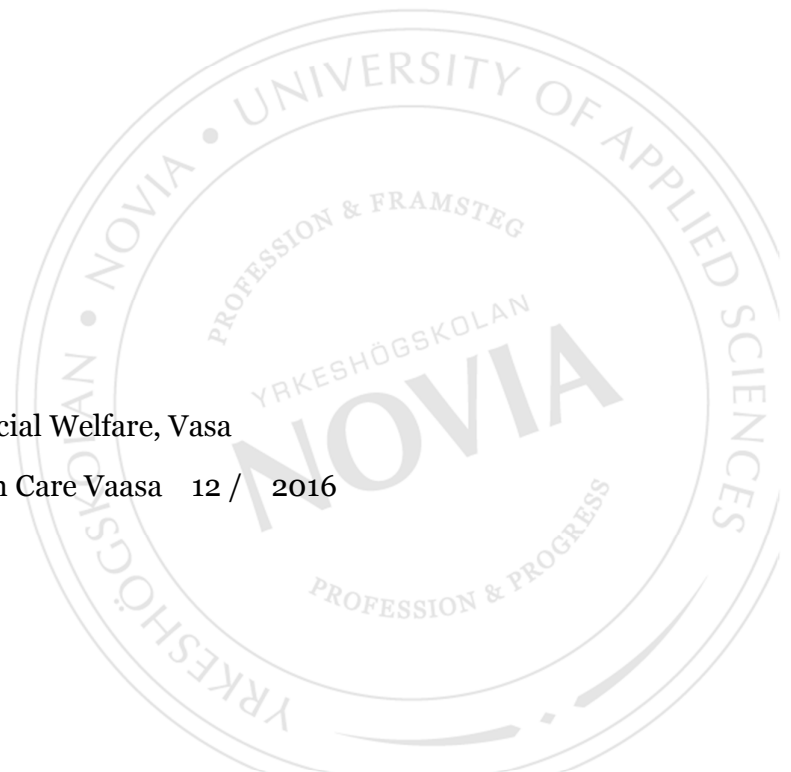# NOVIA
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Nursing interventions to malnutrition, eating and drinking difficulties in elderly with dementia: a systematic literature review

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Abstract

Malnutrition is common among elderly with dementia due to eating and drinking difficulties. The aim of this study was to describe evidence-based practices that nurse use in order to over-come these feeding difficulties and malnutrition among this group. The respondent used a qualitative approach as well as deductive content analysis in order to identify prominent themes and patterns among the themes. The theoretical framework used was Rosemarie Rizzo Parse's Theory of human becoming. The theoretical background contains information about definition and types of dementia, its relationship with feeding difficulties and factors contributing to feeding difficulties. The study indicates that there are various interventions that nurses use to overcome malnutrition and feeding difficulties. However, nurses encounter various ethical issues during mealtimes care. Furthermore, the major stumbling block is lack of enough education among the caregivers.

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Language: English Key words: Nursing, Feeding difficulties, Malnutrition, Dementia, Ethics

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Contents

1.0 Introduction

Malnutrition is a common problem in older individuals in hospital setting with six out of ten being at risk of becoming malnourished. Individuals with dementia are among the most vulnerable members in the community because of difficulties in eating and drinking. (Hallpike, 2008). It is not only common in hospitals but also in nursing homes and frequently, it is not recognized (Cole, 2012). Moreover, eating and drinking difficulties seem to be inevitable in elderly with dementia, and these difficulties will often become more apparent in the later stages of the disease. Sadly, dementia is associated with a number of common problems that can seriously impact on eating habits, such as: reduced interest in food and drink, reduced appetite, forgetting to eat and drink, holding food in the mouth and not swallowing, coughing/choking on oral intake and food refusal. (Stanner, 2007). Also clumping the mouth shut and spilling food from mouth is evidenced in demented elderly. These difficulties interfere with adequate consumption of calories and nutrients and may be associated with malnutrition. (Hargreaves, 2008).

More common problems that cause persons with dementia to have eating and drinking difficulties hence malnutrition include; poor appetite, cognitive impairment, physical disabilities, behavioral changes, physiological changes such as swallowing and sensory disabilities (Alzheimer's Society, 2013). Other factors also include environment, care providers' busy schedules, the type of food provided, patient's anxiety, agitation and frightfulness (Archibald, 2006). Some of the consequences of these conditions include; weight loss, increased risks of health problems by increasing vulnerability to infections, impaired wound healing, reduced muscle strength hence fatigue, increased susceptibility to gastrointestinal problems, dehydration hence headaches, confusion, irritability, urinary tract infections, loss of appetite, swallowing difficulty and constipation (Stanner, 2007).

Encouraging healthy eating and drinking habits have great impact on health and quality of life of older people with dementia. However, helping them to overcome some of the behavioral and physical changes that can affect their food intake poses a huge challenge for their care providers. (Stanner, 2007). More so, eating and drinking difficulties are common in people with dementia, but when a problem occurs, it will be unique to the individual and their situation. Therefore, when looking for a solution, the person's life history should be considered. More so, ethical issues need to be also considered and any solutions should be tailored to meet the person's needs. As dementia progresses, the person is likely to need more support to meet their needs. (Alzheimer's society, 2013).

This study reviews current interventions that nurses have adopted or can adopt to help ensure that those in their care are consuming a diet that is nutritionally adequate and that they are eating enough in terms of quantity of food to avoid malnutrition. Moreover, it reviews practical strategies that are used to manage eating difficulties in elderly with dementia. Ethical issues while managing the conditions are also discussed.

2.0 Aim and research questions

The aim of this study is to describe the evidence-based practices that have been or can be applied in reality to overcome malnutrition, eating and drinking difficulties in elderly with dementia. The intention is to find out the existing knowledge of the interventions that nurses use/could use in order to manage these conditions. The following questions are formulated;

1. What nursing interventions could be applied in order to overcome malnutrition, eating and drinking difficulties in elderly with dementia?

2. What are the ethical issues experienced by nurses while managing these disorders?

The respondent will search the answers for these questions by reviewing the existing studies/literature.

3.0 Theoretical framework

In this thesis, Rosemarie Rizzo Parse's Theory of Human becoming will be used. The theory guides the practice of nurses to focus on quality of life as it is described and lived. This theory of nursing presents an alternative to both the conventional biomedical approach and the biopsychosocial-spiritual approach of most other theories and models of nursing. It provides a transformative approach to all levels of nursing. It differs from the normal nursing process, in that it does not seek to fix problems rather, it gives nurses the ability to see the patient's perspective. This allows the nurse to be with the patient, and guide him or her toward the health goals. In other words, Parse's model rates quality of life from each person's own perspective as the goal of the practice of nursing. The nurse-patient relationship co-creates changing health patterns. The human becoming theory is structured around three abiding themes: meaning, rhythmicity, and transcendence. (Alligood & Tomey, 2006, 524).

3.1 Meaning

This theme is expressed in the first principle of human becoming, which states,*"Structuring meaning is the imaging and valuing of language"*. This principle means that people co-participate in creating what is real for them as shown in their expressions of living their values in a chosen way. This principle has three concepts; imaging, language and valuing. **Imaging;** is creation of reality, which reflects who one is as a unitary person. **Valuing**; which is a process of choosing and embracing what is important. **Languaging** is

about the ways in which persons are with the world and in relationships about how to be with others. (Alligood & Tomey, 2006, 525).

3.2 Rhythmicity

This theme is expressed in the second principle, which states that "*Configuring rhythmical patterns is the revealing-concealing and enabling-limiting of connecting-separating*" which means that living paradox encompasses apparent opposite experiences that coexist in rhythmical patterns. It means that in living moment-to-moment, one show and does not show opportunities and limitations that emerge in moving with and apart from others. This principle has two concepts; **revealing-concealing;** which it concerns with the ways people disclose and do not disclose meanings, thoughts, feelings, values, concerns and hope and **connecting-separating** which it concerns with the ways people can be with others while at the same time being separate from them or how people can be together without being in the same location. (Alligood & Tomey, 2006, 526).

3.3 Transcendence

This theme is expressed in the third principle which states that "*Co-transcending with possible is the powering and originating of transforming" which* means that moving with now moments is living the becoming visible-invisible becoming with the ambiguity of the continuous change of the emerging now. It has three concepts; powering, originating and transforming. **Powering** is pushing-resisting process that propels human beings in life, **originating** is about human uniqueness, and the ways people create their own becoming as they choose from all possibilities that could be and **transforming** is about integrating unfamiliar activities or ideas into one's life. (Alligood & Tomey, 2006, 527).

In terms of nursing, human becoming theory explains a **person** as a being who is more than and different from the sum of the parts. **Environment** as everything in the person and his/her experiences and is inseparable, complementary to and evolving with, it views environment as existing with a person in a mutual connection. **Health** as a process of being and becoming and it involves synthesis of values. It is not focused on disease or absence of disease, rather combining one's' values and beliefs as a way of living. **Nursing** as a human science and an art that uses abstract body of knowledge to serve people, it views nursing as a service to humankind. (Alligood & Tomey, 2006, 529-532).

4.0 Theoretical background

4.1 Definition of terms

Feeding is the process of getting the food from the plate to the mouth. *Eating* is the ability to transfer food from plate to stomach through the mouth and it involves the ability to recognize food, the ability to transfer food to the mouth, and the phases of swallowing. In the case of this study, both feeding and eating were used inter-changeably to mean the same thing. *Dehydration* is a fluid imbalance caused by too little fluid taken in or too much fluid lost or both. *Dysphagia* is an abnormality in the transfer of a bolus from the mouth to the stomach. *Malnutrition* refers to lack of proper nutrition, caused by not having enough to eat, not eating enough of the right things (nutrients), or being unable to use the food that one does eat. (Cleary, 2007)

4.2 Dementia prevalence

It is estimated that the number of people with dementia in Finland in 2012 is 92,232, which is 1.71% of the total population of 5,402,627. This percentage of the population is higher than the entire Europe which is 1.55%. (Alzheimer Europe, 2014). Moreover, worldwide, 47.5 million people have dementia and every year, there are 7.7 million new cases. The estimated proportion of the general population aged 60 and above with dementia at a given time is 5 to 8 per 100 people. The total number of people with dementia is projected to be 75.6 million in 2030 and almost triple by 2050 to 135.5 million. (World Health Organization, 2015)

4.3 Types of dementia

Dementia is a syndrome, that is chronic or progressive in nature in which there is deterioration in cognitive function i.e. the ability to process thought beyond what might be expected from normal ageing. It affects memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgment. Consciousness is not affected. The impairment in cognitive function is commonly accompanied and preceded by deterioration in emotional control, social behavior, or motivation. It is caused by a variety of diseases and injuries that primarily or secondarily affect the brain, such as Alzheimer's disease or stroke (World Health Organization, 2015)

Alzheimer's society, (2015) state that there are many different types of dementia although some are far more common than others are. They are named according to the condition that has caused the dementia. Some of the most common types are explained below:

4.3.1 Alzheimer disease

Alzheimer disease is the most common cause of dementia. It affects the chemistry and structure of the brain. These effects lead to the death of brain cells and shortage of certain important chemicals. These chemicals act as messengers that help to transmit signals around the brain. When there is a shortage of them, the signals are not transmitted as effectively as required. (Alzheimer's society, 2015). The symptoms of the disease are generally mild at the beginning, but they get worse over time and start to interfere with daily life. Some common symptoms are; memory lapses i.e. difficulty in recalling recent events and learning new information. Due to this, a person may; lose items, struggle to find the right word in a conversation or forget someone's name, forget about recent conversations or events, get lost in a familiar place, mood or behavior problems such as apathy, irritability, or losing confidence (Alzheimer's Research, 2014).

As time goes, problems with other aspects of thinking, reasoning, perception or communication start to develop. Individuals with the disease might have difficulties with: **language;** struggling to follow a conversation or repeating themselves, **visuo-spatial skills**; problems in judging distance or seeing objects in three dimensions, **concentrating, planning or organizing**; difficulties making decisions, solving problems or carrying out a sequence of tasks and **orientation;** becoming confused or losing track of the day or date. (Alzheimer's society, 2015).

4.3.2 Vascular dementia

Vascular dementia is the second most common type of dementia. Its symptoms include memory loss and difficulties with thinking, problem-solving or language. They occur when the brain is damaged because of problems with the supply of blood to the brain due to diseased blood vessels. These reduced blood supply results to dead of brain cells due to lack of oxygen and nutrients. This death of brain cells can cause problems with memory, thinking or reasoning (together these three elements are known as cognition). When these cognitive problems are bad enough to have a significant impact on daily life of an individual, this is known as vascular dementia. (Alzheimer's Research, 2014)

The most common cognitive symptoms in the early stages of vascular dementia are: problems with planning or organizing, making decisions or solving problems, difficulties in following a series of steps, slower speed of thought, problems in concentrating, including short periods of sudden confusion, problems of; memory, language and visuospatial skills. In addition to cognitive symptoms, it is common for someone with early vascular dementia to experience mood changes, such as apathy, depression or anxiety. Other symptoms may include clumsiness, lack of facial expression and problems in pronouncing words. (Alzheimer's Research, 2014)

4.3.3 Dementia with lewy bodies (DLB)

Dementia with Lewy bodies is a type of dementia that shares symptoms both with Alzheimer's disease and Parkinson's disease. In this kind of dementia, there are tiny deposits of protein called levy bodies in nerve cells. Their presence is linked to low levels of important chemical messengers and to a loss of connections between nerve cells. Over time, there is progressive death of nerve cells and loss of brain tissue. Lewy bodies in the outer layers of the brain are linked to problems with mental abilities (cognitive symptoms), which are characteristic of DLB. (Alzheimer's society, 2015).

4.3.4 Frontotemporal dementia

The word frontotemporal refers to the two lobes of the brain that are damaged in this form of dementia (Alzheimer's society, 2015). The frontal lobes of the brain are situated behind the forehead and control behavior and emotions, particularly on the right side of the brain. They also control language, usually on the left. The temporal lobes on either side of the brain have many roles. On the left side, these lobes control the understanding of words. (Alzheimer's Research, 2014). Frontotemporal dementia is caused when nerve cells in the frontal and/or temporal lobes of the brain die and the pathways that connect them change. There is also some loss of important chemical messengers. Over time, the brain tissue in the frontal and temporal lobes shrinks. This damage to the brain causes the typical symptoms of frontotemporal dementia, which include changes in personality and behavior, and difficulties with language. (Alzheimer's society, 2015).

In this kind of dementia, a variety of symptoms are caused by damage to different areas of the frontal and temporal lobes. Based on these symptoms and the lobes that are affected, a person may have one of three types of frontotemporal dementia: behavioral variant frontotemporal dementia, progressive non-fluent aphasia and semantic dementia (the latter 2 types form language variants of dementia). In **Behavioral variant frontotemporal dementia** people lose their inhibitions in that they behave in socially inappropriate ways and act in an impulsive or rash manner. In the other two types of frontotemporal dementia (which form. **Language variants of frontotemporal dementia**) the early symptoms are progressive difficulties with language. These difficulties become apparent slowly, often over two or more years. In the case of **progressive non-fluent aphasia**, initial problems are with speech with common early symptoms including: slow, hesitant speech and impaired understanding of complex sentences, but not single words. (Alzheimer's society, 2015).

On the other hand, in **semantic dementia**, the speech is fluent but people begin to lose their vocabulary and understanding of what objects are. Common early symptoms may include: asking the meaning of familiar words, trouble finding the right word, leading to less precise descriptions instead, or use of generalized words and difficulty recognizing familiar common objects. In both of the language forms of frontotemporal dementia, other

aspects of mental function such as memory, visuospatial skills, planning and organizing tend to be well preserved in the early stages. (Alzheimer's Research, 2014)

4.4 The progression of dementia

Each type of dementia tends to have particular early symptoms, because different parts of the brain are affected first. Later on, as damage spreads to more areas of the brain, the symptoms of different types of dementia tend to become more similar. Moreover, each person experiences dementia in their own way, but the way the condition progresses can be seen as a series of stages; early, middle and late stages. This means that the structure and chemistry of the brain become increasingly damaged over time. The person's ability to remember, understand, reason and communicate will gradually decline. As dementia worsens, the person will need more and more support with daily living. Generally, by the late stage, the person will need a high level of care, whatever type of dementia they have (Alzheimer's Society, 2015: Alzheimer's Research, 2014).

4.4.1 Alzheimer's disease

Alzheimer's disease progression can be summarized in three stages:

Early ('mild') stage

Alzheimer's disease usually begins with very minor changes in the person's abilities or behavior. At this time, such signs can often be mistakenly attributed to stress or bereavement or, in older people, to the normal process of ageing. Loss of memory of recent events is a common early symptom. The person will have difficulty recalling things that happened recently. (Alzheimer's society, 2015)

Middle ('moderate') stage

As Alzheimer's disease progresses, the changes become more marked. The person will need more support to help them manage their day-to-day life. They may need frequent reminders or help to eat, wash, etc. They are likely to become increasingly forgetful particularly of names and may sometimes repeat the same question or sentence over and over. They may also experience some kind of confusion. Some people at this stage become very easily upset, angry or aggressive perhaps because they are feeling frustrated or because they misinterpret what is happening or they may lose their confidence and need a lot more support or reassurance. (Alzheimer's society, 2015)

Other symptoms may include: becoming confused about where they are, or walking off and becoming lost, muddling up time and getting up at night because they are mixing up night and day, behaving in ways that may seem unusual, becoming very agitated or unknowingly behaving in socially inappropriate ways, experiencing difficulty with

perception and, in some cases, having delusions or, less often, hallucinations. Changes in behavior tend to be most common from the middle stage of dementia onwards and are one of the most challenging aspects of dementia for caregivers. (Alzheimer's society, 2015)

Late ('severe') stage

At this stage, the person with Alzheimer's will need even more help and will gradually become totally dependent on others for nursing care. Loss of memory may become very pronounced, with the person unable to recognize familiar objects, surroundings or even those closest to them, although there may be sudden flashes of recognition. The person may also become increasingly weak. They may start to shuffle or walk unsteadily, eventually spending more time in bed or a wheelchair. Other symptoms may include: difficulty in eating and, sometimes, swallowing, considerable weight loss, although some people eat too much and put on weight, incontinence; losing control of their bladder and sometimes their bowels as well, gradual loss of speech, though the person may repeat a few words or cry out from time to time. (Alzheimer's society, 2015)

The person may become restless, sometimes seeming to be searching for someone or something. They may become distressed or aggressive, especially if they feel threatened in some way. Angry outbursts may occur during close personal care, usually because the person does not understand what is happening. On average, people with Alzheimer's disease live for eight to ten years after their symptoms begin. (Alzheimer's society, 2015)

4.4.2 Vascular dementia

Vascular dementia develops when brain cells are deprived of oxygen and die. This happens either because of diseases of the very small blood vessels deep in the brain, or after a major stroke or series of smaller strokes. Sub-types of this kind of dementia progress in different ways. Some can progress rapidly especially if it is followed by a large stroke and some slowly same as Alzheimer's. Stroke-related dementia often follows a 'stepped' progression, with long periods when symptoms remain the same and short periods when they suddenly worsen. This pattern is seen because each stroke further damages the brain. (Alzheimer's society, 2015)

A person with early stage vascular dementia is prone to apathy, mood swings and being unusually emotional. They are also particularly likely to have depression and anxiety, partly because they are more aware of the problems their dementia is causing. Vascular dementia after a major stroke is often accompanied by physical symptoms, such as weakness of a limb, or problems with vision or speech. These early symptoms arise when the stroke has damaged a particular part of the brain. With rehabilitation the symptoms might get a little better or stabilize for a time. (Alzheimer's society, 2015)

As vascular dementia progresses, the symptoms become closer to those of middle and eventually later stage Alzheimer's disease. Problems with memory loss, confusion, disorientation, reasoning and communication all become worse. The behavioral changes

seen as vascular dementia progresses, such as irritability and agitation, are also similar to those of Alzheimer's disease. Delusions, and less often hallucinations, are also seen. The late stage of vascular dementia is largely as described above for Alzheimer's disease. On average, people with vascular dementia live for around five years after symptoms begin, less than the average for Alzheimer's disease. (Alzheimer's society, 2015)

4.4.3 Dementia with lewy bodies

Dementia with Lewy bodies develops slowly and tends to progress gradually, like Alzheimer's disease. Early symptoms of this type of dementia may also overlap with those of Alzheimer's disease, but there are several important differences. Unlike Alzheimer's disease, in the early stages of dementia with Lewy bodies the person's attention and alertness often vary widely from day to day, or even during the course of a single day. This can often be puzzling for those around them. (Alzheimer's society, 2015)

Most people with dementia with Lewy bodies also have recurrent visual hallucinations. These are much more common than in early Alzheimer's disease and are very detailed, often of animals or people. Misperceptions and auditory hallucinations are also very common. These symptoms may explain why people with this dementia often falsely believe that they are being persecuted. (Alzheimer's society, 2015)

Half or more of those affected by dementia with Lewy bodies have movement problems when the dementia is diagnosed, and this proportion increases as dementia progresses. These symptoms are like those of Parkinson's disease, such as slowness of movement, stiffness and sometimes tremor. The person may also have difficulty judging distances and be prone to problems with balance. (Alzheimer's society, 2015)

As dementia with Lewy bodies' progresses, some of the symptoms become more like those of middle or late stage Alzheimer's disease, including greater problems with day-to-day memory and behaviors that challenge, such as agitation, restlessness or shouting out. Worsening of Parkinson-type symptoms means that movements get slower and less steady. The combination of symptoms in a person with dementia with Lewy bodies can be particularly stressful for family and caregivers. After the symptoms of dementia with Lewy bodies begin, people live on average for six to twelve years. (Alzheimer's society, 2015)

4.4.4 Frontotemporal dementia

During the early stages of frontotemporal dementia, memory of recent events may be unaffected. However, there will be other changes. A person with behavioral variant frontotemporal dementia may appear uncharacteristically selfish and unfeeling. They may behave rudely, or may seem more easily distracted. Other early symptoms may include loss of inhibition, ritualized behavior or compulsions and a liking for sweet foods. It is much more likely for those around the person to be aware of these changes than the person is themselves. (Alzheimer's society, 2015).

In a small number of people with frontotemporal dementia, the first symptoms are problems with recalling the names of objects and understanding words (semantic dementia) or with producing fluent speech (progressive non-fluent aphasia). As frontotemporal dementia progresses, differences between these types lessen: people with the behavioral variant develop language problems and those with language problems develop behavior changes. In the later stages, the symptoms of frontotemporal dementia become more similar to those of Alzheimer's disease. There are some differences for example, day-to-day memory loss and problems judging distance or seeing objects in three dimensions develop later in frontotemporal dementia, whereas changes in behavior, such as agitation or aggression, develop earlier. On average people live for six to eight years after symptoms begin. (Alzheimer's society, 2015)

4.5 Relationship between types, progression stages of dementia and Feeding difficulties

Signs of problems with eating begin in the late moderate to the severe stage of dementia. In **Alzheimer's disease**, an early sign of problems with eating is difficulty in ability to use the utensils and less care being paid to table manners. These problems progress, so that the person needs to have their food in small pieces. As the disease progress, the patient starts to be messy and slower with a spoon. Later, the person starts to have problems in getting the food to their mouth, swallowing i.e. the food start to get pocketed to the one side of the food due to uncoordinated swallowing. (Dementia Guide, 2016).

Frontotemporal dementia impairs the part of the brain responsible for social conduct skills in which it may also affect eating. For instance, the patient tends to overeat or to excessively consume liquids, or alcohol or cigarettes. They can also become fixated on sweet foods or dietary compulsions, so that they will eat only specific foods. In the late stages, the person may become orally fixated and attempt to put inedible objects into their mouth. In **dementia with Lewy Bodies** and advanced **vascular dementia**, eating problems are associated with changes in their facial expression. (Dementia Guide, 2016).

4.6 The importance of eating and drinking

Eating and drinking well is important to stay healthy, and healthy and varied diet is likely to improve a person's quality of life. Under nutrition can lead to weight loss and other problems including vulnerability to infection, reduced muscle strength and fatigue. (Stanner, 2007). Elderly with dementia may become dehydrated if they are unable to communicate or recognize that they are thirsty, or if they forget to drink. This can lead to headaches, increased confusion, urinary tract infection, falls, medication toxicity, respiratory tract infections, longer time for wound healing and constipation. These can also worsen the symptoms of dementia. (Alzheimer's society, 2013).

Moreover, patients who have poor nutrition and hydration have longer hospital stays, a higher incidence of postoperative complications and greater need for drugs and other interventions (Nursing Standards, 2014). It has also been shown that poor nutrition significantly reduces the lifespan of those with dementia. The ability of specific food and nutrients tend to delay the progression of dementia and reduce the severity of cognitive impairment though this is still under research (Stanner, 2007).

4.7 Factors contributing to malnutrition and feeding difficulties

Many factors contribute to malnutrition in older population including age, longer stay in nursing home, motor dysfunction, or dependency in daily living activities, dental problems, cognitive impairment, dysphagia (or swallowing difficulties), medical conditions such as dementia, and constipation and medications. Commonly, older people with medical conditions become malnourished due to lower cognitive function, chewing problems, eating difficulties and food refusal. Patients with dementia have been found to have highest risk for malnutrition. This is due to; poor appetite, cognitive impairment, physical disabilities and sensory disabilities (Alzheimer's society, 2013).

4.7.1 Lack of appetite

There are many reasons why a person with dementia may refuse food or drink; one of the reasons being *depression;* one of the signs of depression is loss of appetite which is common in people with dementia. Another reason that contribute to poor appetite is *communication*; person with dementia may have problems in communicating that they are hungry or that they dislike the food they have been given. (Stanner, 2007). They may communicate their needs through their behavior. For instance, they may refuse to eat or hold food in their mouth. Third reason is *Pain*; the person with dementia may be in pain, causing eating to be uncomfortable. They may have problems with their dentures, sore gums or painful teeth. Fourth reason is *tiredness;* this can also be a cause of people with dementia not eating or giving up part way through a meal. (Alzheimer's society, 2015). It can also lead to other difficulties such as problems with concentration or difficulties with coordination. Fifth reason is *medication*; changes to medication or dosage can result in appetite changes as they may make some individuals too drowsy to eat. (Stanner, 2007).

Sixth reason as to why older adults may turn down food and drinks is *physical activity*; if the person is not very active during the day, they may not feel hungry. Equally, if the person is very active or restless (walking about) they may use extra energy and need to eat more to replace it. Finally, another reason is *constipation*; this is a common problem and can result to the person feeling bloated or nauseous, making them less likely to want to eat. (Alzheimer's society, 2013).

4.7.2 Cognitive difficulties

The major problems associated to cognitive difficulties are; *difficulty in recognizing food and drink* and *concentration.* Elderly people with dementia may struggle to *recognize food and drink*, which can result in it going uneaten. This can be due to damage that dementia causes to the brain, unfamiliar food, or how food is presented. If the person with dementia has problems with their sight, they may not be able to see the food. (Alzheimer's society, 2015) Another problem is *Concentration;* people with dementia may not be able to concentrate well, which means they may have difficulties focusing on a meal until it is finished. This may be because they are tired. Also demented people may be easily distracted from eating, they may forget to eat, or forget that they have eaten. (Stanner, 2007)

4.7.3 Motor difficulties

Coordination, chewing and *swallowing* are the major problems associated with motor difficulties. In the case of *coordination,* elderly people with dementia may struggle to handle eating utensils or pick up a glass (Stanner, 2007). They may also have trouble getting food from the plate to their mouth. A person with dementia may not open their mouth as food approaches. (Alzheimer's Society, 2015). In addition, a person with dementia may have difficulties in *Chewing and swallowing food*. They may forget to chew or they may hold food in their mouth. Certain foods may be more difficult for the person to chew or swallow. Also if the person is experiencing pain in their mouth it will make chewing uncomfortable and difficult (Stanner, 2007).

As dementia progresses, swallowing difficulties (called dysphagia) become more common, although they can vary from person to person. Difficulties can include holding food in the mouth, continuous chewing, and leaving harder-to-chew foods such as vegetables on the plate. Weight loss, malnutrition and dehydration can also be consequences of swallowing difficulties. (Alzheimer's Society, 2013).

4.7.4 Sensory difficulties

Temperature and not *drinking enough* are challenges that are caused by sensory difficulties. *Temperature;* some elderly people with dementia may lose the ability to judge the temperature of food; this could burn the person's mouth and result to uncomfortable eating. In the case of *drinking enough,* the sensation of thirst changes as people get older, this can sometimes mean that the person isn't aware that he/she is thirsty. A person with dementia may also have similar problem. (Alzheimer's society, 2015)

4.7.5 Behavioral difficulties

There are three problems associated with behavioral difficulties which are; *eating behaviors, changes in eating habits and food preference* and *overreacting.* In *eating behaviors,* a person with dementia may refuse to eat food or may spit it out. This may be because they dislike the food, or trying to communicate something such as the food being too hot, or they are unsure what to do with the food (Alzheimer's society, 2013). Moreover, they may also insist on eating same food at every meal (Stanner, 2007).

The person with dementia may become angry or agitated or exhibit challenging behavior during mealtimes. This can be for a variety of reasons, such as frustration at any difficulties they are having, feeling rushed, the environment they are in, the people that they are with, or not liking the food. They may not want to accept assistance with eating. It can be a challenge to identify what the problem is, particularly if the person is struggling to find the words to explain it. (Alzheimer's society, 2013).

In *Changes in eating habits and food preference;* people with dementia can experience changes in eating habits, both in terms of how much food they eat and when, and what food they prefer. As a person gets older it is common for the senses of taste and smell to decline, which can lead to food being less palatable. People may have a preference for additional sugar and salt. It is common for people with dementia to develop a fondness for sweet foods. People with dementia may enjoy unusual flavor combinations or ways of eating. People may start to have a less varied diet, only eating certain types of food. (Stanner, 2007).

Damage to specific parts of the brain or a change in taste perception may mean some people start to enjoy tastes they never liked before or dislike foods they always liked. People with Alzheimer's disease can show even greater problems with their sense of smell, especially with odor memory. As dementia progresses, a person may put non-food items into their mouths, e.g. napkins or soap. There could be a number of reasons for this, including: the person no longer recognizes the item for what it is or understands what it is for or the person may be hungry. (Alzheimer's society, 2013).

Overeating; some elderly people with dementia may overeat. Reasons for this include forgetting they have recently eaten or being concerned about where the next meal is coming from. Overeating may also be associated with eating inappropriate foods or non-food items, as well as frequently asking or searching for food. This can be a stressful situation for everyone involved. Moreover, people with behavioral variant frontotemporal dementia are likely to experience excessive eating and other changes to eating behavior, such as changes in dietary preference and obsession with particular foods. (Alzheimer's society, 2013).

4.7.6 Eating environment

The environment plays an important part in the eating and drinking experience. It can affect how much a person enjoys eating and the amount they eat. A good mealtime experience can have a positive impact on the person's health and wellbeing. (Alzheimer's society, 2013).

5.0 Previous studies

The respondent searched for the studies about the subject or studies showing importance of nursing interventions to eating and drinking difficulties among elderly patients diagnosed with dementia. Many articles were found but seven enlightening articles were chosen for previous studies part. In Order to find these articles a Meta search was done which included CINAHL and EBSCO searching engines. The keywords used included nursing, eating, feeding and dementia. 1317 articles were retrieved which upon browsing one by one and using exclusion and inclusion criteria (articles with sub-connection and with no connection at all were excluded), 21 articles were retrieved, after further scrutiny, 7 were chosen.

The first study is about 'nutrition and dementia care: informing dietetic practice'. It summarized existing evidence relating to nutrition in the etiology, prevention and management of dementia in order to help inform dietitians in the provision of care to people with dementia, their families and the care providers. The finding of the study was that people with dementia rarely maintain a stable body weight and often incur numerous feeding-related challenges that contribute to the risk of malnutrition, also high-calorie dietary supplements may enhance the short-term energy intake of people with dementia but are unlikely to improve long-term weight management or other dementia-related outcomes. the study recommended that practical, achievable strategies that focus on food items and eating environments to promote oral intake of people with dementia while minimizing care provider's burden should be a focus for nutrition and dietetic interventions. (Jansen et al, 2015).

The second study focused on analysis of mealtime difficulties in older adults with dementia. The topic was 'an evolutionary analysis of mealtime difficulties in older adults with dementia'. The study related the progress of dementia with the increasing difficulties during mealtimes and in the data analysis, it related various factors with mealtime difficulties. In final stages analysis the study came up with a model of mealtime difficulties describing the attributes, antecedents and consequences. The conclusion was that mealtime difficulties in dementia had emerged as a concept and the evidenced based practice had been provided. It pointed out that most researches had been focused on institutional settings but not in the communities. It further noted that the interventions vary in effectiveness for alleviating the conditions of mealtime difficulties in older with dementia. According to the study, the relevance of the model to the clinical practice was that it provides a broader scope of mealtime difficulties in dementia that considers

environmental, social, cultural and contextual implications with nutritional intake and it can also be used to guide future research to alleviate mealtime difficulties in older with dementia. (Aselage & Amela, 2010).

After establishing the relationship between nutrition and dementia management and understanding the mealtime difficulties among older with dementia, the third study was examined. It focused on how the individuals with dementia manage mealtime tasks. The title of the article was 'Managing mealtime tasks: told by persons with dementia'. The study described how the patients with mild stage dementia who still lived in their homes managed their mealtimes. The findings of the article showed that the persons with mild dementia wanted to be independent as much as possible and that the memory loss did not affect their mealtime tasks to a great extent. Old habits and routines helped them to develop new strategies to cope with the current situation. In the conclusion, the article pointed out that persons with mild dementia seem to be able to manage mealtime tasks and these activities were based on old habits and routines. Individuals value independence in managing the situation. The relevancy of the study to clinical practice was that the caregiver´s need to understand that the persons with dementia may not express difficulties in managing mealtime tasks for the fear of losing their independence. Therefore, it is important that to create trustful relationship even before the problems arise to be able to support the person when necessary. (Johansson et al, 2007).

The fourth study aimed to justify the need to have alternative interventions rather than having tube feeding in dementia care. This was because after examining the first study, it became clear that feeding difficulties actually exist among elderly with dementia. By further examining the second study, it became clear that there are causes, effects and consequences of these difficulties. The third study showed that, though some of the affected victims are able to manage these difficulties by coping with the situation, nurses need to assess and intervene when the difficulty arises. The fourth study therefore justified the necessity for those nursing interventions. The title of the study was 'issues and alternatives to tube feeding in dementia care,'. The clinical review gave the existing evidences to support nursing interventions with individuals with moderate and moderately severe dementia. The study focused on management of feeding and swallowing in individuals with advanced dementia that was consistent with a rehabilitation focus, centered on prevention and maximizing residual abilities. The focus was intervening before the late stages of dementia. The study recommended the need for education of care providers involved in feeding of people with dementia. (Cleary, 2007)

The fifth study was on 'Everyone's problem but nobody's job: Staff perceptions and explanations for poor nutritional intake in older medical patients'. The article showed that all staff recognized malnutrition to be a problem in older patients during hospital stay and differences between disciplines revealed a lack of a coordination. It also revealed that the staff had poor knowledge of nutrition care processes, there was poor interdisciplinary communication, and a lack of a sense of shared responsibility approach to nutrition care. All staff talked about competing activities at meal times and felt that they had no power to prioritize nutrition in the acute medical setting. The article identified the need for education and 'extra hands' among staff to address most barriers. (Ross et al, 2011).

The sixth study was on 'What is associated with low food intake in older people with dementia?'. The study discussed various factors that contribute to low food intake in patients with dementia. These factors included: Eating difficulty, lack of feeding assistance, moderate dependence, fewer family visits and being older. It concluded that nursing staff need to assess residents' feeding ability to continue to self-feed, also to supervise the feeding of residents with moderate dependency and provide appropriate verbal or physical assistance at meal times. (Chang & Beverly, 2008).

Lastly, the seventh study was on 'Nothing to complain about? Residents' and relatives' views on a ''good life'' and ethical challenges in nursing homes.' The study found that there are various ethical challenges in nursing homes that include: acceptance and adaptation, well-being and a good life, autonomy and self-determination, and lack of resources. It concluded that patients and relatives experience ethical challenges in nursing homes, mostly connected to everyday ethical issues. (Bollig et al, 2016).

6.0 Research methodology

This chapter introduces the method of data collection and analysis that was used in this study.

6.1 Systematic literature review

The respondent used systematic literature review method to collect and analyze data. A systematic review is a research study that collects and critically analyses multiple studies or papers. Researchers use methods that are determined before they begin to frame one or more questions, then they find and analyze the studies that relate to that question. This method has been used in health interventions and aims to provide an exhaustive summary of current literature relevant to a research question. In addition, it is a cornerstone of evidence-based practices. Systematic reviews may examine quantitative or qualitative studies. (Polit & Beck, 2012, 9, 672-674) but in this study, the respondent chose to use only qualitative studies to find nursing interventions by summarizing current literature relevant to the study question.

6.2 Retrieval of studies/ Data collection

Three searches were conducted on the dates 7.12.2015, 8.12.2015 and 11.4.2016 respectively. A first search was metasearch that was conducted from Nelli with the use of key words: nursing, eating difficulties and malnutrition, second search in Ebsco with the keywords used including ethics, malnutrition and dementia and third search in also Ebsco with the keywords used being; ethics, feeding and dementia. A total of 910 articles were

yielded. Inclusion and exclusion criteria was used to select relevant articles. The criteria used was; first the topics that didn't mention anything on malnutrition, eating difficulties, drinking difficulties, and dementia were excluded. This led to 90 articles being selected which most were reviews. The reviewed articles were eliminated. Multiples also were examined which led to exclusion of 4 articles. Abstracts of the remaining articles were read to determine relevancy which led to selection of 19 articles. On further scrutiny and reading through the whole articles, the respondent selected 5 most relevant empirical articles for data analysis. The articles selected met the following qualifications: they were less than 10 years old, peer reviewed, full text and written in English.

6.3 Data analysis

Content analysis was used to analyze the data of this study. This is the analysis of the content of narrative data in order to identify prominent themes and patterns among themes. It involves three steps; breaking down data into smaller groups, coding and naming the groups according to the content they represent and finally grouping the coded material based on shared concepts. Moreover, this method of analysis involves the process of organizing and integrating data from documents from qualitative study according to the main concepts and themes. (Polit & Beck, 2008, 534,723).

More specifically, deductive content analysis is often used in cases where the researcher wishes to retest existing data in a new context. The process of this analysis begins with choosing the method then develops a categorization matrix and code the data according to the categories. After a categorization matrix has been developed, all the data are reviewed for content and coded for correspondence with or exemplification of the identified categories. (Elo & Kyngäs, 2007).

The respondent therefore with the help of this method of analysis, analyzed the collected data by breaking down into a smaller categories and naming the categories according to the content they represent. The text with similar content were coded, these codes constituted sub category headings reflecting the content of the respective text e.g. the content like '… Match food textures to swallowing capabilities…' was coded as swallowing decline intervention and …'texture-modified foods that need minimal chewing'... was coded as chewing decline intervention. The two coded units then were categorized together as physiological decline interventions to form a sub-category. Various sub-categories e.g. chewing interventions and swallowing interventions were then merged to form generic category called physiological decline interventions. Similar generic categories were further merged to form the main category e.g. interventions geared to declined abilities of the patient. The table below illustrates more how the analysis was done.

Table 1. Example of analysis process

Units	Sub-category	Generic category	Main category
…includes texture-modified foods that need minimal chewing...	Chewing interventions	Physiological decline intervention	Interventions geared to declined abilities of the patient
…Ensuring that the patient is alert, comfortable and sitting upright or, if in bed, well positioned, before offering food and drink may facilitate swallowing….	Swallowing interventions		
…. use pictures to do so and use colored plates to boost recognition abilities…	Recognition of food interventions	Cognition decline intervention	
…offering finger foods and smaller portions can help to make the task easier and takes shorter period. It also enables the patient to eat the food while it is still warm…	Concentration problem intervention		
…Supervising the patients during mealtimes and using mealtime routine can help the patients with confusion problems…	Confusion intervention		
…providing regular snacks and reminding the patients to eat could help…	Forgetfulness intervention		

...The caregivers also need to have an ability to read the patient's cues particularly facial expressions and signals that are more specific….	Reading cues, signals and expressions	Communication decline intervention	
…Other interactions that involve spontaneity, emotion or an expressive act such as forearm touch and gently holding hand facilitate communication between the patient and the care provider…	Physical interactions		

7.0 Presentation of the results

This chapter entails results presentation. Three main themes which include: interventions geared to declined abilities of the patient, interventions geared to situations adjustments and flexibility and interventions geared to improving caregiver's competence are discussed.

7.1 Interventions geared to declined abilities of the patient

As described before, the patients' abilities tend to decline as dementia progresses, this study found 6 different interventions that match with various declined abilities of the patient. These include physiological decline, cognition decline, poor appetite, communication decline, function decline and behavioral decline interventions.

7.1.1 Physiological decline intervention

Physiological difficulties such as chewing and swallowing tend to develop as dementia progresses. If patients with these difficulties are given food that are course texture, it will lead to the food not being eaten. Typically, the patient's may forget to chew, hold the food in their mouths, continuously chew, or leave foods that are hard to chew on the plate. Intervention to these difficulties is matching food textures to chewing and swallowing capabilities of the elderly with dementia. This includes texture-modified foods that need minimal chewing i.e. soft and moist foods. In addition, good oral hygiene and regular mouth checks are important to reduce chances of infections and avoid unnecessary pain. Dentures should be properly fit to reduce discomfort. (Ball et al, 2015). Make sure that the patient is alert, comfortable and sitting upright or, if in bed, well positioned, before offering food and drink to facilitate swallowing (Mccutcheon & Ullrich, 2008).

7.1.2 Cognition decline intervention

Elderly with dementia may have difficulty in recognizing food. Therefore, explain what the food is, if necessary use pictures to do so or use colored plates to boost recognition abilities. (Ball, et al, 2015). Also ensure that the person with dementia have the correct glasses to facilitate seeing if the person has sight problem. In the case assisted feeding, care providers need to apply various techniques to help the patient recognize food for instance the feeding can be initiated by touching the patient's lips with food. This acts as a 'knock on the lips'. If a patient does not open their mouth after the touch, then the next step is to exert mild physical pressure, to force the patient to taste the food. This evokes recognition, and the patient will start to eat. (Martisen & Norlyk, 2012)

If the patient does not open their mouth after a mild pressure, then the caregivers need to help them to open their mouths i.e. put on a glove and open up the lips and teeth, then stick the food inside. The patients with dementia usually chew on most things and if someone just get the mouth open to insert the food, they will eventually chew and swallow it. This intervention need to be carried out in the patient's own room and not in areas where fellow patients or relatives might be offended by the sight of it. (Martisen & Norlyk, 2012). However, this poses an ethical dilemma among the caregivers who need to balance between patient's integrity of not forcing them and pressurizing them to eat enough (Hammer et al, 2016).

The patients with dementia need to be prompted physically and verbally to drink. For instance, the caregiver need to place plastic cup to the patient's mouth and wet lips to prompt them to take mouthfuls of fluid. Also place the drink into the person's hands, or

place in front of them to enable them to pick up their cup and drink from it. During the intervention, the patient need to be reassured, reoriented and encouraged (Mccutcheon & Ullrich, 2008). These techniques could be also communicated to other staff members. (Martisen & Norlyk, 2012)

In addition to prompting, the care provider need to have a drink on hand when the patient is eating. Use a transparent glass to enable the patient to see what is inside the glass or use a cup with a bright color to draw attention. If the patient is eating by himself or herself, a care provider need to give the cup to the person, or put it in line of sight. Explain to the patient what the drink is and where it is, so that if the patient with dementia has a sight problem, they are still able to find the drink. Re-direct or remind them get back to process of drinking. Offer different types of drink throughout the day and make sure that the cup or glass is suitable not too heavy or difficult shape. (Mccutcheon & Ullrich, 2008)

For the patients with concentration problems, offer finger foods and smaller portions to make the eating process easier and also to take shorter period. It also enables the patient to eat the food while it is still warm. For the patients with forgetfulness problem, provide regular snacks and remind them to eat. Supervise the patients during mealtimes and using mealtime routine to help those with confusion problems. (Ball et al, 2015)

7.1.3 Poor Appetite intervention

Offer sweet foods first to kick start the meal eating process to boost the patient's appetite. Facilitate social eating and sharing mealtimes with others and sometimes involve their relatives. This is because eating together, having plenty of time for a meal and maintaining socialization with friends at mealtimes improves the meal intake. (Ball et al, 2015). Eating together promotes enjoyment hence improving the individuals' food intake. Common meals also provide an opportunity for patients to mirror themselves in each other. If a patient eats too little day after day, the staff need to consider offering the family a meal together. This is likely to motivate the patient to eat, because they are accustomed to doing so at home. (Martisen & Norlyk, 2012)

In addition, regular small snacks and meals are better than set mealtimes or food that is overloaded on the plate. Make the food look appealing, food with appealing smell stimulates the patient's appetite. Moreover, caregivers need to look for opportunities to encourage the person to eat for instance if the elderly with dementia are awake at night, then nighttime snack is a good idea. Different types of food, food with strong flavors and desserts are also encouraged. (Ball et al, 2015).

Serve half portions to keep food warm or use the microwave to re warm food; this is because the food loses its appeal if it goes cold (Ball et al, 2015). Encourage the patients with dementia to get involved at mealtimes for example they may lay the table or serve themselves (Hammer et al, 2016). Moreover, give the patients positive encouragements and gentle reminders to eat. A relaxed, friendly atmosphere with some soft music boost the appetite. (Ball et al, 2015).

The meals structured care that is organized in connection with the meals help to boost food intake by demented person. For instance, the patients can be bathed after breakfast. This stimulates the patient's appetite for lunch. Also allow the patients to be active as much as possible because activity reduces boredom. In case of Constipation the patient need to be given adequate fluid intake, eat food with high fiber diet and some exercise to stimulate bowel movement and function. (Martisen & Norlyk, 2012).

7.1.4 Communication decline intervention

Some elderly with dementia have problems in communicating what they want or do not want. In this case, the meal situation demands the caregivers' full attention and presence, especially when the patient is newly admitted and have no relatives to communicate their wishes (Martisen & Norlyk, 2012). The caregivers also need to have an ability to read the patient's cues particularly facial expressions and signals that are more specific. (Mamhidir et al, 2007). These various signals and expressions are then interpreted to mean something. For instance, turning the head away from the food is interpreted that the patient is satisfied. Sometimes the cues are vague, for example, increased tension in the body is interpreted as a rejection of the food. (Martisen & Norlyk, 2012).

Behavioral signals such as putting non-food items into the mouths are interpreted that the patient does not recognize the item anymore. Therefore, remove these non-food items from view because the person confuses them for food. Putting non-food in the mouth is also interpreted as person is hungry, hence offer the food as an option to the item. Care providers need to put some snacks on the table or fruits. The snack and fruits provided should be easily assessable and easily seen. (Ball et al, 2015).

Other interactions that involve spontaneity, emotion or an expressive act such as forearm touch and gently holding hand facilitate communication between the patient and the care provider. A person with dementia may refuse to eat food or may spit it out, it is important not just to assume that the patient does not want food or they are not hungry. It may be because they do not like the food, or they may be trying to communicate something such as the food is too hot, or they are not sure what to do with the food. The caregiver need to make sure that the food is not too hot, as it could burn the person's mouth resulting to discomfort while eating. (Mccutcheon & Ullrich, 2008)

Allow the patients to choose the kind of food they want. Relatives are important sources and resources to the caregiver as they give information about the patients' meal-related habits and preferences. Explain to the patient the importance of eating and if need be, tell them the consequence of not eating. For example, a statement like "Look if you do not eat, you will die' help. (Martisen & Norlyk, 2012).

7.1.5 Function decline intervention

Intervention to malnutrition and feeding difficulties among demented elderly begins with integrity promotion care whereby mealtime situation is taken as whole. The care is geared to optimizing the resources of the brain so that the patient could function in their everyday life. (Mamhidir et al, 2007). Care provided to people with dementia should begin by using the least restrictive approach and then proceed, as necessary, to using partial physical assistance and then to total physical assistance (Mccutcheon & Ullrich, 2008). Nurses need to change the care provision to create more opportunities for patients to be independent and take part in decisions and activities. For instance, during morning care sessions, the staff can be supportive and permitting. This will enable the patients to display more abilities and positive qualities of their personality. These morning activities are carried in intimacy to enable patient display more capabilities and at the same time, it helps the patient to be industrious. (Mamhidir, et al, 2007)

Allow the patient to feel competent to eat independently (Mamhidir et al, 2007). If need be, reminding them to do a particular task at a go is better than total feeding assistance. This because sometimes assisted feeding could lead them to avoid mealtimes because they are embarrassed by their difficulties or want to avoid struggling. If the patient is struggling with eating utensils such as a knife and fork, then it will be better to cut food into smaller pieces so that it can be eaten with a spoon. If the person with dementia appears to have difficulty in using utensils, a caregiver need to prompt the patient and guide their hand to their mouth to remind them of how the process is involved. Use adapted utensils such as plates with no-spill rims. Let the person eat where they feel comfortable. (Ball et al, 2015).

7.1.6 Behavioral decline interventions

The person with dementia can have different forms of behavioral challenges. They may get angry, irritated or agitated during mealtimes due to many reasons. Some of the reasons include frustrations because of the difficulties they are having, the environment they are in could be disturbing, they do not like the food provided or they do not want to be assisted with their eating. The caregivers find it a challenge to identify exactly what the problem could be, especially if the patient is struggling to find the words to explain it. (Martisen &

Norlyk, 2012). Sometimes it forces the caregivers to coerce patients with dementia during the interactions to ensure that the patient's eating needs are met. This becomes an ethical issue because practicing integrity-promoted care and preserving individuals' dignity are among the important priorities in caring the patients with dementia and on the other hand the patient need to eat enough to avoid malnutrition and weight loss. (Hammer et al, 2016)

The most important thing to remember is that the patient does not show these reactions deliberately to attempt to be difficult or a personal attack (Martisen & Norlyk, 2012). The caregiver need not to rush the patient but rather help them maintain as much independence as possible (Mamhidir et al, 2007). Be creative and look for clues such as body language and eye contact as a means of communication. If a person is agitated or distressed, do not put pressure on them or force them to eat or drink but rather it is better to wait until the person is calm and less anxious before offering something to eat or drink (Martisen & Norlyk, 2012)

Sometimes the patient with dementia may over-react or become aggressive during mealtimes. The caregiver need to avoid battles over food, diverge the anxiety-related situations to something else such as discussing newspaper stories, provide encouragement, 'bribe' the patient and remove access to food till when the patient is calm. (Hammer et al, 2016). Encourage social eating and sharing mealtimes with others. Involve them by ensuring that they have something to do so that they do not feel bored or lonely. Leave some fruits and snacks within so that the person may eat them instead of eating non-food items. This also helps to distract the anxious patient. (Ball et al, 2015).

7.2 Interventions geared to situations adjustments and flexibility

This theme describes what kind of adjustments can be made in to improve food intake by patients with dementia. Five sub-themes were found which include food tastes and preference, environment, meal situation, supplements and routine adjustments.

7.2.1 Food tastes and Preferences adjustments

Taste senses and preferences tend to change, as an individual gets older. Taste perception mean that some people start to enjoy tastes that they did not like before or start to dislike foods that they had always liked, for instance people start to prefer additional sugar and salt to the drinks or to the food. People with dementia may also start to enjoy unusual

flavor combinations or ways of eating. They might prefer sweet foods to the others. (Ball et al, 2015)

Therefore, there is a need to adjust the food to match with the patients' desire in order to boost food intake among this group. If someone prefers sweet foods, fruit is a healthier option. The care provider need to add small amount of sugar or honey to a drink. Use herbs and spices to enhance flavors. Give food that the person has never eaten before. Adjust food textures to match with swallowing capabilities including texture-modified foods that are moist and soft to boost food intake in the patients. (Ball et al, 2015)

Season food, add more ingredients such as spices, sauces to enhance the taste, offer sweet foods first to kick start the meal eating process or provide small regular meals, and offer finger foods to improve the individuals' taste. When providing assisted feeding for language-impaired patients, relatives are important partners for the caregiver as they can outline the patients' meal-related habits and preferences. (Martisen & Norlyk, 2012). Caregivers need to recognize and accommodate the specific taste preferences patients in order to ensure adequate food intake. These include changing and developing food preparation practices that suit them. For instance, allowing them to decide what they want, and not pushing them with own knowledge of what is healthy or not. (Ball et al, 2015)

7.2.2 Environment adjustments

The dining room needs to be made in such a way that it is a homelike and easier for the patients to interpret. For example, put pictures on the walls, introduce new patterns on the tablecloths, curtains, and take private articles into patient's rooms, put nameplates outside the patient's door and put full-sized mirrors in the rooms to improve the outlook of the environment. (Mamhidir et al, 2007)

Minimize distractions at meal times (Ball et al, 2014). It is ideal if assisted feeding take place in a quiet environment without distraction. A noisy environment can be distracting. The eating environment should be calm and relaxing. If necessary, switch off any background noise. (Martisen & Norlyk, 2012). If there are distractions as a result of anxious individuals, then restore the calm atmosphere by giving the most anxious persons with dementia their food first (Hammer et al, 2016).

Eating environment should be designed such that it promotes group eating. The social aspect of the meal increases the patients' food intake. Common meals also provide the opportunity for patients to mirror themselves in each other. This also help to make eating a social activity and maintain independence, as the patients may be able to copy one another. Environment need to be adjusted such that it is as stimulating to the senses as possible for

instance familiar sounds of cooking, smells of the kitchen and food, and familiar sights such as tablecloths with flowers. (Mamhidir et al, 2007).

The caregivers need to let the patient with dementia choose where they sit and eat. (Mamhidir et al, 2007). They should also allow them to be able to choose what they want to eat, within reason. Caregivers also need to make sure that the eating environment has enough lighting and the food is colorful. (Hammer et al, 2016).

During the mealtimes, the caregivers also should not worry about mess since it is more important for the person to eat than to be tidy. Patients with dementia have difficulties in interpreting new situations so the environment needs to be as static as possible. (Mamhidir et al, 2007). The ethical issue arises when, traditionally, the staffs are used to keeping the environment orderly and the meal as a whole making it difficult to individualize the meal in accordance to different needs of different patients. (Hammer et al, 2016).

7.2.3 Meal situation adjustments

Caregivers need to serve the food in the serving bowls to enable the patients to help themselves instead of giving already prepared trays. This makes the contact between patient and environment to be more pleasant. (Mamhidir et al, 2007). Adjust food presentation strategies such as serving small and numerous portions in one meal, cutting food into small pieces and using finger foods may increase food intake among patients. (Ball et al, 2015)

Ideally, assisted feeding should look aesthetic. If there is a risk that clothes will be soiled, then care providers need to equip the patients with a linen napkin. In cases where caregivers judge that other patients might be bothered by the lack of aesthetics, they can choose to protect the patients by assisting them in their rooms. This protection secures the patients from being exposed to others during meals. (Martisen & Norlyk, 2012).

Every patient need to be positioned appropriately for their meals and the eating items need to be rearranged such that the patients can access them easily. For the assisted patients the caregiver needs to sit in position that is suitable and easier to feed the patients. Prominent position is sitting in the front of the resident at an angle of forty-five degrees. (Mccutcheon & Ullrich, 2008)

7.2.4 Supplements adjustments

The caregivers need to use food-based strategies to address weight loss. These strategies include providing more nutrient-dense foods, high-energy and protein supplement drinks, and adding calorie-dense ingredients to normal foods (Ball et al, 2015). If the patients do not eat enough, they need be offered various types of protein supplements or special diet. Caregivers need to vary the diet to contain more energy or correspond to the patient's preferences. In this case, of preference, the relatives are important partners for the caregiver as they can outline the patients' meal-related habits and preferences. The information should be available to everyone on the care team. (Martisen & Norlyk, 2012)

7.2.5 Routine adjustments

Caregivers need to integrate assisted feeding into the other caring activities throughout the day, focusing on the patient's nutritional needs (Ball et al, 2015). Though assisted feeding is often subject to time pressure, the staff should need to deliberately feed the patients calmly to prevent them from sensing any pressure to eat faster. Patients should eat at an appropriate pace, not eat too much or too little and preferably wait to leave the table until everyone else has finished eating. Assisted feeding should not be interrupted. In other words, it should have a priority over other tasks. There should be minimal replacement of each other in the middle of the meal, and helping several patients simultaneously by one staff member should be avoided. (Martisen & Norlyk, 2012).

However, during this intervention, an ethical issue arises when there is lack of enough personnel, where the caregivers on duty have to do several tasks at the same time. The tasks such as setting the tables, serving food, assisting and feeding persons with dementia according to the individuals' needs etc. can be overwhelming to the care provider. It leaves the care provider with a feeling of trying to do 'undoable 'because it is impossible for one person to manage everything. (Hammer et al, 2016)

Daily routine need to be also adjusted such that it improves food intake, for example, patients need to be bathed after breakfast to help stimulate the patient's appetite for lunch. Other hospital programs such as X-rays, blood tests or other care tasks should be planned with the meals put into consideration to avoid disruption. Patients also need to be encouraged to eat well when the level of energy is highest for example in the mornings (Martisen & Norlyk, 2012).

7.3 Interventions geared to improving caregiver's competence

In this theme, the need to improve nurses' competences by educating them is discussed.

7.3.1 Nurses education intervention

The caregivers have low level of knowledge and awareness of nutrition-specific issues related to dementia care. Most of them increase their knowledge and awareness through observational learning and trial and error. Some of the caregivers have no training at all about nutritional needs for people with dementia or about methods for ensuring adequate food intake. (Ballet al, 2015). Some care workers lack expertise in relation to interpreting and appropriately responding to the various ambiguous eating behaviors of residents with dementia and insufficient knowledge as to how to take on a holistic approach to the hydration needs of older adults with dementia (Mccutcheon & Ullrich, 2008).

Mamhidir et al, (2007) during their three-month intervention period proved that educating the caregivers makes a great difference in weight increase in patients with dementia. They started their intervention period with a week training course on holistic care of an elderly with dementia. They went further to follow up the implementation in the ward. At the end of their intervention period, they found that 15 out 18 increased the weight in the ward compared to 3 out of 15 in a control ward. This is evidence that show that there is a need to educate the caregivers to improve their competence on caring the elderly with dementia.

8.0 Discussion

The qualitative study's discussion part is not actually designed to give meaning to the results, but rather to summarize and link them together to other research or to suggest their implications for research, theory, or nursing practice (Polit & Beck, 2008, 690). Therefore, the respondent summarized the results, linked them to the theory given as well as connected them with the studies that were found to be related to the study.

Elderly with dementia frequently become malnourished and loss weight whether they are cared at home, nursing homes or in hospitals. The main aim of this study was to describe the evidence-based practices that have been applied in reality to overcome malnutrition, eating and drinking difficulties in elderly with dementia. The questions were: do we have interventions? And do nurses encounter ethical issue from their day to day life? From this study we find that yes various interventions exist, nurses do apply these interventions to

suit the patient's declined abilities and nurses do encounter various ethical issues in their day to day mealtime activities.

Rosemarie Rizzo Parse's Theory of human becoming guides the practice of nurses to focus on quality of life as it is described and lived. This study finds the theory to be applicable in that it guides the nurses to focus on improving the quality of life by ensuring that the patients 'nutritional status is not compromised regardless of the fact that they have numerous feeding difficulties as a result of dementia. This theory presents an alternative to both the conventional biomedical approach of most other theories and models of nursing. In this study, the interventions discussed is purely other alternatives than biomedical approaches, it offers alternatives that are based on patient's current situation.

The theory differs from the normal nursing process, in that it does not seek to fix problems rather, it gives nurses the ability to see the patient's perspective. The findings of this study reflect the same principle in that care givers do not have specific solutions to fix the problem of malnutrition among elderly with dementia but rather the nurses need see the demented elderly's perspective in order to overcome the challenge. The theory allows the nurse to be with the patient, and guide him or her toward the health goals; this study describes the necessity of nurses to be with the demented patients with the main goal being avoiding malnutrition among them.

Background information showed that different types of dementia affect different parts of the brain hence resulting to different changes or declined abilities among the affected group, the results of this study showed that truly the interventions are given depending on these different declined abilities of the patient. For example, frontal dementia affects parts of the brain that are responsible for social conduct skills. The patient with this kind of dementia tends to overeat or become fixated on sweet foods or dietary compulsions, so that they will eat only specific foods. In the findings, the intervention will help the patient with this problem of over-reacting is to avoid battles over food, diverge the anxiety-related situations to something else such as discussing newspaper stories, provide encouragement, 'bribe' the patient and remove access to food till when the patient is calm. Also proving sweet food to kick off eating process if the patient is fixed to sweet food was discussed as one of the interventions.

Furthermore, the progression of dementia as discussed has an impact on feeding. As frontal dementia progresses the person may become orally fixated and attempt to put inedible objects into their mouth. The intervention that is suitable as discussed in the findings is to therefore leave some fruits and snacks within so that the person may eat them instead of eating non-food items. There are also factors that contribute to malnutrition and feeding difficulties among patients with dementia such as poor appetite, communication problems, eating environment etc. this study has discussed in details how these factors come be solved. For example, the patients with difficulty in communicating want they want, nurses use various techniques such as reading facial expressions, signal and cues and interpreting them appropriately.

In this study we find that there exist interventions that are applied to intervene the situation. These findings are found to be consistent with those found in the other studies. Chang & Beverly, (2008) found that selecting food that is appropriate to the abilities of elderly with dementia increase food intake which is similar to the findings of this thesis. This study also mentioned the importance of good oral hygiene and regular mouth checks to reduce chances of infections and also fitting well the dentures to reduce unnecessary pain and discomfort. Ross et al, (2011) found this to be a problem that reduced food intake since some caregivers took it as no 'big deal,' for instance they didn't take any necessary action when the patient complained of having a trouble with their teeth. Chang & Beverly, (2008) also found that changing the position of residents would enhance swallowing which is consistent with upright position to foster swallowing that is explained in this study.

This study identified use of various techniques such touch, proving suitable glasses, mild pressure, forcing the patient to open their mouth and sticking some food in the mouth to help the patient recognize food. On the contrary to this finding, Teeri et al, (2006) found this intervention not suitable as it raised ethical issue of denying the patient the sense of self determination. During author's research, the patient complained that the food was shoveled into the mouth without the nurse listening to the them.

Participation in daily life and social contact were found to be two important components of well-being. Patients with dementia preferred participating to just sitting in a chair. It was further discussed that well-being was not just created by the surroundings, contact with the staff and the other residents alone, but achieved by active behavior of the patients themselves. It was the patient's own attitude that mattered. To think positively and to do something on one's own seemed to be important. The patients needed to do as much as they can and do what they were able to participate in life. (Bollig et al, 2016). This finding goes hand in hand with the finding of this study that emphasized the need of exercise in order to boost patient's appetite and also to reduce agitations that are resulted from boredom.

Touch and verbal cuing were effective ways of communication to help patients with feeding difficulties (Chang & Beverly, 2008). Touch and encouragement was found to promote comfort and communication that make a difference in adequacy of oral intake and delay the deterioration of eating problems (Aselage & Amela, 2010). Verbal encouragement, use of verbal positive reinforcement such as offering to take the resident for a walk after finishing a meal or in other words 'bribing the patient', facilitate food intake. Use of verbal negative reinforcement that included threats of restraint or a nasogastric (NG) tube were found to also work. (Chang & Beverly, 2010)

Effective strategies that facilitated functionality of a person with dementia included encouraging independence while providing supervision and assistance. It was found that some patients needed only someone to sit beside them for them to start feeding themselves, some needed only physical assistance or verbal cuing to feed themselves while others who

were able to chew and swallow the food effectively only needed care provider to get the food to their mouths and others with difficulty in using eating utensils were encouraged to use proper utensils. (Chang & Beverly, 2008).

Some feeding difficulties that were related to behaviors such as inattention or easy distractibility had varied interventions that made the care providers have difficulty in identifying the actual challenge. It was found that music could help to reduce the agitated behaviors during mealtimes and might have positive effects on food intake among dementia patients. This study found the same scenario where the care providers faced a huge challenge in identifying the cause of a certain behavior such as agitation and anxiety during meal times. (Chang & Beverly, 2008).

This study emphasized on the importance of using various techniques to interpret various signals shown by the patients during meals and allowing the patients to eat on the own pace, but Chang & Beverly, (2010) found that some care providers stopped immediately if the patients turned their heads away. To reduce the time needed for feeding, some staff offered too large bites for the patients being fed. Also care providers only asked residents whether they were full and did not try additional strategies to increase the amount of food eaten. Chang & Beverly, (2008) pointed out that adequate time for eating and good feeding skills improves food intake during meals.

Features of a dining room described in this thesis that promote food intake were: homelike dining room, dining room that is easy for the patients to interpret, eating room that is free from distractions, calm, relaxing and that it promotes group eating. Aselage & Amela, (2010) in their study found the dining room was always crowded, and care providers never had space to sit at the dining room or have eye contact with the patients. The staff had to stand to feed the patients because no room was available at the dining room for them to sit.

Giving the patients an opportunity to choose what they want, where they want to sit or eat, the need for routine flexibility and allowing family members to join their relatives during meal times were found to be important in this study. In Chang & Beverly, (2010) study, the rooms of the patients and the kitchen were always locked, which meant that residents did not have a choice of where they ate or what food to access during and between meals. Bollig et al, (2016) reported that majority of the patients felt that they could decide most things for example having breakfast in bed at the time they wanted, many of them said that they did not have much to decide at all and did not feel autonomous or self-determinant. The authors further reported that the patients talked about problems of inviting guests to share their meal, being controlled around the clock, and that daily routines were in deep contrast to their desired level of self-determination.

Chang & Beverly, (2010) reported that to enhance nutrition, care providers offered the most nutritious food first or mixed all the food together which is consistent with the finding of this study, that the care providers could offer sweet food first before the main

meal to kick off the eating process. Furthermore, the authors found that the care givers did not provide sufficient social contact with patient during the meal. They had little to no interaction with them. Even when the patients wanted to talk to them, the staff either gave no response or told the residents to be quiet while eating. On the contrary, this study emphasized that good social contact between the care giver and care receiver promotes food intake.

Chang & Beverly, (2008) argued that creating a social mealtime environment such as using family style meals and simplifying the process of eating enhances food intake. Bollig et al, (2016) were of the same opinion, in their studies, it was evident that to be seen as a human being and to be engaged in some kinds of social interaction were crucial factors for well-being and the preservation of the patient's dignity. They further defended their argument that ethical problems could arise when there is lack of contact. These arguments were also discussed in this study.

Ross et al, (2011) in their study discussed that the nurses had competing priorities at meal times. Sometimes they had to take patients to various places, take their own breaks, go for drug rounds etc. According to nurses, these activities were given priority over meals. They further elaborated that the nurses felt a sense of powerlessness in that they could not prioritize nutrition because their routines such as preparing medications overlapped with mealtimes. This justifies the thesis' finding that there is a need to adjust the institution's activities to match with meal times.

This study found that educating the care providers on how to care for a patient with dementia would enhance their competence hence improving the quality of life of the patients by ensuring that they are not malnourished and they do not lose weight. Other finding had similar argument. Ross et al, (2011) found that patients were malnourished because the staff had poor knowledge of nutrition care processes. Some of nurses reported informal techniques that they used to assess nutrition status of the patient. For example, seeing it from basic appearance. They also found that the staff had limited knowledge of equipment and services, for example, modified cutlery, medications and dental services.

9.0 Ethical considerations

Wager &Wiffen, (2011) recommend that while preparing or writing a systematic literature review a researcher should bear in mind 3 key issues (among others which the respondent found irrelevant to this study since it was not intended to be published): these key points include: avoiding plagiarism, ensuring accuracy and avoiding fraud. Firstly, the respondent tried as much as possible to avoid plagiarism, which means using another person's words, data, ideas, or other original creations without acknowledgement or permission and

claiming them as your own original work or taking another person's complete work and using it as your own. They recommend that rephrasing or proper citation should be done.

Secondly, the researcher using systematic review should also ensure accuracy of which also the respondent bared in mind. It is expected that during data extraction, the researcher should do it accurately and that the authors do not attempt to slant the results in any particular direction in other words that they are unbiased. Finally, the respondent was also aware of fraudulent research. This means that systematic reviews sometimes reveal apparent plagiarism of whole articles where the researcher is having a study with a completely different set of authors either in the original language or in translation.

10.0 Critical review

Like any other studies, systematic reviews should be critiqued to determine trustworthiness and clinical relevance. Polit & Beck, (2012, 675-676) give guidelines for evaluating systematic reviews. The reviewers need to describe the techniques they used to compare the findings of each study, and explain their method of interpreting their data, the abstracted findings need to be appropriate and convincing, information need to be presented convincingly, the study need to achieve a fuller understanding of the phenomenon to advance knowledge, interpretations should be well grounded, and there should be sufficient data included to support the interpretations. The respondent therefore chooses to use these guidelines to review critically the study.

The respondent claims that the techniques used to compare the findings of each study are well described. under the methodology, the respondent has described how she used deductive content analysis approach. Furthermore, the method of interpreting data has been explained. the respondent has given an example in a table form on how the data was put together interpreted.

The respondent also believes that the abstracted findings are appropriate and convincing. The data is appropriate since they were obtained from academic articles that were at least 10 or less years old, peer reviewed and the content reflected the topic and the research questions of the thesis. The data is convincing since the respondent used enough sources. The respondent used 5 articles to analyze the data and more studies were also used to validate the data under the discussion part.

In addition, the study achieved a fuller understanding of the various interventions to malnutrition, eating and drinking difficulties to advance knowledge of the respondent and also those who are going to read this study. Finally, the interpretations are well grounded, and sufficient data are included in the discussion part to support the interpretations.

11.0 Limitations

This study did not use the nursing process procedure while discussing the interventions to malnutrition and feeding difficulties among elderly with dementia. This led to omission of other tools used in assessment, diagnosing, planning, implementing and evaluating the feeding difficulty and nutritional problems of this vulnerable group of elderly. Examples of these tools include Mini-Mental State Examination (MMSE)to evaluate general cognitive functions including orientation, registration, attention and calculation, recall, and language., the Edinburgh Feeding Evaluation in Dementia (EdFED) scale, body mass index (BMI) and techniques that take into account such aspects as spillages of food and estimation of food intake. The respondent therefore recommends the use of this nursing process during the future studies related to the topic of this study.

12.0 Conclusion

Addressing malnutrition, eating and drinking difficulties among elderly with dementia require various interventions. Identifying and implementing these interventions in various nursing homes and hospitals is mainly the task of nurses and assistant nurses. Although the patients with dementia may have difficulty in expressing what they want, caregivers may use their professional techniques in order to interpret the patient's desire. the mealtime care should be based on various ethical standards that would preserve patient's dignity, self-determination, integrity and autonomy. Care providers need to be competent enough while providing mealtime care. Special education on caring the patient with dementia should be provided to boost the care provider's competence.

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Appendix 1.

Article	Author and Year	Aim	Design and Methodology	Findings\results
Caregivers' lived experience of assisted feeding	Martinsen, B &Norlyk, A (2012)	To explore caregivers' experience of assisted feeding	Qualitative approach using semi structured interviews of 12 Caregivers with different educational background (nurses and care assistants) were interviewed. Transcriptions of interviews were analyzed using the phenomenological guidelines.	The essence of assisted feeding among caregivers was identified to be a healing activity creating a basis for recovery. The constituents of the essence were as follows: with simulated calmness, with the nutritional aspect in mind, with relatives as source and resource, with work experiences and personal preferences as reference points and with inconsistent reactions to patient behaviors
Ethical aspects of caregivers' experience with persons with dementia at mealtimes	Hammer, L. et al (2016)	To illustrate the meanings within caregivers' experiences of caring for persons with dementia during mealtime situations. We also measured weight and food intake among individuals with	Mixed method including focus group interviews with seven caregivers analyzed using phenomenological hermeneutics. In addition, for nine persons with dementia, weight and food intake were collected and	One theme emerged from interviews (struggling between having the knowledge and not the opportunity), which was built upon three subthemes (being engaged and trying; feeling abandoned and insufficient; being concerned and feeling

		dementia to explain better the phenomenon of caring for them during mealtimes.	descriptive statistics were calculated	guilty). Seven of nine persons with dementia lost a minimum of 1.3 kg of weight and ate a maximum of 49.7% of the food served.
Experiences and nutrition support strategies in dementia care: Lessons from family carers	Ball, L. et al. (2015)	To explore the perceptions of family carers of people with dementia, with emphasis on feeding-related challenges, burden of care attributable to nutrition support, and practical strategies developed to address these challenges.	A descriptive exploratory qualitative study was undertaken using semi structured interviews from a sample of 14 family carers of non-institutionalized individuals with dementia living in Queensland, Australia. Interview transcripts were thematically analyzed using open-coding and triangular analysis.	Family carers described a range of feeding and nutrition challenges experienced, including physiological, cognitive, emotional, functional and/or behavioral challenges. Carers described the strategies they used to address feeding challenges, which sometimes contributed to carer burden. Family carers felt uninformed and unsupported with respect to nutrition-related care by health professionals. Loss of food intake, weight loss and wasting were reported to be sources of considerable anxiety for the family carers. Most family carers reflected

				that their experiences of nutrition care had been difficult and a significant component of overall burden of care. They developed a range of practical strategies to address feeding and nutrition challenges, including supervising mealtimes, avoiding disagreements over food, and providing regular snacks and finger foods
Nursing practice and oral fluid intake of older people with dementia	Ullrich, S. & McCutcheon, H. (2007)	To describe the findings of a descriptive study about what nurses do to ensure that older people with dementia have adequate hydration.	Observational study. Ten care workers and seven residents were observed for the types of behavioral nursing interventions and assistance provided to residents when promoting oral fluid intake. Observational data were compared with resident-care plans to determine whether what was carried out by care workers was consistent with what was being documented	Care workers provided a wide variety of behavioral interventions to the residents when promoting oral fluid intake. The resident-care plans did not sufficiently represent the specific interventions implemented by care workers.
Weight increase	Mamhidir, A.	To follow weight	Over a three-month	The most prominent

| in patients with dementia, and alteration in meal routines and meal environment after integrity promoting care | et al. (2007) | changes in patients with moderate and severe dementia and analyze how these changes related to biological and psychological parameters after staff education and support in integrity promoting care. A further aim was to describe meal environment and routines relative to the intervention. | intervention period, an integrity-promoting care training program was conducted with the staff of a long-term ward. Alzheimer's disease patients, 18 from an intervention ward and 15 from a control ward were included and possible effects were evaluated. Weighing was conducted at the start and after completion of the intervention. Weight changes were analyzed in relation to psychological and biochemical parameters. In addition, the staff wrote diaries about, for example changes made in the environment and in their work | difference observed was weight increases in 13 of 18 patients compared with two of 15 patients in the control ward. No weight changes were related to the type of dementia. The individual weight changes correlated significantly to changes in the intellectual functions. Relationships between weight change, increased motor function and increased appetite were non-significant. There was no significant relationship between weight changes and changes in biochemical |