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NURSES’ ROLES IN PREVENTING FALLS IN ELDERLY CARE SETTING

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The purpose of the thesis was to describe the main causes of falls and nurses’ roles in preventing falls in elderly care by systematic literature review. The results of research could be used to develop nurses’ awareness to improve safe moving of elderly patients.

The literature review was identified with the use of computer databases from CINAHL, OVID, EBRARY, and Science Direct. Furthermore, these articles were also searched for from some valuable national web sites. Overall 50 relevant articles were analyzed with content analysis. The time range of the articles was limited from 2000 to 2010.

In conclusion, the risk factors of falls can be classified to physical, cognitive and environmental causes. These kinds of physical and psychological disorders could affect the brain and leg supporting of the old people and the causes leading to the elderly’s falls to the ground. Nurses’ roles in preventing falls were the evaluation of the older people before falling down, setting guidelines of prevention programme, administration of special medicines and the management of the elderly’s living environment. More studies were needed about developing the limited relationship among the falling causes, such as parathyroid hormone, bladder and bowel incontinence and pain. It was quite essential to know about the mechanism and principles of leading falls in the elderly.
<table>
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<th>ABBREVIATION</th>
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<tr>
<td>CINAHL</td>
<td>Cumulative Index to Nursing and Allied Health literature</td>
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<td>Ebrary</td>
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<td>BMI</td>
<td>Body Max Index</td>
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<td>NPSF</td>
<td>The National Patient Safety Foundation</td>
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<td>Ovid</td>
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1 INTRODUCTION

In this thesis, the purpose was to describe the issues to help the nurse consider the safe moving of the elderly. Furthermore, the thesis leads to the nurses’ awareness to improve safe moving of elderly patients.

With the development of the society, the number of the population in the world is increasing rapidly nowadays. This phenomenon has led the significant problem of the whole world. Furthermore, it also becomes one of the huge challenges for us in the 21st century. (Elderly 2010.) According to the main population statistics and hypothesis, it was showed that the number of the population among the whole Europe had reached to 822 million in 2008 (Lanzieri 2008).

Lanzieri (2008) stated that comparing with the population in 2007, it had grown about 2.9 million people per year. The growing rate was 3.5% during one year. According to the survey, in 2009 among the 15 European countries, it was indicated that the number of the people who aged over 65 were increased from 48.4% in 1999 to 50.3% in 2008 (Sanco 2009). It was stated from the European Communities reports in 2009 that the elderly population (65 and above) occupied of total population was 18% among the 27 countries of Europe in 2009. The researchers underwent the first part of a macroeconomic assumption. The results were concluded that the occupied number in the total population were 19.4%, 20.8%, 24.5%, 28.1%, and 30.2% in 2015, 2020, 2030, 2040, and 2060. (European Communities 2009.)

At the same time, the prolonging of age led to the problem of the society. Obviously, it affected the economy especially the pension system and welfare system. It also raised the requirement of the health care system and increased the load of social beneficial. (Shaw 2002.) The quality of health care in the limited health care system needs to meet the requirement of elderly with a comfortable life under the smaller labor force. (Elderly 2010.)

European Communities exclaimed a report in 2009, which indicated that the
government invested the fund to health care from 6.7% in 2007 to 9.1% in 2060. It was increased 2.4% during 53 years. One special project was invested to fund the ageing health care from 6.7% in 2007 to 8.1% in 2060 among the health care. (European Communities 2009.) It raised 1.4% during 53 years. This tendency of increase was extremely obvious.

To the public health, falls were regarded as a major cause of not only morbidity but also mortality in the elderly. According to the recent investigation, it was mentioned that almost one third old people (aged over 65) fell down every year and more than half elderly fell at least once in a year. (Jensen 2002) It was more serious for the elderly with falling history to experience disability and dysfunction, loss of confidence and decreased living quality (Akyol 2007).

The nurses have roles and responsibilities of improving primary care services, evidenced-based practice and contributing to prevention and advanced management of chronic disease (Price 2007). Nurses need higher quality and advanced knowledge in elderly care. It is necessary for the nurses to expand their range of practice in new area of elderly care. (Mellor 2007.)

The total question of this thesis was the factors that nurses had to consider for ensuring safe moving of the elderly, and it was studied in this research that different kinds of good nursing practices that could contribute to increase positive outcomes in elderly care. The thesis described and explored the issues which were necessary for a nurse to consider the safe moving of the elderly care.
2 THEORETICAL BACKGROUND

2.1 The phenomenon of the elderly people in the world

The definition for "old people" was defined as "an individual aged 65 or above." The population of the old people above 65 years old in the world will increase more than three times until 2050. (Barrett 2004.)

The definition for "frail" was defined by Barrett (2004) that "frail people were those who were unable to look after themselves easily due to illness, disability or lack of strength." At the same time, it was also mentioned that people who were above 65 years had higher risks to be frail with the low and limited ability. It was one of the most differences between the old people and young people.

According to the research, it was concluded that quite old people (80 and over) occupied the total population was from 4.7% in 2008 to 12.8% in 2060. Furthermore, it increased 8.1% during the 52 years. (European Communities 2009.) Similar situation could be found easily in United Kingdom (UK). According to the investigation in UK, the number of the population (over 65) was not more than 9 million. However, it was estimated over 13 million by the year 2031. (Shaw 2002.) Therefore, according to these official researches, the conclusion could be resulted that there were more elderly population in the European countries in the future. The number of elderly will increase continuously. In Finland, people who aged over 60 occupied more than one million of the total Finnish population (Linattiniemi 2009). According to World Health Organization (WHO), in 2000, the population over 65 years old accounts for 7% of the whole population in China. Furthermore, the date will increase to 20 percent in 2040.

There were more old people whose lives prolonged than before (Shaw 2002). "Life expectancy is the number of years that a person can expect to live on average in a given population" (European Union Public Health Information System 2009). It could reflect the changes of the people's life time exactly. Moreover, the different functional organizations used their own way to calculate the data and concluded
the different tendency of the present situation of the society. According to the major statistic and macroeconomic assumptions of European communities in 2009, the life expectancy prolonged from 76.6 years old in 2008 to 84.5 years old in 2060. (European Union Public Health Information System 2009.) It could be hinted that people's life were lengthening in the future years. The number of the elderly people always rose stably for 300 years but in the recent years, the number of the old people increased rapidly. (Shaw 2002.)

As a result of people could live longer and keep healthier than before, it was necessary to provide higher medical supporting and nursing care. Moreover, the elderly people needed more nursing care than the normal young people. According to the recent researches that there was almost more than two thirds hospital beds occupied by the people over 65 years old. (Cowan 2003.) The government should pay and spend more time and money in old people health care service than other age groups. As a result that the government needed to invest more fund in social health care.

The expenses including hospitalization, rehabilitation and home care totally required nearly 19,440 Euros for each older person coming after the injurious fall, which was exceedingly high. Generally, it was advised to pay more attention on falling prevention instead of treatment of falling. Simultaneously, concentrating on multiple risk factors was much preferable to pay attention to only one factor. (Hosseini et al. 2008.) Nurmi and Lüthje (2002) indicated that the total average cost of fall injuries needed 944 Euros per fall in 2000.

According to the conference in April 2002 in Madrid, it was mentioned that the ascending number of the elderly people not only affected the pension system but also caused other problems in economy including the increases people's poverty, losing the opportunity of being employed. In addition, according to the statistic in the conference, it was estimated that the population of the elderly would increase from 600 million to two billions. Under the situation of lower birth rate and higher life expectancy, it was stated that it would be noticed about the increasing problem of old people. (Shaw 2002.)
2.2 The falling problems of the elderly

Falling down is a common and serious problem of the old people nowadays. According to WHO (2010), falling was defined as “in accidently coming to rest on the ground, floor or other lower level, excluding intentional change in position to rest in furniture, wall other objects”. The falls are divided into three main types including same-level falls, falls from one level to another level and falls from stairs and steps. Same-level falls from slipping, tripping or stumbling occupies the majority of falls in the elderly. (Kausler et al. 2007.)

The definition of “falling down” was that one part of the patient's body touch the floor, ground or other lower surface as the results of the wrong position. The risk of falling down was rising simultaneously with the increase of age from the elderly.

The degree of fall-injury can determine whether an older adult needs hospital admission and level of functional limitations (Yoshia-Intern 2007). Accidental fall is one of the major causes of injuries in the South-East Asian Regions (WHO 2010). According to WHO (2010), owing to the frailty of the elderly, the elderly were in danger of getting falls and injuries. It was incredibility that falls would be common reason for injuries. In 2002, it was the 20th place for the rank of falls in leading cause of death in China (Kannus et al. 2005). Moreover, falling could result too many injuries such as fracture of the legs or head, pain feeling of the falling place, limited of the mobility and so on. On the other hand, falling could cause many injuries in different levels even death. Indeed it was very serious for old people to fall down. (Close 2005.)

Furthermore, falls were regarded as the main elements in the injuries (Warshaw 2006). The rates of nonfatal injuries due to falls were illustrated by 2,377 per 100,000 for the elderly from 65 to 69 years old in 2000. Falls among individuals over 65 years old accounted for 64% of traumatic brain injuries. (Byers et al. 2004) A Canadian survey was showed that the rate of fall injuries was near 50 per 1000 population for aged 65 and older. Furthermore, women were the highest of all age groups (WHO 2010). Fall resulting injuries attracted global attention as one of the major public health urgent problems (Yoshida-Intern 2007).
In 2003, more than 421,000 older adults were hospitalized resulting from fall-related injuries. Moreover, fatal accidents because of falls accounted for two-thirds of 10,000 fatal cases among elderly people each year. (Kausler et al, 2007.) Each year the expenses of hospitalization and long-term care for hip fractures were estimated to be in the range of thirty-one billion and sixty-two billion Dollars. Besides osteoporosis, the falls of elderly people was the most important direct cause of hip fractures. (Kausler et al. 2007.) The economic consequence of hip fracture was so huge that medical care should reimburse almost $6 billion every year which was considered as a health damage and financial burden to the society (Hosseini et al. 2008).

According to the National Safety Council (2000), the older people over 65 account for the highest position of mortality rate as results of injuries which caused more death than pneumonia and diabetes in the elderly people. There would be 2000 falls induced death annual among the Finnish older adults by the year 2030. In other words, the amount of fall related death had obviously risen among the Finnish elderly.

There was a clear increasing number of deaths induced by falls among the elderly in Finland especially among men (Linattiniemi et al. 2009). It was amazing that men had substantially higher fall-related mortality than women (Yoshida-Intern 2007). For men, it would be less healthy and functional ability in the daily life than previous ones (Hocking 2006). Consequently, it was necessary to investigate and understand the possible behavioral and environmental factors (Kannus et al. 2005). 70 % in the accidental deaths belonged to the elderly people over 75 years of age. The person over 70 years old accounted for 90 % in hip fractures (Akyol 2007).

2.3 The nurse roles of falling down problems in elderly care

The definition of the term "patient safety" was defined that "Patient safety had to do primarily with the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the processes of health care itself " (The National Patient Safety Foundation 2000). The National Patient Safety Foundation (NPSF) also
reported that the term of "patient safety" was similar with the term "quality of care" but both were not equal. In some aspects, they had different meanings. However, it had no relationship with the patient safety at this time. Currie and Watterson (2007) also defined the "patient safety" simply and conveniently stated that far from unexpected impairment. In recent years, the government began to emphasis the problem of patient safety (Cowan 2003). The problem was set to the important part of the normal agenda.

Nowadays, the number of older people was not equal comparing with other groups in health care service. It was considerably needed for the older people for improving the higher quality of nursing care and providing the more attention in the medical products. It was necessary for nurse to master more knowledge and competency about the special nursing care of elderly. (Fitzpatrick 2005.)

The nurses have controlled in the clinical by providing appropriate service for the required patients. It was necessary for the nurse to gain advanced qualifications and research skills. (Price 2007.) The findings showed that even if the nurses have positive attitudes to the elderly, the information gaps in socio-economy of aging and knowledge deficits special clinical care of older people. (Mellor 2007.)

The roles of elderly specialist nurses have plenty knowledge of the process of aging and are specialized in assessing and implementing the different needs of the elderly (Harvey 2009). Nursing practitioners provided effective nursing care in the home through assessing function, emotion and physical status of the elderly (Kato 2006). Professionals’ capacity to identify falls risks could be improved by the staff education regarding risk factors and clinical errors which was beneficial for the patient care (Ruchinskas et al. 2001).
3 PURPOSE AND RESEARCH QUESTIONS

The purpose of the thesis was to describe the main causes of falls and nurses' roles in preventing falls in elderly care by systematic literature review. The results of research can be used to develop nurses' awareness to improve safe moving of elderly patients. According to this research, two questions would be provided as follows:

1. What are the main causes of falling in elderly care setting?
2. What are nurses' roles in preventing falls in elderly care setting?
4 METHODOLOGY

4.1 Systematic literature review

The literature review was used in this final thesis. Literature review was regarded as a foundation of basic new knowledge that should be beneficial for the further data collection of studies (Polit et al. 2004). At the same time, the literature review could provide a background of known and unknown information about the research problem. Reviewing different kinds of literature could be helpful for the researchers to discover some theoretical resolutions to the research problems (Burns et al. 2005). The literature review was an independent review. It was used to create new knowledge combining the previous knowledge (McKinney 2008).

Literature review was utilized for the researcher and readers to understand all the content providing evidenced knowledge to support the research. At the same time, the literature review was based on the valuable evidence. Moreover, literature review could improve the knowledge of the researched topic. (Burns et al. 2005.) According to the results it was possible to find new questions and resolve them.

4.2 Data collection and selection

The time frame of the articles was limited from 2000 to 2010. Computerized databases were chosen as different sources, including Cumulative Index to Nursing and Allied Health literature (CINAHL), OVID, EBRARY, and Science Direct. Moreover, many articles were searched from some famous nursing journals, including Journal of the American Academy of Nurse Practitioners, American Journal of Public Health, Journal of Clinical Nursing, Journal of the American Geriatrics Society, and Journal of Nursing Management. Furthermore, these articles were also searched from some valuable national websites, including World Health Organization (WHO), The Public Health Portal of the European Union, United Nations Population Division, European Communities and The National Patient Safety Foundation.
CINAHL could provide English language journal articles about nursing and healthcare. The key words had been utilized to constrict the range of articles and concentrated on the focus of research, including elderly, falling down, falls in the elderly care, frail, nursing roles, old people, prevention of falls, safety patient, risk factors of falls, safe moving. Except the time and the key words, other limits were required as follow:

1. The articles were in full text.
2. The articles were written in English language from world organization and different countries such as Australia, Canada, European countries, Japan, United Kingdom and United States.
3. The articles were related to nursing and health science.
4. The articles were based on the evidences.
5. The articles were connected to elderly nursing care, falls in the elderly.

Sixty articles were chosen for the first time. Among 11 of these articles had not closely interrelated with the topic. These articles were written about the medicine errors among the old people or the safe moving of the nurses, which were decided to be deleted at all. Other 49 articles were analyzed in detail. 20 researches were related to the discussion about the risk factors of falling down during the old people. 20 articles were mainly talked about the way to prevent the elderly from falling down. 9 articles were discussed about the population of the elderly around the European countries and the rate of elderly falling down in the recent 10 years.

4.3 Content analysis

The main information related to the articles for literature review was displayed in the form of table which was organized in the following table. Content analysis was used in this research to analyze the articles. Content analysis was defined by Elo & Kyngas (2007) as a research method which gave a systematic and objective means of describing and quantifying phenomena. It was used to be one of the methods to analyze the content and improve the reader to understand the articles more easily (Elo & Kyngas. 2007).
According to the major content of reviewing articles, the author separated the findings into several groups. Firstly, the group of findings was related to the causes of falls in the elderly. According to main content of the articles searched, many different risk factors were including diseases, physical condition, movement, psychological condition, medicine and nutrition and some other factors. Secondly, the methods to prevent falls among the older adults were contributed to another group. The last group was organized as implementation of nurses in the elderly care. These divisions were based on the conceptual framework of this study. The process of analysis could be organized into several steps. Some relative articles were found. Moreover, some key words were picked up from each article, such as incontinence, control balance, vision and hearing changeable, parathyroid hormone function and weakness muscle. In the end, these key words were combined into “physical condition”. (Table 1)

Table 1. Example of analyzing

<table>
<thead>
<tr>
<th>Content</th>
<th>Subcategory</th>
<th>Category</th>
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<tbody>
<tr>
<td>In this article, it was mentioned that many patient had high risk factors of falling down because of the incontinence, but the author disagreed about that (Donoghue et al. 2010).</td>
<td>Incontinence</td>
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<tr>
<td>In this article, it was showed that it was easier for the old women who had the mixed incontinence to fall down (Yoshida-Intern 2007).</td>
<td>Incontinence</td>
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<tr>
<td>In this article, it was mentioned that vision changeable had more possibilities to fall down because the patient could not control himself in balance well (Cranwell-Bruce 2008).</td>
<td>Vision changeable</td>
<td>Physical Condition</td>
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<tr>
<td>In this article, it was identified that age and disease could lead the vision changeable (Källstrand-Ericson et al. 2009).</td>
<td>Vision and hearing changeable</td>
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<tr>
<td>In this article, it was showed that the parathyroid hormone function was one of the risks of old people falling down (Houston et al. 2008).</td>
<td>Parathyroid hormone function</td>
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<tr>
<td>In this article, it was identified that the weakness muscle may become one of the risks of falling down, because they could not support themselves by the muscle (Wallace 2007).</td>
<td>Weakness muscle</td>
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</table>
5 RESULTS

The risk factors of falls can be classified to physical, cognitive and environmental causes. These kinds of physical and psychological disorders can affect the brain and leg supporting of the old people and lead to the elderly’s falls to the ground. Nurses’ roles in preventing falls are the evaluation of the older people before falling down, setting guidelines of prevention programme, administration of special medicines and the management of the elderly’s living environment. More studies are needed about developing the limited relationship among the falling causes, such as parathyroid hormone, bladder and bowel incontinence and pain. It is quite essential to know about the mechanism and principles of leading falls in the elderly.

Table 2. The risk factors of falling down.

<table>
<thead>
<tr>
<th>Different causes</th>
<th>Subcategories</th>
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<tr>
<td>Chronic medical condition</td>
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<td>diabete</td>
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<td>Alzheimer</td>
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<td>Stroke</td>
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<td>Parkinson's disease</td>
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<td>Bowel and bladder incontinence</td>
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<tr>
<td>Syncope and dizziness</td>
<td>Physical condition</td>
<td>Physical condition problem</td>
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<tr>
<td>Vision and hearing impairment</td>
<td></td>
<td></td>
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<tr>
<td>Parathyroid hormone function</td>
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<tr>
<td>Reduced lower extremity strength and foot problems</td>
<td>Movement</td>
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<td>Muscle weakness</td>
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<td>Gait and mobility problem</td>
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<td>Postural hypertension</td>
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<td>Medicine</td>
<td>Medicine and nutrition</td>
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<td>Alcohol abuse</td>
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<td>Nutrition</td>
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<td>pain</td>
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<td>sex</td>
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<td>Low body mass index</td>
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<td>Cognitive impairment</td>
<td>Psychological condition</td>
<td>Cognitive problem</td>
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<td>Reaction time</td>
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<td>Previous falls and experience</td>
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<td>Fear of falling down</td>
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<tr>
<td>Environment</td>
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<td>Environment and wearing problem</td>
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<tr>
<td>Poor foot wear</td>
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</table>
5.1 Problems in physical condition of elderly

**Chronic medical conditions** The disease process of cardiovascular and neurological systems could be especially connected to falls. The elderly people who fall complained commonly the feeling of dizziness and unsteadiness. (Kane et al. 2004.) Several pathological conditions could contribute to instability and falling such as degenerative joint disease, healed fractures of the hip and femur and residual muscle weakness (Kane et al. 2004).

Diseases inducing physical body changes weakened the psychological status at the same time. In addition, the combination of physical and mental problems would establish intrinsic risk factors to falls (Close 2005).

**Diabetes** Risk of falling could be enhanced when the patients were women with diabetes. It was more likely for women with diabetes to have fall history in the range of age 60. The research showed that people with diabetes had more probabilities to suffer other risks of falls. (Yoshida-Intern 2007.)

**Alzheimer** The elderly over 65 become the mainly target of dementia of which prevalence increased with age. According to the Elderly of the Alzheimer’s Society (2010), in UK, more than 680,000 people had dementia. The formal and informal care cost about £17 billion a year.

It was difficult for the patients with Alzheimer's disease to adjust suitable visual stimuli when maintaining body balance. It was two times more likely for people with Alzheimer disease to gain fall risks than those without Alzheimer disease. Impairment of attention and visual ability could be the factors provoking risks. (Kausler et al. 2007.)

**Stroke** Paralysis of the body side was one of the symptoms of stroke (Kausler et al. 2007). The balance deficits and gait deficits were often demonstrated on the persons with stroke. It was difficult for the individuals suffering stroke to increase the ability adjusting different walking patterns in the changing environment and obstacles. A number of falls occurred to the side of parasite to the people with
restricting activities as a result of stroke. (Weerdesteyn et al. 2008.) It was quite common for the person with stroke to suffer falls at home, which leaded to restriction of activities (Mackintosh et al. 2005).

**Parkinson’s disease** It was known that Parkinson’s disease was characterized by bradykinesia, tremor and muscular rigidity. The gait of Parkinson patient demonstrated lack of arm swing, loss of trunk movements and decreased foot clearance. Many older people with Parkinson’s disease had been reported to fall frequently due to impaired ability and response to external variation. The consistency of these findings indicated that Parkinson’s disease would be considered as a strong independent risk factor for falling among older people. (Lord et al. 2000.) There were about from 38% to 68% of the elderly with Parkinson’s disease undergoing falls caused by gait disturbances. The reasons for this phenomenon could be translated by unsteady pattern of step by step in Parkinson’s disease patients. (Yoshida-Intern 2007).

**Bowel or bladder incontinence** It had been noted that urinary and faecal incontinence speeded up the risk (Donoghue et al. 2005). It would be three times in chance for the women with mixed incontinence to fall than those without same disease, which added to more risks for falls on the way to the bathroom (Linattiniemi et al. 2009). Many falls investigations had reported urinary incontinence was thought as a strong risk factor of falls in older people. Falls related to incontinence were considered as a result of loss of balance when going to or returning from the toilet especially in long-term care facilities. (Lord et al. 2000.)

**Syncope and dizziness** People suffered from syncope when there was a transient decrease in cerebral blood which was characterized by a temporary loss of consciousness but would be recovered spontaneously. However, it had been suggested that falls and syncope had to be separate diagnoses instead of considering syncope as the necessary factor of falling. (Lord et al. 2000.)

Dizziness often occurred among the elderly in which they felt lightheadedness while standing up. The control of body posture decreases among the elderly people.
Researchers from Chicago studied that over six thousand people age 65 and older. The results revealed that the incidence of dizziness in the 85 and older age range increased to 18.4%. (Kausler et al. 2007.)

**Vision and hearing impairment** A change in vision could be caused by some eye medications such as miotic and nonmiotic. Furthermore, the patients with glaucoma treated by medications of systemic effects had much higher incidence of falling than in those with different treatments. (Cranwell-Bruce 2008.) It was necessary to consider high-risk adverse effects of medications, such as hypotension and bradycardia.

Tactual input and visible input which was essential for maintaining body balance might be impaired by the age and disorders. The majority of falls were affected by vision al impairment. (Källstrand-Ericson et al. 2009.) The duration of day to the falls tended to occur was mostly between 24:00-06:00 (Desrosier et al. 2009).

Not all studies insisted that a decrease in visual ability raises the falls risks. In other ways, impaired depth perception and slow reaction time had association with falls independently. Until now it was not obviously to conclude which particular part of vision contacts with fall risks tightly. (Källstrand-Ericson et al. 2009.)

It had been found that it was difficult to perform many physical functions for the elderly people with long-term and impaired hearing. The factor causing hearing impairment included environmental noises and some drugs. (Kausler 2007.)

**Parathyroid hormone function** Parathyroid hormone had been discovered to be connected with the incidence of falls in the elderly. The relationship between parathyroid hormone and the falls could not be influenced by the physical performances. (Houston et al. 2008.)

**Reduced lower extremity strength and foot problems** The major risk for falling in the elderly was lower limb muscle weakness. Foot problems were considered as a substantial factor to impairment of motivation in the elderly. Those older people with foot pain had more difficulty in finishing daily tasks. Furthermore, there was
also evidence to found that osteoarthritis had a harmful effect on standing balance. Some studies found that ankle muscle weakness appeared particularly in the faller groups such as decreased ankle dorsiflexion. (Lord et al. 2000.)

Loss of balance was related to declining muscle strength in the hips, knees and ankle joints. Falls due to weak postural adjustments might be reduced by interventions that improved strength in the lower extremities. (Kausler et al. 2007.) Nearly 30% of the elderly dwelling in the communities had been reported foot problems which were risk factors. One predictive article pointed that older persons with bunion, toe deformity and ulcers would be two time more likely to turn into hazardous factor. (Yoshida-Intern 2007.)

**Muscle weakness.** A decrease in muscles and bone mass increased the risks for fractures. Regular exercise was beneficial to make positive effects on the elderly, which maintained the normal level of muscle strength and flexibility. (Wallace 2007.) Muscle weakness had been reported in many times in the elderly, which stroke against the balance (Yoshida-Intern 2007).

Physical activities had good advantage for strengthen of muscle function. Muscle atrophy could be resulted from insufficient activities. The inactive people had a tendency of falling more times than those being active. (Yoshida-Intern 2007.)

**Gait or mobility problem** Elderly people were prone to suffer from orthostasis more often than young people when there was a rapid change in body position from the spine to the stand-up (Kausler 2007). The elderly fallers changed a lot in walking patterns. The previous falling history and fear of another fall made the elderly difficult to adapt the alteration of walking conditions. The elderly people with falls history probably fell down as a result of less stability of gait design. Increased variability of walking conditions was considered as important risk factor of falls. (Barak et al. 2006.) The fallers were expected to decrease variability in the walking. The confidence returning to the older people with fall histories were produced by recovery of mobility. (Rose 2008.)

**Postural hypotension** Orthodontic hypotension was considered as a drop of more
than 20 mmHg in systolic blood pressure. The elderly were prone to lose consciousness through sudden changed position. The elderly should be advised to sit for a while when the symptom of dizziness appeared, which was beneficial for them to maintain consciousness. (Kane et al. 2004).

**Medicine** Medication was importantly associated with risks of falling. The research suggested that patients with polypharmacy in disease management had more tendency to fall. (Cranwell-Bruce 2008.) An increase in fractures could be related to the higher dosage of medicine in administration (Fonad et al. 2008).

It was questionable that psychotropic, diuretic, antihypertensive, and antiparkinson medications especially used in inappropriate dosage might initiate falls in the elderly by depression, dizziness, and postural hypotension. It was suspected that postural instability might be increased by synergistic effects among drugs. (Crome 2000.)

The researches stated that administering more than 4 medications has more risks of falling. The most universal medicine with tendency of falls was described as nervous drugs contain for instance, sedatives and benzodiazepines. (Yoshida-Intern 2007.) It was reported by a Japanese study that increase of risks for falls was affected by the administration of medicine for nerve depressing (Kato et al. 2008).

**Alcohol abuse** There was a correlation between falls and alcohol use. The research revealed that postural hypotension was associated with alcohol consumption. The decline of postural and balance control could be accelerated by long-term alcohol intake which raised the probability of falling. (Yoshida-Intern 2007.)

**Nutrition** The deficiency of vitamin D among frail elderly was quite common even in sunny climate which was related to the incidence of falls. In Australia, one of the independent predictor of falls was the deficiency of vitamin D which was quite inadequate in residential care. The following correction of this shortage was more effective than simply preventing fractures. (Flicker et al. 2003.)
Vitamin D supplements for older people manifested the benefits of reducing the rates of falls for people with minimal level of Vitamin D even without shortage of Vitamin D. Consequently, Vitamin D was recommended for application in this population. (Flicker et al. 2005.)

**Pain** Pain could lead to negative influence to the improvement of patients' balance and mobility. It was important to implement targeted interventions for pain in the rehabilitation of the elderly with balance or mobility deficits. (Bishop et al. 2007.)

**Sex** Several epidemiological studies from National Safety Council showed that half of the women whose ages were over 85 would suffer a fall. At the same time, for men in the age group from 80 to 84, the falls rates had raised to 31 percent. (Warshaw 2006.)

It was more probable for women to undergo nonfatal falls. In contrast to women, men had tendency to go through fatal falls. Maybe men prefer to deal with something dangerous. (Yoshida-Intern 2007.)

**Low body mass** Low body mass index could increase the risks of falls. It was a special problem for older women that malnutrition would lead to low body weight which was related to low mineral components of bones. One study revealed that unintentional weight loss had enhanced the danger of hip bone loss and connected with double risk of hip fracture following up. (Yoshia-Intern 2007.)

### 5.2 Problems in cognitive skills of elderly

**Cognitive impairment** The research revealed that cognitive status was changeable during the day. The patients had high risks of falling if they could not comprehend the instructions result of dementia or were influenced by medication in the cognition. (Donoghue et al. 2003.) Impaired cognition had function as an independent aspect of risk factors in falls, particularly for short-term memory (Yoshida-Intern 2007).
Reaction time It was assessed that the slow of reaction time was a independent risk factor for multiple falls in elderly community-dwelling persons. It was suggested that fallers needed increasing reaction time than non-fallers in reaction time tests. (Lord et al. 2000.)

Previous falls and experience The previous history of falls increased the risks of elderly people fell down in the daily life. The older people understanding the reasons for falls and controlling methods to prevent falls could adopt the continuous life better than those without correct reflection. (Rose 2008.)

Fear of falling down Moylan and Binder (2007) reported that fear of falling could result to a worse condition of the elderly people. This problem was extremely common among the elderly people. The older people would be scared to fall down with the history of falls, which obstructed the movement of the elderly in the daily activities. The research from Borglin (2005) revealed that psychological status and physical activity would impact the fear of falling. Depression had increased 2.2 time risks for falls. At the same time, falls and fear of falling could cause depression. (Roe et al. 2008.) Facing the fear correctly and knowing the cause of falls by themselves promoted the older adults to sustain usual control, choice and autonomy in the rest of life, which had benefits for preventing social isolation and loneliness (Rose 2008).

In addition, the emotional and psychological alternation could be destroyed by falls in the elderly, such as fear of falling, confidence deficit and independent of living ability (Hosseini et al. 2008). The fracture caused by falls had an increased mortality with age which was related to psychological damage. Significant psychological consequences leaded to loss of confidence and ability to continue daily life. (Carson 2000.)

5.3 Environmental and wearing factors

Environment It was noted that 50% of all falls could be recognized as accidental which was usually in conjunction with an environment hazard especially for some
older people attached to their cluttered surroundings strongly (Kane 2002). There was a higher risk for falls of elderly persons in hospitals than those who stayed at home (Herwaldt et al. 2003).

**Poor footwear** It was considered that foot wear played a key role in falls. It was suggested that athletic shoes should not be suitable for the elderly resulting from the thickness of sole disturbing the positional sense. Simultaneously, high-heel shoes interfered with balance. Over 25% older adults tended to be barefoot when being inside the house. Wearing only socks without shoes could lead to risks of falls being on the increase. (Yoshida-Intern 2007.) The circumstances of falls needed to be considered before constituting the preventing falls programs such as after mealtimes and at night, conditions of acute disease and walking to the lavatory (Jensen et al. 2002).

**5.4 Nurse roles in preventing falls in elderly care**

**Evaluating the old people before falling down** It was needed to evaluate the old people who had fallen or had high risk of falling. This way could reduce the possibilities of falling down for the old adult. Among the evaluation, the comprehensive physical checking was the most important part. It was necessary for nurse to check the patient totally and carefully. Vital signs, blood pressure, blood sugar, height, and weight were essential to be measured. The blood pressure could show that whether the patient had hypertension which could cause the patient faint, weakness, dizzy and so on. The quite low blood sugar also could lead the patient feel dizzy and weakness. These factors can make the patient fall down quite more easily. (Moylan & Binder 2007.)

All the old people should be noticed about the high possibility of falling down (Moylan & Binder 2007). Nowadays, the risk factors of falls should be also identified before the serious impairment happened. It could help to prevent falling problems.

**Recommendation to the prevention** It was suggestible to arouse the awareness of the elderly that the fall damage could be kept from happening. To attract the
attention of fall prevention methods could be actualized through writing booklets and making posters of health promotion to aged adults, family members and nurses. (Hosseini et al. 2008.)

It was necessary to coordinate education associated with exercise courses. The related professionals should be trained before providing instructions to the older people. (Hosseini et al. 2008.)

**The prevention programme** The older people had achieved confidence in the mobility and freedom from injury and associated recovery. At the same time, this measure would delay the happening of disability and disease. Effective prevention programmes were beneficial for the government and community to decline expense of the health care services and enhance the safety and quality of health care. (The National Falls Prevention for Older people Plan 2005.)

One of the advantages of preventing falls in the older individuals was to decrease the expenditure of hospitalization. At the same time, it was helpful for the elderly to maintain productivity in the society. Therefore, it was concerned for the society to take firm actions to prevent falls. The fall prevention programme was beneficial not only to reduced the injuries of older adults but also to enhance the self-efficacy of health staffs. (Kato et al. 2008.)

Different variety of exercises could be utilized to promote the prevention of falls and injuries following falls, for instance, balance, strength and endurance practice, particularly for women (Hosseini et al. 2008). The companion-observers applied life experience to assist frail patients and avoid falling which was an effective improvement without overload the duty of nurses (Donoghue et al. 2005).

The finding results emphasized that different levels of falling risks to the elderly should receive appropriate exercise interventions. The exercise options would be fewer for the elderly with higher falling risks than ones with lower risks according to assessment at first. The exercise program should be applied with the treatment to the risk factors in order to be sufficient to lower the risk of falls. (Markle-Reid et al. 2006.) The exercise intervention including balance components had showed
significantly efficacy in reduction of falls. The maintenance of exercise activity had ranged from 3 to 6 months. (Rose 2008.)

**Strength and balance training** For the elderly, the strength and balance training should be advised, which was a convenience and accessible method of continuing muscular strength and decreasing the tendency of falls, especially such as Taichi or other exercises related to balance training (Kannus et al. 2005).

**Activity in daily life** Most elderly people whose ability to perform daily activities without falling express higher level of confidence than older adults who had experienced falls (Kausler et al. 2007).

Intense and irrational fears tended to lead to decline in mobility as a result of diminished physical activity. Family members should not always discourage competent elderly people to do something independence. Otherwise they were in danger of decreasing activity in the daily life. (Kausler et al. 2007.) Tai Chi was regarded as a fall-prevention program and single exercise for institutionalized aged which was beneficial for the older adults with high incidence of falling to decrease fear of falling and happening of falling (Harling et al. 2008; Murray et al. 2007). Participating Tai Chi for the elderly had advanced the mental management to the movement and balance confidence while neutralizing fears resulting from falling and balance deficit (Hosseini et al. 2008).

Simultaneously, Tai Chi had performed the function of reducing fear of falling for the people in a transitional period of frail (Hosseini et al. 2008). It was apparently to show that Tai Chi had a result in the reduction of falling fear which had more beneficial than a wellness education programme (Sattin et al. 2008). Another research by Logghe (2008) was indicated that the effects of Tai Chi Chuan were not responsible for reducing the risks of falling down among the elderly.

**Implication for dementia** Especially for the elderly with cognitive faculty, there was essential to pay attention on gait and disturbances of behavior when assessing fall risk. Observation and interventions together were advised in the approach of fall prevention for older adults in impaired cognition. (Härlein et al. 2009.)
It was important to consider an assessment of bone condition and appropriate activities as precondition before making decision how to process the prevention of falls. High risk population with low trauma fractures could be diagnosed and treated suitably by the hospitals and health care institutions. (Close 2005.)

**Activities for vision limitation patients** There was a limitation for the elderly with visual impairment to take part in daily activities (Desrosiers et al. 2003). The older people with additional exercise had improved in handgrip strength and mobility than those with routine therapy (Donald et al. 2000).

**Reduction of psychological medication** The result of casual experiment reported that the risk of falling was decreased by 66% through the slowly reduce of psychrotropic medication (Kannus et al. 2005). Utilizing fewer anti-depressants and sleeping pills selectively might protect the community dwellers from falls in daily life (Fonad et al. 2008).

It was advised by the health experts that the elderly after taking psychotropic medication walk in a number of steps to avoid falls. For instance, elderly people were recommended to avoid fast change of direction and keep stability. (Kausler et al. 2007.) For the elderly living alone or in the community, it was significant for the nurses to provide appropriate meditation education so as to enhance independent of older people (Cranwell-Bruce 2008).

**Vitamin D and calcium** It was suggested that the most elderly with high risk of lack of related substances could take vitamin D with calcium which was effective to prevent osteoporotic fractures through raising the bone density (Kannus et al. 2005). It was obvious that calcium and vitamin D function in reducing fracture incidence in nursing home in France (Flicker et al. 2005).

The elderly regardless of fracture indexes should take calcium and vitamin D into account to diminish incidence of fracture (Close 2005).

**Important to nursing practice** The clinical judgment from the nurse was significant for assessing fall risks to the patients as a result of requiring enough
equipment for assessing signs. Motor function should receive more attention in the
gait and balance disturbances. The nurses had more opportunities to spend with
patients than other health carers to collect more details in gait patterns. Therefore,
the nurses made a contribution to detect specified risk factors happening in the
patients with dementia. (Härlein et al. 2009)

**Education to the elderly and health promotion** One of the multiple falls
prevention programmes, patient education individually emerged its effective results
for the hospital inpatients (Haines et al. 2006).

One of the nurses’ duties to general frail older clients in the nursing home was to
supply health promotion while the overall costs of health care had not enhanced.
The health promotion including prevention of diseases should be satisfied for the
older people’s long-term needs. Moreover, comprehensive evaluation through
home visit and education with self-management of chronic disease provided profit
to improve the quality of self-care. (Markle-Reid et al. 2006.)

Purposed monitor should be considered as part of program regarding to the
prevention method for the elderly with impaired cognition. In this way, the nurse
could carry out the role of advisor about providing professional knowledge
connected with implementation to prevent falls for the family members. (Härlein et
al. 2009.) Home safety assessment should be process to strengthen visual ability
of older adults with low vision. The specialist should transfer advices and education
to the elderly who changed the eye glasses recently. (Cumming et al. 2007.)

The nurses should encourage the elderly to erect corrective perspectives to their
falls in order to improve confidence and more desirable rehabilitation (Rose 2008).

**Technique tools** A minority of people were used to take advantage of frames,
safety hand rails, shower and bath seats for prevention and regarding as
assistance of keeping mobility and independence in the daily life (Rose 2008).

**Hip protector** The results of the patients who suffered proximal femoral fracture in
the hospitals were usually quite awful. Supervision of high-risk of patients to falls
should be strengthened in the hospitals. At the same time, supplying same patients with protectors was another measure to minimize the danger of falling. (Murray et al. 2007.)

The use of hip protector had not been proved to be beneficial for the lower-risk older people but might help to decrease the risk of fracture for the high-risk elderly (Kannus et al. 2005).

**Footwear** Additionally, reduction of falls could be gained through improvements of footwear. As a result, the influence of footwear could be brought to attention of prevention education in the older people. High-heeled shoes formulated a potential risk for falls among aged women while the firmness of shoes sole has no impact on the hazard. (Hosseini et al. 2008.)

**The floor** According to the research from Donald et al. (2000), the material of vinyl is a high-standard choose as floor covering.

The floor with carpet had no function in making improvement for the independence of the elderly in the movement (Donald et al. 2000). It was suggestive for the hospital environment to apply contrasting colors and utilize good lighting during night time in order to raise hospital safety up. Supplying knowledge related to evaluation of fall risk for was advantageous for clinical staffs to put good professional information into clinical practice. (Dick et al. 2006.)

The predictive tool for falls was a systemic advancement to the prevention of falls (Carson et al. 2000). One-fourth of home-related falls could be prevented through modification and redesign of home furnishings. Organization of home areas tended to minimize excessive reaching such as climbing the ladder to reach things. Many seniors had decreased the ability of vision which increased the risk of falls such as diminished depth perception and poorer dark adaptation. It was necessary for the elderly to check their vision regularly. It was better to keep a flashlight by the bed and well lighted stairways. It would be convenience for the seniors to use grab bars when visiting bathrooms. (Kausler et al. 2007.)
6 DISCUSSION

6.1 Reliability and ethical considerations

Concerning to the record of data collection was not clear enough to reflect the process of searching useful data. It had possibility to judge the results with personal opinions without abroad thought of research findings. The range of data collection would be slightly influenced by the authors’ personal decisions. There were maybe not very tightly relationships with the journals. Therefore, it was possible to produce some prejudice only according to the abstraction of the articles. In the end, it could be said that these articles were considerably reliable and believable.

The databases were collected from many famous and authoritative websites such as WHO, The Public Health Portal of the European Union, United Nations Population Division, European Communities and The National Patient Safety Foundation. These organizations were quite authoritative of the world. Many articles were searched from some excellent nursing journals including Journal of the American Academy of Nurse Practitioners, American Journal of Public Health, Journal of Clinical Nursing, Journal of the American Geriatrics Society and Journal of Nursing Management. Some articles were also seeked from some electronic database, including CINAHL, OVID, EBRARY, and Science Direct. These were quite reliable and valuable resources in the field of health care. They were limited from 2000 to 2010 in hospital and nursing homes. On the other hand, they were the latest research results now in the field of health care. There were from Australia, Canada, European countries, United Kingdom and United States.

6.2 Discussion of the results

The purpose of this thesis was to help the nurse consider the factors of the safe moving in elderly care. Besides the increasing number of elderly, the falling down problem had risen in theses years. High risk factors causing the falling among the elderly should be paid more attention as a result of affection in many fields of the country’s development and administration.
The increasing number of the elderly people affected the economy problems of the government administration among which the burden of the welfare system and pension system. At the same time, it increased the requirement of the health care system and the shortage of the social beneficial problems.

**Intrinsic risk factors for falls** The falls concerning to the older individuals was really a complicated problem with multiple uncertain factors. In some articles, the authors assumed that the causes of falling down should be organized into two major groups such as intrinsic and extrinsic factors. Indeed, two main factors can organize the different risk factors logically. In the intrinsic factor, most of authors agreed that the chronic diseases had connection with the falls of the elderly. For instance, cardiovascular disease and neurological disease were quite related to the daily life, which needed more health promotion regarding to the disorders. In the clinical, the patients with heart attack suddenly cannot support by themselves from falling down without consciousness. It was quite inconvenient for the elderly with arthritis disease to be total independent in performing basic daily activities. For example, the movement from the bed to chair could not finish without the assistance from the nurses.

Furthermore, some diseases also caused the old people fall down such as hypertension and diabetes. The risk of falling could be enhanced when the old people had the diabetes and hypertension. The diabetes and hypertension could arouse the old people feel dizziness and unsteadiness. It would be more easily for the elderly loss the balance and then fell down. Dizziness could cause the old people feel light-headness while standing up. It was necessary for the nurses to educate the elderly clients how to arise from lower position to higher level.

As we all know, the people with Parkinson’s disease would show the symptoms of walking with urgent and without clearance, lacking of arm swing. The common symptoms of Parkinson’s disease showed the walking with urgent or without clearance and lack of arm swing. Normally, the person should walk with arm moving back and form to control the balance of the whole body. In contrast, the unbalance pattern of gait is easy to lead falling to these people.
It was quite essential to consider that the feeling of the elderly without control of urination, which made the elderly neglect the danger of surroundings such as slippery of the floor and obstacles on the floor when the elderly went to the toilet and bath.

Some research results revealed that the depression could not be neglected in the elderly care. It was possible that those older patients with depression usually demonstrated loss of confidence to proceed with daily activities fluently. Another aspect, if the fallers could not follow the instructions correctly with cognitive impairment, it would definitely enhance the possibility of falling down. Some patient with previous falls would be more worried about the falls even performing some minimal exercise such as walking in the own ward even if with the crunches or sticks.

At the same time, result from loss of appropriate exercise, these people would have higher risks of falls than other persons. In addition, many older people with previous fall histories would tend to fall again in the future. They were afraid of falling again. However, in many times, the more you worried, the more possibilities you would fall again. They were very careful when they were walking, but they neglected others factors, which leaded to falls at another times.

On the other hand, it was recommended for the older people to know about the reasons for falls and prevention related falls instead of without movement blindly. This opinion was important for the elderly to build the confidence of taking daily activities without being afraid of falling down.

Moreover, many scientific articles discovered a great deal of risk factors affecting the elderly falling down. For example, the failure of the eyesight and hearing, hypertension, diabetes, emotion of the old people and so on. The older people suffering some decreasing organism function were to be found with the increase of age. One of the most common factors was poor eyesight and hearing. The old people could not see the goods very clearly. Hearing deficiency played the important role in the falls of the elderly. This reminded the nursing staffs to introduce the new environment to the elderly. At the same time, the tidiness and
living conditions with full light were beneficial to prevent the falls to the older adults. This appeared to be more easily for them to loss the balance when they are walking or standing.

Vision impairment was considered as a discussible fact to the falls. Even if some older people were wearing the glasses to correct the vision sight, it was still necessary for them to adapt to the new glasses for a long time with education.

Other risk factors were the lower muscle strength and mobility problem. Normally, it was difficult for the old people to carry some heavy goods. Although the old people carried nothing, they could not walk normally. They had higher possibility to suffer from orthostatic more often than young people. The level of the muscle strength and flexibility had decreased as the increase of age.

The stability of walking was a significant factor founded in the risks of falls among the elderly. The positive attitude for carrying out the exercises among the elderly would be influenced by the foot problems resulting the falls.

For the elderly, it was quite common to take different kinds of medicine to treat or relieve the symptoms of some disease. It could not be defied that the adverse of the medication has possibilities to have effect on body system which could be a potential risk for falls in the elderly. Vitamin D could be considered as an essential element for older adults to consume, as a result of lack of Vitamin D in the own body.

There were also some other necessary reasons, such as the increased age, Body Mass Index (BMI) and sex. These factors could not be changed and avoided. For example, according to the recent research that low BMI could increase the risk of falling down. In the clinical, the nurses could not confirm the trend of patient's fall related to these minor factors and nursing actions could not make more function on these ones. This appeared that these factors usually worked with other main factors. The existence of only minor risk factors could not lead to falls in the elderly directly.
The extrinsic factor
The opinions of the authors whose articles were used in this research were agreed. Many risk factors could lead to the elderly fall down, for example, the new and unfamiliar environment and the poor footwear. These two causes could cause the elderly fall down more easily. Talking with the first cause, the strange environment could lead the old people losing their trust to the environment. It was difficult for the elderly to believe others and which road they could go. On the other hands, it was also difficult for them to ensure whether they walked in a correctly direction, whether they would meet the new obstructions. So it was necessary for them to walk quite carefully in each step. However, at the same time, the more careful they noticed, the easier they would fall.

Obviously, the possibility of old people falling down would be increased. However, the hospital was one of the best samples for increasing the possibilities of elderly falling down. Hospital was an quite unacquainted environment for the elderly who usually lived at home, it was more difficult for elderly to adapt the life living in hospital. Some elderly had the bad vision. It was difficult for them to see everything clearly. Touching could be done only. However when they were touching, they had not noticed another obstructions. So they fell down. It was quite possible for the elderly to fall down in hospital. And it were not possible for nurses to stay with one patient all the time. Especially for the elderly, their reaction time could not good enough as a young man. The environment could increase the probability of elderly falling down.

About the second cause, except keeping warm of shoes’ function, the safe of foot wear should take into account necessarily also, especially for the elderly with high risk of falling. It was important for elderly to wear the shoes well. But in my opinion that barefoot could not increase the possibility of elderly falling down. If the old people had been used to the life culture, they would not fall down just because barefoot. It would not have any influence for them.

The prevention
Elderly understanding the causes of falling was quite beneficial for them to control by themselves and develop the ability of being independence. The degree of
prevention program should be assessed to be appropriated to a special older adult. In my opinion that using the technique tools could reduce the possibility of the elderly falling down. For example, using the hip protector, although the elderly fell down, he had not suffered fracture. It could prevent him from fracture. The floor cover was also important for the elderly to prevent falling. During the time in hospital, using the good lighting floor covers could reduce the elderly falling. Elderly could see the floor clearly during the night time.

**Actions for the nursing practice**

For nurses, it was important to encourage the elderly to be as independent as possible, which was helpful to recover the former ability before fell or prevented further falls. It was necessary for nurse to educate the patient some knowledge about the way to promote the healthy. Under the helps of the nurse, the elderly could understand how to keep him healthier.

The nurse had the responsibility to teach the person who with high risks for falling. It was important for a nurse to teach the elderly how to use the technique tools, and how to prevent them falling down. It was also necessary to explain some possible results after falling down, and teach them how to do when they fell down.

It was essential for the nurses to study the advanced knowledge and skills to prevent the falling problem of elderly. It was also important for them to update their current knowledge and teach the elderly the newest ways to prevent falling down.

**6.3 Further suggestions**

In conclusion, the problems of elderly falling down needed to be paid more attention nowadays. The risk factors of falling could not be classified without difficulty into some single elements. The prevention of falling would be the most effective and economic measure for each older person with risks for falling.

Combining with the different risk factors, more attention should be done to prevent the old people falling down and decrease the rate of old people falling down.
Among the whole process of the thesis, the research did not involve the conditions of the elderly who lived at home by oneself without any assistive education and enough guidelines in the daily life to low down the risks for falls. For further research, it would be suggested to pay more attention to the elderly living alone. At the same time, further researches should explore more relationships among the different kinds of falls and focus on unsure aspects to provide more powerful evidences related to the falling risk factors in the elderly, such as the parathyroid hormone, bladder and bowel incontinence and pain, which were quite limited in related articles and sources. It was quite essential to know about the mechanism and principles of leading falls in the elderly.

6.4 My learning experience

This time was the first time we wrote thesis. It was a quite hard work for us. At first time it was difficult for us to understand what literature review was and how to write it. The beginning was quite difficult. At beginning, it was huge problem for us to choose the topic. Because the contents were so huge and it was hard for us to choose which was the most suitable. With the helps from our tutor and reading many nursing research books, a map occurred in our mind. Considering the elderly problem were more and more serious nowadays, the topic was chosen about elderly people falling down. In our opinion that this problem should be paid more attention nowadays.

And then many electric database, reliable national organization and famous journals were searched by us from internet. After that reading and analyzing the articles were begun by us. After doing the thesis, it was understood that the key point of writing a thesis was not only the results, the most important was the process of whether you had learnt much knowledge about doing research from this time. Doing a research was not just writing, the more important was understand the whole process of the research, such as choosing the topic, searching the reliable information, and analysis others' articles. These were more significant.

This time we learnt how to search valuable information from reliable recourses, and
could judge the reliable information. At the same time, we knew analyzing and
captured others’ main points. These competent were quite useful to my future work
and study. The process of making research needed to spend lots of time, which
was one of the obvious characteristics. From forming the initial idea of this study,
and constructing the appropriate thesis plan, to finally finishing this article, all the
procedures should be paid more attention to, resulting from the direction of every
step can influence the results of this research in different degree.

The most important attitude to the research should be considered this process as a
gradual and slow changing, which couldn’t catch the results of success suddenly or
immediately. At the same time, making research was quite beneficial for the author
to identify and fix the weak chain with the self-study, which meant that writing
research was another effective method to command of professional knowledge in
the daily life.
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<th>Author, Year, Title, Country</th>
<th>Purpose</th>
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<tr>
<td>Barak, Y., Wagenaar, R.C, and Holt, K.G. 2006. Gait Characteristics of Elderly People With a History of Falls: A Dynamic Approach. Physical Therapy 86, 1501-1510. USA.</td>
<td>To investigate the changes in kinematics of the elderly falling down in the past 6 months</td>
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<td>To provide some information for the disabled older people</td>
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<td>Bishop, M.D., Meuleman, J., Robinson, M., Light, K.E. 2007. Influence of pain and depression on fear of falling, mobility, and balance in older male veterans. Journal of Rehabilitation Research &amp; Development 44. USA.</td>
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<td>Pain was a significant predictor of a decrease in balance and mobility but not fear of falling. In the management of gait and balance disorders, the pain and the treatment should be considered.</td>
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<td>Literature review</td>
<td>It described the situation of the elderly in the daily life by some different statistics.</td>
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<td>To show the clinical services that are useful in prevention of falls in the elderly</td>
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<td>Service development must be supported by evaluation of research acknowledge Collaboration between academics and those delivering service is vital to strengthen existence base</td>
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<td>Case study</td>
<td>Many reasons were found leading the elderly falling down.</td>
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<td>To show the relationship between patients' falls and medication</td>
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<td>To explore the influence of visual impairment to the participation in daily activities of the older adults</td>
<td>Case study</td>
<td>The visual impairment constricted the daily activities of the elderly.</td>
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<td>Donald, I.P., Pitt, K., Armstrong, E. and Shuttleworth, H. 2000. Preventing Falls on the elderly care rehabilitation ward. Clinical Rehabilitation 14: 178-185. UK.</td>
<td>Comparison of two flooring types – carpet and vinyl And two modes of physiotherapy and conventional therapy And additional leg strengthening exercises</td>
<td>Elderly care rehabilitation ward in a community hospital 54 patients</td>
<td>No evidence showed that intervention can prevent falls in a rehabilitation ward The material of vinyl was superior to carpets.</td>
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<td>24 NPs with at least 1-year experience</td>
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<td>Nursing care should be specialized in long term care of the frail older people.</td>
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<td>To assess the relationship between the vitamin D and falls in the elderly women</td>
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<td>Vitamin D deficiency was common in residential care in Australia. A low level of Vitamin D is an independent predictor of falls</td>
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<td>Fonad, E., Wahlin, T.B.R., Winblad B., Emami, A. and Sandmark, H. 2008. Falls and fall risks among nursing home residents. Journal of Clinical Nursing 17,126-134. USA.</td>
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<td>21 nursing home units for older people in Stockholm, Sweden The questionnaires were sent to staff nurses.</td>
<td>Preventative measured should focus on risk factors, including environment. Wheel chair with safety belts and bed rails did not decrease falls, which might be protective to patients with less anti-depressants and sleep pills, especially benzodiazepines.</td>
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<td>Gilks, A., Palmer, J., Robertson, L., &amp; Shute, V. 2000. A society for all ages: the UN year for older persons campaign. UK.</td>
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<td>It was found that the communicating organization should notice the elderly house in the future.</td>
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<td>The result demonstrated that Tai Chi would be effective for those unselected group of people, as opposed to those elderly with falling risk factors.</td>
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<td>Case study</td>
<td>The nurses had function to reduce the length of stay and give better care to the patients.</td>
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<td>Hosseini, H. and Hosseini, N. 2008. Epidemiology and Prevention of Fall Injuries among the Elderly. HOSPITAL TOPICS: Research and Perspectives on Healthcare 86, 15-20. USA.</td>
<td>To examine the problems of falls in the elderly</td>
<td>Case study</td>
<td>Falls among the elderly were widespread problem, particularly in women. Falls could be regarded as a health hazard and a high financial cost to society. Falls prevention could reduce the medical hospitalization cost and help the individuals to remain productive ability in the society.</td>
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<td>Houston, D.K., Schwartz, A.V., Cauley, J.A., Tylavsky, F.A., Simonsick, E.M., Harris, T.B., de Rekeneire, N., Schwartz, G.G. and Kritchevsky, S.B. 2008. Serum Parathyroid Hormone Levels Predict Falls in Older Adults with Diabetes Mellitus. Journal compilation 56, 2027-2032. USA.</td>
<td>To assess the relationship between the hormone levels and falls in the elderly</td>
<td>Longitudinal analysis of incident falls over 1 year in participants with diabetes Age 70-79 (n=472) Duration of 12 months</td>
<td>Higher serum PTH was associated with incident falls in older with diabetes</td>
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<td>Härlein, J., Dassen, T., Halfens, R.J.G. and Heinze, C. 2009. Fall risk factors in older people with dementia or cognitive impairment: a systematic review. The Authors. Journal compilation, 922-933. Germany.</td>
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<td>Falls were registered during the 3-year study period on semi-structured fall report</td>
<td>Some particular areas in a preventive programme for falls included falls after mealtimes, at night, conditions of acute disease and visits to the lavatory.</td>
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<td>Källstrand-Ericson, J. and Hildingh, C. 2009. Visual impairment and falls: a register study. Journal of Clinical Nursing 18, 366–372. Blackwell Publishing Ltd. Sweden.</td>
<td>To investigate falls and injuries of people over 65 years with visual impairments</td>
<td>Retrospective study all documented falls of patients over 65 yrs with the records of eye examination</td>
<td>The main of falls occurred between midnight and early morning. Those with eye impairment were often affected.</td>
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<td>Linattiniemi, S., Jokelainen, J. and Luukinen, H. 2009. Falls risk among a very old home-dwelling population. Scandinavian Journal of Primary Health Care 27, 25-30. Finland.</td>
<td>To assess the risk factors of falling in very old-home dwelling people</td>
<td>Case study</td>
<td>Some measures could be useful in the prevention of falls among the elderly home-dwellers, such as appropriate care of poor visions and feelings anxiety, and avoidance of use of antipsychotic drugs.</td>
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<td>Logghe, I.H.J. et al. 2008. Lack of Effect of Tai Chi Chuan in Preventing Falls in Elderly People Living at Home: A Randomized Clinical Trial, Journal compilation 57, 70-75. USA.</td>
<td>To evaluate the effect of Tai Chi Chuan in the prevention of falls in the elderly at home</td>
<td>Design: Randomized controlled trial. Setting: industrial towns in the Netherlands. Participants: 269 elderly (average age 77) living at home</td>
<td>The results showed that Tai Chi Chuan may not be the best way to prevent falls for the elderly living at home.</td>
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<td>To assess the circumstance of falling people staying at home after stroke.</td>
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<td>46% people had falls in two months after rehabilitation. Falls were common when people return home after stroke. A number of falls occurred toward the paretic sides.</td>
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<td>To evaluate the effects and cost of health promotion care in different care places</td>
<td>Case study</td>
<td>The results told that health promotion of home based nursing is beneficial for the elderly with chronic health, enhancing the overall cost of health care.</td>
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<td>Moylan, K.C. and Binder. E.F. 2007. Falls in Older Adults: Risk Assessment, Management and Prevention. The American Journal of Medicine 120, 493-497. USA.</td>
<td>To describe the walking situation of elderly.</td>
<td>Case study</td>
<td>Many risk factors all could lead to the elderly falling down, including gait, muscle weakness, vision changeable and so on.</td>
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<td>Murray, G.R., Cameron, I.D. and Cumming, R.G. 2007. The Consequences of falls in acute and subacute hospitals in Australia that cause proximal femoral fractures. Journal compilation: The American Geriatrics Society 55,577-582. Australia.</td>
<td>To compare the consequences for patients with proximal femoral fracture (PFF) in the hospital with the patients suffered in the community</td>
<td>43 patients with a hospital-acquired PFF 43 patients with a community-acquired PFF</td>
<td>Patients with hospital acquired PFF have poor outcomes</td>
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<td>Nurmi, I. and Lüthje, P. 2002. Incidence and costs of falls and fall injuries in institutional care. Scand J Prim Health Care 20, 118–122. Finland.</td>
<td>To investigate the incidence and costs of fall injuries among the elderly</td>
<td>Prospective study 4 institutions in Finland (2 health centers and 2 nursing homes)</td>
<td>1/3 of falls resulted from injuries. 1/5 falls resulted in treatment outside the ward</td>
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<td>Sample of 27 older people (age range:65-98) time range:2003-2004 Data were collected about experience of care, well-being, activities of daily living prevention</td>
<td>Assisting people to reflect on their falls and to understand the causes of happening was helpful to build confidence.</td>
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<td>To decide whether intense exercise could decrease fear of falling better than wellness education in people with previous falls</td>
<td>Cluster-randomized Duration of 48 weeks Sample of 291 women and 20 men (age range: 70-97)</td>
<td>Tai Chi was useful to decrease the fear of falling than a WE program in frail older adults. Tai Chi should be considered in the program to reduce falls.</td>
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<td>To show the challenge of increasing elderly to the society and economy.</td>
<td>Literature review</td>
<td>The increasing number of the elderly had been the heavy burden for the society.</td>
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<td>Literature review</td>
<td>It was identified that the weakness muscle may become one of the risks of falling down.</td>
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<td>Yoshida-Intem, S. 2007. A global report on falls prevention epidemiology of falls. World Health Organization.</td>
<td>To show the condition of falls and prevention of falls in the global</td>
<td>Literature review</td>
<td>There were many different kinds of important factors related to falls in the world.</td>
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</table>