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Nutrition among older people with dementia

A Literature Review

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Bachelor's thesis
May 2018
Social Services, Health and Sports
Degree Programme in Nursing

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jamk.fi

Description

Author(s)	Type of publication	Date
LI, YIJIAN	Bachelor's thesis	MAY 2018
		Language of publication: ENGLISH
	Number of pages	Permission for web publication: x

Title of publication

Nutrition among older people with dementia

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Degree programme in Nursing

Supervisor(s)

Garbrah, William

Assigned by

Abstract

The Alzheimer's Disease International estimated that year 2015 there are a total number of 46.8 million people afflicted by the dementia syndrome globally. As dementia disease proceeds, malnutrition and eating problems are more noticeable.

The aim of this literature review was to discover the factors contributing to poor nutrition among old people with dementia and how nurses could improve it. The purpose is to present information for nurses to enhance their knowledge regarding nutritional and dietary interventions for older people with dementia.

The author conducted a literature review that identified five articles for inclusion. The results showed that older people with dementia are at a greater risk of becoming malnourished. Caring for the clients with dementia could be a challenge for nurses sometimes, since dementia could influence the activities of daily living. Dementia could make it challenging for the clients to complete everyday tasks and hence, it is vital for nurses to have deep knowledge about dementia and nutrition. In order for nurses to correctly evaluate the nutritional status of the elderly, to make excellent care plans and nursing interventions, nurses need to understand the interaction between nutrition and older people with dementia.

Keywords/tags (subjects)

Dementia- Alzheimer's – Malnutrition- aging- nursing

Miscellaneous (Confidential information)

Contents

1 INTRODUCTION

Dementia usually is a defined as a syndrome, which is progressive and consistently recurring affects every client in several different ways. Dementia will cause the client's incapacity to think, remember. The Alzheimer's Disease International estimated that year 2015 there are a total number of 46.8 million people afflicted by the dementia syndrome globally. Moreover, they also predicted that the number of people worldwide with dementia would almost double every 20 years, to 74.7 million in 2030 and 131.5 million in 2050 (Alzheimer's Disease International, 2015), compares to the World Alzheimer Report 2009, the latest evaluation is 12-13% greater. Furthermore, the World Alzheimer Report 2015 indicates that the total number of new cases of dementia each year worldwide is over 9.9 million, implying one modern example every 3.2 seconds. These further evaluations are almost 30% higher than the annual number of new cases estimated for 2010 in the year 2012 WHO (World Health Organization)/ADI (Alzheimer's Disease International) report, which estimated 7.7 million new cases, implying one recently developed example every 4.2 seconds. In the year 2013, Alzheimer's Disease International also determined that the total number of new cases of dementia each year globally be nearly 7.7 million, meaning that one newly discovered example will appear every four seconds. (Alzheimer's Disease International, 2013)

Malnutrition is also known as a dangerous clinical and public health problem because of the pervasiveness among the elderlies, plus this status is often diagnosed but remains untreated, which can cause the expansion in hospitalization, increase visit to professional and practitioners prolong hospitalization. (Rist *et al*., 2012) Dementia was identified that can bring negative influences on nutritional status, and actively predict time signs of morbidity and mortality amongst the clients with dementia. (Eliopoulus, 1997, Finne-Soveri *et al*., 2010, Keller & Fleury, 2000)

2 DEMENTIA, AGING AND MALNUTRITION

2.1 Dementia

Psychiatric Mental Health Nursing (2009) defined dementia as" Global impairment of cognitive functioning that is increasing and intervenes the social and occupational abilities. " According to WHO (2015), dementia is one of the main reasons that can cause aged people's disability and dependency worldwide. Dementia can affect a person's life in several different ways, which clients can have the symptoms such as becoming forgetful, becoming lost in familiar places even lost at home, having increasing difficulty with communication, needing help with their care also having trouble walking. In most cases, dementia is a progressive and irreversible disorder. (Psychiatric Mental Health Nursing, 2009)

International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) addressed dementia as "syndrome due to disease of the brain." This syndrome is "usually chronic or progressive in nature, in which there is a disruption of multiple higher cortical functions, including memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgment." (World Health Organization, 2015)

2.2 Types of Dementia

There are various types of dementia. Currently, there are many different ways to conclude the forms of dementia. According to Psychiatric Mental Health Nursing (2009), there are two types of dementia, primary or secondary. Primary dementias are those dementias itself is the critical reason that affects the brain and not directly due to any other organic's illness. Secondary dementias mainly are another disease or illness produced dementia, for example like human immunodeficiency virus (HIV) disease or cerebral trauma. Yet, The American National Institute of Neurological Disorders and Stroke (NINDS) and the National Institute on Aging (NIA) are part of the

American National Institutes of Health (NIH), divided dementia into dementia with neurodegenerative disorders and other types dementia. Dementia such as Alzheimer's disease (AD), Frontotemporal disorders (FTD) and Lowy body dementia lead to an ongoing and unrepairable loss of neurons and brain functions, which unfortunately there are no cures for these progressive neurodegenerative disorders now. (National Institutes of Health. 2013)

Alzheimer's Disease

Alzheimer's is a disorder of the brain that causes difficulties with memory, thinking, and behavior. Nerves are disrupting the transmitters which carry messages in the brain, and it destroys brain cells and particularly those responsible for storing memories. (World Health Organization. 2006) To be more systematically, The World Health Organization concluded the manifestations of Alzheimer's disease, generally have three kinds of symptoms: A, B C of Alzheimer's disease. "A" stands for impairment of impairment in Activities of daily living: the clients cannot dress suitably; the ways of personal hygiene can differ. "B" indicates for strange behavior in the clients, for instance, they can be restlessness during the night time, cannot recognize their family members. "C" equivalent to the loss of cognitive functions, the clients can easily get confused with calculations, expressing themselves, making the decisions, and they may also lose the ability to learn new things or completely forget what they have recently learned.

Several causes have described for the syndrome of dementia, but Alzheimer's disease, now referred to as Alzheimer disease, is the most common types of dementia which accounting for 50 to 70 percent of all cases (Alzheimer's Association, 2006), affecting over 40 million people worldwide.

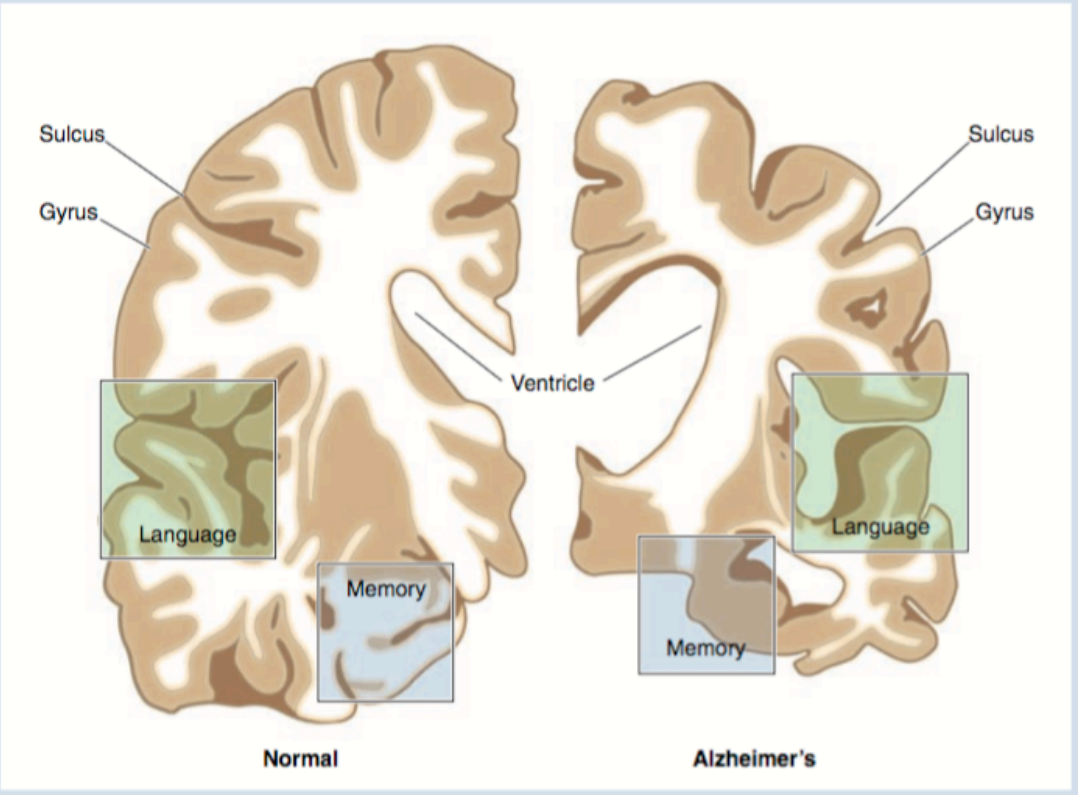

Figure 2. Neurobiology of Alzheimer's disease.

Source: American Health Assistance Foundation, 2005

Vascular Dementia

Another kind of Dementia is Vascular Dementia, which goes up 12-15% of all diagnoses of dementia and has an abrupt onset because heart attacks and strokes cause it. Many specialists think Vascular Dementia the second leading type, after the Alzheimer's disease. In vascular dementia, the cause directly relates to an interruption of blood movement to the brain. (Townsend, 2013) The clinical symptoms of dementia are due to significant cerebrovascular disease, the blood delivery to the brain is cut off and interrupts normal brain's functioning. (Barber, 2011)

The clients suffer the equivalent of small stroked that damage many fields of the brain. The inadequate blood flow such as stroke, hypertension, atrial fibrillation, diabetes can damage and eventually block the vulnerable major brain blood vessels,

cause the vascular cognitive impairment (VCI). The pattern of deficits is changeable, depending on which areas of the brain have been affected. (American Psychiatric Association, 2000)

Vascular Dementia also can occur if the clients have other issues that can damage blood vessels and decrease circulation, dispossess one's brain of necessary oxygen and nutrients. (Mayo Clinic, 2014) A client may have both Vascular Dementia and Alzheimer's Disease at the same moment; this referred to as mixed dementia, Many experts believe the popularity of which is likely to increase often than was previously realized as the group ages. (Langa *et al*., 2004)

Mixed Dementia

Mixed dementia is when the Alzheimer's disease and the Vascular Dementia happen at the very same period. In the most general kind of mixed dementia, the irregular protein securities connected with Alzheimer's disease synchronize with blood vessel problems linked to vascular dementia. Doctors may also call this form "Dementia – multifactorial." (Alzheimer's Association, 2016) In the most general kind of mixed dementia, the irregular protein securities connected with Alzheimer's disease synchronize with blood vessel problems linked to vascular dementia. (Alzheimer's Association, 2016)

Many specialists believed that mixed dementia occurs more often than was previously realized since the popularity of which is likely to increase recently. (Langa et.al, 2004) This theory based on the results of examinations (autopsy studies) from the 141 volunteers in this study, which could explain that over 50 percent of volunteers whose brains have the Alzheimer's also had the evidence of one or more dementias. (Alzheimer's Association, 2016) Recently, researchers also found out that some possibilities of producing mixed dementia develop with age and the age group with people age 85 or older have the most significant chance of having mixed dementia.

Dementia Due to Parkinson's Disease

Parkinson's Disease (PD) is an age-related disorder, progressively deterioration of the central nervous system and loss of function in specific brain cells, resulting the cells not producing enough of the chemical dopamine, which regulates movement. Parkinson's Disease itself does not change one's capacity to think, learn, and remember, however, some of the clients that have Parkinson's disease may develop Parkinson's Dementia, and commonly there is at least 10 to 15 years after acquiring the Parkinson's disease.

Results from the Bourgeois *et al*. study showed that dementia is recognized in as many as 60 percent of clients with Parkinson's disease. The symptoms of Parkinson's Dementia are quite similar to the Alzheimer's Dementia, but typically, Parkinson's Dementia affects problem-solving skills, the speed of thinking, memory and other cognitive functions, as well as mood while Alzheimer's Dementia affects language and memory. (National Parkinson Foundation, 2016)

2.3 Aging

According to Sandra Rodríguez-Rodero, Juan Luis Fernández-Morera and Edelmiro Menéndez-Torr, aging is a complicated process that can describe as a combination of cellular functions that participate in an integrated way in the process of senescence. Aging is known as a progressive decline in physical, mental, and reproductive capacity, as well as an increase in morbidity and mortality. (Rodríguez-Rodero *et al*., 2011) Moreover, according to Matthew P. Janicki, aging is a progressive, anticipatable rule that involves the evolution and maturation of existing organisms.

There are over 900 million people aged 60 years and over living worldwide, increasing life expectancy is contributing to rapid increases in this number, and connected with increased prevalence of chronic diseases like dementia. (Alzheimer's Disease International, 2015) The people with age over 65, the risk of progressing Alzheimer’s

disease or vascular dementia doubles approximately every five years. (Alzheimer's Society, 2017) In some examples, people who had previously been very knowledgeable and sensible started "to behave like kids." However, until the late 19th century, those symptoms were still recognized as a "part of aging."

2.4 Malnutrition

According to Gout *et al*. (2009), malnutrition is a severe, dangerous and weak condition that is quite common in the hospital setting which brings about the adverse outcome of clients' status which includes the growth of complications, increases the risk of infection and extinction. Heretofore, the outline of malnutrition in health care has no general understanding (Lou, Dai, Huang & Yu, 2007). As Wisconsin described in the year 2008: "Malnutrition was defined as a disorder of nutrition resulting from unbalanced, insufficient or excessive diet or impaired absorption, assimilation or use of food."

Malnutrition is a general dilemma in elderly of age 65 and above. The causes of undernutrition include low dietary consumption, digestion, absorption, metabolism, and excretion difficulty and older people, particularly those who have advanced dementia, have a great chance of developing malnutrition and 52% of older people living in the nursing home have dementia while 30-42% has malnutrition. (Amujo and Akpor, 2015) Malnutrition may delay the speed of the patients' recovery and wound healing, make the patients easier to get an infection, pneumonia. Due to the impaired thermoregulation, may lead patients to increase the chances of falling.

2.5 Links between nutrition and dementia

Suominen *et al*. 2004 indicated that the clients inadvertently lost weight who had a low body mass index (BMI) and that the bulimic ones were likely to morbidity and mortality correlated to the clients who were overweight. Malnutrition and troubles

of feeding have been one of the complexities of dementia, but nurses and healthcare assistants have neglected these issues. (Amujo and Akpor, 2015)

The clients with dementia might be incapable to express their thirst and hunger, unable to understand and voice their needs; this could also lead to loss of energy to maintain on doing daily activities of living. (Alzheimer Society of Manitoba, 2014) Since the clients may also suffer from headaches and dizziness, they tend to be at high risk of falling. (Chris, 2008) Hypothermia can lead to the drop in muscle mass and tissue, also aggravates the physical illness. Breathing difficulties could raise the risk of chest infection and respiratory failure. (Dylan & Nadim, 2005; Finne-Soveri, 2012.) Wounds or pressure ulcers take the time to heal, or the healing is especially moderate including the immune system responses slower, that could lead to the fact of having the higher risk of acquiring infections, and result of having extended recovery time from the infection. (NHS Choices, 2009)

3 AIM AND PURPOSE AND RESEARCH QUESTIONS

The aim of this literature review is to discover the factors contributing to poor nutrition among old people with dementia and how nurses could improve it. The purpose is to present information for nurses to enhance their knowledge regarding nutritional and dietary interventions for older people with dementia.

Research question:

“How does dementia influence the nutritional status of old people with dementia and how could nurses help?”

4 METHODOLOGY

4.1 Literature Review

A literature review is an essential analysis method and state based on the recent pieces of literature associating with a research topic, the main idea of which is to serve as reliable evidence for the newly obtained perspicacities. (Polit & Beck, 2012). In year 2007, Shea *et al*. indicated that literature review enables the researchers to furnish clear data for policymakers and healthcare providers. As varies studies conveyed have diverse opinions and resolutions, it is imprecise to heed every finding from the researched field. At first, writers need to formulate questions regarding the subject of interest. Secondly, a prepared strategy needs to implement, to find out relevant works of literature from the previous knowledge, authors usually use the keywords to search manually or electronically databases. All sources should be retrievable and user/reader-friendly in a reasonable time. (Bargaje, 2011)

Later the authors should separate the needed information from the previous studies. While reading the studies, authors should also veraciously critique the readings to find out if the studies have reached to the limitations, which also need to discuss more of it. Then the information gathered is assembled and should be analyzed carefully. Finally, a review of the information gathered from the articles viewed by the authors should be written using the author's terms. (Polit & Beck, 2012) Therefore, literature review helps to compare and contrast various research findings, recommendations and come up with practical and updated conclusions and recommendations. The method helps to review and appraise published and unpublished reviews; peer-reviewed scientific journals, and newsletters. Aveyard contends that a significant amount of data could be put into a manageable size for policymakers when such data reviewed systematically. She also declared that literature review approaches could develop the probability of evidence-based practice (EBP). The reviewed pieces of literature can assist as cases for the nursing practice (Aveyard, 2014).

4.2 Scientific article selection process

All the material was retrieved from the Databases searched included CINAHL, Academic Search Elite (EBSCO), and PUBMED. During the search, Boolean search operators such as AND, OR, NOT were used to find the results of articles that are linked to the subject. The AND combines search terms so that every quest result includes two or more concepts that obliged in the selected articles. The writer used OR term to choose the materials that possess similar meanings or can be alternative to each other. The NOT excludes the terms which writer used to avoid unnecessary objects to appear in the result. (Polit & Beck, 2012) While the writer applied for a literature review, utmost of the secondary information obtained were from the Janet library portal (JAMK University of applied sciences library). Research for the portal was accompanied by nursing articles and databases which were related to the subject under review.

Those keywords that writer used were dementia, malnutrition, seniors or aging, nursing, dementia or Alzheimer's, dementia and nutrition or nutritional. Initially, limited connection to the study topics is one essential inclusion standards. After that, the publications of the articles are from 2007 to 2017. Then, the essays require containing a clear presentation of methods, discoveries, review, and summary the conclusion in the studies. Base on pre-defined inclusion criteria, five articles were included in this study.

Table 1 Inclusion and Exclusion Criteria

Inclusion criteria
Articles that answer the research question
From the year 2007-2017
English language
Full text

4.3 Data Extraction and synthesis of data

The data were analysed by applying content analysis. Content analysis is a commonly using qualitative research technique; it is a method of examining and amalgamating the abstracted data to identify its patterns, regularities, and consistencies. (Polit & Beck, 2012) The contact defined as a research approach which can apply to forming reliable and interference that can be recreated from data to their setting, with the proposed plan of contributing information, brand-new perspicacity, a representation of facts and a possible example to action. It intends to provide a brief and general explanation aspect of the topic. The end output of this article is the written review, which is summarized by the writers' introductions accurately and will combine as a new contribution to that subject. (Elo & Kyngäs, 2008)

The data analysis is usually applied when finding out the sources for the particular research. It can be carried out in two steps: In the first step, the articles collected were downloaded to the computer and printed out, later reviewed by the writer thoroughly, in that case, the writer could get the entire idea of those articles. Later in the second step, the selected articles were connected with each other by the writer and gather the data from those selected articles, having the research question in mind. The writer read the five selected studies for this research through first. The evaluation of appropriateness and connection of the articles completed was in proportion to the research questions.

5 RESULTS

5.1 Knowleadge about factors contribute to malnutrition

Malnutrition is often diagnosed but remains untreated, which can cause the expansion in hospitalization, increase visit to professional and practitioners prolong hospi-

talization. (Rist *et al*., 2012) To treat malnutrition among dementia patients, it is essential for the healthcare providers to have deep knowledge about the many risk factors of dementia, including medical conditions, unhealthy diet, alcohol misuse, smoking, diabetes and other risk factors like depression, vascular and metabolic disorders. While designing nursing care plans, they could use these knowledge based on the clients' personal history to provide adequate nursing interventions. (Sindi *et al*., 2015) People can eat less and make different choices while selecting what kind of food they eat when they get older. Older people prefer to eat more energy-dilute grains, vegetables, and fruits than fast food. Reduced muscle mass may also decrease the daily amount intake of food and beverage (Drewnowski & Evans, 2001). Older people with lower daily food intake has been connected with lower intakes of calcium, iron, zinc, B vitamins and vitamin E. (Drewnowski & Shultz, 2001)

Most dementia clients can have weight loss which can be due to hypermetabolism and neuro-inflammation processes, associated with hormonal disturbances. (Cova *et al*., 2016) According to Cerejeira *et al*. (2002), clients with dementia can have appetite switches, and those differences can be quantitative (anorexia or hyperphagia) or qualitative (choices for particular food or food disturbance). The partiality for sugary sweets is especially prevalent in frontotemporal dementia (Warren *et al*., 2013).

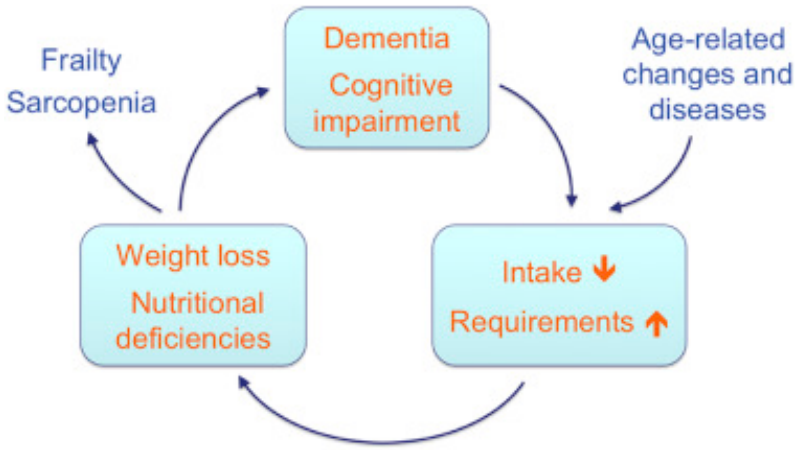

Figure 4. Vicious circle of malnutrition and dementia (ESPEN guidelines on nutrition in dementia, 2015)

Impact of alcohol misuse and smoking on nutrition

A research conducted by Collins *et al.* (2011) showed that smoking status and malnutrition risk in outpatients with COPD (Chronic obstructive pulmonary disease) has been connected, nevertheless, Damião *et al.* (2016) showed that, smokers were also more likely to be at risk of malnutrition than individuals who had never smoked. Meanwhile, M. Rusanen *et al.* (2011) conferred the resulting of smoking in the midlife increased the later risk of developing dementia. Under their studies, they concluded that in this large cohort, heavy smoking in midlife could raise more than 100% increase the risk of dementia, which is a risk for malnutrition.

Long-term heavy alcohol consumption has recognized as a lead to cognitive impairment. Alcohol can intercept the processes of nutrition by affecting digestion, storage, utilization, and excretion of nutrients. After taking the alcohol, the metabolic rate will increase and tissue oxygen consumption will arise, although the parallel will not increase in phosphate bond energy production or anabolic processes demonstrate the poor value of ethanol as an alternative calorie source to carbohydrate, fat or protein. (NIH, 2000)

5.2 The stages of dementia and the related nutritional consequences.

It is not until the later stages that malnutrition leads to be most evident, so dilemmas in the earlier stages may be missed and lead to increased morbidity, if not addressed soon enough. Furthermore, everyone with dementia is different and experiences varying types and degrees of symptoms. Mild cognitive impairment (MCI) in the early stages of dementia may cause people to forget to shop, experience appetite or taste changes with sweet or savory foods, and not realize refrigerated food is moldy. They could also experience psychological changes, where their mood and appetite are linked. (Amujo and Akpor, 2015)

Some clients are more likely to develop some noticeable changes in the middle stage of dementia, such as oral food hoarding, consume something which is not food, which termed ‘pica' or clients have poor concentration and leave the table without finishing the meal. These issues can bring negatively influence on nutritional consumption and result in potential weight loss. (Brook 2014, 24) Brook (op cit, 2014) also concluded that during the late stages of dementia, clients may have severely impaired cognitive and physical functioning. They could lose the ability to recognize the food, forget to ask for food or drink, resisting to eat or being taken care of, spitting out food or medicines from the mouth, taking a long time to eat a meal. Clients could also experience tremors, which can have a negative influence on the ability to use cutlery; consequently, they may need more support at mealtimes, leading to increased energy expenditure and resulting in weight loss.

5.3 Nutritional care and nursing interventions

It is essential to evaluate the nutritional status of the elderly during their care. One of the critical methods that nurses nowadays are using is by checking their weight conditions whether increasing or decreasing, to identify any nutritional problems in the clients. Their health conditions are evaluated and managed by the specialists before advancing on their dietary requirements to decrease the risk of malnutrition in such clients. (Dylan & Nadim, 2005) Furthermore, concerning clients with more fundamental dietary issues, health practitioner use nutrition screening and assessment tools such as BMI (Body mass index) and MNA (Mini nutritional assessment) to assess any risk of malnutrition. The clients can also receive well-balanced meals, even by monitoring whether the clients have the desire to eat or not. The health practitioners can also check on the physical conditions of the clients, like the skin colour, to recognize if there are any changes relating to inadequate nutrition of the clients. The health practitioners also need to master the routine checking of clients' elimination such as urine and stool, which can also reflect and affected by their diet. (Gout S *et al.*, 2009)

Additionally, the clients also need to have regular exercises to keep the proper functioning of their bodies. Most current studies which have used different measurements of cognition, used various lengths of research period with different group of people, have confirmed the concept that physical activity can reduce the risk of dementia. (Chen *et al.*, 2009) Nearly all of the nursing interventions aimed at increasing the daily functional activities of the clients. Care plans may cover the caring of the clients for nutrition, hygiene, and improve the physical activities, along with the cognitive exercises such as play some memory games, watch some old movies and listen to pieces of music that clients used to like. (Nazarko, 2013) To keep having a regular daily routine could also give clients a spirit of engagement, usefulness, and fulfillment while reducing the behaviors like wandering or agitation, which can be great for the caregivers. (Alzheimer's Association, 2017) Typically, those daily routine activities happened every day to create a pattern for the clients. Therefore the daily routine is simple for the clients to comprehend.

Murphy *et al*. (2011) pointed out that nutritional interventions can produce advancements while intaking the food and drink, which may also contribute the opportunity in preventing the possible risks of weight loss, malnutrition and dehydration, also lightening the associated care burden. Moreover, to assure clients feel comfortable, secure and engaged is essential (Osborne, 2014), therefore, to know the life story of each client is also necessary, events and hobbies in their lives, actions that the clients were affected in before dementia developed. Another primary point is the visit of family members, to increase the visits of the family members to clients more regularly, which can reduce the feeling of loneliness and depression. Furthermore, bring their cats or dogs with them while visiting the clients may cause multiple benefits to the clients that including relaxation, reduce impassivity, anxiety, and aggressiveness. (Williams & Jenkins, 2008)

6 DISCUSSION

6.1 Discussion of study findings

In Finland, there are an estimated 200 000 people, with information processing is slightly impaired (Lobo *et al*., 2000) and around 120,000 Finns are suffering from memory-related disorders, of which 7,000-10,000 are working-age population. (Finnish Ministry of Social Affairs and Health, 2013) Furthermore, about 14 500 more people will suffer from memory disorders here in Finland. (Gardner *et al*., 2013) According to Statistics Finland, in 2014, more than 8,100 Finns died of dementia including Alzheimer's Disease. These kind of increasing memory diseases and other progressive memory disorders, can bring significant tension and burden on the public health and impact on the economics of the whole Finland. In 2010, the average cost of home care was EUR 19,000 per person per year. The average expense of 24-hour care was EUR 46,000 per person per year. (Finnish Ministry of Social Affairs and Health, 2013) Although it could be quite challenging, but maintaining good nutritional status and using adequate nursing interventions in promoting and helping clients to function well could contribute a lot.

Health care providers need to have the knowleage about that clients to be able to provide a well-balanced food menu: high in fiber, rich in protein, with the sufficient amount of calories depending on height and body weight. The total quantity of food can be calculated by a dietician, if necessary. Many clients have "sugar craving, " i.e., they love to eat sweet food products. Should use proper nursing interventions so that such clients do not gain weight. The nutrition should take into record other medical disorders which require diet adjustments, such as diabetes or high blood pressure. Contrary to popular belief, liquids are the most dangerous type of food, as these can easily aspirate into the lungs. In this case, soup, which clients are having now as the main dish, is extremely dangerous.The safest diet is a semi-solid item with the consistency of a purée. (For example, mashed potatoes)

Healthy nutritional status, good diet and adequate protein and micronutrient consumptions are vital for the well-being of older people. Nurses' inadequate knowledge regarding nutritional issues may impair the nutritional situation of older people and results in undernutrition of older people. (Jyväkorpi, 2016) Thus, understanding and having the knowledge on how to correctly use the assessment tool is also necessary. For example, Mini Nutritional Assessment (MNA) is designed to identify and detect the nutritional status of the seniors. MNA is a well certified and sensitive scale for the nutritional situation as MNA's results are also efficiently reliable and practical. The results of the MNA have predictive efficacy for the assessment of clients' health outcome, social functioning, the frequency of visits to the medical doctor, as well as the duration of hospital stay, the probability of discharge from a nursing home, which may also contribute to reduce the economic burden of the government. Nurses therefore have to learn how to use such tools to help solve the problem of malnutrition among older people with dementia.

6.2 Ethical Consideration and relaibility

While handling this literature review, legal and ethical issues needed to be considered. According to Wager and Wiffen (2011), while forming a medical evidence-based review, the writer who contributes to it has to make sure the accuracy and impartial of the contents as possible. Nevertheless, Wager and Wiffen (ibid., 2011) also addressed that the writers need to assure to acknowledged the contributors, that potential disagreements of interest are declared, and that the article does not include plagiarized material. While selecting the sources of information, the writer used only scientific journals from EBSCO that were peer-reviewed from trustworthy internet sources, which writer has mentioned earlier in the article. The writer has followed the JAMK University of Applied Sciences guidelines on thesis writing during the entire process of reviewing. Reliability is one of the fundamental principles of any research-based study. The writer has handled this research as specified by the Ethical Principles for JAMK University of Applied Sciences (JAMK, 2013).

In this literature review, by using specific inclusion and exclusion rules guaranteed the reliability; additionally, the writer used sources and academic works that were formulated by experts and applied the data from the scientific databases. The writer used EBSCO database while writing this literature review. The idea of using the included and excluded considerations was to strengthen the reliability of this literature review (Polit & Beck, 2012).

7 Conclusion and Suggestions for development

Health care providers aim to deliver high quality care to the clients. While providing cares to the senior clients with dementia, they have a great obligation during the daily care, health care providers are responsible and liable for the actions that take on clients. Senior clients with dementia have the greater chances of becoming malnourished. (Nazarko, 2013) Caring for the clients with dementia could be a challenge sometimes since dementia could influence the activities of daily living. Dementia could make it challenging for the clients to complete everyday tasks and hence, excellent care plans are demanded in place to form a regular daily routine for the clients. (Alzheimer's Association, 2017)

Nutrition-related dilemmas in dementia can put more stress on the health care providers and somehow become the burden. (Murphy & Barber, 2011) Moreover, this burden may evolve into a cycle that also raises the chance of poor eating behavior (Alagiakrishnan *et al*., 2013) and weight loss. (Chapman, 2011) Volkert D *et al*.'s (2015) research also suggested that we need to focus on the caregivers' nutritional status, they may also need more attention and support on themselves concerning proper nutrition. Resolutions concerning nutritional interventions for clients with dementia should consider potential consequences toward their caregivers as well. (Volkert D *et al*., 2015)

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