Count	52	119	171
		Expected Count	52.0	119.0	171.0
		% within Observation stage	30.4%	69.6%	100.0%
		% within Assistance time	100.0%	100.0%	100.0%
		% of Total	30.4%	69.6%	100.0%

Chi-Square Tests[d]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	9.052[a]	1	.003	.003	.002	
Continuity Correction[b]	8.077	1	.004			
Likelihood Ratio	9.299	1	.002	.003	.002	
Fisher's Exact Test				.003	.002	
Linear-by-Linear Association	8.999[c]	1	.003	.003	.002	.001
N of Valid Cases	171					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.02.

b. Computed only for a 2x2 table

c. The standardized statistic is -3.000.

d. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Appendix 2: Questionnaires

UNIVERSITY COLLEGE LONDON & NEWHAM PCT RESEARCH PROJECT.

Making meal times better for individuals with dementia

We are carrying out an evaluation of a training package for HCAs working alongside individuals with dementia, feeding and swallowing disorders.

The aim of the research is to find out if this training is useful and effective. The information you provide will be compared with other care assistants who may have or have not received training.

It is important that you try to answer all the questions. All your answers will be treated confidentially and will not be disclosed to anyone outside the research team.

In order to protect your identity you are requested to use your initials on the paper so that your papers can be collected together.

Initials:

<u>Part TWO</u>:

1. How do you rate your **knowledge** of dementia and associated feeding / swallowing difficulties?

Poor — Excellent

1 2 3 4 5 6 7 8 9 10

Please indicate your response to the questions below by circling True or False:

	Question	Response	
1.	Dementia is an illness of the brain which can cause memory difficulties and personality changes	True	False
2.	Individuals with dementia, swallowing and feeding problems benefit from sitting around a table at lunch time	True	False
3.	Holding food in the mouth is a sign that the person with dementia needs a puree diet	True	False
4.	Sandwiches or finger foods are as good as a sit down meal for the resident with dementia.	True	False
5.	There is no risk of food or fluid going into the lungs if a resident does not cough when eating or drinking	True	False
6.	Dementia is not a natural part of the aging process	True	False
7.	Individuals with dementia, swallowing and feeding problems benefit from having a feeding tube placed in their stomachs.	True	False
8.	When feeding a resident it doesn't matter where you sit as long as the food goes into their mouth	True	False
9.	The resident with dementia, feeding and swallowing problems benefit from reminders about what they are eating.	True	False
10.	Residents with dementia, swallowing and feeding problems benefit from a noisy environment as it keeps them interested in their food	True	False

Part THREE:

1. How do you rate your ability to manage people with dementia and feeding or swallowing difficulties?

Poor									First class
1	2	3	4	5	6	7	8	9	10

How could you help or change your working practices to suit the resident in the examples:

<u>Example One</u>:

Bob has been a resident in your nursing home for four years. You notice several changes. Bob no longer feeds himself, does not seem interested in the food on the plate and holds food in his mouth for a long time. He seems to slump over the side of the chair and is frequently sleepy. Feeding takes over an hour. You notice Bob's clothes are loose. Bob wears glasses and a hearing aid but you notice he struggles to hear you talking and cannot see items on his plate.

<u>Example Two</u>:

Elizabeth is a new resident at your nursing home. She is very thin. Elizabeth does not remember where she is and walks the same route around the nursing home all day. Elizabeth shouts and is annoyed when she is asked to sit at the table. You notice that she finds it difficult to use her cutlery and lift her food to her mouth. She is coughing when she drinks and is easily distracted. Elizabeth eats well whenever one particular member of your team is on shift.

<u>Example Three</u>:

Ruby is no longer able to get out of bed. She used to eat her meals in bed. She is back from another hospital admission after a recent chest infection. Ruby sleeps most of the day. You notice that Ruby is trying to cough when you give her drinks and after a few teaspoons of food it falls out of her mouth. Her skin has started to breakdown and she has lost a lot of weight. You feel under pressure as Ruby's daughter is very anxious and keeps asking why her mother is not being fed properly.

Part FOUR:

How often would you be able to help the person with dementia, feeding and swallowing difficulties on a daily basis by:

Question:	**Never**		**Some of the time**		**Always**
	1	2	3	4	5
1. Changing the environment to suit the resident?					
2. Changing the resident's diet to suit their swallowing difficulties?					
3. Sitting down to assist the person to eat?					
4. Thickening fluids for residents who need it?					
5. Developing the resident's feeding care plan?					
6. Ensuring they eat and drink enough throughout the day?					
7. Encouraging eating and drinking by ensuring the resident is sitting upright?					
8. Encouraging the resident to help themselves to eat and drink?					
9. Documenting how the resident managed in the nursing notes?					
10. Feeding a resident with dementia on a regular basis?					

Part FIVE:

This section asks about work, please tick the box that applies to you:

Question	**Strongly Disagree**	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**
1. I feel empathetic towards resident's with dementia, swallowing and feeding difficulties.					
2. I have developed a good relationship with the resident's I work with.					
3. All resident's with dementia and swallowing problems should have a feeding tube fitted.					
4. I actively get involved in contributing towards residents care planning.					
5. I am unable to help residents finish their meals due to work pressures.					
6. I feel confident in using different techniques in helping resident's to eat and drink.					
7. I feel guilty if a resident's in my care does not manage to eat and drink enough.					
8. It is important to change my method of feeding to suit the resident's needs.					
9. The work that I do matters and actually makes a difference to the lives of the resident's I care for.					
10. I find it stressful working with resident's with dementia who have feeding or swallowing difficulties					

Part ONE: You and your job:

1. How satisfying is your job? *(Circle a number between 1 and 10)*

Not enjoyable Very enjoyable

1 2 3 4 5 6 7 8 9 10

Appendix 3: MMB Training programme

Making Meal Times Better for those with a Dementia

The impact on nursing home residents and HCAs of a feeding assistance training programme.

Making Meal Times Better for those with Dementia: Training Program Overview.

Introduction

- Competencies and learning outcomes
- Course outline
- Delivering the training
- Training timeframes and Schedule
- Workplace activities
- Assessment
- Equipment and resources

Competencies and learning outcomes

Aim of this course:

The aim of this training is to equip residential aged care workers with the skills to identify and manage oral feeding difficulties to provide care and support for residents who have dementia.

Learning outcomes:

- By the end of this course participants will be able to:
- Explain the causes of dementia and the different types of dementia
- Explain the impact the progression of the disease has on a person
- Communicate effectively with residents who have a dementia
- Identify the respond to changes in oral feeding difficulties creatively using approaches that are not creative.

Course Outline:

Course components:

Each module of the Making Mealtimes Better for those with a Dementia has the following components:

A training workshop facilitated by a trainer

Modules

The course is made up of six modules:

Modules Delivery time

1.	Understanding Dementia
2.	Understanding complex oral feeding
3.	Recognising oral feeding difficulties in a dementia
4.	Personalised feeding assistance
5.	Promoting a positive mealtime environment for those with a dementia
6.	Effective communication
7.	Advanced dementia, end of life care and complex feeding disorders
8.	Additional and ongoing decision support

Course structure:

The structure ‘Making Meal Times Better for those Dementia’ has been structured as follows:

1. Facilitate and conduct training module
2. Complete workplace activity
3. Complete the workbook for the module

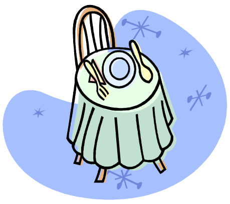
Flexible delivery:

The training workshops and modules have been delivered

Timeframe:

Icons used in the guide:

MMB training programme uses the following icons to assist HCAs cue strategies and techniques in their management of the resident with oral feeding difficulites . The following table shows how the icons are used in the guide:

Icon	Activity
	Consider changes to the dining room environment of residents.
	Consider changes to the food and fluid textures and consistencies
	Consider changes to the provision of feeding assistance
	Consider support services for the resident in your care and the HCA

Format for the three hour MMB training session:

Introduce self and invite HCAs to introduce themselves

Indicate how much time the MMB programme will take and give time-table / agenda for training

Ensure training is appropriate for HCAs and language translation services have been provided in advance

Describe aims and competencies that will be targeted

Training competencies:

Competency Domain	Underpinning knowledge, skills and attitudes
Understanding Dementia	
• What is Dementia? • HCA will understand that dementia is a terminal condition • Signs and symptoms of Dementia • Causes of dementia • Common types of dementia • Stages of dementia	• Positive belief about the potential for enhanced independence among people with a dementia. • Understanding of the aging process and its effects on the physical, psychological, social and spiritual functioning of older people • Knowledge and skills in relation to observation within the nursing home environment. • Knowledge of what constitutes good dementia care in relation to care delivery and record keeping
Communicating with those with a dementia	
• Changes in communication • Communication strategies • Identifies communication needs of the older person with a dementia	• Understanding of the aging process on the physical, psychological, social and spiritual functioning of older people. • Listening skills • Patience • Adopts a respectful demeanour with older people and recognises the importance of allowing time for effective communication • Builds on and adapts knowledge and skills in relation to interpersonal communication to meet the needs of the older person. • Considers the impact of the environment on the ability of the older person to communicate effectively • Utilises a range of communication skills – verbal, non verbal, written and information technology based aimed at maximising older peoples capacity to communicate effectively.
Understanding Oral Feeding Difficulties in Dementia	

• HCA will develop an understanding of dementia:
  ○ And its impact on the normal swallow
  ○ Associated oro-pharyngeal swallowing difficulties
  ○ Risk of aspiration / malnutrition
• HCA will develop and underdstaning of complex feeding disorders
  ○ Within the wider context
• HCA will gain an understanding of compounding medical conditions in dementia care that may impact eating and drinking
• HCA will identify easily modifiable factors.
	• Suggest swallowing difficulties in dementia.
	• Suggest difficulties in feeding in dementia.

Recognising oral feeding difficulties in a dementia	
Personalised feeding assistance	
• HCA will seek to empower residents to be active participants in feeding by employing a range of feeding assistance interventions targeting co • Demonstrating a working knowledge of the • Ensures that personalised feeding assistance • Pursues, collects and values data relating to personal / cultural eating preferences of the indivudal with a dementia from the persons family members with the older persons permission • HCA will demonstrate understanding of the importance of goal planning for individuals with dementia and complex oral feeding difficulties in terms of: (i) life prolongation, (Hiiemae) maximizing function or (iii) promoting comfort. •	HCA will discuss hypothetical clients and discuss resident care in terms of • Life prolongation • Maximizing function or Promoting comfort.
Promoting a positive mealtime environment for those with a dementia	
• Demonstrates insights and abilities in adapting feeding to meet the needs of individuals with a dementia in the nursing home setting • Enusre	•
Advanced dementia, palliation and complex feeding disorders	
• HCA will explore components of palliative care • HCA will demonstrate knowledge of palliative care and treatment options in dementia care including enteral feeding and hand feeding options and the advantages and disadvantages of each option • Understanding of the importance of the resident centred care and the request s of the resident during MDT planning for advanced care decisions in dementia care. • understanding of substitute decision making; advance directives, substituted judgement and best interests • knowledge of importance of culturally sensitive decisions	• Identify treatment options and strategies in response to common hypothetical swallowing and feeding disorders in dementia. •

• • insight into the importance of re-address sing decisions as the clinical course evolves • HCA will demonstrate an ability to contribute towards and implement a personalised plan of care based on the residents wishes and medical care plan.	
Additional and ongoing decision support	
HCA will demonstrate: • insight into the importance of MDT team working in advanced care planning in dementia • the importance of encouraging family members to speak to other trusted advisors • provide access for family members to printed materials and guidelines	• Discussion of the role of MDT care planning in the nursing home and role of HCA • Willingness and ability to work with a range of fellow professionals, agencies, service users and carers • • Identify key members of the MDT integral to the advanced care plan decision making and ongoing support • Increase knowledge of accessing materials in the nursing home.

Making Meal Times Better for those with Dementia.

What is dementia?

Dementia is a general term used to describe the symptoms that occur when the brain is affected by specific diseases and conditions. Dementia describes a condition in which the way the brain functions is gradually lost. There are over 100 different types of dementia including Alzheimer's disease.

Dementia is a progressive terminal condition which means that the person will steadily deteriorate over time. How fast dementia progresses depend on the individual. Each person is different and will experience dementia in a unique way.

Signs that someone may have dementia:

Open forum: HCAs (HCA) are invited to discuss signs that someone may have dementia

People usually think of it as being memory loss, but in fact dementia affects more than just memory - although becoming more than usually forgetful is often one of the first signs. Dementia also affects the ability to use words and to carry out previously familiar tasks, like getting dressed or making a cup of tea. It affects recognition of places, people and objects, and people with dementia often feel lost in terms of time and of place.

Signs of dementia:

Some of the first signs of Alzheimer's disease include lapses in memory and problems with finding the right words.

Other symptoms that may develop include:

Memory problems:

For example, forgetting the way home from the shops, or being unable to remember names and places.

Mood changes:

Particularly as the parts of the brain that control emotion become affected by disease. People with dementia may also feel sad, frightened or angry about what is happening to them.

Communication problems

For example, a decline in the ability to talk, read and write.

Activities of daily living

The person affected will have problems carrying out every-day tasks such as washing, eating and drinking and will become increasingly dependent on other people.

What causes dementia?

Dementia is only a descriptive word, and it is caused by a number of different diseases and conditions. These include:

<u>Alzheimer's disease</u>:

This is the most common cause of dementia. During the course of the disease the chemistry and structure of the brain changes leading to the death of the brain cells.

<u>Vascular Dementia:</u>

Deterioration in vascular dementia is less predictable and occurs in stepwise fashion. In other words, there may be a sudden deterioration followed by a period of stability. Doctors may be able to prescribe medication to alleviate the condition that caused the blood supply to be interrupted

The brain relies of a network of vessels to bring it oxygen bearing blood. If the oxygen supply to the brain fails the brain cells are likely to die. The symptoms of vascular dementia can occur either suddenly, following stroke or over time through a series of small but 'silent' strokes.

<u>Dementia with Lewy bodies</u>:

This form of dementia gets it name for the tiny spherical structures that develop inside nerve cells. Their presence in the brain leads to the degeneration of brain tissue. Memory, concentration and language skills are all affected.

Fronto-temporal dementia (including Pick's Disease):

In fronto temporal dementia damages is usually focused in the front part of the brain. At first, personality and behaviour are more affected than memory.

Rarer causes of dementia:

There are many other rarer causes of dementia, including progressive supranuclear palsy, Korsakoff's syndrome, HIV and Creutzfeldt-Jakob disease (CJD).

People with multiple sclerosis, motor neurone disease, Parkinson's disease and Huntington's disease can also develop dementia.

Who gets dementia?

There are about 75,000 people in the UK with dementia.

Dementia initially affects older people. However it can affect younger people: there are about 17,000 people in the UK under the age of 65 who have dementia

Approximately 70% of people with dementia will die in nursing homes.

Both men and women can get dementia

Scientists are investigating the genetic background to dementia. It does appear that in a few rare cases the diseases that cause dementia can be inherited.

<u>Can dementia be cured</u>?

Dementia is a terminal condition

Dementia cannot be cured although research is continuing into developing drugs vaccines and treatments.

There is no test that can be done to prove that someone has a dementia, but the doctors are usually able to make a diagnosis from the history of the illness and from special psychology tests.

In recent years drugs have been developed that alleviate some of the symptoms of Alzheimer's disease in the early to middle stages. These drugs act in the brain to maintain supplies of an important chemical called acetylcholine.

The drugs on the market will not cure Alzheimer's disease but they may stabilise some of the symptoms for a limited period of time. Side effects may include diarrhoea, nausea, insomnia, fatigue, and loss of appetite.

<u>Can dementia be prevented</u>?

At present the causes of dementia are uncertain. This means that it is difficult to prevent the disease when the causes are uncertain.

Evidence seems to suggest that a healthy diet and lifestyle may protect against dementia. In particular not smoking, exercising regularly, avoiding fatty foods and keeping mentally active into old age may help prevent us from developing Alzheimer's disease.

THE NORMAL SWALLOW MECHANISM:

Task: Large model of larynx will be used to demonstrate the swallow mechanism

The purpose of swallowing is to get food from the mouth, through the throat (pharynx), to the stomach, without allowing it to go down the nose or down the windpipe (trachea). Your throat is like a dual carriageway: food goes down to the stomach (and in some circumstances back up!) and air goes up and down it to the lungs.

The pharynx divides into two near the top: the tube at the front is the windpipe which goes to the lungs; and the tube at the back goes to the stomach (oesophagus). Before swallowing food is chewed and held in the mouth. There is nothing in the throat, the windpipe is open and breathing occurs. When you swallow, the food is pushed into the throat, and the windpipe closes off. Food then slips down the tube at the back leading to the stomach. Because the windpipe is closed, you momentarily stop breathing. Once the food has passed through the throat, the windpipe opens up again and breathing can resume.

If you have any food or drink in your throat when your windpipe is open and you are breathing, there is a chance it could fall into the windpipe. This is experienced as 'going down the wrong way' and coughing and spluttering usually occurs.

Difficulties in eating and/or swallowing can develop in people with dementia for a variety of reasons. The problem is best understood by looking at the different stages involved in swallowing, and associated behaviours, separately.

1) **Pre oral stage:**

This stage involves the transfer of food and fluids from the plate/cup to the mouth.

2) **Oral Preparation Stage:**

The lips, tongue, teeth and cheeks break up food, mix it with saliva and form a soft ball that can be swallowed. In the case of liquids, it is a question of control. The tongue forms a cupped shape around the liquid and holds it ready for swallowing.

3) **Pharyngeal Stage and the Swallow Reflex:**

The tongue squeezes the food or liquid to the back of the mouth and the swallow reflex is triggered: the windpipe is closed off and food/liquid is passed through the back of the throat, down to the stomach, and then the windpipe opens again. Muscles in the wall of the throat assist movement of food/drink downwards by wave like movements called peristalsis.

If you touch the front of your throat and swallow you can feel the Adam's apple (larynx) move up and down. This is the mechanism, which closes the windpipe and is part of the swallowing reflex. You need to have something in your mouth to swallow: try swallowing repeatedly; after three or four swallows it becomes difficult as your mouth becomes empty of saliva.

4) **Oesophageal Stage**

This is the movement of food from the lower part of the throat, through the gullet (oesophagus) to the stomach, assisted by a continuation of the peristaltic wave.

Signs a person is having difficulty with their swallow

Cough

A cough is the body's response to 'foreign bodies' entering the airway or windpipe. It is our way of protecting our lungs from getting clogged up and interfering with breathing. It is under neurological control and can therefore be affected in dementia. The important thing to understand is that if someone can cough when you ask he or she to, it doesn't necessarily mean they will cough to clear their windpipe. Likewise, if someone is unable to cough on request, it may be that they will have an adequate 'protective' cough.

Aspiration

Aspiration is when liquids or food do go down the wrong way and are not removed by coughing. In more serious cases this can result in pneumonia which can be fatal.

Gag Reflex

Despite what you might have heard the presence or absence of a gag reflex has no relationship to someone's ability or inability to swallow safely.

FEEDING AND SWALLOWING PROBLEMS IN DEMENTIA

Open forum: HCA will be requested to identify feeding and swallowing problems in dementia. What difficulties do you notice?

Feeding and swallowing problems are common in the early and the later stages of dementia. Problems arise as a result of behavioural and mental problems as well as changes in the normal swallowing pattern as a consequence of changes in the brain.

Changes in behavioural and mental problems can have direct impact on a patient's ability to eat and drink.

Typical swallowing features associated with dementia (Dysphagia):

Problems with swallowing in dementia can arise at any of the stages, either in isolation or in combination.

FOOD AGNOSIA:

Initially people with dementia will fail to visually recognise food as food when it is placed in front of them. For example if asked to recognise something to eat by discriminating between a sandwich, a pencil and a pair of scissors the patients cannot identify the sandwich as something to eat. This makes it difficult for them to accept food into the mouth and swallow it and explains their slowness in opening their mouth and accepting food.

FEEDING APRAXIA

As the dementia progresses these patients often develop a difficulty for both feeding (i.e. accepting and eating foods and swallowing). The lack of recognition of food makes it difficult for them to use knives and spoons to feed themselves. The patients may be observed to pick up a spoon or fork and turn it around in their hand as if trying to figure out which end to use.

APRAXIC SWALLOW:

The loss ability to swallow makes it difficult to initiate the oral stage of swallowing. The patients may move the food around in their mouth in searching motions as if tying to determine what to do with it and how to begin the swallow. Food may remain in the mouth for several minutes with no tongue movement. These patients also develop an oral tactile agnosia for food this means that they fail to recognise food in their mouth. When food is not recognised in the mouth there is no reason for the patient to initiate the oral stage of the swallow. This contributes to holding the food in the mouth with out swallowing it.

SPECIFIC SWALLOWING PROBLEMS COMMON TO DEMENTIA:

Pre oral stage difficulties;

- Difficulty manipulating food and fluids.
- Difficulty transferring food to the mouth.

Oral stage problems:

Residents with dementia may have a poor awareness of food and fluid within their mouth. This may result in holding food and fluid in the mouth or increased time required for this stage of the swallow, as a consequence food may slip out of the mouth. Patients with multi-infarct dementia may also present with weakness in the lips and tongue as a result of small areas of damage in the brain. Reduced tongue movement for chewing.

Pharyngeal stage problems

The patient may develop changes in the ability to swallow including: a delay in triggering the pharyngeal swallow reduced laryngeal movement.

Some people with dementia may take three or four minutes to initiate a swallow reflex. Or the coordination of all stages can become unbalanced.

Signs that someone with dementia may be having difficulties feeding and swallowing:

Open forum: HCA will be requested to identify signs that someone may be having difficulties with feeding or swallowing

- Being unaware of food when it arrives.
- Failing to do anything with food in the mouth, just holding it there.
- Difficulty chewing and/or difficulty moving food to the back of the mouth
- Spitting lumps of food out.
- Eating very fast or putting too much into the mouth.
- Eating insufficient amounts or refusing food and/or drink
- Talking with food or drink in the mouth and forgetting to swallow causing coughing.
- Coughing/choking on food and /or liquids. Any resident who repeatedly coughs or chokes whilst eating or drinking should be considered at risk of aspiration.
- Complaints of food not going down or getting stuck in their throat
- A 'wet' or 'gurgly' voice after swallowing. A wet voice is a sign that food or fluid has entered the airway.
- Difficulty swallowing tablets.
- Dribbling.

- Chronic chest infections or recurring chest infections. Residents who experience recurrent chest infections may be regularly aspirating.
- Weight loss.
- Difficulty attending to food or meal times.
- Medical consequences of feeding and swallowing difficulties in dementia include malnourishment i.e. not getting enough food or fluids, weight loss and
- Aspiration
- Malnutrition occurs when a person fails to get the right nutrients in their diet. The symptoms of malnutrition are weight loss, weaken

FEEDING PROBLEMS WITHIN THE CONTEXT OF END STAGE DEMENTIA

- Malnourishment
- Aspiration
- Pneumonia

COMPOUNDING MEDICAL FACTORS:

- Hip fractures
- Renal Problems

EASILY MODIFABLE FACTORS:

- Ill fitting dentures repaired,
- constipation treated

Problems as a result of mental state or behavioural difficulties:

Open forum: HCA will be requested to discuss mental or behavioural factors that affect meal times.

- Drowsiness.
- Difficult to sit at the table for a long period of time.
- Easily distracted when eating.
- Person is very passive when eating.
- Refusing food and drink.
- Inappropriate speed of eating or drinking.
- Poor seating posture.

<u>Team working to clearly identify the goal of care:</u>

Dementia is a terminal condition. Oral feeding difficulties in a in dementia may deteriorate to the point where it is impossible for the individual to maintain their weight resulting in malnutrition, dehydration and dehydration.

Decision making for feeding problems is among the most difficult clinical cross road in the course of dementia. The decision is challenging and based on information such as the residents personal opinions laid out in an advanced directive (living will), opinions of next of kin, health professionals, doctors and carers.

Advanced care planning plays a critical role in feeding decisions. Lack of advanced decision making is associated with insertion of artificial feeding tubes (PEG's). Clinicians and health professionals have an opportunity to prepare residents and their families about what to expect in the later stages of the disease including eating problems. These discussions conducted by health professionals provide the background for advanced care in the nursing home.

Discussion as a team with colleagues and nurses will provide vital information about the status of feeding and swallowing disorders and clarify the primary goal of care identified by the resident and their families.

Questions that need to be clarified; is the goal of care to:

- prolong life via artificial feeding,
- maximise function via hand feeding or
- promote comfort in the final stages?

TREATMENT OPTIONS;

Strategies: feeding and swallowing difficulties in dementia.

HCAs introduced to three treatment option sub categories:

- Environmental changes;
- Dietary Changes
- Carer feeding strategies

Research has shown that carers when trained can manage feeding and swallowing difficulties in dementia successfully right up until advanced stages of dementia.

Below I have outlined some typical problems with feeding and swallowing in dementia and some ways that you could improve the situation.

Task: HCAs will be paired off and will be given a scenario of the following situations. HCA suggest strategies for each of the treatment subcategories (environmental changes, dietary changes or carer feeding strategies) that they could employ to improve the situation.

Someone who tends to slump over the side of the chair:

Environmental options:

- Ensure the person is as upright as possible e.g. consider the type of chair and supports such as pillows.

- Avoid feeding in bed if possible – better to mobilise them to a chair
- Adjust their wheelchair, use a wheelchair tray or transfer them to an appropriate chair to ensure correct/ table height.
- Refer to the physiotherapist for advice on positioning / seating

Consistency changes

Carer Strategies:

- Provide regular prompts and cues to remind resident that they are eating and drinking, talk about the food etc.

Someone who holds food in his or her mouth:

Environmental changes

- Ensure the person is seated in an upright position for eating and drinking
- Avoid feeding in bed if possible
- Advise that the person does not lie down immediately after eating.

Dietary Changes

- Try use very cold or warm fluids as this will encourage the resident to trigger a swallow.
- Use a stronger tasting bolus or larger bolus to encourage feedback in the resident's mouth.

Carer feeding strategies

- Provide regular prompts to finish food in mouth. Although try to avoid overloading the person with instructions and spoken commands.
- Give a cue to swallow the bolus, ‘swallow John’ etc.
- As much as possible encourage the person to self feed, put a loaded spoon into their hand and guide their hand to their mouth.
- Recommend regular mouth care after each meal to avoid tooth decay/ plaque builds up.

<u>Frequently refuses food and drinks;</u>

Record the residents exact behaviour in detail e.g. over a week including,

Environmental changes

- Wider environnent, e.g. noise level.
- Any verbalisations/non verbal behaviour.
- Mood at the time.
- Time of day.

Dietary Changes

Carer feeding strategies

- Food / Drink and its texture (e.g. solids, semisolids etc).
- Any successful strategies.
- Talk to other staff and relatives to discuss any patters, adjust management.
- Check feeding technique approach and adjust if necessary
- Coax person to try first mouthful to get ‘taste’ use indirect prompts ‘that’s nice’
- Assess if the person more readily opens their mouth to a spoon or drink e.g. if opening their mouth to a cup occurs more readily than to a spoon, others may have the reverse

pattern. Involve them in self feeding as much as possible; put a loaded spoon in the person's hand etc.

If they leave a large proportion of their meal consider:

- Small and frequent meals
- Finger foods
- Feeding at a slower rate
- Experiment with different tastes and textures. Try spicy foods, foods that are highly flavoured. Avoid puree meals if possible as these are bland and do not stimulate the person with dementia to eat. If you have to use puree meals, make sure the puree vegetables and meat are presented separately and do not mix them together. Try to make the food as pleasing to the eye as possible.
- If difficulties are severe and the person is unable to maintain their nutritional status they may need to be fed part or all of their meal. Refer to the dietitian

<u>Someone who is easily distracted or forgets what they are doing:</u>

- Consider the following strategies for this:
- Finger foods that the person can consume when they are more focused.
- Use simple verbal prompting/ show them the food to aid understanding and to keep them on track.
- Use gentle physical prompts e.g. put the cup back in the person's hands.
- Give extra helpings when the person is more settled.
- Gently guide them back to the table and prompt them to continue.

- Encourage a calming environment, e.g. calming background music, keeping a gentle tone of voice.

<u>Eats or drinks too fast</u>:

Consider strategies for this:

- Cut food into small pieces.
- Supervise to slow down with verbal and physical prompts
- Prompt the person to put utensils down or put your hand over theirs if they are cramming food so they chew/swallow every few mouthfuls
- Give a softer and moist diet.
- Ensure a more calming environment e.g. reduce noise, use calming music
- Severe courses separately or even each course in a few smaller servings giving a break between each to ensure food is chewed swallowed and cleared

<u>Someone who eats too slowly:</u>

- Serve each course separately to retain heat and keep the food appetising
- Use heat retaining plate
- Record dietary intake
- With the person regularly
- Ensure food is high in calories if only small amounts of diet are taken
- Consider giving snacks in between meals.

.

<u>Someone who is very passive and does not initiate eating:</u>

Consider the following strategies for this:

- Draw attention to the persons food e.g. talk about it.
- Put the cup in their hand or guide them to take the first mouthful
- If necessary, feed the first mouthful and then try to encourage self feeding
- Give verbal and physical prompts during the meal to continue
- Give verbal and physical prompts to move from one course on to the next.

Consider if it would help them to sit with more able residents they could copy or by prompted by.

Alert the medical team and refer to dietetics and to the speech and language therapy department.

Someone who is drowsy

- Check that the person has been investigated for physical illness, e.g. urinary or chest infection, stroke etc which may lead to drowsiness and an ‘acute confusional state’
- Check the side effects of medication and if necessary talk to their doctor
- Feed only when alert enough to swallow
- Ensure food is high in calories if small amounts of diet are taken
- Document the need for mouth care after each meal/snack
- If you are concerned ask the doctor to review them.

If someone is repeatedly coughing or choking after swallowing:

This person may be at risk of food going down the wrong way and into the lungs. Alert the charge nurse and call the speech therapist as soon as you notice this happening to review the swallowing status.

- Keep in an upright position.
- Feed only when alert.
- Do not feed if you are concerned that the resident with choke.
- Improve the feeding situation (below)

<u>IMPROVING THE FEEDING SITUATION:</u>

Task: Carers to be fed by the person next to them who will be instructed to stand up and hold a conversation with another feeder across the room.

Open forum: How can you improve the feeding situation?

<u>Improving your approach when feeding someone:</u>

Eating is a two way approach and you as the feeder can actively take steps to improve the feeding situation:

Consider the following

Environmental factors:

Try and assign consistent staff members to feed each person. By keeping the feeding environment consistent both the carer and resident are building up a close relationship and changes can distress the resident.

Reduce ‘institutional’ features such as eating off a tray, allow resident to choose their meal time meal.

Consistency:

Is the person struggling to manage chewy food? Refer for a bedside swallow assessment.

Carer Strategies:

- Sit facing the person, or slightly to their good side, if visual neglect is present.
- Make eye contact.
- Assist them do not force.
- Use a gently tone of voice.
- Use a calm approach, never rush the person.
- Give encouragement tell the person about their food.
- Give verbal and nonverbal prompts to chew and swallow.
- Make allowance for any visual or hearing difficulties.
- Use touch to encourage the person.
- Watch closely for each swallow and then give him or her mouthful.
- Crucially measure the length of time of the oral swallow and encourage / increase oral sensation by adopting measures noted earlier.
- Consider involving close relatives to help with feeding and provide advice or training for them.

<u>KNOW WHEN TO STOP FEEDING AND IDENTIFY WHEN THE PERSON IS AT RISK.</u>

- Do not force feed residents.
- Look for signs that the person is not managing: weight loss, aspiration, and chest infections.
- If you are concerned contact the speech and language therapist for guidance.

There will be a point at which the resident will have deteriorated beyond the ability of anyone to help improve feeding or swallowing.

<u>WHAT WOULD THE RESIDENT WITH DEMENTIA WANT?</u>

Consider the following factors that are crucial for the resident and in advanced care planning:

- What are the wishes of the resident?
- Are there any cultural issues that need to be considered e.g. consider how Jewish, Muslim or Christian backgrounds influence decision making?
- Does the resident have an advanced directive (living will)?
- Are the family members in contact with the right people who will provide them information on their relative's condition?
- Do they have written material to help them understand dementia?

<u>PROVIDE ADDIONAL AND ONGOING DECISION SUPPORT: (Mitchell, 2007)</u>

Advanced care plans may need to be reviewed as the clinical course of the disease evolves. It is crucial that the multi-disciplinary team is involved to assist with advanced care planning.

HELP IS AT HAND:

The role of all members of the team is essential in the management of swallowing and feeding disorders. I wish to outline some of the teams and their contribution to management.

The medical team

the medical team is your first point of contact if you are worried about a residents feeding or swallowing safety. The medical team depends on your information. If you notice a resident is more confused or agitated than usual, or shows other changes in behavior – this could be a sign of illness. They can be contacted via the charge nurse.

The speech and language therapist:

Speech and Language Therapists receive specialist training in the structure and functions of the head and neck, in particular the vocal tract. The speech and language therapist are trained in the assessment and treatment of swallowing impairments that arise from stroke and diseases like dementia.

Dietitians

Dietitians are available to help if you have any concerns about a person with dementia eating or drinking. A dietitian can provide advice and guidance about food, nutrition and issues such as a poor appetite, weight loss, weight gain, vitamins and food supplements. The medical team can arrange for a referral to a dietitian.

Physiotherapists:

Physiotherapists can advise on exercise for people at all stages of dementia. They can also advise carers on safe ways of helping someone to move. The medical team can refer to the community physiotherapy service. They will be able to provide you with guidance regarding maximising positioning for eating and drinking.

Occupational Therapists:

Occupational therapists can advise on adaptations and equipment and on ways of maintaining independence for as long as possible. They are able to provide equipment for helping the person with dementia to eat and drink. Provision of special cups and equipment such as a plate with a rim can enable a person to retain their dignity and independence by enabling self-feeding. Ask the medical team if you think an occupational therapist might be helpful.

And finally:

A short presentation of a video produced by the Dementia Services Development Center called ‘Oh good, lunch is coming’

Appendix 4: Support Forums

<u>Support Forum I</u>

Date: 10.03.2010 at 11.00

Attendance: 10 HCAs

Duration: Sixty minutes.

Review of contents: Aim:		
For participants to demonstrate awareness of what dementia is		
For participants to HCAs presented three case studies to the rest of the group who provided feedback and suggestions for management.	identify a resident who presented with feeding and swallowing problems and how they managed the resident.	Provided with Staff were then divided up according to floor and asked to identify a resident who presented with feeding and swallowing problems and how they managed the resident. Staff were provided visual cues used during the training session to structure their thoughts (Environmental, Feeding, Dietary and Support modifications).

Support Forum II: Communication difficulties in Dementia

Date: 31.03.2011, 11.00am

Attendance: 8 HCAs

Duration: Sixty minutes.

Communication and behaviour. Aim: For HCAs to consider the communicative strengths and weakness of each resident and incorporate this information in the daily practice of Manor Farm.		
Method and Learning	**Objective Method:**	**Strategy and Example**
For participants to demonstrate awareness of what dementia is	Video review and general group discussion.	Open discussion and review of what constitutes dementia.
For participants to gain experiential insight to the combined effects of aging and dementia on the residents communication ability.	Experiential exercise and discussion: Participants put cotton in their ears, tie yellow cellophane strips around their eyes and wear latex gloves to stimulate sensory changes with age. They are asked to read newspapers, pick up objects, go to the bathroom and button and zip clothing	Discuss feelings and insights about this activity. Video viewing and discussion:
For staff to describe the changes in communicative ability that occur with normal aging and dementia	Video viewing and discussion; Participants will view a video on working with clients with dementia with communication difficulties What will help to communicative these difficulties to the rest of the team?	Participants are asked to relate their own experiences with elders exhibiting behavioural and communication difficulties. Group asked to generally identify residents who they notice have communication difficulties and place communicative barriers on the white board
For staff to identify communication impairment and potential behavioural triggers in residents with dementia in Manor Farm	Case study: Group shall divide into floors and choose a resident to discuss. Talk about and identify triggers	Group work: Participants asked to split into floors and choose a resident with communication difficulties. Identify the following factors (1) Communication difficulties they notice Language, thinking and personality. (2) Identify 'triggers' and What they notice helps (3) Present to the group (4) Group asked to provide feedback and suggestions for alternative management
For staff to complete a communication profile of a resident of their choice outlining communication techniques that may help the resident for the benefit of staff resident and relatives	Short writing assignment and discussion. Participants to complete Manor Farm Communication Information Care plan	Share communication profiles with class. Group are asked to contribute. Discuss feelings, challenges and insights from the exercise. For the information collected to be used in care planning.

Support Forum III: Feeding and swallowing difficulties: residents in NH1

Date: 5.012.2011, 11.00am

Attendance: 8 HCAs

Duration: Sixty minutes.

Feeding and swallowing difficulties in Dementia Aim: To enhance HCAs knowledge and skill to recognise feeding and swallowing difficulties when it is displayed by residents and incorporate this information into the daily practice of Manor Farm.		
Method and Learning Objective	Method:	Strategy and Example
For participants to understand how dementia affects the eating and drinking experiences of the resident	Reflective learning	Participants are asked to draw upon and reflect upon their own experiences as a HCA by thinking what mealtimes must be like for a resident in Manor Farm and identify three ways in which they would like to be supported to eat and drink and three ways in which they would not
For participants to describe three examples of feeding and five examples of swallowing disorders displayed by a person with dementia.	Watch video footage Problem based learning and general group discussion.	Participants are given hypothetical examples and short video footage of resident (drawn from residents in Manor Farm) and asked to identify feeding & swallowing difficulties and how this impacts the successful eating and drinking of the resident.)
For residents to outline four treatment options (under four headings) that may maximise feeding and swallowing function	Problem based learning; Using four cues (Environment, Dietary Modifications, Feeding assistance and Support for the person) outline four treatment options underneath the heading.	Participants divided into groups and watch a video of resident in Manor Farm being fed by fellow HCA. Participants asked to outline treatment options that may maximise feeding and swallowing for the resident.
For staff to complete a feeding and swallowing profile of three residents in Manor Farm outlining four techniques that may help the resident eat and drink successfully.	Reflective learners Short writing assignment and discussion. Participants to complete Manor Farm feeding and swallowing care plan. Participants to feed back to the group regarding the feeding care plan	Share communication profiles with class. Group are asked to contribute. Discuss feelings, challenges and insights from the exercise. For the information collected to be used in care planning.

Support Forum IV: Feeding and swallowing difficulties: residents in NH1

Date: 12.05.2010, 11.00am

Attendance: 8 HCAs

Duration: Sixty minutes.

Feeding and swallowing difficulties in Dementia Aim: To enhance HCAs knowledge of treatment options for residents with feeding and swallowing disorders and incorporate this information in the daily practice of Manor Farm.		
Method and Learning Objective	Method:	Strategy and Example
For participants to identify three features of advanced dementia	Open discussion	HCAs to discuss clinical symptoms associated with dementia in open forum context
For participants to describe three risk factors / complications associated advanced dementia.	Problem based & reflective learning: Group discussion drawing on own experience of caring for residents with advanced dementia. Open discussion regarding risk factors associated with advanced dementia.	Open discussion regarding risk factors associated with advanced dementia
What are the treatment options in advanced dementia? -outline three advantages and three disadvantages of hand feeding - outline your personal advanced care plan and give reasons why	Problem based learning and reflective learning	Carers will outline treatment options in advanced dementia regarding eating and drinking (i.e. hand feeding or prolonging life via enteral feeding) using course manuals. HCAs will reflect upon experiential knowledge and discuss their individual personal preference for advanced care plans
For staff to complete a feeding and swallowing profile of three residents in Manor Farm outlining four techniques that may help the resident eat and drink successfully	Watch video footage of two residents of MF with feeding and swallowing difficulties. Short writing assignment and discussion.	Participants to complete Manor Farm feeding and swallowing care plan. Participants to feed back to the group regarding the feeding care plan. Share communication profiles with class. Group are asked to contribute. Discuss feelings, challenges and insights from the exercise. For the information collected to be used in care planning

Making Meal Times Better for Those With Dementia.

Healthcare Assistant Manual.

Aim: This course is designed to help you think about how you influence the ability of the person with dementia to eat and drink.

<u>Overview of training</u>:

Part 1: The person and dementia

Part 2: Dementia and swallowing difficulties

Part 4: Dementia and feeding problems

Part 5: Seeing the person – care planning.

Part 6: Support for the person with dementia, feeding and swallowing problems

<u>Benefits for HCAs</u>:

- Recognise a person centered approach to care.
- Develop existing skills
- Gain knowledge and understanding about dementia
- Empower the HCA to reflect and change practice accordingly.
- Become more confident.
- Feel more valued as a team member

What I would like to achieve from this training:

1

2

3

What is dementia?

Dementia is a general term used to describe the symptoms that occur when the brain is affected by specific diseases and conditions. Dementia describes a condition in which the way the brain functions is gradually lost. There are over 100 different types of dementia including Alzheimer's disease. Dementia is not a normal part of the aging process. There is no known cure for Dementia.

Thinking of the residents in your care, what are normal signs of ageing and how do they impact the resident?

1

2

3

Thinking of resident in your care what are the signs that someone may have dementia and how does it impact the resident?

1

2

3

Swallowing difficulties in Dementia.

Dysphagia is the medical term for difficulty swallowing, or the feeling that food is "sticking" in your throat or chest. Dysphagia is when you have trouble moving food from your mouth into your stomach. Some people with dysphagia have problems swallowing certain foods or liquids, while others are completely unable to swallow.

Thinking about residents in your care with dementia can you give examples of swallowing problems?

1

2

3

Feeding problems in dementia:

Feeding problems in dementia arise when the resident does not know what, when and how to eat in addition to having a swallowing problem.

Thinking about residents in your care with dementia can you give examples of feeding problems?

1

2

3

Thinking of the residents that you work with can you think of behavioural or medical factors that may add to problems with feeding and swallowing difficulties?

1

2

3

Mr Patel

Mr Patel is a retired engineer from India with a diagnosis of dementia, he has lost some of his ability to see after an accident. He is frequently sleepy and slumps over the side of the chair. Mr Patel does not show any interest in food. When you feed Mr Patel he holds food in his mouth for a long time and frequently refuses food and drinks. Mr Patel is coughing when you give him drinks. You notice that he only eats small amounts and he is steadily losing weight. His dentures are loose. Mr Patel enjoys watching other residents.

In terms of care planning for Mr Patel how could you help?

Betty

Betty is a retired nurse and has lived in the care home for several years. She walks around the nursing home all day only sitting down for around 30 minutes at a time. She had difficulty remembering where she is and frequently shouts 'I don't know where I am'. Betty becomes very distressed when guided towards the dining room table for meals and often refuses. You notice that Betty spills a lot of the food on the table and has difficulty using a fork. Betty takes a long time chewing food and occasionally chokes. Betty has lost a lot of weight recently and has had a lot of chest infections.

In terms of care planning for Betty, how could you help?

David

David has been in and out of hospital with chest infections. He is very fragile, sleepy most of the time and unable to get out of bed. He does not show any interest in food and requires you to feed him. He is a very slow eater and only manages a few teaspoons. When he does eat David seems to struggle and has a weak cough. He is very thin. David's daughter is very upset and thinks that the staff are not feeding her father.

In terms of care planning for David, how could you help?

Appendix 5: HCA personalised care plan.

Example of HCA resident care-plan for resident in NH1

<table>
<tr><td colspan="4">Resident: Ann</td></tr>
<tr><td colspan="4">Diagnosis:</td></tr>
<tr><td>Date:</td><td>Goal</td><td>Problem:</td><td>Interventions
Responsible</td></tr>
<tr><td>June 2010</td><td>Ann will eat sufficient amounts of modified diet (see SLT guidelines) to meet her nutritional and hydration requirements</td><td>Swallowing:
Ann had difficulties swallowing and requires a puree diet and thickened fluids (please see SLT guidelines).

Food refusal

Unable to self feed

Not orientated to meal time.

Diabetic</td><td>Feeding techniques that may assist Ann:
<u>Environment:</u>
Ann requires full assistance to eat and drink

She enjoys a quiet feeding environment, switch off the television and use a calm voice to encourage eating and drinking.

Ann must be sitting at a 90 degree angle when eating and drinking

<u>Feeding techniques</u>:
Tell Ann which meal it is (e.g. breakfast, lunch or dinner). Breakfast is Ann's favourite meal.

Ann will frequently close her mouth when presented with food. When this happens put a small bolus of food on her lower lip and she will usually lick it off and start the feeding process. If she continually closes her mouth offer a different food taste, drink or if all else fails giver her some time and come back in a few minutes.

Alternate spoons of fluids with drinks.

Provide cues to eat and drink. Talk about how the food tastes and smells in order to encourage oral intake. Offer substitutes if Ann refuses intake.

Check Ann's mouth after eating and drinking to ensure that there is no residue, she may require mouth care.

<u>Dietary</u>:
Do not mix the separate puree bolus e.g. carrots and potatoes. Keep them separate as this will encourage her to eat and drink. Ann enjoys sweet food, chocolate, tea, custard and gravy (note: Ann is a diabetic).

Support:
Please inform the team if you notice any changes in Ann's eating and drinking.

Please fill in food charts so the team can track if Ann is eating and drinking enough.</td></tr>
</table>

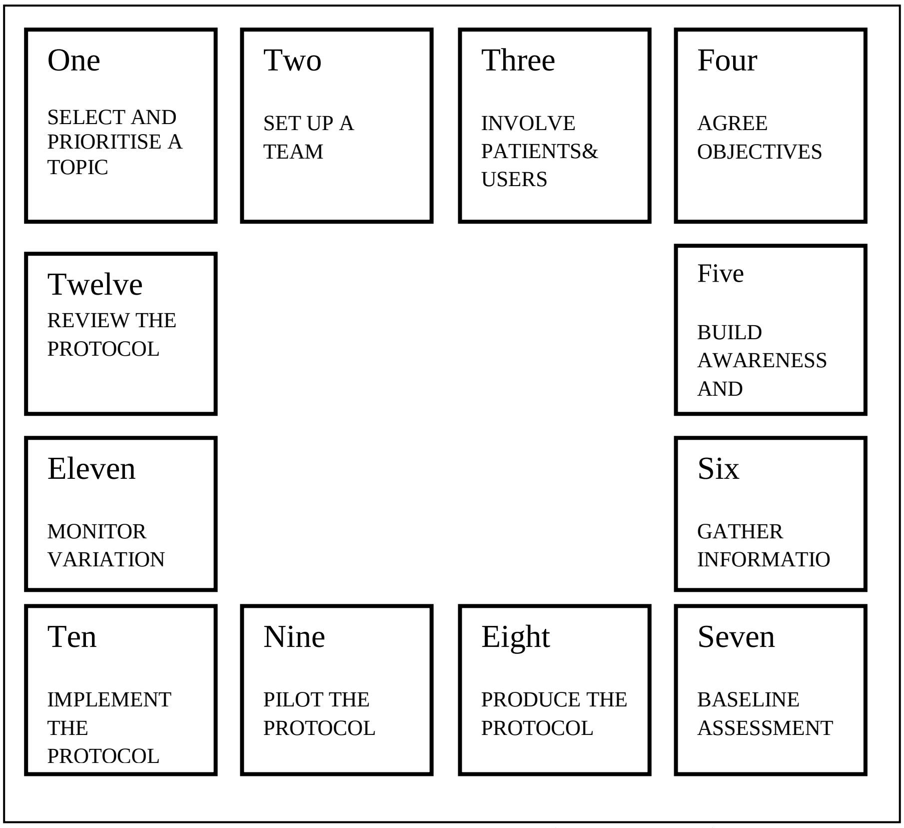
*residents name has been changed

Appendix 6: Oral-Feeding strategies.

TYPE OF FEEDING DIFFICULTY	OBSERVED BEHAVIOR	MULTIDISCIPLINARY STRATEGY	FEEDING STRATEGY
Initiating Feeding			
Refuses food or displays aversion toward food	• Pushes feeder away • Pushes food away • Turns head • Spits out food • Refuses to open mouth		• Try to feed patient at another time[39] • Seek help from another nursing assistant[39] • Offer verbal encouragement[40, 47, 50] • Sit down and make eye contact with patient while feeding[33, 46, 51] • Ask patient and patient's family and friends about food preferences and try to include familiar foods in the diet[5, 45] • Carefully try to part patient's lips and open mouth but *do not force*[43] (firmly squeeze lips between thumb and forefinger, then quickly release; place fingers under jaw, firmly and quickly pressing upward and then releasing)
Violent reaction to feeding	• Hits feeder • Throws food at feeder • Hits eating utensils as feeder attempts to assist • Verbally abuses feeder		• Try to feed patient at another time[39] • Introduce quiet or relaxing music to reduce agitated behavior[34-37]
	• Verbally complains about eating		• Determine whether verbal complaints are valid and respond accordingly
Refuses feeding assistance	• Tells feeder that she or he doesn't want feeding assistance	• If physical ability to feed self is impaired, refer to occupational therapist for adaptive utensils	• Provide adequate time for patient to feed self.[27, 43, 48, 50] If physical ability to feed self is impaired, offer finger foods[38, 46]
Unable to see plate on table or food on plate	• Has difficulty locating plate on table or food on plate	• Refer for visual acuity testing to determine whether glasses are needed	• Use color to increase contrast between plate, table, and food[27, 41] • Check that glasses are in place during mealtime[33, 46]
Maintaining Attention			
Patient is distracted	• Cannot start eating when instructed to do so		• Provide verbal encouragement[40, 47, 50] • Remind patient of motor behaviors needed to get food from plate to mouth using a hand-over-hand approach (holding patient's hand and moving it from mouth to food and back again)[33, 43] • Increase oral stimulation by offering ice or cold water before eating[43]
	• Doesn't continue to eat after starting • Leaves pockets of food in the area of the buccal mucosa		• Provide verbal encouragement[40, 47, 50] • Introduce music to create an environment conducive to dining[37] and to stimulate eating[34] • Remove environmental distractions (for example, turn off the TV or move to another room)[13, 27, 28] • Stimulate the appetite by using aromatic ingredients, such as onions, in food preparation or by offering foods of different colors or textures[27]
	• Cannot sit still, gets up from chair, or leaves table		• Provide finger foods patient can eat while away from table[27, 49]
Patient is too drowsy to eat or is difficult to awaken	• Falls asleep while eating • Is difficult to rouse, even after verbal requests and physical contact	• Discontinue or reduce dose of medications that may cause drowsiness	• Provide verbal encouragement[40, 47, 50] • Add gentle touch to verbal encouragement[33] • Try to feed patient at another time[39]
Getting Food into Mouth			
Unable to move food from plate into mouth	• Lacks motor ability to feed self	• Refer to physical or occupational therapy for evaluation, task modification, or rehabilitation	• Provide utensils that compensate for poor motor ability[27] (for example, utensils with large handles, designed for patient's dominant hand) • Allow patient to use hands to feed self[42]
Unable to keep food in mouth	• Food dribbles out of mouth • Unable to keep mouth closed while chewing	• If assessment reveals motor difficulty, refer to speech and language therapist for oral movement retraining[44]	• Use more solid foods • Use hands to help patient close mouth
Chewing Food			
Ineffective chewing	• Chewing fails to reduce food to a form that can be swallowed	• Refer patient to dentist to treat dental problems or ensure dentures fit well	• Cut food into small pieces or change patient's diet from solid to soft or semiliquid food.[27, 48, 51]
	• Starts to chew but not long enough to convert food to a consistency that can be swallowed		• Cut food into small pieces to speed the effects of chewing[27]
Swallowing Food			
Aphagia	• Gagging and choking when trying to swallow • Aspiration • Multiple attempts to swallow food	• Refer to speech and language therapist to assess swallowing • Have oral suction available at mealtime • Put patient on aspiration precautions	• Seat patient at a 90° angle[51] • Use thickening agent in drinks[46, 51] • Assist patient in swallowing by gently stroking throat, moving from base of anterior neck toward jaw[43]

Appendix 7: Protocol Guide

A Step-by-Step Guide to Developing Protocols.



(NICE, 2005)

Step One:

Select and prioritise a topic:

Client group based protocol. Topic to be covered by the protocol is selected by the identification of local and national service improvement priorities. The development of this protocol based care is to improve complex local systems and to streamline the delivery of care e.g. consistent management of individuals with dementia, swallowing and feeding difficulty in the nursing home. Priority shall be given to this protocol as it supports the implementation of the National Dementia Strategy: Living Well With Dementia (2009) which identifies consistent management of the individual with in the nursing home as a target area for development and evaluation. The nursing home environment is the context in which the protocol will be implemented.

Step Two:

Set up a team:

Establish a team made up of all clinical (doctors, nurses, allied health professionals and health care workers) and non clinical staff (canteen staff, resident chief, statistician). The roles of the team shall be established

- Clinical leader to facilitate discussions and link work with teaching: Speech and language therapist.
- A Clinical Champion: Health Care Worker
- Patient and user representation: Carer of person with dementia / resident where appropriate.
- Analysist: Statistician
- Caldicott Guardian (support delivery of care): Health professional.
- Administrative staff
- Protocol co-ordinator (provide advice and support implementation): NHS manager.

The team shall agree on a communication plan, timescale for the project (approx 6 months), a project plan and meeting schedule.

Step Three:

Involve patients and users:

One of the key principles underpinning the NHS plan and the Governments overall strategy for modernising the health service is to involve the views of the patients, carers, relatives and representatives should be sought. Mechanisms to include the patients and users could include:

- Patient representatives on the protocol development team.
- A forum for different representatives; nursing home mangers, health care assistants, carers of residents.
- Resident associations such as the Alzheimer’s Society
- Analysis of complains about the feeding environment from all representatives and residents (positive and negative).

Step Four:

Agree Objectives:

Specific, measurable objectives shall be set that are related to targets for achievement leading to real service improvements

Objective	Measurement	Target
Increase the number of identified individuals with dementia, dysphagia and feeding difficulties	Number of residents on personalised feeding care plans	Increased reporting and referral to allied health professionals / GP.
Increase the number of residents receiving verbal instruction, stimulation and feeding assistance at meal times	% of residents who receive support / stimulation as evidenced by observational tool	Could be variable – 100% increase for those requiring assistance.

Barriers to effective care delivery experienced by care staff (e.g. task centred approaches to mealtime's shifts) shall be translated into objectives for the protocol.

Step Five:

Build Awareness and commitment:

Successful factors to implementation include visible high level support within an organization. Strong clinical support (in terms of the wide range of professions involve in the care of the residents) in the form of weekly speech and language support, and standby advice from nurses and nursing home mangers. Monthly support forums for health care workers shall encourage health care workers to engage with the protocol.

The nursing home senior managers, senior nurses and non clinical staff at the home shall support the protocol by endorsing any training requests and changes to the meal time environment (visual, auditory and timing of meals). Financial constraints to implementing the protocol shall be discussed at an early stage to identify any potential barriers.

Frequent updates and presentation to the protocol representatives and health care assistants shall aim to keep the protocol on the common agenda.

<u>Step Six;</u>

<u>Gather information</u>:

Information shall be gathered on:

- National standards (Alzheimer's society, NHS framework for progressive conditions)
- Published evidence of good practice (literature base)
- Other nursing homes views and experiences (Sterling University have launched a similar campaign)

<u>Step Seven:</u>

<u>Baseline Assessment</u>

In order to evaluate the efficacy of the protocol base line measures shall be collected during the information stage and analysis of data shall help to identify shortcomings in the current service. Baseline measures shall include observations of the dining room environment over a period of time, analysis of residents care notes which will provide information on how care is delivered presently and reviews of the educational programme. Interviews with care home managers and health care workers shall provide protocol developers with a wide perspective on current provision of care.

<u>Step Eight:</u>

<u>Produce the Protocol</u>

The team shall review and agree simple concise objectives for the protocol. To ensure the protocol will meet the needs of core users (health care workers) the protocol shall avoid unnecessary jargon and have appropriate clear formatting. The protocol shall be presented to patient user groups and carers to ensure it is focused on the needs of the residents with dementia. The protocol for 'making meal times better for those with dementia' shall be aware of necessity of auditing ensuring it can be tested against the targets and objects agreed in Step Four. The protocol shall be submitted to those in delegated authority for approval and review. The name of the clinical leader for the protocol shall be inserted on all documentation.

<u>Step Nine:</u>

<u>Pilot the Protocol:</u>

Implementation shall commence with a pilot phase to address any operational problems and will provide reassurance to staff that the protocol can be modified. At this stage the necessary training programme shall be conducted to empower health care workers to develop the knowledge and skills necessary to manage individuals with dementia, dysphagia and feeding difficulties. Staff shall be supported to use the protocol and this shall be discussed at monthly forums (six one hour sessions over six months). Factors important to successful implementation of the protocol include a clear period of piloting (one month) to ensure changes can be implemented, a clearly defined sample. Compliance with the protocol shall be monitored by evaluating the clients care notes which shall highlight those residents at risk of feeding and swallowing problems and evidence that necessary referrals (SLT, nursing) have been made alongside a personalised feeding plan. Success of the pilot shall be evaluated by negative and positive feedback and ability of health care workers to access support in using the protocol.

<u>Step Ten:</u>

<u>Implement the protocol:</u>

Once commissioners have reviewed the protocol and commented on changes the implementation process shall commence.

Full implementation shall be supported by commencing the detailed training programme ‘making meals better for those with dementia’ and how to use the protocol. This shall be backed up by written guidelines and support.

‘Super users’ i.e. members of the health care workforce and health professionals who have been identified as champions of the protocol shall be involved in design and planning of training and carry out in-service training for colleagues,. Having a member of the nursing home responsible for maintaining the protocol shall ensure it forms an integral part of daily practice and is sustained over time.

Step Eleven: Monitor Variation

Variations in implementing the protocol shall be documented. This shall help establish what happens in practice. It allows the protocol developers to evaluate if the health care workers are accessing the protocol as expected and using their knowledge to decide upon the next best course of action.

Step Twelve: Review the Protocol.

The protocol shall continually be reviewed via audit and further accumulation of baseline measurements (observation of meal time environments and evaluation of knowledge, competency and skill of health care workers plus frequent interviews). This shall ensure that the objectives continue to be met, remain appropriate and keep up to date with clinical practice.

Results from the review may assist with further large scale national reviews of the work skills of health care workers assisting individuals with dementia.

Appendix 8: Ethical approval

Research Ethics Committee

25 August 2009

Miss Maureen McCartney

Dear Miss McCartney

Study Title:	**Effectiveness of an educational program for HCAs caring for people with dementia, dysphagia and feeding disorders: the impact on patients and staff.**
REC reference number:	**09/H0302/79**
Protocol number:	**Version 1.0**

Thank you for your letter of 02 August 2009, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Mental Capacity Act 2005

I confirm that the committee has approved this research project for the purposes of the Mental Capacity Act 2005. The committee is satisfied that the requirements of section 31 of the Act will be met in relation to research carried out as part of this project on, or in relation to, a person who lacks capacity to consent to taking part in the project.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

<u>Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.</u>

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at *http://www.rdforum.nhs.uk*. *Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.*

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*	
GP/Consultant Information Sheets	Version 1.0	22 April 2009	
Questionnaire: T2	Version 1.0	22 April 2009	
Questionnaire: T1	Version 1.0	22 April 2009	
Questionnaire: An Observational Tool			
Statistician Comments			
Peer Review		30 April 2009	
Summary/Synopsis	Version 1.0	22 April 2009	
Covering Letter		22 April 2009	
Protocol	Version 1.0	22 April 2009	
Investigator CV		01 May 2009	
REC application	Version 2.2	08 May 2009	
Training Manual	Version 1.0	01 May 2009	
Descriptive Characteristics of Residents	Version 1.0	22 April 2009	
Questionnaire: T3	Version 1.0	22 April 2009	
Video			
Supervisor CV			
Personal Declaration Resident	Version 2.0	02 August 2009	

Personal Consultee Declaration	Version 2.0	02 August 2009	
Response to Request for Further Information		02 August 2009	
Participant Consent Form: Nursing Home Manager	Version 2.0	02 August 2009	
Participant Consent Form: HCA	Version 2.0	02 August 2009	
Participant Information Sheet: Workshop C	Version 2.0	02 August 2009	
Participant Information Sheet: Workshop B	Version 2.0	02 August 2009	
Participant Information Sheet: Workshop A	Version 2.0	02 August 2009	
Participant Information Sheet: Residents	Version 2.0	02 August 2009	
Participant Information Sheet: Personal Consultees	Version 2.0	02 August 2009	

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email *referencegroup@nres.npsa.nhs.uk*.

Yours sincerely

Mr J G.

Chair

[redacted]

R&D Approval Letter

[redacted]

Clinical Governance Manager
Governance Department
[redacted]

16 September 2009

Miss Maureen McCartney
[redacted]

Dear Miss McCartney,

Re: Effectiveness of an educational program for health care assistants caring for people with dementia, dysphagia and feeding disorders: the impact on patients and staff.

Thank you for providing NHS [redacted] with information concerning the above study. I am happy to confirm that the Trust has approved the study.

Approval is provided on the basis that you agree to adhere to the Trust's requirements for Research Governance including:

- As Principal Investigator for this study you have familiarised yourself with, and accept the responsibilities commensurate with this position, as outlined in the Research Governance Framework (http://www.dh.gov.uk/PolicyAndGuidance/ResearchAndDevelopment/fs/en).
- Compliance with all policies and procedures of the Trust which relate to research, and with all relevant requirements of the Research Governance Framework.
- Co-operating with the Trust R&D Office's regular monitoring and auditing of all approved research projects, including complying with requests for written progress reports.
- Informing the Trust R&D Office *immediately* of any adverse events or complaints, from participants recruited from within this Trust, which occurs in relation to this study.
- Co-operating with the Sponsor organisation in managing, monitoring and reporting of the research study.
- Acknowledge the Trust in any final report and sending a copy of any reports or publications which result from this study to the Trust R&D Office.

[redacted]

[redacted]

Failure to abide by the above requirements may result in the withdrawal of the Trust's approval for this research.

Please contact [redacted] if you need further assistance.

Yours sincerely

[redacted]
Clinical Governance Manager

[redacted]

PIS: Personal Consultees.

UNIVERSITY COLLEGE LONDON & [redacted] PCT RESEARCH PROJECT.

Making meal times better for people with dementia.

Dear

The Speech and Language therapy department at [redacted] collaborating with Mo McCartney from University College London in a research project. The project is called 'Making Meal Times better for those with Dementia'.

An important aspect of the research is that all participates have the choice about whether to volunteer or refuse to take part. However, some of the residents may not have the capacity to consent because of the illness they have affects how they make some decisions.

You have been approached as you are a partner, relative or friend of a resident of this service. The researchers would like to discuss with you your views about whether ……………………….. may wish to participate in the research.

I attach some information about the project, the names of the researchers and ways that you can help.

Please have a look at the form and return to Mo McCartney at University College London using the stamped addressed envelope.

If you have any queries, please contact [redacted] to discuss.

Thank you for your interest in the project and taking time to read the information.

Signed

Manager

____

Thank you for reading this.

What is the project about?

The project 'Making Mealtimes Better for those with Dementia' aims to improve the resident's meal time experience by providing a comprehensive training course for HCAs.

Main aims:

Healthcare assistants provide the majority of daily care for residents. The research will provide and evaluate a training course for HCAs. The training course shall provide information, strategies and techniques about dementia and how to manage residents with dementia who may have feeding and swallowing problems.

The HCAs knowledge and skills shall be evaluated by questionnaires. Any impact of the training on the quality of mealtime experiences for those with dementia shall be evaluated by observations of the residents having their meals.

This study is being completed in partial fulfilment of the Doctorate in Speech and Language Therapy at University College London.

What residents are required to do?

Residents shall be observed at meal times (breakfast, lunch and dinner) over the course of a week by trained observers. Medical and functional information (e.g. weight or evidence of swallowing difficulty) about the resident shall be retrieved from the medical notes. This allows the research team to investigate if the training has any impact on the residents. Residents may be recorded eating and drinking. This will be used for educational purposes only. If the resident does not wish to be video taped then recording will immediately cease and all footage obtained will be destroyed. At no point shall the residents be directly approached by any member of the research team.

Potential hazards:

There are no known hazards to the residents by participating in this research.

Nursing home managers shall be informed if any signs of malpractice are uncovered during the course of this study.

Why have I been approached?

As a relative, friend or partner of a participant in the study, you will have an interest in the participants well being and welfare. The researchers would like to respect the person's wishes by asking your view about whether the resident would like to participate in the study.

What do I have to do now?

If you think that your partner, friend or relative would be interested in taking part, please complete the attached form and send this back to Mo McCartney using the stamped-addressed envelope.

If you think that your friend, partner or relative would be interested but you are not sure about whether you would like to talk about this with the researcher, then please discuss this with the nursing facility manager.

<u>Will information that I give be kept confidential?</u>

Information about yourself (name, address and telephone number) is in records held by the care facility. Newham NHS care team will contact you, should the researchers wish to speak with you.

Information that you disclose about your partner, friend or relative concerning their participation in the research will be held by the researcher. The researcher will not know your name, address or telephone number. When you meet the researcher, they will talk with you about confidentiality.

<u>What will happen to the forms when I have completed them?</u>

The forms will be looked at by the researcher. The Care Team will contact you by 08.08.2009 to let you know whether or not the researcher would like to speak with you and arrange a time for a discussion.

If you do not return the form, we shall assume that you do not wish to be contacted about the project.

<u>How can I find out more about the project</u>?

You can contact [redacted] to discuss the project further.

The project is lead by Mo McCartney who can be contacted at the [redacted]

Personal Consultee Declaration

UNIVERSITY COLLEGE LONDON & [redacted]T RESEARCH PROJECT.

[redacted] NHS

(Version ……… Date…………..)

Participant Code:

Making Mealtimes better for those with Dementia

Please tick the box to demonstrate you understanding below

1. I confirm that I have read and understood the Information for Consultees (version …. . dated………..) for the study ☐

2. I confirm that I have had time and opportunity to ask questions about the study or my role as a Personal Consultee ☐

3. I understand the purpose of the project and what the participant's (my **partner, friend or relative's) involvement would be (observation of mealtimes, collection of medical information and tape recording of eating and drinking).** In my opinion, they would not object to taking part in the study ☐

4. I understand that participation in the project is voluntary and that my partner, friend or relative would be withdrawn if they do not wish to continue participating and without giving a reason. ☐

5. I understand that if my partner, friend or relative were ☐

withdrawn from the project, this would not affect in any way the care or treatment they receive, or affect their legal rights.

6. I understand that my relatives GP will be informed about their involvement in the study. ☐

Name of consultee	Date:	Signature
Name of person who has discussed the study and provided me with information	Date:	Signature:
Principal Researcher	Date:	Signature:

☐Health care records copy ☐Consultee Copy ☐Researcher copy

Information for research participants - residents.

UNIVERSITY COLLEGE LONDON & [redacted] PCT RESEARCH PROJECT.

Making meal times better for people with dementia.

Dear

The Speech and Language therapy department at [redacted] is collaborating with Mo McCartney from University College London in a research project. The project is called ‘Making Meal Times better for those with Dementia’.

An important aspect of the research is that all participates have the choice about whether to volunteer or refuse to take part.

You have been approached as a resident of this nursing home. The researchers would like to discuss with you your views about this research and if you would consent to participate.

I attach some information about the project, the names of the researchers and ways that you can help.

Please have a look at the form and return to Mo McCartney at University College London using the stamped addressed envelope.

If you have any queries, please contact [redacted] to discuss.

Thank you for your interest in the project and taking time to read the information.

Signed

Manager

____

What is the project about?

The project 'Making Mealtimes Better for those with Dementia' aims to improve the resident's meal time experience by providing a comprehensive training course for HCAs.

Main aims:

Healthcare assistants provide the majority of daily care for residents. The research will provide and evaluate a training course for HCAs. The training course shall provide information, strategies and techniques about dementia and how to manage residents with dementia who may have feeding and swallowing problems.

The HCAs knowledge and skills shall be evaluated by questionnaires. Any impact of the training on the quality of mealtime experiences for those with dementia shall be evaluated by observations of the residents having their meals.

This study is being completed in partial fulfilment of the Doctorate in Speech and Language Therapy at University College London.

What residents are required to do?

As a resident you shall be observed at meal times (breakfast, lunch and dinner) over the course of a week by trained observers. Medical and functional information (e.g. weight or evidence of swallowing difficulty) relating to you shall be retrieved from the medical notes. This allows the research team to investigate if the training has any impact on the residents. Residents may be recorded eating and drinking. If you do not wish to be video taped then recording will immediately cease and all footage obtained will be destroyed. All information relating to you shall be annoymised.

At no point shall you be directly approached by any member of the research team.

Potential hazards:

There are no known hazards posed to you by participating in this research.

Nursing home managers shall be informed if any signs of malpractice are uncovered during the course of this study.

Why have I been approached?

The researchers would like to ask your consent to be observed during meal times and possibly recorded eating and drinking for educational purposes. All information pertaining to you shall be annoymised.

What do I have to do now?

If you are interested in taking part, please complete the attached form and send this back to Mo McCartney using the stamped-addressed envelope.

If you are not sure about whether you would like participate and would like to talk to the researcher, then please discuss this with the nursing facility manager.

If you think that your friend, partner or relative would **not** be interested in taking part, then it is important that you still complete the form below.

Will information that I give be kept confidential?

Information about yourself (name, address and telephone number) is in records held by the care facility. [redacted] NHS care team will contact you, should the researchers wish to speak with you.

Information that you disclose concerning your participation in the research will be held by the researcher. The researcher will not know your name, address or telephone number. When you meet the researcher, they will talk with you about confidentiality.

What will happen to the forms when I have completed them?

The forms will be looked at by the researcher. The care team will contact you by 08.08.2009 to let you know whether or not the researcher would like to speak with you and arrange a time for a discussion.

If you do not return the form, we shall assume that you do not wish to be contacted about the project.

How can I find out more about the project?

You can contact [redacted] discuss the project further.

The project is lead by Mo McCartney who can be contacted on [redacted].

Personal Declaration – nursing home resident.

UNIVERSITY COLLEGE LONDON & [redacted] PCT RESEARCH PROJECT.

[redacted] NHS

Participant Code:

(Version ……… Date…………..)

Making Mealtimes better for those with Dementia

Please tick the box to demonstrate you understanding below

1. I confirm that I have read and understood the Information for research participants (version …. . dated………..) for the study ☐

2. I confirm that I have had time and opportunity to ask questions about the study and my role as being observed and possible recorded for educational purposes. ☐

3. I understand the purpose of the project and what my Involvement would be (**observation during meal times, collection of medical information and possible short recording of eating and drinking) I do not object to taking part in the study**. ☐

4. I understand that my participation in the project is voluntary and that all information / footage relating to me will be withdrawn if I do not wish to continue participating and without giving a reason. ☐

5. I understand that if I withdraw from the project, this would not affect in any way the care or treatment I receive or affect my legal rights. ☐

6. I understand that my GP will be informed about my involvement in the study. ☐

Name of particpant	Date:	Signature
Name of person who has discussed the study and provided me with information	Date:	Signature:
Principal Researcher	Date:	Signature:

☐Health care records copy ☐Consultee Copy ☐Researcher copy

Participant Information Sheet: Workshop A.

UNIVERSITY COLLEGE LONDON & [redacted] PCT RESEARCH PROJECT.

UCL

[redacted] NHS

Participant research and information sheet

Date: Version No: Workshop A.

Making meal times better for people with dementia.

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

What is this research about?

Residents with dementia in nursing homes often have difficulties feeding themselves and swallowing food and drinks. It is often distressing for the carer when this happens and difficult to manage these problems. In the later stages of dementia the residents are often admitted to hospital due to these problems.

HCAs are usually the staff members who care for residents on a one to one basis and are responsible for the majority of daily living activities such as washing and feeding.

It has been shown that with good management, residents with dementia can stay in the nursing home for longer if the staff are well trained and know how to recognise and manage these problems.

In this study I aim to investigate if training for HCAs on dementia, feeding and swallowing results in improved knowledge and skills on how to manage this client group and improved meal time experiences for those with dementia. I also aim to emphasize the importance of training HCAs who work with this group of people.

This study is being completed in partial fulfilment of the Doctorate in Speech and Language Therapy at University College London.

What's involved?

If you decide you would like to participate in the study the actual training shall last three hours and involve a questionnaire before, after and six months after training. Ongoing support shall be provided in the format of monthly focus groups led by a speech and language therapist.

Why me?

I have contacted your manager and offered the training to HCAs in the nursing home. Your manager has suggested that you might be interested in the training. Nineteen other HCAs have been offered the training.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the speech and language service input to this nursing home.

What will happen to me if I decide to take part?

If you decide you would like to be a part of the research you will be involved in a one off workshop for three hours on the day of training. The workshop will be based in your place of work.

Before the training you shall be asked to complete a short questionnaire asking information about your job plus information on what you know about dementia and feeding and swallowing difficulties. This should take about forty minutes.

You shall participate in a three-hour training session on dementia and the type of swallowing problems that occur in this population. You shall be given specific strategies to help you identify problems and tips on how to help the person with dementia to eat and drink.

After this training session you shall be asked to complete a second questionnaire, which shall be the same as the first. This shall last forty minutes.

Ongoing support for your development shall be provided in five focus groups (once monthly). During these sessions you are encouraged to bring forward any problems you are experiencing regarding encouraging people with dementia to eat and drink.

Six months after training I shall ask you to complete the same questionnaire. The aim of this is to show if the training is effective over time. The dining room shall be observed to investigate if the training has had any impact on the feeding experience of the individual with dementia.

What do I have to do?

If you decide to take part in this training all you have to do is to complete the training programme which involves a training workshop, completion of questionnaires, and five support forums. All information is purely confidential and the questionnaires shall not be traceable to you.

What are the disadvantages of taking part?

There are no known disadvantages of taking part in this study.

What are the benefits of taking part?

We hope that this training shall provide you with a greater knowledge of what dementia is and how it negatively impacts the feeding abilities and swallow of people with dementia.

Hopefully the training shall give you tips and ideas on how to manage these difficult situations and how you can improve the feeding abilities of these residents for longer.

Will my taking part in this study be kept confidential?

All information, which is collected, about you during the course of the research will be kept strictly confidential. **No** information shall be passed back to your manager. Any information about you, which leaves the nursing home, shall only have a number so that you cannot be recognised from it.

What will happen to the results of the research study?
The results of the study shall be compared with other HCAs who have been given a different type of training to find out which one is the better training method.

The results will be analysed to find out if training improved the health care worker's knowledge of dementia, feeding and swallowing issues and the dining room experience of the individuals with dementia.

The results shall hopefully be published and a copy of the results shall be given to the nursing homes so that you can read the final results.

Please remember:

You shall not be identified in any part of the research.

Your manager shall **not** be given any feedback on your performance.

It is well within your rights to decide not to participate in the study. Your employment shall not be affected if you decide not to take part in the study.

If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, the normal National Health Service complaints mechanisms should be available to you.

Nursing home managers shall be informed if any signs of malpractice are uncovered during the course of this study.

This piece of research has been reviewed by [redacted]

If you wish any further information on this study you can contact:

[redacted]

Thank you for considering participation in my research.

Participant research and information sheet: Workshop B

UNIVERSITY COLLEGE LONDON & [redacted] PCT RESEARCH PROJECT.

UCL [redacted] NHS

<u>Participant research and information sheet</u>

Date: Version No: **Workshop B.**

<u>Making meal times better for people with dementia.</u>

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

What is this research about?

Residents with dementia in nursing homes often have difficulties feeding themselves and swallowing food and drinks. It is often distressing for the carer when this happens and difficult to manage these problems. In the later stages of dementia the residents are often admitted to hospital due to these problems.

HCAs are usually the staff members who care for residents on a one to one basis and are responsible for the majority of daily living activities such as washing and feeding.

It has been shown that with good management, residents with dementia can stay in the nursing home for longer if the staff are well trained and know how to recognise and manage these problems.

In this study I aim to investigate if training for HCAs on dementia, feeding and swallowing results in improved knowledge and skills and results in improved dining room experiences for the residents with dementia. I also aim to emphasize the importance of training HCAs who work with this group of people. **This study is being completed in partial fulfilment of the Doctorate in Speech and Language Therapy at University College London**.

What's involved?

If you decide you would like to participate in the study the actual training shall last three hours and involve a questionnaire before, after and six months after training. Ongoing support shall be provided in the format of monthly focus groups led by a health care worker.

Why me?

I have contacted your manager and offered a training programme to HCAs in the nursing home. Your manager has suggested that you might be interested in the training. Nineteen other HCAs have been offered the training.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the speech and language service input to this nursing home.

What will happen to me if I decide to take part?

If you decide you would like to be a part of the research you will be involved in a one off workshop for three hours. The workshop will be based in your place of work.

Before training you shall be asked to complete a short questionnaire asking information about your job plus information on what you know about dementia and feeding and swallowing difficulties. This should take about forty minutes.

You shall participate in a three-hour training session on dementia and the type of swallowing problems that occur in this population. You shall be given specific strategies to help you identify problems and tips on how to help the person with dementia to eat and drink.

After this training session you shall be asked to complete a second questionnaire, which shall be the same as the first. This shall last forty minutes.

Ongoing support for your development shall be provided in five focus groups (once monthly). During these sessions you are encouraged to bring forward any problems you are experiencing regarding encouraging people with dementia to eat and drink.

Six months after training I shall ask you to complete the same questionnaire. The aim of this is to show if the training is effective over time.

The dining room shall be observed to investigate if the training has had any impact on the feeding experience of the individual with dementia

What do I have to do?

If you decide to take part in this training all you have to do is to complete the training programme which involves a training workshop, completion of questionnaires, and five support forums. All information is purely confidential and the questionnaires shall not be traceable to you.

What are the disadvantages of taking part?

There are no known disadvantages of taking part in this study.

What are the benefits of taking part?

We hope that this training shall provide you with a greater knowledge of what dementia is and how it negatively impacts the feeding abilities and swallow of people with dementia.

Hopefully the training shall give you tips and ideas on how to manage these difficult situations and how you can improve the feeding abilities of these residents for longer.

Will my taking part in this study be kept confidential?

All information, which is collected, about you during the course of the research will be kept strictly confidential. **No** information shall be passed back to your manager. Any information about you, which leaves the nursing home, shall only have a number so that you cannot be recognised from it.

What will happen to the results of the research study?

The results of the study shall be compared with other HCAs who have been given a different type of training to find out which one is the better training method.

The results will be analysed to find out if training improved the health care worker's knowledge of dementia, feeding and swallowing issues and the dining room experience of the individuals with dementia.

The results shall hopefully be published and a copy of the results shall be given to the nursing homes so that you can read the final results.

Please remember:

You shall not be identified in any part of the research.

Your manager will **not** be given any feedback on your performance.

It is well within your rights to decide not to participate in the study. Your employment shall not be affected if you decide not to take part in the study.

If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, the normal National Health Service complaints mechanisms should be available to you. **Nursing home managers shall be informed if any signs of malpractice are uncovered during the course of this study**.

This piece of research has been reviewed by [redacted]

If you wish any further information on this study you can contact:

[redacted] Speech and Language Therapy Manager [redacted]

Thank you for considering participation in my research

UNIVERSITY COLLEGE LONDON & NEWHAM PCT

[redacted]

Participant research and information sheet

Date: Version No: Workshop C.

Making meal times better for people with dementia.

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

What is this research about?

Residents with dementia in nursing homes often have difficulties feeding themselves and swallowing food and drinks. It is often distressing for the carer when this happens and difficult to manage these problems. In the later stages of dementia the residents are often admitted to hospital due to these problems.

HCAs are usually the staff members who care for residents on a one to one basis and are responsible for the majority of daily living activities such as washing and feeding.

It has been shown that with good management, residents with dementia can stay in the nursing home for longer if the staff are well trained and know how to recognise and manage these problems.

In this study I aim to investigate if training for HCAs on dementia, feeding and swallowing results in improved knowledge and skills on how to manage this client group and improved meal time experiences for those with dementia. I also aim to emphasize the importance of training HCAs who work with this group of people. **This study is being completed in partial fulfilment of the Doctorate in Speech and Language Therapy at University College London**.

What's involved?

If you decide you would like to participate in the study you shall have the opportunity to attend a training package aimed at assisting individuals with dementia and dysphagia to eat and drink.

Why me?

I have contacted your manager and offered the training to HCAs in the nursing home. Your manager has suggested that you might be interested in the training. Nineteen other HCAs have been offered the training.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the speech and language service input to this nursing home.

<u>What will happen to me if I decide to take part?</u>

If you decide you would like to be a part of the research you will be involved in a one off training workshop. The workshop will be based in your place of work.

Over the next six months you shall be asked to complete three questionnaires. This shall ask information about your job plus information on what you know about dementia and feeding and swallowing difficulties. The questionnaire shall take about forty minutes to complete.

The dining room environment shall be observed over this time to review the meal time dining experience of the residents with dementia.

At the end of this period of time you shall have the opportunity to attend a training session on dementia and the type of swallowing problems that occur in this population. You shall be given specific strategies to help you identify problems and tips on how to help the person with dementia to eat and drink.

<u>What do I have to do?</u>

If you decide to take part in this training you will be asked to complete three questionnaires over a period of six months and afterwards attend a training programme. All information is purely confidential and the questionnaires shall not be traceable to you.

<u>What are the disadvantages of taking part?</u>

There are no known disadvantages of taking part in this study.

<u>What are the benefits of taking part?</u>

We hope that this training shall provide you with a greater knowledge of what dementia is and how it negatively impacts the feeding abilities and swallow of people with dementia.

Hopefully the training shall give you tips and ideas on how to manage these difficult situations and how you can improve the feeding abilities of these residents for longer.

<u>Will my taking part in this study be kept confidential?</u>

All information, which is collected, about you during the course of the research will be kept strictly confidential. **<u>No</u>** information shall be passed back to your manager. Any information about you, which leaves the nursing home, shall only have a number so that you cannot be recognised from it.

What will happen to the results of the research study?
The results of the study shall be compared with other HCAs who have been given a different type of training to find out which one is the better training method.

The results will be analysed to find out if training improved the health care worker's knowledge of dementia, feeding and swallowing issues and the dining room experience of the individuals with dementia.

The results shall hopefully be published and a copy of the results shall be given to the nursing homes so that you can read the final results.

Please remember:

You shall not be identified in any part of the research.

Your manager shall **not** be given any feedback on your performance.

It is well within your rights to decide not to participate in the study. Your employment shall not be affected if you decide not to take part in the study.

If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, the normal National Health Service complaints mechanisms should be available to you. Nursing home managers shall be informed if any signs of malpractice are uncovered during the course of this study.

This piece of research has been reviewed by [redacted] Research Ethics Committee.

If you wish any further information on this study you can contact:

[redacted], Speech and Language Therapy Manager [redacted]

Thank you for considering participation in my research

CONSENT FORM

University College London and [redacted] PCT

[redacted]

Date: Version: 2.0

Making mealtimes better for people with dementia;

I confirm that I have read and understand the information sheet (Version__) for the above study and have had the opportunity to ask questions. ☐

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

I understand that any information I give will be anonymous and that the information will be used as part of a research project. ☐

I agree to take part in the above study. ☐

Name of research participant:

Signature:

Date:

Name of researcher

Signature:

Date:

Participant copy: ☐ Researcher copy: ☐

CONSENT FORM

Nursing home managers

<u>University College London and</u> [redacted]

[redacted]

Date: Version:

Making mealtimes better for people with dementia;

I confirm that I have read and understand the information sheet (Version__) for the above study and have had the opportunity to ask questions ☐

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

I understand that any information I give will be anonymous and that the information will be used as part of a research project. ☐

I agree to take part in the above study. ☐

<u>Name of research participant</u>:

Signature: Date:

<u>Name of researcher</u>

Signature: Date:

Participant copy: ☐ Researcher copy:

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