THE CHALLENGE OF FEEDING THE PATIENTS WITH DEMENTIA

Literature Review

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Bachelor's thesis
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Degree Programme in Nursing

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ABSTRACT

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Good nutrition is essential in promoting health, maintaining independence and enhancing the well-being of patients who have dementia. As dementia progresses, eating difficulties are more noticeable. Studies after studies, it has been noted that those patients who were malnourished are prone to morbidity and mortality compared to those who are overweight.

The purpose of this literature review was to explore the factors that cause malnutrition among the patients with dementia in nursing home. The aim is to provide effective nursing interventions through an evidenced-based practice and to develop a right attitude needed by the nurse.

There were many materials pertaining to the theme of dementia and malnutrition, but research articles that discussed malnutrition among the patient with dementia in nursing homes from the nursing point of view were scarce. In this literature review, the theoretical starting points focused on the concept of dementia and malnutrition and its significant association.

The result showed that the factors affecting malnutrition in nursing home were multifaceted. The nutritional status of patients with dementia in nursing can be alleviated by taking effort on maintaining the patient's ability to self-feed as long as tolerated. If self-feeding was not considerable at all, hand-feeding by the nurses was the next option. The positive attitude and willingness to help were the nurse's best tools in providing quality care. The result also marked the importance of providing an educational training program that focused on feeding among the nurses who are taking care of the patients with dementia.

The conclusion suggests that an individualized nursing care plan should tailor the patients' eating and feeding behavior, mental, physical, and communication disabilities. Nurses should understand the degenerative process of dementia to fully understand the changes in patient's capabilities. It is useful if there is a standardized measure that tests the knowledge and skills of nurses upon hiring.

Key words: dementia, nursing home, malnutrition, feeding, nurse.

TIIVISTELMÄ

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Terveellinen ravitsemus on oleellinen osa dementiapotilaiden terveyden ja hyvinvoinnin edistämistä sekä heidän itsenäisyytensä säilyttämistä. Dementian edetessä lisääntyvät myös syömiseen liittyvät ongelmat. Monissa tutkimuksissa on todettu aliravittujen potilaiden sairastavuuden, ja kuolleisuuden olevan korkeampia verrattuna ylipainoisiin potilaisiin.

Tämän kirjallisuustutkimuksen tarkoituksena oli selvittää aliravitsemukseen johtavia syitä hoitokodissa asuvien dementiaa sairastavien keskuudessa. Tavoitteena on tarjota näyttöön perustuvien käytäntöjen kautta tehokkaita työkaluja hoitotyöhön sekä vaikuttaa hoitajien asenteisiin.

Useita, dementiaa ja aliravitsemusta käsitteleviä aineistoja oli saatavilla, mutta tutkimusartikkeleita, jotka käsittelivät hoitotyön näkökulmasta hoitokodissa asuvien dementoituneiden potilaiden aliravitsemusta, vähemmän. Tämän kirjallisuuskatsauksen teoreettiset lähtökohdat keskittyivät käsittelemään dementian ja aliravitsemuksen merkittävää yhteyttä.

Tulokset osoittivat, että hoitokodeissa esiintyvään aliravitsemukseen vaikuttavat tekijät olivat monitahoisia. Aliravitsemusta dementiapotilaiden hoitotyössä voidaan lievittää tukemalla potilaan itsenäistä ruokailua niin pitkään kuin mahdollista. Jos omatoiminen syöminen ei enää onnistu, syöttää hoitaja potilaan. Hoitajan positiivinen asenne ja halu auttaa on sairaanhoitajan paras keino tarjota laadukasta hoitoa. Tulokset myös osoittivat, että on tärkeää tarjota koulutusta dementiapotilaiden syöttämisessä.

Johtopäätöksen mukaan yksilöllisen hoitotyön suunnitelman tulisi huomioida potilaan ruokailutavat, psyykkiset ja fyysiset kyvyt sekä kommunikointikyky. Hoitajan tulisi ymmärtää dementian rappeuttava prosessi, ymmärtääkseen muutokset potilaan kyvyissä. Hyödyllistä olisi jonkinlaisen standardin käyttö hoitajan tietojen ja taitojen testaamiseksi ennen töihin ottoa.

Avainsanat: dementia, hoitokodin, aliravitsemus, ruokinta, sairaanhoitaja.

CONTENTS

1 INTRODUCTION

Malnutrition in long term nursing homes has been a huge issue for a few decades especially to those patients who suffer from dementia. It already affect millions of people and costs billions of euros to treat, but the attention it has been given is little (Murphy 2011). Efforts have been made to improve the nutritional status of patients who suffer from dementia. Science and innovation may hold the key in providing a better nutritional care. But as far as this study is concerned, the authors are unable to point out the effectiveness of the new technology that has been developed for the purpose of improving the nutritional needs of patients who have dementia (Alzheimer's Association 2011).

The word dementia is taken from two Latin words: “de” which means *without* and “ment” which means *mind.* It is a disease that was already known in the ancient time and until now; it has been classified as *madness* (Infante 2011.) Dementia is a progressive and irreversible disease that diminishes the person´s ability to do his/her daily activities of living due to gradual loss of cognitive function, changes in behaviour, and emotional instability. To clarify further, dementia is not a natural consequence of aging (Department of Health 2009).

The burden brought by dementia to public health is already high and it is increasing further as years pass by (World Health Organization 2006). In fact, the incidence of dementia each year worldwide is nearly 4.6 million, which means that there is 1 new case in every 7 seconds predominantly among those aged 65 and above (Alzheimer’s Association 2008). Concerning Finland, there are 85,000 people who suffer from dementia and it has been estimated that there are 13,000 new cases every year (Current Care Guidelines, 2010.)

Studies after studies patients with dementia have been prone to malnutrition (World Health Organization 2006). In Finland, 0-16% of the studied elderly people have received good nutrition, whereas 11-57% of have suffered from malnutrition, and 40-89% have been at risk of malnutrition. And the most prevalent numbers have come from patients who have been diagnosed with dementia (Suominen, Finne-Soveri, Hakala-Lahtinen, Männistö, Pitkällä, Sarlio-Lähtenkorva & Soini 2010).

The impact of high mortality rate of patients with dementia in nursing homes creates stress for nurses (World Health Organization 2009). In the study of Norberg and Hirschfield (2009), it is revealed that force feeding has been developed as the only option to reverse malnutrition in some nursing homes. The study by Jansson and Nordberg (2009) concluded that force feeding by the nurses fails to reason out the ethical principles that stretch between beneficence and autonomy, even if the patient is in the state of hallucinations. Hallucinations among the patients with dementia are usually transient which could last for minutes or hours only. If the patients refuse to eat, there might be some dental problems that need attention, wrong food preference or their own decision not to eat, which nurses must respect (Wisconsin 2004, 108.) It cannot be denied that the right to self-determination has been questioned for over a decade due to the lack of commitment by government policy in providing access that enables the patients with dementia to exercise their right to self-determination (Boyle 2010).

Tackling malnutrition would not only benefit the individual patients but also develop the well-being of both patients and nurses. The enhancement of nurse's knowledge about the nature of the disease, its consequences, and the right attitude of nurses are effective tools in preventing malnutrition (World Health Organization 2012.)

The purpose of this thesis is to seek out information on what are the causes of malnutrition in long tern nursing homes, to provide the best possible care, and to promote a right attitude by the nurses. This study aims at boosting the knowledge of the nursing students at Tampere University of Applied Sciences (TAMK) concerning the nutrition of patients with dementia. The authors wish that this study will promote better nursing care.

2 PURPOSE, AIM, AND OBJECTIVES

The purpose of this thesis was to explore the factors that cause malnutrition among patient with dementia in nursing home. The aim was to provide an effective nursing intervention through evidenced-based practice, and to develop a right attitude needed by the nurses. The objective was to enhance the knowledge of the nursing students at Tampere University of Applied Sciences (TAMK) on the improvement of the nutritional status of patients with dementia. The authors of this literature review hope that the result will foster a stress free environment, provide better care, and improve the quality of life of the patients who have dementia.

The research questions are:

1. What are the factors that lead to malnutrition among patients with dementia?
2. What are the effective nursing interventions that may improve the nutrition need of the demented patients?
3. How does the nurse's attitude improve the nutritional status of the patients who suffer from dementia?

3 THEORITICAL FRAMEWORK

3.1 Definition of Patients with Dementia

There is no exact word that defines dementia in the context. In this paper, patients with dementia are described as patients who have multifaceted deterioration in memory, language, and visual processing, and mood swings that are severe enough to keep the patients from doing their daily activities of living (Chow 2005.)

3.1.1 Types of Dementia

Dementia is a progressive syndrome which decreases cognitive function, personality, and social abilities. It is irreversible. As the disease progresses, the condition can result in difficult issues for carers, social care workers, and family members with conditions like aggressive behaviour, restlessness, wandering, eating problems, incontinence, delusions, hallucinations, and mobility problems that might lead to falling and fractures (MereCbulletin 2007). Nurses or caregivers of patients with dementia suffer more burden than nurses or caregivers of elderly people with purely medical/physical conditions (Gaugler, Kane, & Newcomer 2007, 38-44). It occurs more in females is more than males (NICE-SCIG guidelines 2006). There are many different types of dementia, but the authors focused on Alzheimer's disease (AD), front temporal dementia (FTD), and vascular dementia (VaD) which are the three most common causes of early-onset dementia.

3.1.2 Alzheimer's Disease

Alzheimer's disease is slowly progressive degenerative dementia that occurs between 40 and 90 years of age. Alzheimer's disease is the most common type of dementia which accounts for about 60% of all cases (NICE-SCIG guidelines 2006). This type of dementia is characterized by apraxia, problems with judging space between objects, depth perception, concreteness, and preserved motor function, except in the later stages

of the disease (Doody et al., 2001). There are three stages in which Alzheimer's disease progresses; early, intermediate, and late. Retaining new information reliably and the inability of cueing to enhance the information are the classic features in the early stage (Clark 2000). During the early stage, carers might notice that the patient with Alzheimer's disease spends less time on things like hobbies, reading, and associating in social activities outside the home. Withdrawal from participating in social activities is not what the patient really wants; it could be due to the fact the patient is concerned about forgetting names, has difficulties in finding words, or maybe is afraid of getting lost in a new environment (Doody et al., 2001)

According to Clark (2000), behavioural and personality changes, Parkinsonism, and psychotic symptoms are most evident in the intermediate stage of Alzheimer's disease. The affected individual with Alzheimer's disease loses most of his/her function abilities in the late stage. He/she might be unable to use telephone, have a normal discussion, or even eat. Due to the fact that poor nutritional intake often occurs, excessive calorie consumption that is difficult to be compensated might result. Though the care giver will put in efforts to feed, and/or verbally cue the patient to eat, weight loss may still occur. The patient with Alzheimer's disease will spend his/her final years in a long term nursing home in most cases (Clark 2000.)

3.1.3 Vascular Dementia

Vascular dementia (VaD) is known as the second most common cause of dementia after Alzheimer's disease, and it accounts for up to one-third of all dementia (Alzheimer's Society 2007a). Vascular dementia accounts for 20% of dementia cases. Vascular dementia is associated with dementia caused by ischemic or haemorrhagic cerebrovascular lesions, where multi-infarct dementia resulting from a series of small strokes is the most common type. Vascular dementia is more common in males than females, and its onset is sudden as compared to the dementia associated with Alzheimer´s disease. Atrial fibrillation, hypercholesterolemia, smoking, and diabetes are all risk factors of vascular dementia (Husband & Worsley 2006). The disruptions of blood supply to the brain and brain tissue are caused by thrombosis, embolism, or haemorrhage resulting in vascular dementia (Passmore 2005).

3.1.4 Frontotemporal Dementia

Frontotemporal dementia (FTD) is subtle and slowly progressive but unlike Alzheimer's disease. Its symbol is an early behavioural change which includes sexually inappropriate attitude, poor hygiene, hyperorality, disinhibition, and preservative behaviour (Neary, Snowden, & Mann 2000). In people under the age of 65, frontotemporal dementia is recognized as the second most common cause of dementia (Graham & Hodges, 2005). According to Chow, Miller, Boone, Mishkin and Cummings (2002), the diagnosis for the patient with frontotemporal dementia cannot be made alone from neurological changes.

3.2 Malnutrition

3.2.1 The Consequences of Malnutrition

"Malnutrition has been defined as a disorder of nutrition resulting from unbalanced, insufficient or excessive diet or impaired absorption, assimilation or use of food", states Wisconsin (2004, 108). Until now, the definition of malnutrition in health care has no known universal agreement (Lou, Dai, Huang & Yu 2007).

Dementia was known to have a negative impact on nutritional status and strong predictive indices of morbidity and mortality among the patients with dementia (Eliopoulos 1997, Finn-Soveri et al. 2004, Keller & Fleury 2000, 69-120). Suominen et.al 2004 stated that those patients who unintentionally lost weight had a low body mass index and the malnourished ones were prone to morbidity and mortality compared to those who were overweight.

Patients with dementia may be unable to express their thirst and hunger. This will lead to loss of energy to sustain in doing daily activities of living. Falls may happen which result from headache and dizziness. Somatic diseases may worsen, muscle mass and tissue mass may be reduced which may result in hypothermia. Breathing difficulties

increase the risk of chest infection and respiratory failure. Wounds or pressure ulcers take time to heal or recovery is very slow, and immune responses are slower, which increases the risk of getting infections, and increases the length of recovery time from the infection. (Dylan & Nadim 2005; Finne-Soveri 2012.)

3.2.2 The Signs and Symptoms of Malnutrition

A deficiency, excess or imbalance in the intake of energy, protein and other nutrients causes an adverse effect on body form, function, and clinical symptoms (Dylan & Nadim 2005). Awareness of the signs and symptoms of malnutrition is the nurse´s best tool to respond immediately to the need that is sometimes unspoken. The signs and symptoms of malnutrition that were often observed were headache and dizziness. Affected individual may also develop sore tongue, ingestion, diarrhoea, and constipation. Weakness or feeling tired all the time, muscle cramps, burning sensation, bone pain, sore joints, recurrent boils, and dyspnoea may develop. In worst cases, anorexia and appetite changes, and poor skin turgor around the areas over the forehead and the sternum will become more noticeable. A malnourished person may experience hair brittleness, persistent goose, pallor and purpura, and brownish pigmentation. Red or scally areas in folds around the eyes and between the nose and the corner of the mouth, dermatitis, and fungus infection may occur. Changes in vision, mood swings, alteration in behaviour, and decreased level of consciousness may happen if malnutrition left untreated. (Eliopoulos 1997, 148.)

3.3 Measures in Detecting Malnutrition

3.3.1 Body Mass Index

The optimal range of body mass index of elderly who are living in nursing homes is 24 to 29, instead of 20-25 (Suominen et. al 2004, Current Care Guidelines 2010). However, the use of BMI may give unreliable results due to the biological changes of aging, such as vertebral compression and loss of muscle tone, and it may lead into postural changes which may give an incorrect result when taking the height (Dylan & Nadim 2005). In

addition, BMI may mask the changes in weight for those patients who have oedema and dehydration. It lacks the capacity to distinguish between loss of fat or loss of muscle tissue, which is very important in identifying malnourished residents (Lou et al. 2007).

3.3.2 Anthropometry

The use of anthropometric measurement such as skinfold thickness in the subscapular, supra-iliac, biceps, triceps, thigh, or calf can be used. Mid-upper arm circumference is a helpful indicator of malnutrition, taking into consideration that the normal circumference for a male is 42 cm and 23 cm for women. But this technique requires enough skills that can be gained from experiences because sites, age, sex and ethnicity varies the result (Dylan & Nadim 2005, Eliopoulus 1997, 148.)

3.3.3 Biochemical Markers

Biochemical screening such as total iron capacity, transferrin saturation, protein, albumin, haemoglobin, haematocrit, electrolytes, vitamins, prothrombin time, and specific gravity from urine sample can be used for evaluating malnutrition (Eliopoulus 1997, 148). However, Dylan and Nadim (2005) suggest that it does not offer a satisfactory screening test, because the result needs detailed assessment and monitoring. Yet for precise diagnosing of malnutrition, it still remains an important factor to consider (Lou et al. 2007).

3.3.4 Mini Nutritional Assessment

In Finland, Mini Nutritional Assessment (MNA) was specifically designed to detect the nutritional status of elders. MNA is a well validated and sensitive scale for nutritional status. The results of MNA are practical and reliable, result mainly because it has predictive validity for adverse health outcome, social functioning, rate of visits to the general practitioner, as well as the length of hospital stay, likelihood of discharge to a nurs-

ing home, and mortality. The scores below 17 are considered malnourished while the scores above 11 mean that there is no malnutrition.

4 METHODOLOGY

4.1 Literature Review

Literature review is the critical review of previous literature relating to a research topic, the main purpose of which is to serve as solid evidence for the newly gained insights (Cormack 2002; Parahoo 2006; Polit & Beck 2012). At first, authors need to formulate questions concerning the topic of interest. Then, a devised strategy is implemented. To find out related literature from the previous studies, authors search manually or electronically databases using keywords. All sources should be retrievable and reader-friendly. The information needed is then abstracted from the previous studies. Authors should meticulously critique the articles being read to find out if the limitations behind the studies have been mentioned. The information gathered is then aggregated and should be analysed carefully. Lastly, a summary of information gathered from the articles being read should be written using the author's own words (Polit & Beck 2012, 124-125.)

In this study, three questions are formulated and the most up to date, credible and relevant articles that are reviewed by an expert and published works in scholarly journals from databases have been identified and located. The search was done manually with the aid of the school librarian and from electronic databases using keywords. Beck and Polit (2012) strongly suggest that full copies of the articles selected must be obtained. The data were analysed using content analysis. Content analysis is defined as a research method used for making replicable and valid interference from data to their context, with the intend purpose of providing knowledge, new insights, a representation of facts and a practical guide to action. It aims to produce a condensed and broad description of the phenomenon in question. It can be used either as an inductive or a deductive way based on the purpose of the study. The written review which is the end product of this report is paraphrased by the authors' own words objectively and will add as a new contribution to the topic of interest (Elo & Kyngäs 2008, 107-109.) The data were organized by making a summary table which includes the columns including the title of the

articles, authors and the place of publication, study design, measurements used, contents of the measurements, number of participants, key findings, and the result of the study.

4.1.1 Literature Searches

All material was drawn from the CINAHL database. To locate the most possible relevant sources, searches were done widely at first and then narrowed down so that the number of results that remained included only the most relevant ones. Table 1 presents a combination of terms from the major keywords. During the search Boolean operators such as AND, OR, NOT were used to find the results of interest. The AND term was used to request two or more concepts that appeared in the retrieved articles. For those words that share common meanings or alternatives to each other, the OR term was used. The NOT term was used to avoid unwanted items to show up on the list (Polit & Beck 2012, 100-103.)

Table1. Search Items

dementia	AND	malnutrition OR feeding NOT drug therapy	AND	nursing home NOT hospital	AND	nurse

Major keywords used were dementia, malnutrition, nursing home and nurse as well as their combinations, such as malnutrition OR feeding NOT drug therapy AND nursing home NOT hospital AND nurse NOT student. A limitation was applied using the years 2003-2013, English language, peer-reviewed articles, and links to full text.

4.1.2 Inclusion and Exclusion

Setting inclusion and exclusion using transparent criteria defines the boundaries of the review. It also provides a clear framework for decision making with regard to its relevancy and reproducibility. The criteria should be justified and their reliability must be recognized (Parahoo 2006, 138). In this study, the criteria for inclusion are studies that are published from 2003 to 2013, written in English and the main focus of the study will be on the participants who are residents in long term nursing homes, the target group of the studies are patients who have dementia regardless of the age and the interventions focus on nursing caring. The papers excluded from this study are works that focused predominantly upon interventions any other than nursing care such as pharmacological aspects and tube feeding.

Table 2. CINAHL Searches

Searches	Hits
dementia	24,526
malnutrition OR feeding NOT drug therapy	21,059
nursing home NOT hospital	372
nurse	238
dementia AND malnutrition OR feeding NOT drug therapy AND nursing home NOT hospital AND nurse AND year 2003-2013	111
dementia AND malnutrition OR feeding NOT drug therapy AND nursing home NOT hospital AND nurse AND year 2003-2013	108
dementia AND malnutrition OR feeding NOT drug therapy AND nursing home NOT hospital AND nurse and year 2003-2013 and English language and peer reviewed	103
dementia AND malnutrition OR feeding NOT drug therapy AND nursing home NOT hospital AND nurse and year 2003-2013 and English language and peer reviewed and PDF full text	36

The searches made in the CINAHL produced 36 results, six of which were suitable articles. First the abstracts were read. The estimation of suitability and relevance of the articles was performed according to the research questions. The articles that were excluded were left out due to the following reasons; nine articles mentioned the use of medication, eight articles considered tube feeding as the alternative to feeding the patients with dementia, seven articles focused on other settings than nursing homes, five dealt with family caregivers and students, and one was totally unrelated to the topic in question.

Research questions:

"What are the factors that lead to malnutrition among patients with dementia?
"What are the effective nursing interventions that may improve the nutritional need of the demented patients?"
"How does the nurse's attitude improve the nutritional status of the patients who suffer from dementia?"
Search terms and their combinations: dementia AND malnutrition OR feeding NOT drug therapy AND nursing home NOT hospital AND nurse

Limitations:

- year 2003-2013
- English language
- peer reviewed
- PDF full text

CINAHL (n=36)

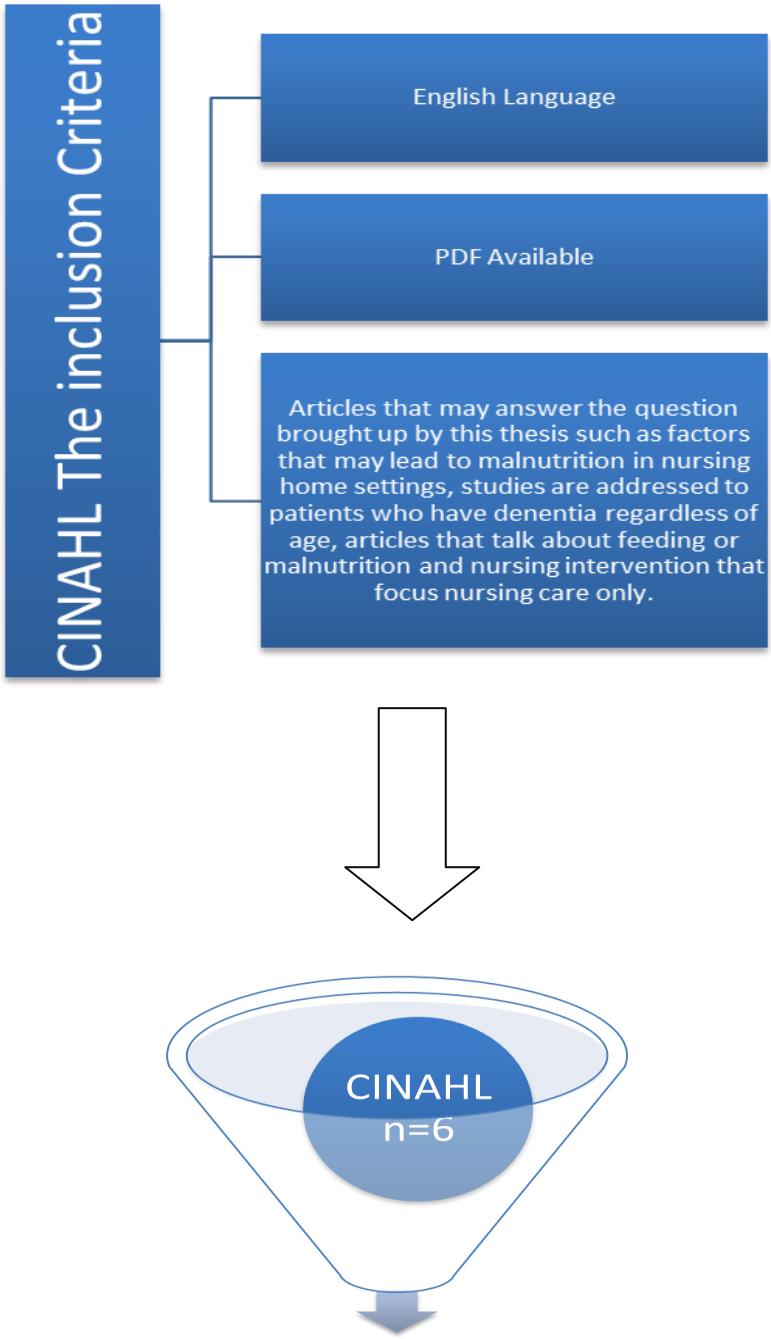

Figure 1. The selection process of articles being included

4.1.3 Data Analysis

An analysis is usually used when finding out the source for a certain study. It can be carried out in two stages. In the first stage, the articles collected are to be reviewed, and in the second stage, the articles should be compared with one another. When conducting a literature review, a summary table is usually used to summarize the findings of the data analysis (Burns & Grove 2005, 105.)

The data collected in this thesis were analysed using content analysis. In the 1950s, the history of content analysis started with the study of mass communication, which was based on the communications model of the sender, message and receiver. It can be used either as a method by itself or in conjunction with other methods in many problems of information studies. The constructive analysis can be derived from previous research, the knowledge of experts, and existing theories or practices (White & Marsh 2006, 22-45.) The authors of this Bachelor's thesis followed the framework mentioned above in analysing the data.

A content analysis is a method of analysing and synthesizing the abstracted data to detect its patterns, regularities and consistencies. To discern the pattern easily, a column of matrices can be used to list down the themes selected. To track down the gathered information, a substantive type of theme can be selected. A substantive theme is the type of theme that evaluates the pattern of evidence, how much evidence there is, how consistent body of evidence is, how powerful the observed effects are, and if there is a gap of knowledge in the body of evidence (Polit & Beck 2012, 119.) In this Bachelor's thesis, content analysis means extracting data that answer the research questions from the study being reviewed. The data that were extracted follow the substantive theme patterns in pursuing the decision.

The analysis process began by firstly collecting articles which were read through as many times as needed in order to understand the contents, followed by finding data relating to the research questions. During the reading process of the articles, the reviewers took note of the main points as a helping tool to gain the idea and answers to the research questions and then themes were identified. The data collected from six relevant research articles were classified into seven (7) groups. The groups were: 1) title, author,

and the year and place of publication, 2) study design, 3) measurement used, the contents of the measurement. 4) The number of participants, 5) findings, and 6) the result of the study. The aforementioned themes are presented in APPENDIX 1.

4.1.4 Ethical Consideration

Before conducting this study, the authors wanted to fully understand the legal and ethical aspects in selecting the sources of information to be included. Only scientific published articles from known internet based sources such as the CINAHL were used. All of them have titles and abstracts. The ethical consideration of each topic was evaluated. Concerning ethical issues, the authors ensured that all articles to be included were peer-reviewed articles, which means that the process and outcomes of the studies selected has been carefully reviewed by another scholar for the purpose of improving its functions and evaluating its relativity. (Shashok 2008.)

5 RELIABILITY, STRENGTH & LIMITATION

5.1 Reliability

Reliability is one of the cornerstones in any scientific research. In literature review, reliability deals with the extracted information from the studies included. A reliable result consistently comes out from one study to another. It should be noted that the result provides a link between the data and the conclusion. (Polit & Beck 2012, 175.) In this thesis, reliability was ensured by including studies that were written by professionals and came from scientific database. All articles were peer reviewed. The CINAHL database was used. To have a better view on the prospective subjects, an inclusion and exclusion criteria were applied. The reason why the included and excluded studies were written down was to increase the reliability of this thesis (Polit & Beck 2012, 100-101, 120-124). The searches were narrowed down using keywords and Boolean operators. At the end, the search strategy yielded six studies that answered the research questions.

The studies conducted by Chang & Roberts (2007) and Hanson, Ersek, Gilliam and Carey (2011) used systematic review as a study design. When using systematic review as a method of study, it should be conducted with methodological rigor and the result should be considered as a reliable one. The reliability of the data emerged from the studies largely depends on its consistency from one study to another (Polit & Beck 2012, 175.) From this study, the data that appeared from one study to another has been extracted. Therefore, this data can be used in new contributions.

The study of Cole (2012) used literature review. In this method, the consistency of the findings measures the strength of its reliability, and the result should be applied to the general population. The methods of data coding, location, selection, and aggregation should be explicitly examined to avoid bias (Polit & Beck 2012, 653-672). From this study, all results that were included as new data are consistent and applicable to all patients who have dementia. The authors assure that rigor in minimizing the bias was followed and explicitly mentioned in each of the studies.

A cross-sectional design was a method used by Chang and Roberts (2010) and Lou et al. (2007). This study design describes as a snapshot the prevalence of the disease of interest (Weng, Huang C., Huang J., & Wang, 2010). The reliability can be measured by the appropriateness of its representative sample which came from the specific area of interest and the sample size. However, there is no general recommendation how what the exact sample size should be (Polit & Beck 2012, 283-284). The study clearly addressed the prevalence of malnourishment and risk of malnutrition in nursing homes. The entire representative samples were residents in long term nursing care and the number of participants ranged from 55 to 83 which was large enough sample to estimate the prevalence of malnutrition. Therefore the results that came from this study can be considered as reliable.

While the study of Chang and Lin (2005) used a quasi-experimental method, this method aimed to measure the differences on the subject of interest by conducting a true experiment. To prove that the results were reliable, the baseline phase should be measured by monitoring the natural occurrence of target behavior or response. In addition, participant's background should be obtained and supplemental information should be provided. It is important to compare the result from one group to another to evaluate the effectiveness of the training applied (Polit & Beck 2012, 217.) In this study, two groups were identified at the beginning of the study. They were the treatment group and the control group. The participants' age, gender, and cultural background were mentioned. Every instrument that was used was based on a comprehensive literature review that mainly focused on the clinical experience and criteria in mealtime observation. The study demonstrated rigorously how the feeding skills training package improved the knowledge, behavior and skills of nurses by observing the difference between the treatment group and the control group at the end of the study. Therefore, the reliability of this study can be proven.

5.2 Strength and Limitations

In order to reach the aim of this thesis, relevant articles were selected and the review was carried out by searching, screening and critiquing. The studies included complement each other even if they varied in study design. Thus, they provided the authors

with a global overview on feeding the patient with dementia. The data collection methods were strong enough to consider the result as a new contribution. Through triangulation, the findings of the quasi-experimental study tended to support the findings in systematic review, which marked the strength of the result. Furthermore, the authors addressed the potential interpretative problem lying ahead and estimated how they affect the result of this study.

This review was also bounded with limitations. Firstly, the study was based only on a few articles simply because the authors of this thesis are both students and access to scientific journals was limited. Secondly, there were some limitations in accessing relevant information during the research process in the CINAHL. Some of the studies provided a very good abstract which might have provided an accurate and better answer to the research question but the full text was not available. Lastly, all of the studies came from the public domain. Therefore, there was no way of asking additional information from the author or finding out the missing data.

6 FINDINGS

After the analysis process was completed, the data received from the articles was examined to make sure it corresponds with the purpose and also that it answers the research question of this study. The findings of the literature review are presented on a table in Appendix 1.In addition; the authors have grouped the findings under various themes for an easy understanding of the results to the research questions. The targeted groups in this thesis were patients who have dementia regardless of the age and the intervention focus in nursing care.

In this thesis, the first research question was: what are the factors that lead to malnutrition among patients with dementia? Findings to this question are presented in table 3.

Table 3 Articles of Factors that lead to malnutrition

Articles	Factors that cause malnutrition
. Chang CC & Lin LC. 2005	Nursing assistants' lack of knowledge, poor practices, insufficient assistance, inappropriate attitudes, no enough time to assist feeding adequately, residents were not given enough time to eat and did not have adequate choices of food.
Chia-Chi Chang & Beverly L.Roberts. 2010.	Delayed meal times, cognitive impairment, Diminished dependency in activity of daily living, and less time spent during eating. Less consumption of calories and nutrients.
Chia-Chi Chang & Beverly L.Roberts 2007	Inabilities for older adults to self-feed and consume adequate amounts of food to meet their nutritional needs.
Laura C. Hanson, Mary Ersek, Robin Gilliam, & Timothy S.Carey 2011	Apraxia and attention deficits which interfere with self-feeding. Food avoidance and dysphagia. Taste and smell.
Meei-Fang Lou, Yu-Tzu Dai, Guey-Shiun Huang & Po-Jui	Medical conditions, dysphagia, dental health, depressions, social support, level of activity, institutionalization, cog-

Yu 2007	nitive status, medication, economic status, therapeutic diet, low energy, major life events, diminished ability to understand directions due to cognitive impairment, unable to express their own needs verbally, easily distracted when eating, agitations, use utensils incorrectly, inability to feed oneself, anxiety expressed not only by the patients with dementia but also the caregivers.
Delwyn Cole 2012	Self-feeding was gradually diminished, no assistance when feeding, and fewer family visits, the Staff has lack of training in feeding, decreased appetite, Frequency of eating is too less, lack of appetite stimulation, inability to self-feed and unable to choose the preferred food, nursing assistants lack of knowledge, attitudes and behavior, and patients who have frontotemporal dementia displayed a significant change in food preferences (craving for sweet foods).

The next research question in this thesis was**:** what are the effective nursing interventions that may improve the nutrition need of the demented patients? Findings to this question are presented in table 4.

Table 4 Analysed articles for effective interventions that may improve the nutrition need for the demented patient

Articles	Nursing interventions
Chang CC & Lin LC. 2005	Providing feeding skills training program which includes in-service classes, provision of feeding manual based on the feeding protocol, one on one teaching, provision of opportunities to practice several times and give feedback.
Chia-Chi Chang & Beverly L.Roberts 2010	Monthly monitoring of weight, providing nutritional supplements, energy, and protein-dense

	food. Providing longer eating times for feeding without a delay in meal time. Assisting in feeding. Providing a calm and relaxed dining environment.
Chia-Chi Chang & Beverly L.Roberts 2007	Providing good feeding skills, providing the appropriate food for the abilities of older adults, providing adequate time for eating to improve food intake during the meal, providing food supplements or snacks. Playing music which reduces agitation behavior during meal time. and assisting the patient to feed.
Laura C. Hanson, Mary Ersek, Robin Gilliam, & Timothy S.Carey 2011	Providing protein supplements, providing appetite stimulants, modified diets, assistance in feeding, and modified dining environments.
Meei-Fang Lou, Yu-Tzu Dai, Guey-Shiun Huang & Po-Jui Yu 2007	Identify the residents, who are at risk of malnutrition, providing the nurses with the required skills in assessing the eating ability of the patients individually.

Delwyn Cole 2012	Providing assistant when feeding, encourage the family members to assist in feeding and eliminating the limit for visits, provision of dementia feeding training program among the staff. Increasing the vigilance among staff to detect malnutrition at early stage. Playing known music in the dining room while residents are eating. Identifying depression. Increasing the number of eating frequency, right timing in feeding to those patients who are wandering. Provision of nutritional supplements, providing assistance when feeding, providing enough educational feeding training programmes to the staff and increasing awareness with the signs and symptoms of malnutrition. Identifying and providing the current food preferences, allowing residents to take time in eating, improving the menu, improving the mealtime environment, a homely atmosphere, and no wearing of a nursing uniform.

The third research question in this thesis was: how does the nurse's attitude improve the nutritional status of the patients who suffer from dementia? Findings to this question are presented in table 5

Table 5 Analysed Articles showing how the Nurse attitudes can improve the nutritional status of the patients who suffer from dementia.

Articles	Nursing Attitudes
Chang CC & Lin LC. 2005	Positive attitudes in feeding, sincerity, and patience.
Chia-Chi Chang & Beverly L.Roberts 2010	Caring, having patience, being involved, considerate, quality interaction between the caregiver and residents during the meal time.
Chia-Chi Chang & Beverly L.Roberts 2007	Caring, accepting the physiological deterioration of the patients, patience, and willingness to help.
Laura C. Hanson, Mary Ersek, Robin Gilliam, & Timothy S.Carey 2011	Findings showed assisting in feeding.
Meei-Fang Lou, Yu-Tzu Dai, Guey-Shiun Huang & Po-Jui Yu 2007	Being attentive and alertness with the sign and symptoms of malnutrition in the early stage.
Delwyn Cole 2012	Patience, caring, cheerful, considerate, involved, funny, Avoiding hurry attitudes, avoiding harsh facial expression, awareness of the patients' safety when feeding, affectionate, focused on the patients when feeding, Focused the patients when feeding, accepting the physiological deterioration of the patients, willingness to help, friendly, responsive, practical, unpretentious.

Over half, three out of six, of the reviewed articles indicated the needs for nursing training to gain more knowledge when dealing with the patients with dementia (Chia-Chi Chang & Li-Chan Lin 2005; Chi Chang & Beverly L. Roberts 2007; Delwyn Cole 2012). In all the articles the data collected were mentioned to be helpful in gaining answers to the research questions in this thesis (Appendix 1).

7 DISCUSSION

The mounting evidence on the potential effect of malnutrition not only threatens the life of every individual but the quality of care in nursing homes. The health consequences of dementia to malnutrition were not widely published. Some of the patients' relatives seemed to expect too much of the quality of care and life span of the patients once their loved ones were in nursing homes. The nurses often carried the blame as the patients' situation worsened. The impact of mortality rate to the nurses has been debated for many decades all over the world (World Health Organization 2012). However ,the studies of Chang and Lin (2005), Chang and Roberts (2007,2010), and Cole (2012) pointed out the involvement of a nurse in malnutrition due to lack of knowledge about the disease, limited skills, poor practices, lack of time, and inappropriate attitudes.

While the studies of Cole (2007, 2012), Hanson et al. (2011), and Lou et al. (2007) were descriptive and identified that it was physical and cognitive deterioration that lead to malnutrition. These studies pointed out the idea that as the disease progresses, feeding one becomes labour intensive. The mechanical transition requires longer time especially to those patients who suffer from dysphagia and ill fitted dentures. Food avoidance occurred due to wrong food preferences, depression, agitation and anxiety, hallucinations or taste and smell dysfunctions. The mental and physical impairment brought by the disease is not the only cause of malnutrition among the patients with dementia in nursing homes. Another factor that was considered was the medication in use that may disturb the taste and low level of activity that diminished the patient's appetite. Some other factors were also social contacts and major life events such as deaths of loved ones (Chang & Roberts 2007; Hanson et al. 2011; Lou et al. 2007).

The studies pointed out that there were ways on how to alleviate the nutritional status of patients with dementia. Nurses play a crucial role in preventing the patients from malnutrition by conducting a thorough assessment on what the barriers that prevent the patients from getting enough nutrition are. In order to optimize the quality of care, nurses need to enhance their knowledge by understanding the degenerative process of dementia. The studies Chang and Lin (2005), Chang and Roberts (2007, 2010) and Cole (2012) conducted found out that a feeding training program makes a real difference. The result stressed the idea that despite of progressive mental and physical deteriora-

tion, self-feeding remained the best practice as long as the patients tolerated it. Maintaining self-feeding abilities was a great challenge by the nurses simply because it sometimes raised ethical conflicts. However self-feeding could be possible by utilizing various techniques and positive attitudes by the nurses. Such effort focused on the provision of calm and relaxed dining environment, allowing enough time to eat, and the provision of right utensils. It was important that the nurse found out the reason of food refusal. If it was not caused by cognitive disturbances, then it should be considered as patient's own self-determination, and he/she should be allowed the freedom to refuse unwanted feeding. Where self-feeding was not tolerated at all, assisted hand feeding was the next in option. When assisting the patients with eating, the nurse should focus on the patients. Moreover, the findings from the articles clearly suggested the importance of taking care of the patients with dementia individually to optimize the quality of care. For the patients who suffer from depression, it was helpful to encourage their family members to feed them or come during the meal times. For those who wandered, feeding should have no time frame. Additionally, it was suggested to feed the patients while they are active.

The study of Chang and Roberts (2007) showed significant improvements of nutritional status of patients with dementia by playing music in the dining room while the patients were eating while the study of Hanson et al. (2011) proved that playing music adds disturbance in the dining environment. Therefore, caution should be taken into with regards to playing music while the patients are eating, as it is also one factor that triggers anxiety.

The review revealed that positive attitude contributed to the patient's well-being. The results of the studies by Chang and Roberts (2010) and Chang and Lin (2005) proved that nurses can become competent, skilful and capable of taking care even in the most challenging situations while fostering a personal relationship with the most challenging patients regardless of cultural background, age and gender.

8 CONCLUSION AND RECOMMENDATIONS

The clinical picture of dementia itself signifies that there was no way to reverse its disabilities. The literature review showed that the factors that lead to malnutrition among patients with dementia were multi-faceted. Findings suggested that there were nursing interventions and nurses' positive attitude that can improve the nutritional status of the patients with dementia. The results highlights the significance of maintaining the patient's ability to self-feed, and the importance of feeding program to be allotted to the nurses who are taking care of patients who have dementia. Nevertheless, all patients are individual, and therefore the awareness and identification of the patients' needs from head to foot in combination with a multidisciplinary team is perhaps the most appropriate way to maintain the nutritional status of patients with dementia.

The articles reviewed clearly identified that nursing competence and appropriate attitudes are inseparable. Even if the patients were not themselves anymore, a person to person relationship in which there was respect and willingness to support still remained as the best healing therapy. Patients with dementia live by their feeling, in which love, touch and attention were much more needed than medication. Therefore it is worth to treat the patients with dementia as precious and irreplaceable being. It should be remembered that in promoting the patients' well-being, major elements of good nursing care such as dignity, respect and comfort should be considered. If one of these elements were absent, then nurses fail to perform their duty.

Maintaining the self-feeding ability is strongly recommended to improve the nutritional status of the patients with dementia. To provide better nursing interventions, nurses must identify the patients' eating and feeding behaviour. An individualized nursing care plan should be tailored for the patient's mental, physical and communication disabilities. It is recommended that nurses who are taking care of patients with dementia should undergo a feeding training program. It does not only improve the nurse's knowledge on the cognitive and physiological declination brought by the disease, but it also develops a right attitude in taking care of the patients with dementia. If the patients refused to eat, there might be some dental problems that need attention, wrong food preference or their own decision not to eat. Moreover, there were no specific measures that evaluate the capacity of the nurses in taking care of the patients with dementia. Therefore, it could be

useful if there was a standardized measure that tests the knowledge and skills of nurses upon hiring them. By doing this, the nursing manager may be able to provide the best possible training program.

Additionally, the result of the this thesis can help the nursing professional and students to understand that taking care of the patients with dementia is very challenging. Thus, it adds their motivation to know more about the disease and initiate a feeding strategy that promote the patient's well-being and safety while preserving respect and dignity.

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APPENDENCES

Appendix 1 Article used in this study

Title, Author, Year, and Place of Publication	Study Design	Articles Included	Measurement used, Measure Contents	Number of Participants	FINDINGS			Result of the Study
					Causes of Malnutrition	Nursing Interventions	Nursing Attitudes	
Effects of Feeding skills training programme on nursing assistants and dementia patients. Chia-Chi Chang & Li- Chan Lin 2005. Journal of Clinical Nursing 14, 1185- 1192.	Quasi-Experimental Study		Edinburgh Feeding Evaluation in Dementia Scale, Knowledge of Feeding Dementia Patient's Questionnaire, The Formal Caregiver's Behavior toward Feeding Dementia Patients Observation Checklist.	67 nursing assistants out of whom 31 were in the treatment group and 36 in the control group	Nursing assistants have a lack of knowledge, poor practices, insufficient assistance, inappropriate attitudes, no enough time to assist with feeding adequately, residents were not given enough time to eat, and do not have adequate choices of food.	Feeding skills training program includes in-service classes, provision of feeding manual based on the feeding protocol, one on one teaching, provision of opportunities to practice several times and giving feedback.	Positive attitudes in feeding truly make a difference, sincerity, and patient.	Nursing assistants who were in the treatment group got the knowledge score of ($F = 47.7$, $P < 0.001$), positive attitude in feeding ($F=15.758$, $P=0.001$) and behavior ($t=6.0$, $P<0.05$) In Edinburg Feeding Evaluation in Dementia scores treatment group got the score of $t=0.8$, $P=0.49$. Nursing assistants who were in the treatment group obviously got a

								better knowledge, had more positive attitudes and better behavior in feeding, and consumed lesser time in feeding.
Malnutrition and Feeding Difficulty in Taiwanese older with dementia. Chang & Roberts, 2010. Journal of Clinical Nursing, 20,2153-2161	Cross-sectional design		Risk of malnutrition assessed by Mini Nutritional Assessment screening Form (MNA-SF). Malnutrition assessed by BMI Eating time was measured by using a stop watch Cognitive Function was measured by Short Portable Mental Status Questionnaire(SPMSQ) Independence In ADL was assessed by Chinese Version of Barthel ADL Feeding difficulty was assessed by Edinburgh Feeding Evaluation in Dementia (EDFED) Scale	83 Subjects	Delayed in meal time, cognitive impairment, diminished dependency in activity of daily living, and less time spent during eating. Less consumption of calories, and nutrients.	Monthly monitoring of weight. Providing nutritional supplements, energy, and protein-dense food. Providing longer eating time for feeding without a delay in meal time. Assisting in feeding. Providing calm and relaxed dining environment.	Caring, having patience, being involved, considerate, quality interaction between caregiver and residents during meal time.	Feeding difficulties, lesser time spent when feeding, 90.4% participants were at risk for malnutrition, feeding difficulties were moderately low, cognitive impairment was high. Refusing to eat was the most frequent reason for feeding difficulties, nearly 90% residents with malnutrition required help during the meal.
Feeding Difficulty in older adults with dementia Chang & Roberts 2007.	Systematic Review	20	Feeding difficulty was assessed by Edinburgh Feeding Evaluation in Dementia (EDFED)	196 older patients with dementia	Inability for older adults to self-feed, and consumes adequate	Providing good feeding skills, providing the appropriate food for the abilities	Caring, accepting the physiological deterioration of the	Feeding problems emerged at the interface between the older

Journal of clinical Nursing 17, 2266-2274			Scale. The functional ability during eating in patients with Alzheimer's disease was measured using The Eating Behavior Scale (EBS). Video-taped observations of persons at meal time were used to identify feeding problems that can be reviewed many times and used to document changes in feeding behavior.		amounts of food to meet their nutritional needs.	of older adults, providing adequate time for eating to improve food intake during meal, providing food supplements or snacks. Playing music which reduces agitation behavior during meal time. Providing assisting during feeding	patients, patience, and willingness to help.	adult and the caregiver which reflected difficulty in caregiver's ability to feed the older adult. Feeding problems provided more information to the nurses to enable them select appropriate interventions in order to deal with feeding difficulty. A model of feeding difficulty delineates the antecedents and consequences of feeding difficulties.
Oral Feeding Option for People with Dementia Hanson, Ersek, Gilliam, & Carey 2011. Journal of American Geriatrics Society 59:463-472.	Systematic Review	25	The data were abstracted by investigators from studies using a structured instrument. The studies were graded on quality and potential bias, and overall strength was summarized.	Clinical trials with random or nonrandom control groups were included if they reported on clinical outcomes of oral feeding interventions for people with dementia. All participants were of age 50 or older adult with dementia.	Apraxia and attention deficits which interfere with self-feeding. Food avoidance and dysphagia. Taste and smell dysfunction.	Administering prescribed use of high calorie, providing protein supplements, providing appetite stimulants, modified diets, assistance in feeding, and modified dining environments.	Assisting in feeding.	The study provided moderate-strength evidence for appetite stimulants, assisted feeding, and modified food to promote weight gain in people with dementia. There were a few studies measuring function or survival that show no difference. Thirteen

								controlled trials provided data on the use of supplements for people with dementia, and 12 controlled trials tested assisted feeding or other interventions.
Nutritional Status and Health Outcomes for older people with dementia living in institutions. Lou, Dai, Huang, Yu 2007.Journal of Advanced Nursing 60(5),470-477	Cross –sectional design		Monitoring of BMI, Body height and Body Weight.	55 residents	Medical conditions, dysphagia, dental health, depressions, social support, level of activity, institutionalization, cognitive status, medication, economic status, therapeutic diet, low energy, major life events, diminished ability to understand directions due to cognitive impairment, unable to express their own needs verbally, easily distracted when eating, agitations, use utensils incorrectly, inability to feed oneself, anxiety expressed not only by the patients with dementia	Identify the residents, who were at risk of malnutrition, nurses require skills in assessing the eating ability of the patients individually.	Being attentive and alert, alertness with the signs and symptoms of malnutrition in the early stage.	There were 18% of the residents that were undernourished with the body mass index of <18.5 within the three months period of observation.

					but also the caregivers.			
Optimizing Nutrition for older people with dementia. Cole 2012. Nursing Standard. 26,20,41-48.	Literature review	12 articles	Provision of training manual for feeding to nurses.	477 older adults with dementia	Self- feeding was gradually diminished, no assistance when feeding, and fewer family visits	Providing assistance when feeding, encouraging the family members to assist in feeding and eliminating the limit for visits.	Patience, caring, cheerful, considerate, and involved.	Eating difficulties, fewer family visits, no assistance when feeding were the major cause of low food intake.
			Weight monitoring throughout the studies.	Intervention group n=18 Control group (n=15)	Staff has lack of training in feeding	Provision of dementia feeding training program among the staff. Increasing the vigilance among staff to detect malnutrition at an early stage.	Patience, funny, avoiding hurry, and avoiding harsh facial expression.	Staff feeding training program enhance the nutritional status of patients with dementia.
			Music playing in the dining room. Provision of nursing education with regards to nutritional assessment and early detection of eating difficulties	12 older adults	Decreased appetite	Playing known music in the dining room while residents are eating. Identifying depression.	Not mentioned	Music makes the residents stay longer in the dining room and become more social. Resulted into 20% increased intake of calories
			Weight monitoring and assessing self-feeding difficulties	520 patients	Frequency of eating is too less	Increasing the number of eating frequency, right timing in feeding to those patients who are wandering.	Awareness of patients´ safety when feeding, patience, affectionate, focusing on the patients when feeding.	82% of the participants had at least one eating difficulty after stroke.
			Nutritional assessment using	31 older adults			Not mentioned	

			BMI		Lack of appetite stimulation	Provision of nutritional supplements		Mid-morning nutritional supplements more likely reduce food intake during lunch time to those residents whose BMI is lower than the normal level.
			Weight monitoring	514 residents	Inability to self-feed and unable to choose the preferred food	Providing assistance when feeding	Awareness of patients´ safety when feeding.	Inability to feed by their own, and unable to express what food they wanted are the main cause of low food intake to those patients who suffer from dementia
			Training of the nursing assistants	31 nursing assistants in the treatment group and 36 nursing assistants in a control group.	Nursing assistants' lack of knowledge, attitudes and b*eh*avior.	Providing the staff with enough educational feeding training programmes and increasing awareness of the signs and symptoms of malnutrition.	Awareness of patients´ safety when feeding, focusing on the patients when feeding, accepting the physiological deterioration of the patients, patience, and willingness to help.	Training improved the staff´s knowledge, attitude, skills and their behavior. Enhanced not only the nutritional intake of the patients with dementia but also the residents safety
			Observation of changes of eating behavior to those patients who have frontotemporal	91 older adults	Patients who have frontotemporal dementia displayed a signifi-	Identifying and providing the current food preferences	Awareness	Patients with frontotemporal dementia change their food

			dementia, Alzheimer's disease and semantic dementia by requesting the carers to fill up a questionnaire based on their observation. Nutritional assessment conducted by the dietician. Provision of oral nutritional supplement		cant change in food preferences (Craving for sweet foods). Lack of right feeding interventions.	Allowing residents to take time in eating, improving menu, improving the mealtime environment, homely atmosphere, not wearing the nursing uniform and provision of nutritional supplements.	Friendly, responsive, practical, and unpretentious.	preference and eating patterns. But those patients who have Alzheimer's dementia showed no significant change. 70% of the participants showed significant weight gain.