

**Qin yuan Yu & Li Zhang**

**SAFE HOME CARE FOR ALZHEIMER'S PATIENTS**

**Thesis**

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| <b>Supervisor</b><br>Maria Björkmark   |                             |   |
| <p>The purpose of the thesis is to reduce the nurses' and care-givers' burden and improving the safety of Alzheimer patients' lives in their own homes. Taking care of them in their own homes and giving the health education to the caregivers. To tell them how to take care of Alzheimer's patients in a safe way. The aim of the thesis is to clarify how to use professional knowledge to support the nurses or caregivers to take care of Alzheimer's patient at their own homes.</p> <p>The thesis was conducted as a literature review. The databases were chosen from different sources, including Cumulative Index to Nursing and Allied Health literature (CINAHL), Ovid, EBRARY, SAGE journals. In the end, 10 articles which were from the recent 12 years were selected.</p> <p>In conclusion, The findings of the study reveal seven nursing interventions which can help the nurses and caregivers to care for Alzheimer's patients safely. These interventions are technical support, home environmental modifications, home-based exercises programme, cognitive function training, health behavior change for caregivers and nutrition. In addition, the implementation of nursing intervention is a further research theme.</p> |                             |   |
| <b>Key words</b><br>Nursing safety, Home care nursing, Alzheimer's disease   |                             |   |

## **ABBREVIATIONS**

|       |  |
|-------|--|
| ASOF  | Alzheimer Society of Finland           |
| BMI   | Body Mass Index                        |
| NPSF  | The National Patient Safety Foundation |
| WHO   | World Health Organization              |
| EBP   | Evidence-Based Practice                |
| CMHNs | Community mental health nurses         |
| TTM   | Trans Theoretical Model                |

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## 1 INTRODUCTION

There are more and more Alzheimer's patients nowadays. The rate of Alzheimer women is higher than that of men, and more importantly, more of the patients are living alone. Based on Muistiliitto, 193,000 people in Finland were diagnosed with memory disorder in 2015. Among them, there are 14,500 Finnish people who have Alzheimer's disease or related disease. (ASOF 2015.)

Home care nursing is a good way to take care of Alzheimer patients, but safety is the concern of nurses and caregivers. Alzheimer's patients are easily to get hurt in their home when they are alone. The number of deaths due to Alzheimer is 93,541 per year worldwide. Solving safety problem should be the first nursing procedure to be implemented in the care list. The nurse or the caregivers should evaluate the home environment first. (Kenneth 2016.)

With the improvement of living quality, most of the countries are experiencing the aging of their populations. Faster increasing in the amount of Alzheimer patients, at the same time it greatly affects patients' careers, lives and social functions, it's one of the factors that affect the quality of the elderly in the later life. Through the diagnosis of Alzheimer's disease, it is a kind of non-communication disease that the nurses need pay attention to. So the main problem is how to take care of the patients in their own homes safely. It mainly depends on nurses and caregivers, even they there are also community hospitals to participate in the home care and take patients to the hospital to attend rehabilitation. Nurses should strengthen support for caregivers and give health education, help patients to establish good living habits and environment. Nurses should pay attention to safe nursing, diet nursing, psychological nursing and cognitive function training, also attention should be paid to Alzheimer's disease prevention and nursing of complications. (Hawkins 2012.)

The purpose of this study is to know find out to improve the home care safety of an Alzheimer's patient, to take care of them in their own homes, and to increase the quality of life of an Alzheimer's patient. At the same time, the authors had working experience in the elderly ward of mental hospital. They saw the bed burden about the Alzheimer patients in the hospital, at the same time, they noticed that home caring service is a good way to transfer the patients from the ward to their own homes. But the living environment for the patient is related to the nursing intervention. So it makes the authors want to conduct this study. The aim of the thesis is to clarify how to use professional knowledge to support the nurses or caregivers to take care of Alzheimer's patient at their own homes.

## **2 THEORETICAL FRAMEWORK**

In this chapter are included the general characteristics of the Alzheimer's disease, the causes, the phenomenon, nursing care, and the nursing safety of the Alzheimer's disease.

### **2.1 Alzheimer's Disease**

Alzheimer's disease is one of the neurological degenerative disease. Alzheimer disease is an integrated mental health disease. The clinical characteristics of Alzheimer's patients are memory impairment, aphasia, disuse, agnosia, spatial skills dysfunction, executive dysfunction, and personality and behavior changing, but the etiology of the Alzheimer is unknown yet. Alzheimer's disease is a type of dementia that causes problems for memory, thinking and behavior. The condition of this disease will be rapidly worsened until patients cannot live independently. Most of the patients are old people. According to the information, there are 47.5 million people who have dementia and there will be 7.7 million new cases every year. And of all those, 60-70 percent of them have Alzheimer disease. The development of Alzheimer's disease has three general stages --- mild (early-stage), moderate (middle-stage), and severe (late-stage). (Alzheimer's Association 2016.)

In the early stage, many patients always forget some simple words, phone number and the address where they usually go. Patients start to forget the material that they just read. Planning and organizing significantly deteriorate at this stage. Meanwhile, patients have difficulties to complete daily tasks. And the patient cannot realize these changes for themselves either. In the middle stage, people forget their own history. People become moody easily when they face social and mental challenges. They cannot say where they are or what day it is. Patients are at great risk of wandering and becoming lost. It is hard for them to choose proper clothing for the season or the occasion. Sometimes, they will be in trouble to control bladder and bowels.



They start sleeping during the day and becoming agitated at night. Their personalities also change, including delusions or compulsive, repetitive behavior like handwringing or tissue shredding. In the late stage, people have difficulty in communicating, they should have daily personal care full day, because patients cannot stand, sit, swallow. Patients can be easily infected with viruses, especially pneumonia infections, especially pneumonia. (Campbell 2007.)

## **2.2 Home care nursing for the elderly**

Home care nursing is used to reduce nurses' burden who are working in the hospital. In recent times, the aging population becomes the key issues of the society, especially in China. Between 2015 and 2050, the proportion of the global population which is over 60 years will double from 12% to 22%. Predicting by 2050, there will be almost 120 million living alone. (WHO 2015.) This means that the large elderly population has greatly increased the demand for basic medical care. In Finland, home care is one of the services which is organized by the municipalities for the elderly to make their lives easier, and it is a good way to enable them to live in their own homes for as long as possible. Home services, home nursing and support services are the three parts for Home care nursing in Finland. Home services are washing, dressing oneself and feeding. Rehabilitation is the main part for home nursing. In addition to this, support services will be more focused on standard living, such as meal, cleaning, shopping, security and transport services. As a nurse, how to effectively support the elderly to live, and improve the quality of life is very important thing to think about. (Infopankki 2017.)

Home care is supportive care service provided in the homes for patients with special needs. But actually, the concepts of home care are not unifying in the world. Some of the carers involved are going to patients' homes to give them some health education or some implement nursing care, maybe just health home care. Some of them are using the nursing process to

provide professional nursing service to the entire family of people who are at different health levels. It can improve the health level in the whole family. The others think home care should have a distinction between about professional and non-professional. But any way we think home care is a good way to improve our long-term quality care. (WHO 2015.)

### **2.3 Nursing safety**

Safe nursing is referring to the nurse or care givers in nursing intervention, the nurse will strictly follow the nursing system and operational procedures. They must execute the doctor's orders and the nursing plan correctly, ensuring the safety of patients in the treatment and their physical and mental rehabilitation. Alzheimer patients are easy to get hurt in their home when they are live alone. Safety in every sector of society should be the valid field. For the World Health Organization (WHO) and its Member States, universal health coverage has become a priority goal, and safe primary care is essential towards meeting that goal. The WHO Patient Safety Program has established the "Safer Primary Care" project. The goal of this project has three main points: risks to patient in primary care, the preventable harm in unsafe practices and safe mechanisms to protect primary care patients. So now security issues are socially valid. (WHO 2016.)

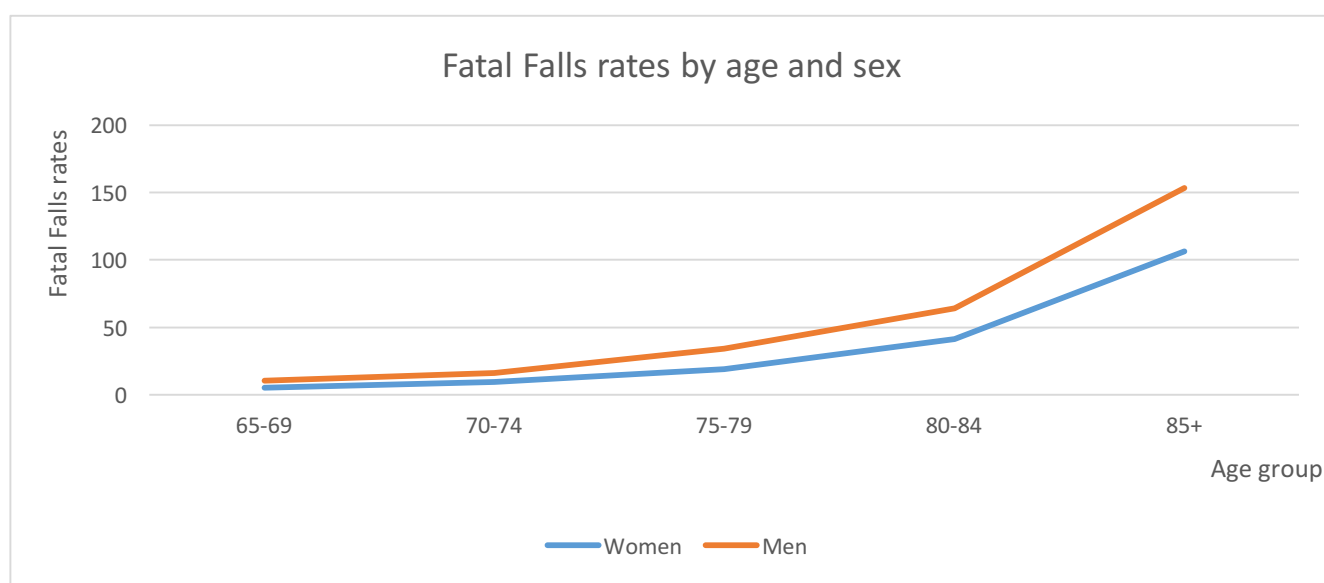
Most of the patients with Alzheimer's disease are elderly persons. From the WHO, "Fall down" is the major problem which is the leading cause of accidental or unintentional injury deaths in the world. Adults who are older than 65 suffer the greatest number of fatal falls. For these patients, the average health system costs 3611 dollars with each falling injury in Finland. Home care for Alzheimer's patient can improve their quality of life, thus prevention is an important part when the nurse helps patient at home. Nurse cannot create more problems before they fix the first problem. In the late stage of Alzheimer's patients, they not only forgot everything they

had remembered but also their basic physical skill have changed or decreased. They are easy to fall down, easy to get angry and do some drastic actions. Nurse should evaluate the environment, pay more attention to daily life. At this stage, the patient's disease lose their sense of direction. So nurse cannot expect the patient to be without care one day. As nurses, they should distinct what their responsibility is for this kind of patients. And to keep vigilance goes a long way to keeping your loved one and others safe. (Campbell 2007.)

## 2.4 Falls

Falling down in patient's house is a big problem when they are living alone. Falls can also happen in every citizen's daily life even among the powerful teenagers because of the mindlessness. Alzheimer's has physical symptoms, as well as cognitive symptoms. They will lose their sense of balance. They will get muscle tremors, and that tends to lead people to being less and less mobile. They get scared to walk around. They get scared to move. So falling down is easier to happen to the elderly especially to the patient who has Alzheimer disease. (Kalache 2016.)

Table: The falling rates by age and sex in U.S.A.



Source: National Council on Ageing, 2005.

From the table, it is shown that men are at high risk of falling down at home. But the women are not low either. So the nurse must pay attention to on the falls problem. Nurse must put the safe nursing care on the top of the nursing care plan. It is one of the any details that in the home care should be considered. The cause of the falls and potential risk factors have a close relationship. This factor directly or indirectly affect their well-being of daily life. These are divided into four factors: biological, behavioral, environmental and social economic factors. (Kalache 2016.)

#### **2.4.1 Biological reasons**

The characteristics of the biological factors are associated with each patient's physical quality. It is totally different from all other patients physical quality. For example, age, gender and race (religion) is not possible to be changed. In addition to these basic physical qualities, the body and physical atatus is declining and also cognitive awareness, the sense perception and emotion of the patient are going down, too. Also it's related to acute disease or chronic disease in the body. The plummeting of physical quality combines the interaction of the physical factors, for example, reduced muscle strength will cause the body to produce weakness. So it will increase risk of Alzheimer patients with falls. (Kalache 2016.)

#### **2.4.2 Behavioral reasons**

Behavior also can be called personal habits. The risk factors include in the patient's daily life behavior, emotional behavior or hobbies behavior. These habits can be modified in their daily

life. For example, In taking excessive smoking, using a variety of drugs or drug abuse, excessive drinking, sitting in one place for too long time and not to do any physical activities. These habits can be changed by nursing intervention. (Kalache 2016.)

### **2.4.3 Environmental reasons**

Alzheimer disease patient's living environment can affect both their physical health and mental health. The environment is including apartment and public environment. Environment factors are not the high-risk factors for the disease. But the interaction between environmental factors and other factors will produce the bad results. Apartment environment includes the narrow steps, the stairs which are easy to slide down, the edge of the carpet already rolled up and lack of light in the room. Surrounding environment is including architectural design, the road is too slippery, there are cracks or uneven pavement. These are belonging to the living environment for Alzheimer disease patients. Nurse should evaluate the living environment of the Alzheimer disease patients, it is not only in the apartment, but also surrounding facilities/places, those which the Alzheimer disease patients are able to access. (Kalache 2016.)

### **2.4.4 Economically related reasons**

Economical factors also influence the falls. Why is that? Because if the Alzheimer patient's living environment and social environment are without the social or individual economic support, the family or social and public facilities cannot be updated successfully. Nowadays, to solve the social economical problem is a big challenge. These factors include: lack of income, lack of education, insufficient housing, lack of daily social interaction. Health and social care will be limited. Especially those countryside villages and towns which are in remote regions of the country. It also includes the lack of community resources. (Kalache 2016.)

### **3 RESEARCH OBJECTIVES, PURPOSE AND QUESTION**

The aim of the thesis is to clarify how to use professional knowledge to support the nurses or caregivers to take care of Alzheimer's patient at their own homes. The purpose of the thesis is to reduce the nurses' and caregivers' burden and improving the safety of Alzheimer patient's life in his/her own home. Taking care of them in their own homes and give the health education to the caregivers. To tell them how to take care of Alzheimer's patients in a safe way.

The research question is:

1. What are the interventions of nurses or caregivers to safely take care of Alzheimer's patients in their own homes?

## **4 METHODOLOGY**

In this part, the authors will make an introduction of how objectives will be achieved. This chapter focus on the literature review, data collection and data analysis.

### **4.1 Literature review**

A literature review is a distinctive form of research. It uses existing literature to create new knowledge. A literature review can be just a simple summary of the sources, but it usually has an organizational pattern and combines both summary and synthesis. An objective and critical analyses of the relevant literature on the topic under review. It cannot be confused with a book review. A literature review surveys scholarly articles, books and other sources relevant to a particular issue, area of the research or theory, providing a description, summary, and critical evaluation of each work. There are two goals of literature review, one is critically analyzing the literature, arranging the sometimes conflicting perspectives from the literature. Another is identifying central issues or methodological problems in existing literature. (Smith 2016.)

From different activities, Literature reviews provide a method of synthesizing the result from the different surveys. As the nursing professionals, the thesis need to embrace evidence-based practice (EBP). First is currently the aim of research. The second is understanding and knowing differences of these activities. Then choosing the appropriate result which can be the current answer for the report. (Smith 2016.)

## 4.2 Data collection

The thesis was conducted as a literature review. Following the research question: What are the interventions of nurses or caregivers to safely take care of Alzheimer's patients in their own homes? Hence, the authors' inclusion criteria are to use the keywords "safety nursing", "home care nursing" and "Alzheimer's disease" to search the article and some journals. The articles were chosen from different databases, including Cumulative Index to Nursing and Allied Health literature (CINAHL), Ovid, EBRARY, SAGE journals. The time frame of the articles was limited from 2005 to 2017. Except the limited time and keywords, the following articles should be the main focus:

The articles were screened in full text.

The articles were written in English language.

The articles were based on evidences.

The articles were connected to nursing care

The articles were related to Alzheimer patients' present situation.

The authors chose the articles by using exclusion method. (Taket 2010.) The authors used keywords to find the research answer and also read the introduction of each article after typing the key words into the search box. Though the Cinahl, nine articles were chosen to be the searching results, and three articles from it were used. The authors' exclusion criterium was that some of them cannot be opened to a full text. From SAGE journals only five articles were used from the 583 which were searched. Furthermore the authors' exclusion criterium was that there were too many articles are focusing on the Alzheimer disease but not in safe home care. And also there were too many articles talking about the situation in America area or some other areas. This thesis is focusing on the safe home care of Alzheimer disease so the authors took



only five of them. The last one is Ovid, the authors took only one suitable article as the result answer. The reason is the same as that SAGE journals. In the end the authors chose ten scientific articles from databases to use in the research answer. (Taket 2010.)

TABLE 1. Search for articles from scientific databases using Boolean's apparatus.

| Keywords  | OVID | CINAHL | SAGE journals |
|---|------|--------|---------------|
| Alzheimer's disease                                       | 25   | 2675   | 8636          |
| safety nursing  | 1391 | 374    | 15215         |
| home care nursing   | 3305 | 731    | 24334         |
| Alzheimer's disease and safety nursing                    | 1368 | 1      | 699           |
| Alzheimer's disease and home care nursing                 | 623  | 9      | 1770          |
| Alzheimer's disease, safety nursing and home care nursing | 455  | 0      | 583           |

### 4.3 Data analysis

Data analysis is the process of evaluating data using analytical and logical reasoning to examine each component of the database. The authors found a lot of data from this website to help them find the situations where the nurses were dealing with the safety home care for Alzheimer's patient. The authors analyzed every article and summarized them, then compared these sentences with the articles which already had been searched. At last, the different and

useful pieces of information were combined into the result. The answer to our research questions can let us learn the knowledge in an European country. The research question needed basic data to analyze the phenomenon of safety home care. (Taket 2010.)

It is important to study the data or information which has been obtained and then group it in a good position. One should be careful to read every database, articles, journals, and compare them. The keywords: Safe home care, Alzheimer's patients, nursing safe, home care nursing.

Table: Summary of the articles, this is put as Appendix 1.

## **5 RESULTS**

Nowadays an increasing number of elderly people is suffering from Alzheimer. What are the interventions of nurses or care givers to safely take care of Alzheimer's patient in their own homes?

First of all, nurses should notice that many safety issues have been documented in home care for Alzheimer's patients. They need to identify safety issues and solve them. Among the Alzheimer's patients, the main issues about home safety include wandering, falls, and fires (burns). Furthermore, other safety concerns also exist, such as injuring themselves by sharp objects, side effects from wrong medications and choking or swallowing. (Chang 2007.) The authors suppose that these problems need to be solved. By searching the articles, we found seven different themes to answer our research question: technique supporting, home environmental modifications, changing activity, cognitive function training, health behavior change for caregivers, supporting of caregivers and nutrition.

### **5.1 Technical support**

Technical support is a type of supervision. For instance, installing an monitor at home is an effective way of keeping an eye on the patients. Caregivers or nurses are not able to be with patients the whole day. Formal and informal caregivers often worry about the safety of the Alzheimer's patients who live alone. Technical support does help a lot in home care delivery such as the security systems, safety alarm(in Finland) and personal emergency response systems (Hallberg, Cabrera, Jolley, Raamat, Verbeek, Soto, Stolt, Karlsson 2014.) It is recommended that caregivers should install a kind of camera in patient's house to monitor and supervise their daily lives, especially for those patients living alone. After installing this a kind of

“eye”, if some emergencies happen, the nurse can receive an email from that small machine. It can contact the emergency ward in the central hospital as well, which can reduce the risk of being injured to some extent. (Lexis, Everink, Spreeuwenberg, Willems & Witte 2013.)

### **5.1.1 Quiet-Care System**

The study is to research the potential factors that threaten the person suffering from the disease through investigating the effects on patients of the “Quiet-Care” used by caregivers or nurses. The “Quiet-Care” is a technological system which can monitor the activities of people who live alone. This system was developed in USA in 1993, which uses five infrared motion sensors and can be placed anywhere in the patient’s house. The sensors can get the daily activities’ information including wake-up time, overnight bathroom use, meal preparation, possible falling or wandering at night, and the general amount of activity of the individual. When the system recognizes an unsafe or abnormal situation from the patients which deviates from the usual daily pattern, it will lead to a yellow or red alert. All the information can be sent to the informal caregivers. Yellow alert represents non-emergency, which means the caregivers or nurses will receive an E-mail from the system which enables them to help. On the other hand, red alerts stand for emergent situation. It will contact the emergency center and inform formal caregivers to take immediate actions. The result of this study shows that informal caregivers bear less burden, and formal caregivers can provide patients with the more personalized and tailored care through the Quiet-Care system. So activity monitoring is an effective technology for the Alzheimer’s to live longer. There are a lot of similar systems in Finland already. (Lexis 2013.)

### **5.1.2 In-home Video Monitoring**

Another feasibility study illustrates the in-home monitoring support for the caregivers, which is from the clinical nursing research journal. The study explored feasibility of in-home support monitoring for the caregivers or nurses. The researchers use in-home video recording and give feedback to the caregivers. The in-home monitor can also reduce their burden. The caregivers can trigger the recording via a control button, and then the video can be automatically recorded and sent to the information team. After their professional analysis, it is found that recording is valuable and helpful. The recording can help to identify latent period and premonitor symptoms from the patients and evaluate whether caregivers' health intervention is reasonable or not. The caregivers reflect that recording will also improve the communication and behavior management. (Williams, Arthur, Niedens, Moushey & Hutfles 2012.)

### **5.2 Home environmental modifications**

Changing the home environment is also important. Most elderly patients live alone in messy houses without daily cleaning. For instance, there may be some sharp objects on the floor, which will definitely increase the risk of getting injured. Moreover, the elderly people are generally economical. They tend not to switch on the light in order to save the electric charge. This is one of the potential reasons which leads to an accident at home. To solve these problems, a home safety toolkit for Alzheimer's patients is a brand-new educational intervention and mechanism for nurses to raise their awareness. With this kind of training, they can bring about a safer home environment to patients. Nurse can share the home safety knowledge with the caregivers/family members, remind them of the dangerous situation which may occur, and introduce all the tools in the toolkit such as motion sensor with battery, smoke alarm, medicine case, surge protector, rubber bathmat, grab bar, stove knob covers, and nightlights. The home safety toolkit can prohibit the patients from getting injured and improve the safety at home.

According to the health literature, the toolkit helps dementia patients build a sense of independence, and they can take care of themselves proactively. It is also easy for caregivers to deal with those severe and recurrent emergencies.(Viitanen & Horvath 2013.)

Sometimes, the Alzheimer's patients cannot move freely and rapidly. They often feel exhausted when they move from one place to another. In order to tackle with the problem, changing the living environment is one of the solutions. For example, nurses can offer them a special bed with the safety bed-rail which can be automatically elevated or lowered. This kind of bed has already been widely used in the hospitals in Finland. (Viitanen & Horvath 2013.)

### **5.3 Home-based exercises programme**

One way of ensuring the safety of Alzheimer's patients is through home-based exercise programmes. This has been highlighted in Clinical Rehabilitation Journals. Through these programmes, An Alzheimer's patient can improve their balance and mobility performance, thereby reducing their risks of falling and/or injuring themselves.(Suttanon & Hill & Williams & Byrne 2012.)

The researchers chose four people with mild to moderate Alzheimer's disease. They were randomly separated into two groups. One group was named "home based individual programme", in which a physiotherapist tailored balance, strengthening and walking exercises. The other group was named "home based educational programme". An occupational therapist gave professional information to teach and encourage the people. Both of the programmes lasted six months. The result of study was that the individual group had an obviously greater proportion of poorer mobility, falling, balance and lower physical activity level. (Suttanon & Hill & Williams & Byrne 2012.) For the individual group, the physiotherapist followed the 'Otago Program' to

prevent falls among the elderly. This is an exercise programme for home-based, individually tailored strength and balance retraining. Each Participant got an exercise booklet, it also really pushes them to do the exercise five times a week. (Campbell 2007.)

#### **5.4 Cognitive function training**

Nurse should pay attention to the mental discipline of Alzheimer's patient, they need to exercise their brain in order to delay the brain from aging. For patients with mild Alzheimer disease, usually caregivers can adopt memory, calculation and directional forces training. It can slow down the progress of the disease and promote the quality of life. Patients should be encouraged to participate in some activities such as walking, boxing, reading newspapers and listening to music. Nurses also need to encourage them to do some educational games and accompany with them in completing household chores within the scope of their ability, to help the patients enjoy the natural environment, maintain the original interests and have a positive life attitude, doing the memory training regularly and helping the patients get back their memories. Taking out a patient's favorite objects as a prop or using their familiar music and dancing can help them to recall some memories, to understand the current social events, training date, time, seasons, room and realistic environment. For those things which are easy to forget or often go wrong, the nurse can design a scenario "sign" to help them remember. For some different events in daily life, the method of classification management arrangements can be effectively used. Playing chess or playing poker is also effective for cognitive function exercise as it makes the patient's brain reflect constantly. Therefore, this training is recommended to reduce mild cognitive function conversion in Alzheimer's disease. (Amarilis 2007.)

## 5.5 Health behavior changes for caregivers

For each stage of Alzheimer's disease, behavioral change is the big and important part which is faced by informal caregivers, and it could bring plenty of safety issues. Previous research shows that the Alzheimer's informal caregivers are not concerned consciously of the relationship between behavior change and safety issues. This is based on one research named "Needs assessments of memory disorder patients". This study determined the psycho-social needs of clients and their caregivers. The survey conducted is through a one-page needs assessment to address the potential concern for the caregivers. One of the question discusses safety concern, 10.8% of the participants had safety concerns, and 76.5% felt that the safety was not an issue. (Bowen 2014.)

A number of the safety issues have been documented about home care for the Alzheimer's, including wandering, driving, falling and fires. Managing safety issues and exploring the application of the trans theoretical model for health behaviors change (TTM) is a good direction to improve and developing safety care. With the TTM, nurses can identify the stages of Alzheimer's, and then adopt actions to avoid some accidents or injury consistency. It can also be applied to education or training for the caregivers. The initial idea of the TTM is that a behaviors change with the passage of time. The clinical process to establish a new behavior is including five stages: **a)** precontemplation (not thinking about changing), **b)** contemplation (considering a change), **c)** preparation (taking steps toward action), **d)** action (making the change), and **e)** maintenance (sustaining a change). For example, if the caregiver is in the early stage, then health professionals can give more education to explain why the patient need to change the behaviors, and also show them the benefit of the behavior change. However, we still need to have more additional research about how to apply the TTM more effectively to the care-giving situation. (Chang & Lach 2007.)



## 5.6 Nutrition

Diet is closely related to factors and the high aging Alzheimer's patients. Due to the high aging and their physical disease, patients usually cannot eat on their own initiative. The nurse intervention is to encourage that patient to eat by himself. This should be carried out on the patients with mild or moderate Alzheimer's disease, and this training should be done repeatedly. Thus, the patient has greater control and is able to prevent choking or having food reflux.. For patients with severe Alzheimer's, they have difficulty with swallowing,. It is important to ensure that they are in a safe position when feeding or feeding food through the Nasogastric tube. It is also important to pay attention to the speed, temperature and amount of food,. so as to avoid choking and suffocation. The meals should be served regularly, three times per day, and the quantity of the meals should be reasonable. The patient's diet should be easy to digest and nutritious so as to ensure that the patient has sufficient protein and vitamins in the body. Adhering to the principle of diet is to keep sufficient nutrition, high protein, low fat, low salt, high vitamin. "More meals, less food" is a good rule to follow. Nutritional collocation need to reasonable, to avoid smoking, drinking, cold, spicy and greasy food. (Blades 2015.)

## **6 DISCUSSION AND CONCLUSION**

This chapter discusses the findings of the studies from the literature reviews, methodological considerations and limitations, and ethic consideration. This chapter also discusses the implications of the study to nursing and to the learning process.

### **Methodological Considerations**

This thesis was conducted as a literature review. All the databases were chosen from different sources, including Cumulative Index to Nursing and Allied Health literature (CINAHL), Ovid, EBRARY, SAGE journals. These resources were valuable and reliable in the health care field. Furthermore, some articles were also used by many valuable national websites, including World Health Organization (WHO) and The National Patient Safety Foundation. All of the articles were limited to the time period from 2005 to 2017 in English, so the results were the latest research in this field. The principal limitation is the number and quantity of the databases.

### **Ethic consideration**

Ethical consideration is relating to privacy, intellectual property, security and skills. It is the most important part of the thesis. The author of the research should be respectful, honest, and correct. The thesis should avoid unacceptable words and be ethically balanced. It is prohibited to collect illegal sentences. The interests of individuals and society must be ensured, the use of harmful language is prohibited, and social harmony is maintained, so that the thesis and research questions can help the readers to understand the real situation for the health care field. The authors must seek reference from scientific journals and avoid using references from personal blogs, internet forums or to think it by oneself. The role of the thesis and the writing

process were followed by Centria University of Applied Sciences guidelines for Academic writing. (Bryman 2007.)

### **Discussion on Findings**

Home care safety is an important part for Alzheimer's patients. The purpose of this study is reducing the burden of the nurses or caregivers and to improve the quality of the Alzheimer's patients life. A number of articles are discussing the problem in Finland, however, this study is searching the situation in the world. All the literature review is written in English. Moreover, this study identifies the safety problem Alzheimer's patients have when they live alone. The aim of the study was to find out how nurses or caregivers should help patients' safely in their own homes. This study summarises six interventions for nurses or caregivers: technical support, home environmental modifications, home based exercises programme, cognitive function training, health behavior change and nutrition.

The nursing intervention is from all over the world but there are still some issues when carried out. For the Quiet Care system, only a limited number of clients were supported by it. It is expected that the effects and value of the system may increase, once a more widespread use has been established. On the other hand, the cost will be high. Furthermore, the study about In-home Video Monitoring can improve the caregivers' management, but there are some issues about internet transfer, storage of health information and computer security.

A large number of research articles focused on communication with the Alzheimer's patient or observing the activity of the patient. Further research could focus on the implementation of nursing intervention for taking care of the patients safely.

### **Implication of the Study to the Learning Process**

The thesis writing process is an insight learning process for the authors. This study was carried out by two researchers because both of authors are interested in Alzheimer's disease. Additionally, one of the authors had one year working experience in the Shanghai Mental Health Center, it helped the research development. Each of the authors fulfilled the task of searching for scientific materials, and they also discussed how to achieve the study goals together.

The thesis planning took approximately two months, followed by the implementation of data collection and writing theoretical framework of the thesis which took two months. and finally the data analysis, writing the results and discussion on finding which took approximately three months.

One of the challenges involved in the research of scientific materials is that the authors found the topic "Alzheimer's" to have been widely studied so the authors focused on the home-care safety to search the exact scientific sources in the end. Additionally, the whole process taught the authors the importance of communication in the teamwork and respect for all the science materials. The researching study process taught the authors more professional and useful medical knowledge, time management, and implementation of health care in the future. Consequently, the learning process for the thesis is a considerable necessity for the medical students to embrace and face with the technological foundation and development.

## **CONCLUSION**

This study searched and discussed how to use professional knowledge to safely support Alzheimer's patients in their own homes. The purpose was to reduce the nurse's burden and to improve the quality of the Alzheimer's patients' life. The findings of the study showed seven nursing interventions which could help the nurses and caregivers care for the Alzheimer's patients safely which were; nursing safety, including technical support, home environmental modifications, home based exercises programme, cognitive function training, health behavior change for caregivers and nutrition. The findings of this research revealed that it was important to research the development of home care safety for Alzheimer's patients. In addition, the implementation of nursing intervention is a further research topic.

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## Appendix 1

Table: Summary of the articles

| Author/Journal year  | Article name  | Content and results of article   |
|--|---|--|
| Chang, Y, P. Lach, H, W. 2007. Western Journal of Nursing Research.                          | Caregiver Perspectives on Safety in Home Dementia Care                  | This article, shows the experience of the caregivers how to manage the safety care with dementia people.                 |
| Williams, K. Arthur, A. Niedens, M. Moushey, L. Hutfles, L. 2012. Clinical Nursing Research. | In-Home Monitoring Support for Dementia Caregivers: A Feasibility Study | In this article, it shows that the telehealth technology could help the caregivers to monitor the patient in their home. |
| Blades, M. 2015. Perspectives in Public Health.  | Diet and Alzheimer's disease  | The article shows that nutrition is related to patients' health and disease. Patients need to change their diet.         |

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| <p>Acevedo, A. Loewenstein, D, A. 2007. Journal of Geriatric Psychiatry and Neurology.</p>  | <p>Non-pharmacological Cognitive Interventions in Aging and Dementia</p>   | <p>The article shows that cognitive training can increase the memory and speed of processing of the patient. It introduces some methods how to help the patient do the cognitive training in his home.</p>                                    |
| <p>Lexis, M. Everink, I. Spreeuwenberg, M. Willems, C. 2013. Technology and Disability.</p> | <p>Activity monitoring technology to support homecare delivery to frail and psychogeriatric elderly persons living at home alone</p> | <p>This article shows that there are many new technology methods to support nurse and caregivers to monitor patients' life in their homes. It's not limited in basic nursing implement.</p>   |
| <p>Bowen, B, S. 2014. American Journal of Alzheimer's Disease and Other Dementias,</p>      | <p>Needs Assessments of Memory Disorder Patients</p>   | <p>The article shows that they have researched the needs of memory disorder patients and help them to complete these needs successfully. It can not only improve the quality of their lives but also reduce nurses or caregiver's burden.</p> |

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| <p>Viitanen, M. Horvath, K. 2013. International Journal of Alzheimer's Disease.</p>         | <p>Clinical Trial of a Home Safety Toolkit for Alzheimer's Disease</p>   | <p>This article is talking about a new self-directed educational intervention, which has been named "Home Safety Toolkit", it can improve the caregivers to give a safer environment for the Alzheimer's.</p> |
| <p>Leven, N, V. Lange, J, D. 2016. Sage Journals.</p>                                       | <p>How do activating interventions fit the personal needs, characteristics and preferences of people with dementia living in the community and their informal caregivers?</p>              | <p>This study shows that three multiple-components (the pleasant events program, the exercise and support intervention) can contribute to more person-centred intervention.</p>                               |
| <p>Suttanon, P. Hill, K, D. Williams, S, B. Byrne, K, N. 2012. Clinical Rehabilitation.</p> | <p>Feasibility, safety and preliminary evidence of the effectiveness of a home-based exercise programme for older people with Alzheimer's disease: a pilot randomized controlled trial</p> | <p>The exercise programme can improve the older people balance and reduce falls risk. It is feasibility and safety.</p>   |

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| <p>Hallberg, I, R. Cabrera, E. Jolley, D. Raamat, K. Verbeek, H. Soto, M. Stolt, M. Karlsson, S. 2014. Sage Journals.</p> | <p>Professional care providers in dementia care in eight European countries; their training and involvement in early dementia stage and in home care</p> | <p>This article shows that there are registered nurses specialized in Alzheimer patients' disease in Finland. There are also safety alarms provided in patients' home in Finland.</p> |
|---|--|---|