

FALLS PREVENTION AMONG ELDERLY

A SYSTEMATIC REVIEW

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Abstract

Falling is a common problem for the elderly and a great challenge to the community because it not only affects the mental and physical health of the elderly but also increases the economic burden on the healthcare system. This study provides an understanding of the role of nurses in managing and preventing falls among the elderly.

A systematic literature review was conducted during this study. Fifteen research articles were selected from Pubmed, EBSCOhost (Medline and Elite) from the last 10 years and analyzed. Jean Watson's Theory and Self-Care Deficit Theory are used to clarify the nurse's role in supporting the elderly to prevent and manage falls.

The results are presented in five categories including physical condition, cognitive problem, environment, clinical guideline statement and communication. The importance of self-care and the role of nurses in taking care of the elderly to help avoid falls has been shown. Ongoing research in this topic is of great importance as it provides nurses with more knowledge to support the elderly.

Language: English

Key words: fall, fall prevention, fall management, elderly, nursing care

Table of Contents

1	Introduction.....	1
2	Background	3
2.1	Falling phenomenon among elderly.....	3
2.2	Types of falls.....	4
2.2.1	Accidental falls.....	4
2.2.2	Physiology falls.....	5
2.3	Main risk categories.....	5
2.3.1	Intrinsic risks.....	6
2.3.2	Extrinsic risks.....	7
2.3.3	Behavioral risks.....	7
2.4	Tools of fall assessment.....	8
2.5	Consequences of falls.....	8
2.5.1	Impacts of falls for elderly.....	9
2.5.2	Impacts of falls for community.....	10
2.6	Fall prevention.....	11
3	Aim.....	13
3.1	Research questions.....	13
4	Theoretical framework	14
4.1	Jean Watson’s Theory of Transpersonal Caring.....	14
4.2	Self-Care Deficit Theory.....	17
4.2.1	Theory of Self-care.....	18
4.2.2	Theory of Self-care Deficit.....	18
4.2.3	Theory of Nursing Systems.....	19
5	Methodology	20
5.1	Systematic Literature Review.....	20
5.2	Data Collection and sampling.....	21
5.2.1	Selection Criteria.....	21
5.3	Data analysis.....	23

6	Ethical Considerations	25
7	Results	26
7.1	The role of nurses in the prevention falling among elderly.....	27
7.1.1	Nutrition.....	28
7.1.2	Visual Impairment	28
7.1.3	Disease.....	29
7.1.4	Medication	30
7.1.5	Fear of falling	31
7.1.6	Physical Exercise	32
7.1.7	Environment safety.....	33
7.1.8	Foot and footwear.....	34
7.2	The role of nurses in the management of falling among elderly	35
7.2.1	Clinical Guidance Statement.....	35
7.2.2	Communication.....	36
8	Discussion	38
8.1	Discussion of the result	38
8.2	Discussion of theory framework	40
8.3	Limitation	40
9	Conclusion.....	42
10	References.....	44

Appendix 1	Overview on the article
Appendix 2	EBSCOhost (MEDLINE) Search History
Appendix 3	EBSCOhost (Elite) Search History
Appendix 4	PubMed Search History

1 Introduction

Nowadays the world's life expectancy is generally increasing, most people can expect to live to sixty and beyond. The increase in both the size and the proportion of elderly people in the population has occurred in most countries of the world. According to statistics by 2030, one out of six people will be over 60 years old, and the proportion of the population aged 60 and above will increase to 1.4 billion people from 1 billion in 2020. Most notably, the world population aged 60 and over will double, reaching 2.1 billion by 2050. Along with that, the number of people aged 80 and over will reach 426 million, a figure which is expected to triple from 2020 to 2050 (WHO, 2021).

Increasing age means that the body becomes aging. It leads to the accumulation of many impaired cell types and molecules over time. Longevity goes hand in hand with increased health care needs. Old age is not a disease, but old age creates favorable conditions for diseases to arise, making mild diseases easy to become severe or encountering accidents in daily life which are sometimes very dangerous. It is very important to reduce the risk factors that cause accidents for the elderly. If we think that old age is a challenge for mankind, then falls among elderly are a great challenge (WHO, 2021).

Among unintentional injury deaths globally falls are the second leading cause. It is estimated that every year 684,000 people die from falls, of which more than 80% are in low- and middle-income countries. Data shows that the majority of people who die from falls are adults over 60 years old. In addition, there were 37.3 million falls with serious injuries requiring intensive medical care. Accompanying that problem is the huge financial cost of support due to fall-related injuries. For example, the average health system costs per fall injury in the Republic of Finland and Australia are US\$3611 and US\$1049 for those aged 65 and over, respectively, which is not must be a small number (WHO, 2021).

The most frequent adverse event affecting the recovery of elderly hospital inpatients is falls in the elderly. Falls not only affect current health but also potential problems in the future. Therefore, fall prevention is one of the methods affecting the health recovery of elderly inpatients at the hospital. However, it is necessary to identify cost-effective and effective methods to prevent falls (Haines, 2013).

Fall is understood as the case where someone falls to the floor or the ground unintentionally. Through this form of fall prevention, it is possible to reduce the cost of medical care in countries and reduce the amount of time the nurses, who are assigned to take care of patients with falls, can be reduced. Moreover, preventing falls can also contribute to improving the quality of life, preventing complications and falling-related diseases significantly (Duffy, 2013).

Nurses are responsible and have an important role to play in improving aged care. Therefore, the need to improve advanced knowledge in the field of elderly care is indispensable for nurses. They need to expand their knowledge and practice in the new field of aged care. However, due to limited evidence of good quality to guide staff practices and assist them in implementing fall prevention procedures in nursing care (Chan, 2019).

The overall question of this thesis are the factors that nurses must consider ensuring that the elderly avoid the risk of falling and can move safely. In addition, the role of nurses is also shown to contribute to the increase of positive outcomes in elderly care. The thesis has described, studied, and addressed the main issues, which is necessary for nurses in preventing falls among elderly.

2 Background

To make the topic easy to understand, this section provides important information for the description of the topic. This section goes into each important detailed aspect of the issue so it should be broken down into several parts including different components of falling such as falling phenomenon of the elderly, risk factors and treatment.

2.1 Falling phenomenon among elderly

Fall is defined as lying on the ground or in another lower position, sometimes a body part is attacked, collided, and then fall. Usually, events caused by acute disturbances such as stroke, seizures, orthostatic hypotension, sensory impairment, and social isolation. Most falls are not fatal. Falls have consequences ranging from mild to severe (Moylan, 2007).

Home community care services provide personal care, family support, social support and are often long-term, helping millions of the elderly around the world live independent lives. However, the falling rate of elderly people who are using community care services is more than 50% higher than those who were of the same age group, but they did not use the service and did not tend to participate in fall prevention activities or exercise (Burton, 2021).

The increasing demand for the elderly in need of long-term care becomes a challenge not only for society to ensure the quality of life of the elderly but also to bring life satisfaction to the elderly. That is why today's nursing homes are not merely a place to prevent and treat chronic diseases affecting the elderly, but also a place to pay attention and improve the quality of life to meet the needs of the elderly. It brings the satisfaction of elderly people who are living in nursing homes (Wolff, 2013).

However, cases of elderly people in nursing homes falling higher than majority of the elderly live in the community. Although the majority of falls in nursing homes do not result in serious injury, fractures, which are common, are serious enough to require hospitalization. Bathrooms and private rooms for the elderly are where falls occur, accounting for 75% of falls in nursing homes. In addition, falls are easy to occur during movement (Chan, 2019).

Consequences of trauma have reduced quality of life and caused poor functional outcomes. Even in the case of severe trauma, such as hip fractures or traumatic brain injury, these effects continue for a long time. The elderly is more likely to fall than younger people, and even with the same type of injury, the consequences of a fall are more severe in elderly than in younger people (UYMAZ, 2021).

The elderly not only deteriorate in physical health, but also face many neurological problems. Common ones are epilepsy, Parkinson's disease, stroke, migraine, multiple sclerosis, Alzheimer's, and other dementias. Mental health and sensory function should be assessed and followed to reduce the risk of falls in the elderly. Elderly patients with mild to moderate neurological impairment also resulted in a three-fold increased rate of falls compared with those without symptoms of neurological impairment. Nurses should know that all elderly neuropsychiatric patients are at high risk of potential falls, need to find out if there is a previous fall history and develop a fall prevention plan for elderly (Homann, 2013).

2.2 Types of falls

Falling is a condition that can happen to anyone even in good health, most often in the elderly. There are many causes of falls, so it is possible to classify falls into many types to have appropriate prevention methods. Falls can be classified as accidental falls and physiology falls.

2.2.1 Accidental falls

Accidental falls have the characteristic that environmental hazard factors are the cause of falls in patients, judged to be at low risk of falling, patient slipped, tripped due to spilled water or urine on the floor, or have some other bugs. Even when using the intravenous support, the patient can fall if the wheels get stuck, they stick together or the top of the intravenous poles stick to an obstacle such as a door, all of which cause the patient to lose balance suddenly and cause a fall (Morse, 2008, p. 10).

Accidental falls are a major cause of life-threatening complications, requiring intensive medical care, and this puts pressure on hospitals to increase staff capacity and how to use

resource of healthcare workers present efficiently. Accidental falls cause 4.6% of the workdays for elderly, and even 5.6% of the workdays for elderly women. The medical costs are huge and place a significant burden on the use of inpatient services in Kuwait (Ibrahim, 2021).

2.2.2 Physiology falls

Physiology falls, for easy understanding, can be divided into anticipated physiological fall and unanticipated physiological fall (Morse, 2008, p. 9).

Anticipated physiological falls are falls that occur in patients identified as susceptible to falls by risk of falling. These are falls that occur in patients with pre-determined risk factors for falls such as altered mental status, abnormal gait, and frequent need to go to the bathroom. Predicted physiological falls account for 78% of all falls (Morse, 2008, p. 11).

Most cases involve circumstances where the risk can be predicted, so that preventive action can be taken. The most predictable physiological falls account for the greatest proportion, if necessary, measures and precautions can be taken to effectively prevent falls. In addition, following and monitoring risk groups helps to reduce the consequences of falls, using a minimum of resources and costs (Kafantogia, K., Katsafourou, P., Tassiou, A., & Vassou, N., 2017).

Unanticipated physiological falls stem from factors that are physiologically related but cannot be predicted. This type of falls is unpredictable falls, often occurring in a patient at low risk of falling but can also be due to physiological causes such as a seizure, stroke, or fainting. This condition leads to unexpected falls. For unanticipated falls, a fall prevention strategy is needed to avoid any injury. For example, patients with Parkinson's disease are taught how to fall to avoid dangerous injury (Morse, 2008, p. 11).

2.3 Main risk categories

Three different categories of risks can be identified: intrinsic, extrinsic, and behavioral. These categories correspondingly related to the human body, environment, behavior, and activities (Boelens, 2013). The following parts present about potential risk in each of these categories.

2.3.1 Intrinsic risks

Intrinsic risk factors are risk factors that are related to the human body and physical rehabilitation. First is the problem of mobility, it takes up highest rates of falls among elderly, which are associated with people who are getting older. When their strength and muscles decline, and daily living activities become difficult and then impossible perform. These people are able to get up from their chairs but are unable to stand and have increased fear of falling. Aging leads to weakening of muscles, decreased balance, thinner bone density and susceptibility to rheumatic diseases, decreased range of motion and strength are physiological abnormalities that lead to changes in body shape. Slow gait is significantly associated with risk of falls, balance abnormalities, and affects independent functioning of elderly (Ray, 2008).

During the COVID-19 pandemic, many countries implement strict controls and house quarantine to slow the spread of pandemic and reduce transmission, especially imposed on the elderly. This leads to low mobility, causing physiological disorders in the body, in bone and muscle tissue engine system for a long time. No physical activity cause muscle weakness, decrease endurance and muscle atrophy in the elderly. That increase risk of fall for elderly (UYMAZ, 2021).

The aging process in the elderly leads to sensory impairment, especially poor vision in the elderly. These impacts reduced mobility, limited opportunities to participate in social activities and caused disease susceptibility. As the elderly decline in mobility, it will lead to an increased risk of obesity, leading to an increasing incidence of chronic diseases such as diabetes, hypertension, and cardiovascular disease (Ray, 2008). Prescription medications have been shown to be an important contributing factor to falls. Drugs such as benzodiazepines, neuroleptics, sedatives, and antihypertensive are some of the medications which are known to be associated with increased falls in the elderly. Furthermore, sleep disorders are also common among the elderly. Sleep disturbances make it difficult for them to fall asleep at night but lead to daytime sleepiness. It slows down the response of the body and impairs memory and concentration. All of the above intrinsic factors increase the risk of falls in the elderly (Boelens, 2013).

2.3.2 Extrinsic risks

External factors are related to the environment. Environment is defined as everything that interacts with humans. The time of day when the risk of falls is more likely is the afternoon time. That may be because people are more tired in the afternoon and nursing staff work less afternoon shifts in facilities. Besides, there are reasons such as slippery floors, especially bathrooms which are often the area where falls happen. The same risk is also found in kitchen areas. Thick carpets cause the elderly to lose balance, disturb their gait and fall easily. Furniture, which is not changed to suit the user's needs, or placed in the wrong position is also a risk that leads to an increased risk of falls in the elderly. For instance, the seat is too low, making it difficult for the elderly to stand up, losing balance and easily falling (Boelens, 2013).

Besides, environmental factors such as poor lighting in the room, and type of walking aid for the patient also affect the risk of falling. Depending on the height of the bed, the height of the chair may or may not be suitable for the patient's reach, in the toilet or in the bathroom where there are no handrails when standing, or there may be improper use of the furniture. While these factors are not specifically linked to disease, they can increase the impact of fall injuries caused by intrinsic factors. This category plays an important role to prevent fall among elderly (Kafantogia, K., Katsafourou, P., Tassiou, A., & Vassou, N., 2017).

2.3.3 Behavioral risks

Activity-based behavior is considered behavioral risk factors. Fear of falling may be related to activity limitation. However, limiting activities related to falls can lead to lower limb strength and poorer fitness and reduced maximal muscle strength. This reason leads to more falls and disability. Besides, there are elderly who are more active, they engage in risk-taking behavior related to indoor hazards, such as changing light bulbs, or moving furniture from one place to another. Those activities involve risk-taking and affect the rate of falls among the elderly (Boelens, 2013).

Hurrying, walking, sitting or being sedentary are common reasons for falls in the elderly. They often walk more slowly, with a change in walking pattern that makes them more

prone to tripping. This can be the cause for falls to happen frequently. Younger people may be more flexible to avoid accidents, but elderly people's reflexes are not as agile as when they were younger, making them more prone to falls. Moving or changing positions account for 41% of falling cases. Elderly people who are able to stand but cannot maintain an upright posture are facing the highest risk to fall (Boelens, 2013).

2.4 Tools of fall assessment

By uncovering the causes, factors, and events leading to falls, detected through specific assessment tools, the risk of falls is reduced. These assessments are performed by medical professionals and followed by appropriate preventive action. One of these is the use of The Stopping Elderly Accidents, Deaths, and Injuries (STEADI) Tool, which has the potential to screen fall risk and enhance the coordination of fall prevention resources between community and clinical practice (Lohman MC, Crow RS, DiMilia PR, Nicklett EJ, Bruce ML, Batsis JA., 2017).

Falls among the elderly have many causes. Therefore, there are always different assessment tools to assess the risk of falling. For example, there can be a gait and balance assessment tool using the Timed Up and Go test (TUG), Performance-Oriented, Mobility Assessment, and Berg Balance Test. Walking speed is an indicator of health status in the elderly, which can be used to predict future falls. The Short Physical Performance Battery (SPPB), which is a physical activity assessment tool, can also be used as a comprehensive assessment of the physical fitness of the elderly associated with traumatic falls. Finally, FRAT-up is a recently proposed predictor that can give the probability of a drop at least once in a one-year period (Palumbo, 2015). The purpose of the fall risk assessment tools (FRAT) is to determine fall risk levels and specific risk factors and to plan strategic measures to prevent falls (Nunan, 2018).

2.5 Consequences of falls

Falls are significantly associated with morbidity and mortality in the elderly, which will bring significant burden on healthcare workers and organizations that provide and

enhance health care for the elderly. Falling in the elderly, in addition to causing injury after a fall, also affects the quality of life, which is related to the cost of treatment.

2.5.1 Impacts of falls for elderly

Fall-related injuries in the elderly mostly do not lead to death, but there has been a number of elderly people who die from falls every year. According to Statistics Finland increasing age increases the incidence of falls leading to death.

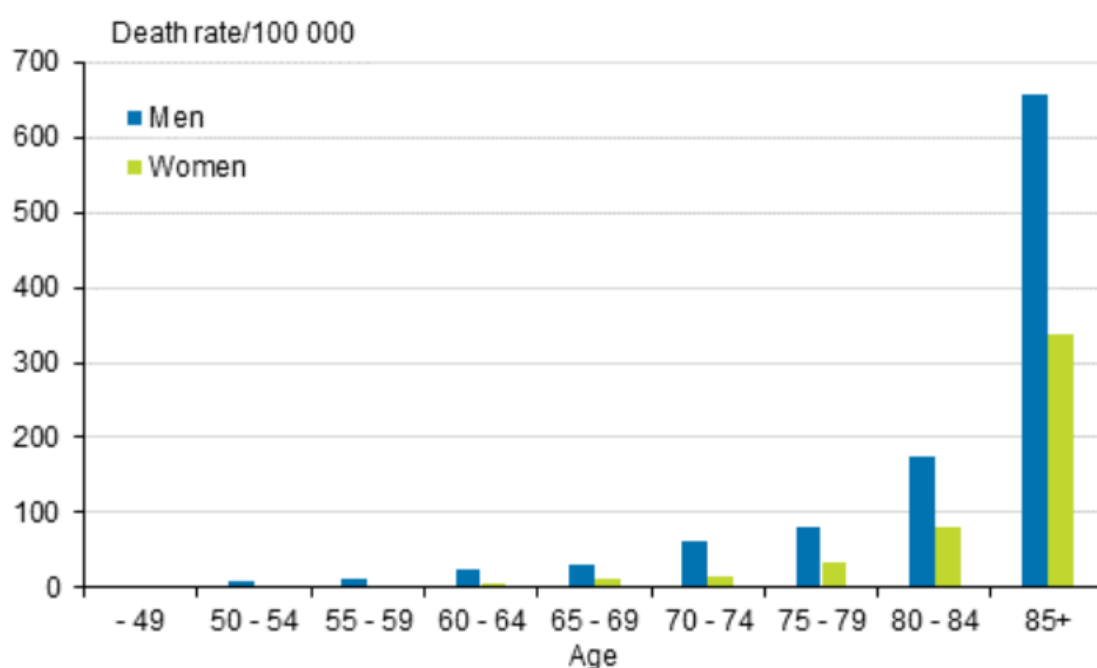


Figure 1: Men's and women's mortality from accidental falls by age in 2017

In Finland in 2017 there were just under 10 fatal falls for patients under 35 years old, while the majority involved people over 75 years of age. The median age of death from falls was 81 years for men and 88 years for women. Furthermore, the number of deaths caused by men falling was in all age groups consistently higher than for women (Statistics Finland, 2018).

After one year falling and getting hip fractures the decline in function and health of the elderly takes place rapidly, which reduces the quality of life. In the event of a fall and serious injury such as a hip fracture, upper or lower limb fracture or traumatic brain injury, the impact of fall occurs in the long time and the recovery process in the elderly often takes longer than other ages (Boyé, 2013). Elderly people with previous falls were twice as likely

to have a fear of falling than those who had never fallen; they suffer from poorer health, impairment of function, and loss of autonomy even after their sociodemographic factors and health status were remedied. (Lavedán, 2018).

2.5.2 Impacts of falls for community

Falls are the leading cause of hospitalization. Treatment costs due to falls account for 5% of the total medical costs. Medical expenses for treatment falls include direct or indirect costs. Direct costs include medical services, nursing care, diagnostic tests, medications, medical care and support in the home, room, and bed at the treatment site. Expenses provided by the family, relatives, friends are considered indirect cost. Medical expenses for personal care for people at age 65 and older are on the rise all around the world. The average healthcare system cost per fall injury for people of age 65 and older is US\$3611 in Finland and US\$1049 in Australia (Boyé, 2013). In the Netherlands, from 2007 to 2009, the number of people at age 65 and older who visited an Emergency Medical Center each year were related to an average of 3% falls with an estimated medical cost of €675.4 million annually. In particular, falls leading to fractures account for 80% which represents €550 million. The cost of medical care for a woman falling is €9990, which is higher than that for men, €7510. Medical costs for care also increase with age, with people from age 65–69, it is €3900, but it mounts to €14,600 for falls among people over 85 years old. What's more, up to 47% of all falls occur in people over the age of 80, accounting for 66% of total medically necessary care costs. Besides, it also leads to an increase in nursing work and long-term home care activities after falls of the elderly (Hartholt, K. A., Polinder, S., van der Cammen, T. J., Panneman, M. J., van der Velde, N., van Lieshout, E. M., Patka, P., & van Beeck, E. F., 2012).

Not only elderly people who have fallen once are afraid of falling again, but even those who care for them are concerned about the risk of falling again for the elderly in care. In some cases, caregivers try to prevent or help an elderly person to get up, only to accidentally injure them. This inadvertently affects both parties. For elderly family members with a history of traumatic falls, they may have to change their jobs or routines to spend time caring for the elderly if they don't go to a nursing home. These changes inadvertently put them in a state of isolation from society; they become tormented and

anxious. This anxiety affects the caregiver's physical and mental health about the care process, becoming a burden for the caregiver (Ang, 2018).

2.6 Fall prevention

Falls are one of the common incidents occurring among the elderly not only in the family but also in hospitals or nursing homes. Falls lead to damage to patient's health, necessitate medical care and increase the cost of medical support, thus increasing labor resources. However, falls can be prevented, and the risks and consequences of a fall can be reduced if it occurs. Each risk factor has its own methods of prevention. These includes developing a personalized fall prevention program to reduce the risk and prevent falls in the elderly (Morse, 2008, pp. 11-12).

Ensuring a safe environment helps to prevent the accidental fall. Creating a safe environment which is free of obstacles also eliminates the cause of falls. Falls occur both among people with normal gait but are more likely to occur among people with abnormal gait. Especially in patients with altered gait, some may find it difficult to lift their leg or move a misaligned leg. Therefore, the environmental hazards must be removed to help prevent the risk of falls. To achieve the goal of ensuring a safe moving environment, there should be a coordination between cleaning the room to removing obstacles, wheelchairs, walking aids, beds that need to be checked by technical staff. This includes brake and side rails; additional handrails need to be installed if necessary. Anticipated physiological falls are prevented by identifying which objects are likely to fall and then taking preventive measures such as change drugs to increase concentration, muscle strength and improve gait through physical therapy or instruction in the use of a walker. In addition, nurses can help by having a care plan to reduce the risk of falls, such as strengthening the patient's check-up, being able to wake them up and assisting them to go to the restroom at night. Unanticipated physiological fall does not anticipate the first fall, so it cannot be prevented, and it is difficult to recognize the risk of falling in this case. For example, nurses may not know if a patient can suffer from convulsion until it happens, so interventions to prevent falls are at risk the next time around, e.g., instructing patients how to get up slowly if they experience low blood pressure which causes dizziness, or getting them wear a protective pad to prevent falls and fractures (Morse, 2008, pp. 13-15).

Nurses play an important role in helping to eliminate the risks and prevent factors associated with falls in the elderly, thus helping to improve the quality of life of the elderly. At the same time, the role of nurses performing well in preventing falls for the elderly also contributes to saving medical care costs and reducing the time allotted to take care of patients with falls (Luzia Mde F, Almeida Mde A, Lucena Ade F., 2014).

The nurse plays an active role in guiding the patient to avoid the risks of falls. When communicating with patients about the risk of falls, nurses should be cautious about mentioning them because some patients are at risk for the effects of fear of falling. Nurses should gently approach them to help them see how that might change. In addition, the nurse provides helpful information on interventions, mentioning the ability to increase self-reliance, improving mobility, and actively participating in daily interests and activities of the elderly. However, nurses must be prepared for the possibility that the measures mentioned for patients may not be agreed and followed by them. Then such patients have the right to make their own decisions about the health care services and diseases they may suffer from. The nursing care plan for the elderly, to prevent falls, is made by the nurse, taking into consideration factors such as health status, risks, age, and physical condition. In addition to the patient himself, family members and social networks in the community also need to be guided by nurses on how to take precautions to support the elderly (Registered Nurses' Association of Ontario, 2017).

3 Aim

The purpose of the thesis is to enhance the knowledge and gain better understanding of the nurse's role in the prevention and management of falls among elderly people. To achieve the goal of the study, it was first important to provide information that clarifies the risk factors associated with falls among elderly. Moreover, the thesis will define the role of nurse in preventing fall for elderly.

3.1 Research questions

According to the aim of the research, question would be provided as follows:

What is the role of nurse in management and preventing fall among elderly?

4 Theoretical framework

Jean Watson's Theory of Transpersonal Caring combines with Self-Care Deficit Theory of Nursing, which is developed by Dorothea Orem, has been utilized for the conceptual framework of this thesis. A theory in nursing research can be defined as an abstract generalization that explains how phenomena are related to each other. Theory serves as evidence, providing direction for research, which in turn provides guidance for practice (Polit & Beck, 2021, p. 112). The theories used in this thesis aim to guide the research and make the findings of this research more meaningful, integrating the acquired knowledge into coherent systems, forming a comprehensive result.

4.1 Jean Watson's Theory of Transpersonal Caring

Watson's Philosophy and Science of Care was developed from notes while she was taking an undergraduate course at the University of Colorado, which was published 1979 and showed how nurses take care of patients and how to translate nursing care into better health care plans to keep patients healthy. According to Watson's theory, the humanities of nursing work are emphasized when placing an alternating relationship between nursing practice and scientific knowledge. She drew the theory from the experience of working of psychologist, philosophers and the connection with the wisdom and vision of Florence Nightingale (Alligood, 2014, p. 81).

The wisdom of the French philosopher Emmanuel Levinas (1969) and Danish philosopher Knud Løgstrup (1995) was chosen as basic foundational to develop the first book "Caring Science as Sacred Science" of Watson. In addition, concurring with the views of Carl Rogers and other recent writers of transpersonal psychology, Watson demonstrates an interpersonal emphasis and transpersonal qualities of congruence, empathy, and warmth. Watson also found that Carl Rogers' phenomenological approach to the problem of the nurse's role was not to manipulate or control the patient but to help the patient during a period of "clinicalization". That became the standard for nurses to follow, and it could also be called patient control and manipulation (Alligood, 2014, p. 81).

Watson considers caring to be ethical and ethical ideals of humanistic and interpersonal nursing. The conceptual elements of theory include the 10 carative factors, the transpersonal caring relationship, caring occasion, caring movement, caring, and healing model of theory. The carative factors were expanded to relevant concept of Caritas which comes from Latin word, that means "to cherish, to appreciate, to give special attention, if not loving attention". It plays the role as a guide to what is considered the core of nursing. The first three elements form the philosophical foundation of the science of care, and the remaining seven are rooted in that foundation. Especially, in the ninth element of supporting the satisfaction of human needs, Watson presents hierarchical needs as follows: Lower biophysical needs can involve nutrition, fluids, elimination, and ventilation. The lower psychological needs will refer to the passiveness and tendency of sexual attraction. Higher-order psychological needs can be related to attainment, getting connected, the demand for communication within oneself and with other people, and how a person sees themselves, and believes that nursing is the art of creating and manifesting in the moment of caring for the sick (Alligood, 2014, pp. 82-83).

These carative factors are showed in Table 1 below:

Table 1: Watson's Carative Factors and Caritas Processes

Carative Factors	Caritas Processes
1. "The formation of a humanistic-altruistic system of values"	"Practice of loving-kindness and equanimity within the context of caring consciousness"
2. "The instillation of faith-hope"	"Being authentically present and enabling and sustaining the deep belief system and subjective life-world of self and one being cared for"
3. "The cultivation of sensitivity to one's self and to others"	"Cultivation of one's own spiritual practices and transpersonal self going beyond the ego self"
4. "Development of a helping-trust relationship" became "development of a helping-trusting, human caring relation" (in 2004 Watson website)	"Developing and sustaining a helping trusting authentic caring relationship"
5. "The promotion and acceptance of the expression of positive and negative feelings"	"Being present to, and supportive of, the expression of positive and negative feelings as a connection with deeper spirit and self and the one-being-cared for"
6. "The systematic use of the scientific problem solving method for decision making" became "systematic use of a creative problem solving caring process" (in 2004 Watson website)	"Creative use of self and all ways of knowing as part of the caring process; to engage in the artistry of caring-healing practices"
7. "The promotion of transpersonal teaching-learning"	"Engaging in genuine teaching-learning experience that attends to unity of being and meaning, attempting to stay within others' frame of reference"
8. "The provision of supportive, protective, and (or) corrective mental, physical, societal, and spiritual environment"	"Creating healing environment at all levels (physical as well as nonphysical, subtle environment of energy and consciousness, whereby wholeness, beauty, comfort, dignity, and peace are potentiated)"
9. "The assistance with gratification of human needs"	"Assisting with basic needs, with an intentional caring consciousness, administering 'human care essentials,' which potentiate alignment of mind body spirit, wholeness, and unity of being in all aspects of care"
10. "The allowance for existential-phenomenological forces" became "allowance for existential-phenomenological-spiritual forces" (in 2004 Watson website)	"Opening and attending to spiritual-mysterious and existential dimensions of one's own life-death; soul care for self and the one-being-cared for"

(Alligood, 2014, pp 82)

Watson's theory covers four key concepts: nursing, people, health, and environment/society. According to Watson, nurses are interested in understanding health, disease, and human experience, thereby promoting, and restoring health as well as contributing to helping patients prevent disease. In addition to following the procedure, and techniques used in the practice setting, the nurse-patient relationship leads to a therapeutic outcome during interpersonal care. Watson mentions human is a valuable creature and they need to be cared, respected, raise up, understood, and helped. That is the integrated full functions. The concept of health is referred to as the totality of physical and mental health, the ability to adapt to daily activities, maintain the absence of disease, or a sense of effort to keep oneself disease-free. For nurses, caregiving attitudes are not naturally passed down from generation to generation. Instead, how to deal with the environment work created the culture of the nursing profession and spread widely. Nurses have a role to support, protect, and/or rehabilitate patients in the work environment.

Watson emphasizes on environmental issues and connecting people, healing spaces can be used to helping others through illness, pain, and suffering just as when a nurse walks into a patient's room can give them hope (Alligood, 2014, pp. 85-86).

Watson uses language flexibly to artistically describe concepts, without resorting to advanced techniques, but simply like care-love, important elements and caritas. These concepts are simple but abstract, difficult to express, fully explain care-love but practice and experience that broadens understanding of this concept. The use of long sentences and phrases as well as the use of metaphors, artwork and poetry create tangible concepts that are more aesthetically appealing. However, it can be difficult for nurses with limited knowledge of the liberal arts, especially when it comes to interpreting the existential-phenomenal nature of the theory. For nurses who want specific instructions, they may not feel safe trying to use this theory as it gives no clear direction about what needs to be done to achieve results in the care-healing relationship (Alligood, 2014, p. 88).

4.2 Self-Care Deficit Theory

Orem expresses her views on nursing practice, nursing education, and nursing science based on extensive research on nursing practice situations, and work experience. In some cases, patients are encouraged to do the best they can. Patients have the right to more independence after being cared for by doctors and nurses. According to Orem's theory, nurses play an important role in educating, providing, and supporting patient's safety. The primary role of caregiving is to provide guidance to people on how to take care of themselves and others. The theory also supports patients and their family in maintaining health control by practicing more self-care. This is a large-scale nursing theory, covering a wide range of general concepts applicable to all nursing cases (Alligood, 2014, pp. 241-242). The theory developed by Orem suggests that people tend to not pay enough attention to self-care, often expecting support even though self-care can reduce the risk of health problems. In addition, there is also the case of caring for those around them because those people cannot take care of themselves due to an intractable illness. However, people who take care of themselves or care for others sometimes do not have enough knowledge to apply the practice in the necessary situations, leading to the risk of a lack of ability to take care of themselves. Orem theory include three interrelated

theories, the theory self-care, self-care deficits and nursing systems. In which, self-care deficits contribute to determine the important role of nursing (Alligood, 2014, p. 248).

4.2.1 Theory of Self-care

To sustain life, health, growth and well-being, individuals must have a sense of self-care and consideration. This is a regulated function of man, each person's activities to maintain health and well-being. When there is a need for self-care, the individual who is able to meet that demand can take care of themselves, which is an action system (Polit & Beck, 2021, p. 117). Elderly people need to know self-care support them in maintaining a healthy lifestyle and improve their quality of life, avoiding or reducing the injured accident by falling.

Self-care sets people apart from other types of regulation human activity and development, in relation to neurodevelopment. Self-care must be tailored to individual needs and conducted intentionally, with constant updates. Because depending on the stage of growth and development, health status, specific features of health, and environmental factors, self-care can be tailored (Alligood, 2014, p. 248).

4.2.2 Theory of Self-care Deficit

A self-care deficit occurs when the self-care agency is insufficient to meet a person's self-care needs. Orem's theory explains that patients need nursing care when their self-care needs exceed their capacity. Theory Self-care deficits explain the reason a person gets benefit from nursing (Polit & Beck, 2021, p. 117). Self-care deficit is understood as a relationship between individuals' abilities to perform caring actions and their care needs. It has an abstract meaning, when expressed as action limit, provide guidance for selection ways to help and understand patient roles in self-care (Alligood, 2014, p. 248).

Nurses can select and combine methods related to requests of individuals who require nursing care and their health-related action limits. Orem has identified 5 methods of helping, which are doing or working for another, teaching patient, directing patient, supporting patient, and providing environment for the patients to promote personal development about meet future demands (Alligood, 2014, pp. 246-248)

4.2.3 Theory of Nursing Systems

Nursing systems theory focuses on the relationship between the nurse and the patient receiving therapeutic self-care from a self-care provider, where nursing can be considered as human action. Nursing system is designed and carried out by nurses, with its purpose to help individuals, dependent care units, groups with members have therapeutic self-care needs or those with self-care limitations (Alligood, 2014, p. 248).

This theory includes three types. The first type is whole compensatory that giving total care to a person. Second type is partially compensating when the patient limited mobility due to illness. The last type is nurses only provide supplemental health care to patient who is capable of learning from performance. According to this nursing theory, in the nurse-patient relationship, the nurse is considered as an agency that takes action by taking care of the patient and providing customized self-care therapies that meet the needs of the patient's demand (Alligood, 2014, p. 248).

5 Methodology

Systematic literature review was used in this thesis. Systematic literature review that provides aggregated evidence for a specific topic interested by another context, summarizes the results of multiple studies for clinical support decision. Understanding how systematic review can be beneficial in conduct systematic reviews of nurse as well as the decisions made by those based on those reviews. By using Systematic literature review, this thesis presents and elucidates the problem of falls among elderly through a synthesis of previously recognized evidence of practice (Davies, 2019).

5.1 Systematic Literature Review

The systematic literature review is based on selected research areas, conducting critical analysis of relevant previous studies. Based on the research objective, the problem to be solved will determine the examination, evaluation, summarization, and comparison of each relevant prior research study. Overview of documents that contribute to the transmission tell the readers what is known about a research topic, strengths and weaknesses among the studies presented in the review so that they can be applied in clinical practice. The identification, evaluation, and succinct presentation of findings from a synthesis of individual studies are based on a predetermined exact scientific design and reusable, thereby contributing to the reduction of deviations that are considered is the goal of systematic review (Polit & Beck, 2021, pp. 690-691). The systematic literature review based on the valuable evidence used in the thesis also helps readers understand the source of knowledge to support the research.

Important steps in a system evaluation includes predefined selection objectives through defining the aims of the study and setting up research question should first be formatted. A systematic search targeting all studies meet the criteria, the validity of the study results, and synthesize and present the findings of the included studies. That is sing resources from databases, gray literature, screen literature based on relevance of the title and abstract to the research question, full-text literature based on relevance to the research question then conducting an analytical assessment, synthesize information, meet the main requirements and processes in a systematic review (Polit & Beck, 2021, pp. 690-691).

Based on this basis, the systematic literature review used in this thesis is conducted by formulating the research question, then selecting from the contract to search and select the reliable database. The last step is to analyze and synthesize relevant information to the topic, answer the research question of the funded topic based on the selected relevant documents (Davies, 2019).

5.2 Data Collection and sampling

Articles used in this thesis were released within the last 10 years. The thesis uses reputable databases such as EBSCOhost MEDLINE, EBSCOhost Academic Search Elite and PubMed. To access those databases, the thesis used FINNA, a search engine that provides access to the library and electronics of the Novia University of Applied Sciences. The most relevant keywords and phrases were selected for use in the search. Key words used include 4 categories are related to fall, prevention, elderly, and nursing care. Besides, the thesis uses the combination of these keywords and substitutes their synonyms that were used to create the search words on databases such as (elderly or aged or older or elder or geriatric) AND (fall or falling or falls) AND (prevent or preventing or preventive or assessment or management or research) AND (nursing homes or care homes or long-term care or residential care or aged care facility). The articles searched were published by renowned nursing journals, including British Journal of Community Nursing, Health and Social Care in the Community, International Archives of Integrated Medicine, Canadian Medical Association journal, The Medical clinics of North America. In addition, important information used in this thesis was obtained from a number of valuable national websites, including the World Health Organization (WHO). From there, the source for searching preliminary documents used to write the thesis is reviewed and selected to clarify the topic content of the thesis.

5.2.1 Selection Criteria

Over the years, in database and keywords, the thesis also has the following limiting factors in the process of finding articles:

- The articles have been full text.

- Articles that are peer reviewed.
- Articles are written in English from world organizations and different countries such as Australia, Canada, United States.
- Articles related to nursing, health sciences and bases on the evidence.
- Articles related to care for the elderly, convalescence and falls in the elderly.
- The total number of articles found is 466, of which 154 articles were found on EBSCOhost Academic Search Elite, 180 on EBSCOhost MEDLINE and on PubMed the search data resulted in 132 articles. The result of searching articles on EBSCOhost Academic Search Elite and MEDLINE were downloaded in ".ris" format and from Pubmed was saving "Pubmed.format". When collecting file export from databases enough, Mendeley Desktop was using to avoid duplicates, which is a merge tool. After removing duplicate articles, based on abstract continue to remove inappropriate articles. The data collection process is summarized in a PRISMA flowchart as below:

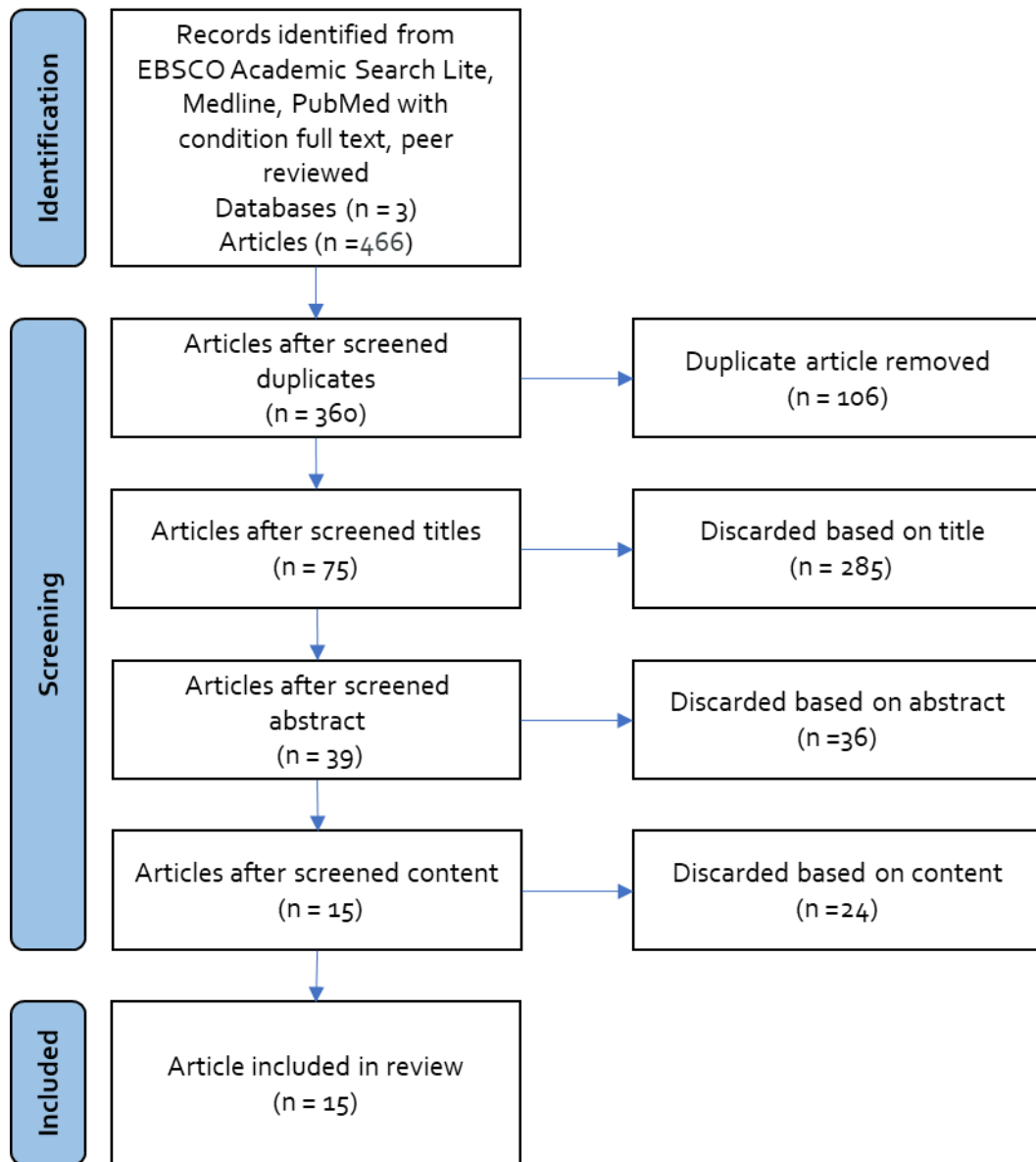


Figure 2: PRISMA flowchart showing the searching process

5.3 Data analysis

Content analysis can be understood as a process of analyzing and integrating information based on the expansion of topics and concepts. This process will transform the vast data source into smaller but conceptually meaningful thematic content. The main purpose of content analysis is to develop an organized structure for extracting meaning from data (Polit & Beck, 2021, p. 556).

Qualitative content analysis combines sections together, bringing new meaningful patterns through inductive process. This way relates to breaking down data collection into

smaller parts, putting code and name for content (Polit & Beck, 2021, pp. 562-564) based on selected articles for research, conducting relevant qualitative content analysis. This section presents a brief analysis of the documents in order to provide solutions and answer the research questions of thesis.

Firstly, the data is summarized from the collected literature, all the purposes are presented, and results of each individual scientific paper on one table. Next step, selected articles have been scrutinized with key ideas extracted, then sorted into code, thematically analyzed such as category and subcategory with similar subject names to identify and interpreted. After classifying the data, the last and most important step is to draw conclusions from the data (Polit & Beck, 2021, pp. 557-558). This is the stage of data interpretation to find answers to research questions, specifically risk factors among elderly, and infer the meanings and relationships with the nurse's role in preventing falls in the elderly.

6 Ethical Considerations

This study ensures compliance with the responsible conduct of research (RCR) requirement provided by The Finnish Advisory Board on Research Integrity (TENK, 2021).

The research process of all academic disciplines in Finland must follow the RCR guidelines. On the Advisory Board website, the names of organizations that have committed to the RCR guidelines are publicly available. The research process should be fully and meticulously documented, and present and evaluate research findings according to principles accepted by the research community. The work and achievements of other researchers must always be valued by respecting their work, so it is imperative that their publications be cited if they are used in a research thesis.

All sources used in this thesis are written according to the thesis guidelines of Novia University of Applied Sciences. In particular, plagiarism and failure to specify the source of the reference in the essay are always warned and avoided because it is an act against educational ethics. Ethics is the foundation in conducting research in general and nursing education in particular and protecting society. An absence of a proper awareness of ethics can lead to unethical research cases. In addition to protecting human and animal rights, ethical nursing research also adheres to integrity requirements, intolerance for research misconduct such as plagiarism, fabrication, and falsification data (Polit & Beck, 2021, p. 151).

Using other people's work without obtaining their prior permission will be called plagiarism. This is also a common threat in scientific research, penetrating the research of nursing. This negatively affects the reputation of the profession (Smriti, 2020). The thesis complies with the requirements of forgery, plagiarism throughout the research process.

7 Results

Through the process of reviewing and identifying the main topics mentioned in the reviewed documents, the results section presents relevant findings and answers to the research objectives of this thesis. The content of qualitative analysis in this thesis contributed to making use of selected research content of 15 previously identified and published studies. Details of the studies identified for analysis are summarized in appendices 1. The results are visualized through the series of categories and sub-categories illustrated in Figure 3. In addition, this figure is also the basis for the following chapters as below:

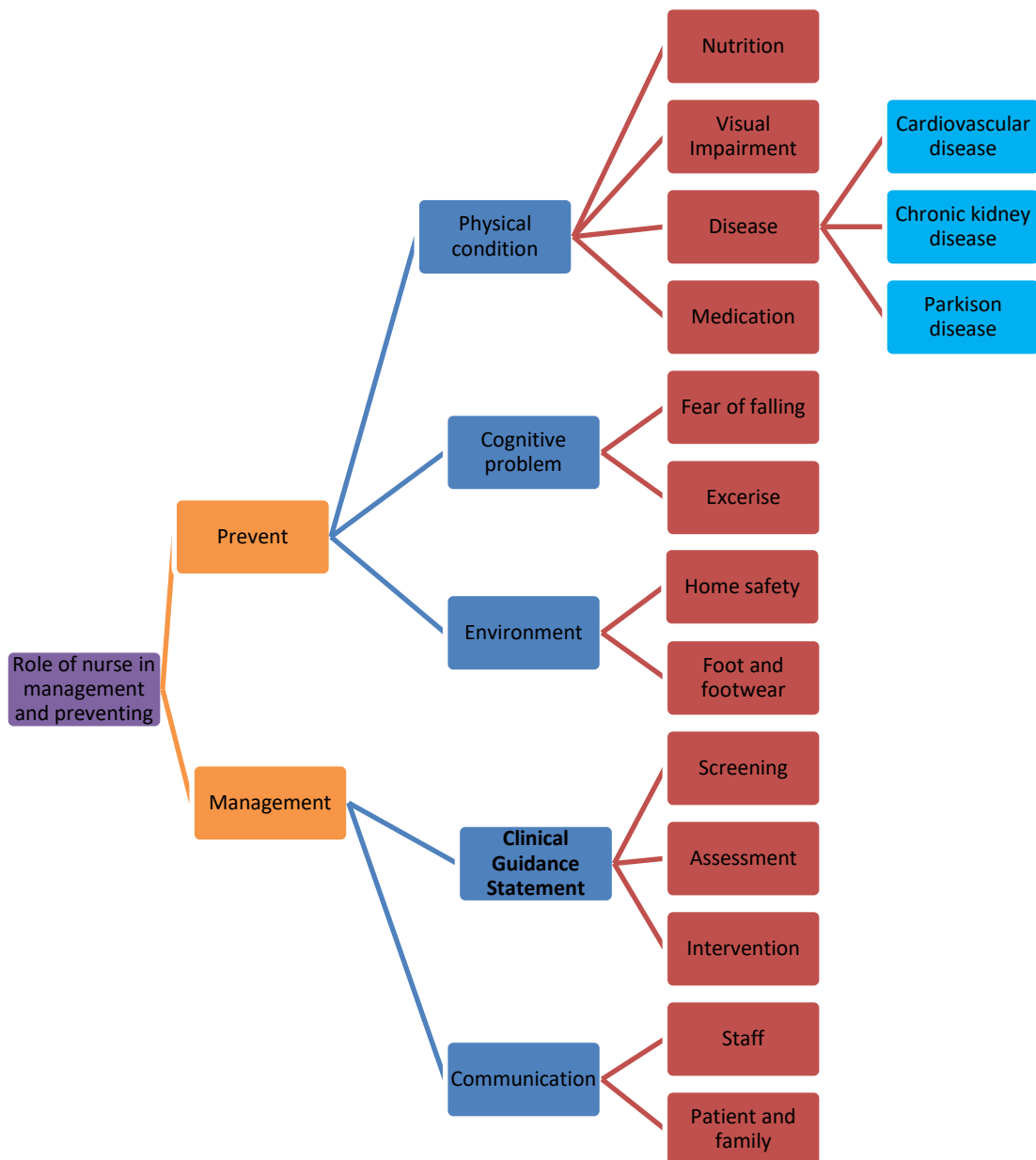


Figure 3: Main categories and subcategories

7.1 The role of nurses in the prevention falling among elderly

The risk and phenomenon of falls among the elderly have been and are being deeply concerned. The risk factors for falls stem from many factors. Therefore, the role of nurse in fall prevention will be an effective measure in terms of improving the quality of life for the elderly and economically for society.

7.1.1 Nutrition

The process in which the body consumes and transforms food into nutrients for the body to generate energy for nourishment body cells as well as contribute to the growth of the body is called nutrition. In the elderly, low nutritional status will lead to low muscle mass and muscle weakness, reducing mobility as well as activities of daily living in the elderly (De Guzman, A., Ines, J. L., Inofinada, N. J., Ituralde, N. L., Janolo, J. R., Jerezo, J., & Jhun, H. S., 2013).

Nutrition has been found to have a negative impact on one of the indicators of risk for falls, specifically the use of ambulatory aids" (De Guzman et al., 2013)

When the body is severely deficient in nutrition that is included in red meat, poultry, fish, eggs, and cheese, it leads to malnutrition. It is a condition associated with a predisposition to illness requiring medical attention and increasing the rate of falls in the elderly due to weak, loose muscles and osteoporosis is more common than other ages. Nurses value the importance of nutritional supplements for the elderly and strive to prevent the health declination trend due to malnutrition (Lannering, C., Ernsth Bravell, M., & Johansson, L., 2017).

"If inadequate diet and malnutrition could be avoided, it might be possible to prevent health decline and also reduce hospital admission rates" (Lannering et al., 2017).

7.1.2 Visual Impairment

For the elderly, impaired vision as well as poor reflex sensitivity, loss of depth perception of the surrounding environment contributes to falls.

"People with vision impairments fall as much as two to three times more often than those without impaired vision" (Kingston, 2018).

Problems with poor vision are often caused by aging, such as glaucoma, cataracts, and macular degeneration leading to a decline in perceiving depth and sensing contrast. This is also one of the reasons that increase the risk of falls heighten the fall risks in the elderly. Many studies have proven that many falls are caused by visual impairment, so it is the nurse's responsibility to provide information about vision correction for the elderly, such

as cataracts that can be operated on. It should be performed if necessary to improve vision in the elderly or use appropriate glasses. Elderly should choose to wear single lens glasses instead of multifocal lenses because the latter reduce the ability to sense contrast and see depths and hence increasing the risk of falls (Luk JK, Chan TY, Chan DK, 2015).

“Multifocal lenses may increase fall risk by reducing contrast sensitivity and depth perception in the lower visual field when mobilizing. As such, older individuals should wear single lens glasses, especially when performing outdoor activities” (Luk et al., 2015)

7.1.3 Disease

As we age, accidental falls become more common. However, some reasons leading to falling develop gradually. Such a reason can be decreased blood pressure which leads to imbalance in the body, fainting or loss of consciousness. This is related to cardiovascular disorders, which can be associated to a common possible and overlapping causal path. Apart from the shared cardiovascular associations, a higher rate of depression is reported in patients with frequent falls relating to syncope (Bhangu, J., King-Kallimanis, B. L., Donoghue, O. A., Carroll, L., & Kenny, R. A., 2017).

“Low blood pressure, intermittent arrhythmia and heart failure have all shown associations with falls risk in epidemiological studies” (Bhangu et al., 2017)

Investigating the cause and seeking cardiovascular interventions is indicated for those with hypotensive falls and concurrent syncope. Pay attention to check and monitor all risk factors for falls for the elderly as they lead to syncope or long-term hypotension such as vasomotor syndrome, postprandial hypotension, arrhythmia cardiac and structural heart disease such as valvular stenosis, hypertrophic obstructive cardiomyopathy, atrial tumor. In addition, in elderly patients implanted with a dual-chamber pacemaker for carotid sinus hypersensitivity, cardiac inhibitors support significantly fewer falls, as well as to some extent limit fall-related injuries (Luk et al., 2015).

Chronic kidney disease is a global and age-related public health problem. Patients with chronic kidney disease have a high rate of cognitive decline, depression, reduced physical strength, and reduced mobility, making them weak and vulnerable. Therefore, elderly people with chronic kidney disease are more likely to fall, and if they do fall, they are also

more likely to break bones due to renal osteodystrophy. Therefore, understanding the cause of accidental falls, and then carrying out screening high-risk patients, avoiding the consequences of falls in the elderly should be focused on by nephrologists and nurses (Goto NA, Hamaker ME, Willems HC, Verhaar MC, Emmelot-Vonk MH, 2019).

"Among patients with chronic kidney disease (CKD) who experienced a serious fall incident, nearly one in five died within a year of the fall" (Goto NA et al., 2019).

When the elderly has Parkinson's disease, causing chronic progressive neurodegeneration, or symptoms of tremor, rigidity, bradykinesia, and postural instability, they are prone to falls (Kader M, Iwarsson S, Odin P, Nilsson MH., 2016).

"People with PD have an increased risk for falling as compared to others of the same age" (Kader et al., 2016).

7.1.4 Medication

Vitamin D deficiency is common in the elderly, which is related to the rate of falls through increasing the strengthen of muscle and reduce the risk of falling. That's why vitamin D and calcium supplements play an important role in preventing falls. Given 700 to 1000 IU of vitamin D per day, fall rates improved by up to 90%. Therefore, the daily supplementation of 800 IU of vitamin D for patients in the inpatient care home is promoted (Luk et al., 2015).

"Vitamin D can strengthen muscle and hence reduce falls" (Luk et al.,2015).

Many drugs are used to treat certain conditions that have been shown to increase the risk of falls in the elderly, e.g., tranquilizers or diuretic. The use and dosage to be used apply only when other interventions have not been effective. Polypharmacy is a phenomenon where the elderly suffers from many diseases at the same time, this is a fairly common phenomenon for the elderly when the body's aging takes place. However, the combination of drugs leading to an increased risk of falls should be used with extreme caution. Changing dose or frequency, or even discontinuing use, should be done with a caution in mind and with clinical instructions after careful examinations of both risks and benefits for drugs that increase risk of falls in the elderly (Luk et al.,2015).

"Many drugs, psychotropic medications and antihypertensive agents in particular, are related to falls" (Luk et al., 2015).

According to one study, only 21% of a sample of fall-related medications used to be tapered or discontinued as prescribed by a physician. In particular, the group of drugs that have the potential to increase the risk of falls in the elderly are benzodiazepines, which has been proven by interventions to reduce or stop the drug in 49% of cases. Therefore, nurses must pay more attention to the contribution of drugs to treat falls in the elderly (Phelan EA, Aerts S, Dowler D, Eckstrom E, Casey CM., 2016).

"A recent observational study that focused on a single class of fall-risk-increasing medication (benzodiazepines) found an intervention to decrease or stop the medication in 49% of case" (Phelan et al., 2016)

The use of different drugs to treat or relieve the symptoms of certain diseases is common in the elderly. However, the use of such drugs has the potential to affect body systems such as alpha blocking effect Orthostatic hypotension use in treatment lower urinary tract, Benzodiazepine use to antidepressant which affects balance, gait and may increase the risk of falls in the elderly. Vitamin D supplementation has a positive effect on the elderly in preventing falls and fractures. Using vitamin D alone or in combination with calcium contributes to a significant reduction in risk. The number of falls in the following elderly can be reduced by improving bone strength, reducing hip and vertebral fractures (Poscia, A et al., 2018).

"Vitamin D alone is unlikely to prevent hip fractures or any new fracture, but when used with calcium can slightly decrease the risk of hip fracture and significantly reduce the risk of non-vertebral and any other new fracture" (Poscia A, 2018).

7.1.5 Fear of falling

A number of factors can be used to predict the risk of falls in the elderly such as female gender, high age, patients with more than three chronic diseases requiring treatment, sedentary activities related to the lower extremities, living alone without family, limited muscle strength and especially having fallen in the past even once. Falling in the elderly leads to many serious consequences not only in terms of physical injury but also

psychological trauma, bringing about the fear of falling. This fear does not only happen to elderly people who having experienced a previous fall, but even people who have never fallen before in their lives (Oh E, Hong GS, Lee S, Han S, 2017).

"Fear of falling is a common problem among community dwelling older adults, even for those who have not yet experienced a fall" (Oh E et al., 2017).

For the elderly, when they are afraid of falling, they will lose confidence in all daily activities, become isolated from society, leading to depression. Therefore, when a fall occurs in the elderly, it is also a signal for functional decline status and likelihood of elderly needing to be taken to elderly care facilities, elderly more prone to falls consuming more health care resources than those who do not lay off each year (Luk et al., 2015).

"Fear of falling, loss of confidence in walking, social isolation, and depression can also occur" (Luk et al., 2015).

Fear of falling is a common psychological phenomenon associated with the consequences of falling. Besides, the fear of falling also affects the caregiver's psychology, leading to overprotective actions to support and avoid falls. Although the purpose of this action is good, it unintentionally reduces the independence and autonomy of the elderly in some daily activities. Therefore, the nurse's role in providing expert information and guidance to patients and caregivers on how to deal with concerns when they fall is an important factor that cannot be ignored (Ang SGM, O'Brien AP, Wilson A., 2018)

"Carers may experience similar fall concern as older persons with regard to the risk of falling" (Ang SGM et al., 2018)

7.1.6 Physical Exercise

The elderly often suffers from serious injuries and death from accidental falls. However, the exercise method contributes effectively to preventing and reducing the risk of falls in the elderly with many exercises and methods which combines different intensity and frequency. Fall prevention exercises for the elderly can be taught by therapists, various exercise specialists, and even nurses (Haas, R., Maloney, S., Pausenberger, E., Keating, J. L., Sims, J., Molloy, E., Jolly, B., Morgan, P., & Haines, T., 2012).

"Exercises for fall prevention can be prescribed by a range of health professionals, including physical therapists, occupational therapists, nurses, various exercise professionals, or even people without specific health professional training" (Haas et al., 2012).

In addition to focusing on strength training, improving muscle strength, exercise also aims to make balance exercises a priority in a regular exercise routine to prevent falling among elderly. The effectiveness of exercise such as fall prevention can be accomplished through a number of popular exercise programs such as Tai Chi. It helps train a combination of body balance and muscle strength with slow body movements which contribute to reduces both the rate of fall and falling risk (Luk et al., 2015).

"Multi-component exercises, including strength, endurance and balance training, either in a group or home-based, have been shown to reduce both rate and risk of falling." (Luk et al., 2015).

Besides, Otago is also a widely available exercise program designed and proven to prevent falls for the elderly. This is an exercise program that combines a series of exercises to re-balance and strengthen old exercises through movements such as standing, getting up from a sitting position, taking stairs or walking. Along with companionship such as home visits or encouragement calls, this Otago program has had a positive effect on the elderly living in the country, especially those who have experienced falls (Bjerk M, Brovold T, Skelton DA, Bergland A., 2017)

"Balance exercises comprise tasks in standing, walking backwards, stair-walking and rising from a chair" (Bjerk et al., 2017).

7.1.7 Environment safety

The living environment is an important factor affecting the quality of life of the elderly. It is also considered a risk factor for falls. So, through the assessment of the elderly's living environment, falls can be prevented. Therefore, in order to reduce the risk of falls in the elderly, it is important for nurses to provide and explain the importance of maintaining a safe environment in the home and possible modifications to help prevent falls, and the elderly feel more secure in daily activities. handrails should be installed in areas where the

elderly may be at risk of difficulty walking such as toilets and stairs, maintain proper lighting in the home in accordance with the vision of the elderly. The use of light bulbs with High glare should be avoided as they cause glare. Besides, avoiding the use of slippery carpets is also a preferred measure in adjusting the living environment of the elderly (Luk et al.,2015).

"Home modifications can effectively reduce risk of falls in the community, and include removal of floor mats, painting the edge of steps, reducing glare, installing handles, and improving lighting" (Luk et al.,2015).

Home modifications are a low-cost but highly effective intervention for fall prevention in the elderly. By simply making changes, eliminating the risks associated with daily life, the elderly will feel safer from the risk of falling due to the day of use of goods in their living environment (Phelan EA, Aerts S, Dowler D, Eckstrom E, Casey CM., 2016).

"Home modifications represent a low-cost, high-return intervention to reduce fall injuries" (Phelan EA et al., 2016).

7.1.8 Foot and footwear

Footwear is one of the common reasons leading to the risk of falls in the elderly because it affects the balance of the body. Sports shoes with thick soles affect posture and high heels interfere with balance so both are not suitable for elderly people. Nurse should advise patients to use non-slip shoes outdoor. Wearing low heel shoes and strong anti-slip sole, will be safer for activities both inside and outside the house. Besides that, valuable advice can come from pediatricians, prosthetics, and orthopedists. The study also addressed the problem of foot orthopedics, using appropriate footwear combined with foot and ankle exercises to reduce the rate of falls in the elderly (Luk et al., 2015).

"Foot and footwear problems are common but are often ignored. Footwear influences balance and risk of falls. High-heeled shoes have been shown to increase falls in older people" (Luk et al., 2015).

7.2 The role of nurses in the management of falling among elderly

Falls in the elderly have prevalence rates, affecting the health and quality of life of themselves and those around them, and consuming economic costs for the public in treatment. The cases of falls in the elderly stem from many factors, so if only a few single factors are intervened, it will not be effective. On the contrary, if the intervention is used for all patients with falls, it is poor economically efficient. Nurses play a vital role in controlling falls among the elderly.

7.2.1 Clinical Guidance Statement

Fall in the elderly have become a matter of great concern to the health sector, through existing clinical practice guidelines related to contributing to the prevention and reduction of falls risk in the elderly. These guidelines don't just focus on the role of physical therapists but also towards the role of the nurse (Avin KG, Hanke TA, Kirk-Sanchez N, McDonough CM, Shubert TE, Hardage J, Hartley G, 2015).

"Many aspects of fall risk management inherent within these 3 areas of screening, assessment, and intervention" (Avin et al., 2015).

For older adults who are screened and identified as high risk for falls, multifactorial assessment is needed. The assessment should include past medications, current medications, body function, structure and activity. Information obtained from assessment beyond fall risk determination, towards treatment. It is necessary for nurses to identify the characteristics to use appropriate assessment tools and measures to assess the risk of falls in the elderly. That can be evaluation of the impact of factors such as limited activities of daily living, low negative awareness, impaired body balance, habit of using alcoholic beverages, poor footwear. Assessment of risks or benefits prescription and over-the-counter drugs should be carefully considered to rule out drugs that can cause falls. In addition, indoor safety assessments such as the use of removable rugs and carpet folds or other mobility hazards are all risk factors for falls that must also be assessed (Avin et al., 2015).

"A multifactorial assessment is recommended for older adults who screen positive for fall risk" (Avin et al., 2015).

However, the application of fall risk assessment tools may not be effective due to their inconsistency in the scenarios where they were built. Using clinical judgment can be suitable for evaluation instead. One study demonstrated that clinical judgment compared with fall risk assessment tools was more accurate in predicting falls in the elderly rehabilitation unit (Singh, H., Flett, H. M., Silver, M. P., Craven, B. C., Jaglal, S. B., & Musselman, K. E., 2020).

"It may be more appropriate to assume all patients are at a risk for falling or base the fall risk assessment on clinical judgement" (Singh et al., 2020).

From screening and assessment, nursing offers appropriate interventions to manage falls in the elderly. Discussing with patients, family members, and healthcare professionals about recommendations regarding medication use, nutrition or physical impaired aging may be needed. Specific interventions such as balance and gait impairment can be managed directly and efficiently by a physiotherapist or exercise such as yoga or Tai Chi (Avin et al., 2015).

"There is agreement that an individualized exercise program, including both strength and balance training, should be implemented for those at risk for falls" (Avin et al., 2015).

7.2.2 Communication

Communication between patients and caregivers, and between caregivers is a key factor important, common alignment of policies and procedures before and after reduction. When identifying patients at high risk of falling, there should be an exchange and communication of information between staff and patients. In addition, there should be communication with unit managers and about falls including preventing falls and post falls with the elderly. Communication in the above cases can use many different tools (Singh et al., 2020).

"Communication amongst and between staff, patients, and caregivers was an essential component of both the pre-fall and post-fall policies and procedures" (Singh et al., 2020).

A variety of communication methods are needed in pre- and post-fall policies and processes. Before a fall occurs, the patient should be informed by the caregiver and nurse about the level of fall risk based on clinical assessment. In different environments,

different care will have different communication tools, measures, signs such as putting orange sticker on room plate, marks in yellow on mobile devices, yellow bracelets on patient and verbal communication of information, and keeping a diary of the patient's day when nursing shift change. Beyond the signage and marks, nurses can help find the root cause of elderly falls and provide guidance, fall prevention education for them (Singh et al., 2020).

"Communication prior to a fall involved sharing a patient's level of fall risk with staff members involved in the patient's care at all sites" (Singh et al., 2020).

The provision of patient's educational materials is recognized by the facility as an essential means of communication for fall prevention and rehabilitation. An important element of communication for fall management is that the unit manager and family member or surrogate decision maker must be notified immediately after the patient falls. Furthermore, if a patient falls, that information must also be communicated for all employees in departments, places to take care of the elderly (Singh et al., 2020).

"Communication is a pivotal aspect of fall prevention" (Singh et al., 2020).

Inconsistency in methods of communication lead to different communication strategies between different facilities. Some previous studies have recognized that communication gap is flawed in effectiveness fall prevention. To solve this problem challenge, need to use fall prevention tools such as patient handling or moving sign with standardization communication resources to reduce falls in the elderly (Singh et al., 2020).

"Visual signage is often used to identify a patient with a high risk of falling. Previous literature has recognized that communication gaps were shortcomings in effective fall prevention" (Singh et al., 2020).

8 Discussion

This chapter presents a discussion of the research findings and the theoretical framework used to conduct the research. It contributes to clarifying the nurse's role in preventing and managing falling among the elderly.

8.1 Discussion of the result

The elderly who lives in the community and at home are at greater risk of falls due to the convergence of many factors as their bodies age and they experience serious consequences from falls. Falling in the elderly does not affect all aspects of elderly life, but also affects the community in terms of human resources and economy.

Based on peer-reviewed articles, it can be seen that most of authors agreed that physical condition such as nutrition, visual impairment, disease, and medication have affected to fall among elderly. Living alone can make elderly feel lonely when they are eating, someone will loose appetite. Some people are unable to realize their own weight, and unintentional weight changes due to memory impairment. Poor nutrition is a risk factor for falls in the elderly. It gradually leads to malnutrition and the body's poor resistance to physical impact. In settings that provide health care for the elderly, especially those who are assessed to be at high risk of falls, to reduce falls, an adjustment strategy, appropriate nutritional supplements should be included clinical practice.

When people age, the ability to vision becomes impaired over time, a high probability of falling is more likely to occur in elderly people with impaired vision. Sensitivity and poor contrast vision lead to reduced depth perception, affected balance, movement as well as environmental factors, light leading to an increased risk of falls. Aging causes the body to change, muscles become weaker, suffers from many diseases such as: heart attack, angina, heart failure, transient ischemic attack, stroke, thrombosis, Parkinson, lower urinary tract that make the body lose balance, easy to fall. Moreover, the use of drugs to treat, these meditations may increase the risk of falls in the elderly due to their side effects.

In addition, there are elderly people who suffer from high frequency of urination, urgency, uncontrolled urges, and nocturnal is also a frequent subject of falls. Nurses can educate,

communicate to convey instructions to individuals about signs and symptoms and how to recognize them. The risk of falls may be increased when the elderly has cardiovascular disease, become dizzy and unsteady, lose balance and fall. It is essential that the nurses teach the elderly how to get up from a lower position to a higher position.

The elderly with Parkinson's disease will have chronic progressive neurodegeneration, have symptoms of tremor, rigidity, rapid and unsteady walking, inability to rotate the arm. Hence the gait is not balanced, making these people to easily fall. It is possible to equip the elderly with a device that can send signals when they need help in walking, are in danger of falling or when they are falling and need support.

In general, the use of drugs affects the risk of falls in the elderly. The goal of reducing the amount or dose of drugs is limited and changing the type of drug should be followed by the clinician's prescription and weigh the risks and benefits. Nurses need to pay attention to patients who use drugs with side effects that can easily cause falls, inform, and instruct them on how to adjust their walking and standing posture when changing positions.

When the elderly has a history of falling before, they tend to fear falling again in the future. However, the more anxious they are, the less active they are, the weaker their muscles are, the more likely they are to fall again. Therefore, the elderly should be encouraged to participate in some exercise programs such as yoga, Tai chi to strengthen muscle strength, and increase reflexes for the body.

Besides some authors have mention about environment safety and the poor footwear that were agreed. Through adjusting and arranging a safer living environment slipping or tripping could be eliminated. The lighting in the bedroom needs to be enhanced or more support handle and anti-slip floor should be installed inside and outside shower in the bathroom. For stairs, it is necessary to install handrails on both sides, and they should be fully lit. The light switch should be made easy to access by installing it at the foot and the top of the stairs. Besides, the elderly also needs to be encouraged to use suitable shoes to avoid slipping due to wet floor.

Besides prevention, the management of falling among the elderly also requires the contribution of nurses. It is important that nurses follow the Clinical Guidance Statement process from screening, assessment to intervention, identification, classification, and assessment of the risk status of elderly people who are likely to fall to take appropriate

care measures. Nurses need to learn how to comply with the process and discuss with colleagues and management in the workplace about the risk of falls and falls that occur with patients to have a solution to the problem as well as providing the best prevention methods to the elderly.

8.2 Discussion of theory framework

One point worth mentioning is using Jean Watson's Theory of Transpersonal Caring and Self-Care Deficit Theory of Nursing contributed to answering the research question of this thesis.

Orem's theory contributes to clarifying the importance of how the elderly should take care of themselves when they are deprived of care or feel helpless, before being cared for by nurses or health care agencies. When the elderly can improve their sense of self-care and know how to take care themselves better. It leads to the quality of life is increased, and the welfare of the society is also improved. This theory is useful when applied in preventing falls in the elderly, equipping the elderly with knowledge to focus on taking better care of themselves, less dependent.

According to Jean Watson's Theory, nurse focus on patient care, treat them with dignity, respect, and compassion. It leads to form a bridge of relationship with the patient about understanding and trust. Moreover, it is especially important for nurses to understand the value of their role in the management of falling among elderly. Nurses must consider and plan for safe interventions, provide guidance through communication with colleagues, patients' family members and patients so that avoiding and reduce the consequences of falling among elderly.

8.3 Limitation

The scope of data collection, the selection of articles for analysis will be influenced by the personal decisions of the author. It may not provide a comprehensive, complete analysis of the thesis topic based on articles collected and selected for analysis.

This thesis provides information about on the role of nurses in the prevention and management of falls among elderly but is still incomplete due to the limited collection and

analysis methods. Most of the articles selected for analysis focused on identifying the causes of falls in elderly, not focusing on the role of nurses in preventing and managing falls. In order to have more reliable information on the role of nurses in the prevention and management of falls among the elderly, future studies need more data on the effectiveness achieved after applying these methods. It is also a limiting factor that the review of this document is performed by one person. Literature reviews require at least two researchers to prevent bias in systematic literature reviews. If there is participation of two or more researchers, it will contribute to the thesis to improve the quality of discovery content and increase the reliability of the thesis.

9 Conclusion

The purpose of this study was to explain and clarify the nurse's role in preventing and managing the risk of falls among elderly who depend on supportive services at home or in care centers.

For nurses, it is necessary to encourage and guide the elderly in a number of activities so that they can move as independently as possible, help restore their former abilities before falling, and prevent further falls. Nurses focus on modifiable factors to prevent falls, popular with methods such as adjusting the diet adequately, supplementing nutrients, especially vitamin D, paying attention to when patients use drugs to treat some chronic diseases in old age with the side effect of causing falls.

In addition, the nurse also gave suggestions and instructions on how to adjust to a safer living environment, avoid obstacles in the house, and use appropriate shoes for both inside and outside the house. An important factor that cannot be ignored is encouraging the elderly to exercise and improve their health even though when they fear of falling or have history of falling before. All these changes do not require too high a cost but bring about high efficiency and higher prospects for implementation.

To reduce the situation that there are cases where interventions are required to be too intensive, too complicated when not really necessary, and in cases where intervention is needed, there is lack of attention for patients about high risk of falling. Nurses can improve this situation by following clinical guidelines, setting the primary care setting through increased screening, assessment, and systematic intervention for high risk of falls.

Moreover, nurses also need to improve and do more research to get more depth knowledge of risk factors and fall prevention methods to communicate with patients as well as know how to timely communicate with colleagues and management at the workplace about falls in the elderly.

In future research, more attention should be put on elderly people living alone with lack of support and education to reduce the risk of falling. More focus should also be put on multidisciplinary fall prevention programs in nursing, because it contributes to the exchange of information in the elderly health care process and plays an important role in the prevention and management of falling among elderly. Such research can contribute

to and enable more effective fall prevention and management strategies, and thus also to making the society better.

10 References

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Appendix 1: Overview on the article

	Tittle, Author, Publication, Year etc.	Aim	Methods	Results
1	de Guzman, A., Ines, J. L., Inofinada, N. J., Ituralde, N. L., Janolo, J. R., Jerezo, J., & Jhun, H. S. (2013) Nutrition, Balance and Fear of Falling as Predictors of Risk for Falls Among Filipino Elderly in Nursing Homes: A Structural Equation Model (SEM).	Structural Equation Modeling (SEM) was used in this study. This model investigates the relationship between diet, balance and the anxiety of falling, as well as the risk for fall in Filipino seniors in institutionalized settings	Quantitative study. A Structural Equation Model: This study was implemented with the voluntarily participation of 269 old people from numerous nursing centers in Philippines. The demographic data, the nutrition status of each participant was collected and measured through a robotfoto and Mini Nutritional Assessment (MNA) respectively.	The investigation on SEM model results that there is no correlation between nutrition status and balance and a good nutrition can decrease the use of emergency services. However, this model also confirmed that a bad balance can be the result from a little fear of falling, therefore, more fear of falling and better balance can help reduce the risk for fall. The outcome yielded from this study contributes a valuable insight to the improvement for the prevention of falling planning.
2	Lannering, C., Ernsth Bravell, M., & Johansson, L. (2017). Prevention of falls, malnutrition and pressure ulcers among older persons - nursing staff's experiences of a structured preventive care process.	This study aims to illustrate the preventive work experience of nursing staff based on the structured preventive care process which was proposed by Senior Alert	Staff from nursing homes and homebased nursing care in 3 different cities were interviewed in 8 focus groups. The interview minutes were analyzed qualitatively after that	This study considered both positive and negative impression about the process. Seemingly, the organized system only partly improves healthcare quality by enhancing the clinical evaluations, planning the team-based intervention and learning from the results. The staff also gave their idea for unreliable validations and the structure which lower the efficiency of the preventive work.
3	Kingston, J. T. (2018). Visual Impairment and Falls: Outcomes of Two Fall Risk Assessments after a Four-Week Fall Prevention Program.	This paper compared some studies which are relevant to the correlation between a bad vision and the risk for fall	Quantitative study. These topics explored the effective methods that minimize falls for people with poor vision and the evaluation of fall risk was used by Western Blind	Home screening, home-safety program and an exercise routine specified for poor vision are the contribution for decreasing falls, these factors were proved to be effective in few studies. Furthermore, as a part of an overall eyesight restoration program, orientation and mobility (O&M) training was

			Rehabilitation Center. Last but not least, a table represented a Matter of Balance with 29 participants, Fall Prevention program an Group Eye condition was examined.	revealed to be able to reduce falls
4	Luk et al. 2015. Falls prevention in the elderly: Translating evidence into practice	The popular problem in elder people are falls. It is the common mistake for the management to only treat the injuries from falls without finding the cause of falls. Therefore, the approach screening for the tendency of falls in old people are crucial.	Targeted examination and focus history are usually combined in the evaluation of falls to screen the risk of falling among elderly. To predict the tendency of falls, emphasis should be placed in timed up-and-go test.	Physical exercises are recommended by the fall-prevention program which is based on evidences. In addition, other solutions can be combines to prevent falls in elderly, those can be starting exercise such as Tai Chi, vitamin D supplement, adjust to get safe environment life.
5	Bhangu, J., King-Kallimanis, B. L., Donoghue, O. A., Carroll, L., & Kenny, R. A. (2017). Falls, non-accidental falls and syncope in community-dwelling adults aged 50 years and older: Implications for cardiovascular assessment	To measure the popularity of fall, the paper analyzed the characterize cardiovascular risk, the falls from non-accidental reason and the syncope in elderly	This study is considered as a prospective and longitudinal cohort study. This study did the experiments in 8172 elderly communities which are aged above 50 years-old in the Republic of Ireland.	the older people get, the more risk for them to have falls in general. However, for the syncope, there is no proof to demonstrate the same rule. All falls including non-accidental falls happen more when people get older.
6	Goto NA, Hamaker ME, Willems HC, Verhaar MC, Emmelot-Vonk MH. (2019). Accidental falling in community-dwelling elderly with chronic kidney disease	This study purports to validate the correlation between the estimation of reduced glomerular filtration rate (eGFR) and accidental falling in elderly who are the patient of University of Medical Center Utrecht (UMCU).	Cohort study. The old patients of Utrecht Cardiovascular Cohort who are equal or higher than 65 years old were analyzed cross-sectionally. They were stratified into various periods of kidney disease.	The study concluded that geriatric patients who are equal or higher than 65 years old with a decreased eGFR have a tendency to fall more frequently than patients having a good kidney function. This outcome seemingly relates to the risky patient with CKD and not with a reduced eGFR itself, because after cleaning up all potential confounders, no relationship has been found

7	Kader M, Iwarsson S, Odin P, Nilsson MH. (2016). Fall-related activity avoidance in relation to a history of falls or near falls, fear of falling and disease severity in people with Parkinson's disease	The current study examined the association of the prevention of fall-related activities and the historical self-recorded of falls or near falls and fear of falling together with the disease severity in patients with PD	251 patients which 60% of them are men were interviewed to collect their data. The median (also min – max) age and PD duration were recorded. A self-filling survey was sent via postal service.	The study has found a connection between avoiding fall-related activities and the historical self-recorded. Primarily, fall-related activities were recorded from people who do not fall and already in the mid-stage of PD (HY I-II)
8	Phelan EA, Aerts S, Dowler D, Eckstrom E, Casey CM. (2016). Adoption of Evidence-Based Fall Prevention Practices in Primary Care for Older Adults with a History of Falls	A retrospective chart review was implemented to evaluate how the elderly patients have experience about falling and healthcare service were assessed with multifactorial risk and intervention.	A retrospective chart review was implemented to evaluate how the patients who are above 65 years old with a history of repeated falls or who use fall-related healthcare service were assessed with multifactorial risk and intervention.	The result of this study proposed to use a structured visit note template as a solution in preventing falls. Besides, STEADI materials, home safety modifications, and increased caution about high-risk medication are some potential methods to avoid falls in elderly. Lastly, raising awareness to the society about fall preventions is also needed.
9	Poscia, A et al. (2018). Effectiveness of nutritional interventions addressed to elderly persons: umbrella systematic review with meta-analysis	The umbrella review (UR) summarized the results of all current systematic reviews (SRs) and meta-analyzes (MAs) for the capability of nutritional intervention which is designed to enhance health in elderly.	Some valid articles published in English and Italian during the period of Jun 2000 and May 2016 were determined in 6 datasets. Studies which are considered as eligible have to examine the nutritional preventions in the population which is above 65 years old. Papers which are valid to be referred have to focus on elderly.	The study has found that to prevent falls and fractures, all kind of supplements with Vitamin D are highly recommended. Moreover, several treatments for example the prescription of supplements, the environmental and organizational programs also give an improvement in energy and protein as well as positive weight outcomes.
10	Oh E, Hong GS, Lee S, Han S. (2017). Fear of falling and	This paper explored the popularity and the factors which	The data of Living Conditions and 2011 Korean	The result showed determined the risk factors for fear of falling. Some preventive

	its predictors among community-living older adults in Korea	potentially predict the fear of falling in the elderly society in Korea	National Elderly Welfare Desire Survey were analyzed, and Logistic Regression algorithms was used to predict the fear of fallings	treatments should be implemented to lower the FOF of Korean elderly.
11	Ang SGM, O'Brien AP, Wilson A. (2018). Fall concern about older persons shifts to carers as changing health policy focuses on family, home-based care	Family nurse shared the same concern of fall risk as the older individuals. Better identification and focus on these considerations can possibly reduce the fall risk and improve the fall prevention for old patients. When the concerns about falls are shifted to the carer's responsibility, it is a timely reminder for us to outsource the family caregiving service from the influence of Asian family culture.	Quantitative study. Retrospective analyses of admissions from the emergency department presented that among 720 patients who have had injuries during 6-months period of the study, 85.3% of them had sustained the injuries from the falls in their house.	This research suggested that the patients can lose their independences with overprotective nurse. However, it is also important for the care giver to know the risk of falls to prevent them from elderly. Not only clients, but also care givers should receive proper supports.
12	Haas, R., Maloney, S., Pausenberger, E., Keating, J. L., Sims, J., Molloy, E., Jolly, B., Morgan, P., & Haines, T. (2012). Clinical decision making in exercise prescription for fall prevention.	This study aims to investigate the factors that affect the clinical decision-making process which is used by experts or physical therapists to give a proper treatment for falls preventions.	24 expert physical therapists were recruited to conduct semi-structured telephone interviews. These interviews concentrated on 3 different aspects of prescription. The interviews collect information about the therapists themselves, their practices, the patients and the environmental elements. These features can	The approaches of highly individualized exercise prescription were applied and tailored for each participant to identify their key findings from physical assessments. On the basis of physiological, a prescription that is theoretically correct is not the same as the one that patients will follow.

			affect the decision-making process in clinic, especially for the choice of designing exercises, types, progression, and dosage (in term of "intensity, quantity, rest periods, duration, and frequency"	
13	Bjerk M, Brovold T, Skelton DA, Bergland A. (2017, 8 14). A falls prevention programme to improve quality of life, physical function and falls efficacy in older people receiving home help services: study protocol for a randomized controlled trial	<p>This randomized controlled trial's main purport is to investigate the efficiency of fall prevention in quality of life, physical function and falls efficacy in elderly who use home care service</p> <p>Secondly, this trial also aimed to analyze the mediators between falls prevention and any other health issues in life.</p>	<p>The study was conducted as a single-blinded randomized controlled trial with the participations from old adults who are equal or higher than 67 years old and using home help service. The joiners must be able to walk with or without the help of walking aid and they must have at least one fall during last year, and their Mini Mental State Examination have to be 23 or above.</p> <p>. On the other hand, the intervention group was received a program including a home visits and encourage phone calls. This program is 12-week lasted and it was based on Otago Exercise Programme.</p>	<p>The main result showed the health-related quality of life. Besides, secondary conclusion is related to leg strength, balance, walking speed, walking habits, activities of daily living, nutritional status and falls efficacy.</p> <p>All evaluations were made at baseline, following during 3 months together with 6 months –follow up</p>
14	Avin KG, Hanke TA, Kirk-Sanchez N,	Physical therapist is recommended to	This CGS was proposed by The	To result the recommendations, the old

	<p>McDonough CM, Shubert TE, Hardage J, Hartley G. (2015, 6). Management of falls in community-dwelling older adults: clinical guidance statement from the Academy of Geriatric Physical Therapy of the American Physical Therapy Association.</p>	<p>follow the clinical guidance statement (CGS) to improve the recognition and control of fall risk in elderly.</p>	<p>Subcommittee on Evidence-Based Documents of the Practice Committee of the Academy of Geriatric Physical Therapy. Using the Appraisal of Guidelines, Research, and Evaluation in Europe II (AGREE II) tool, current CPGs were addressed critical appraised.</p> <p>This process suggested 3 CPGs to be synthesized and summarized and combined with CGS</p>	<p>participants who are using home care provider were asked for the falls last year and their anxiety about "balance or walking"</p> <p>The Diagnose for balance and mobility impairment should be taken into account when monitoring.</p>
15	<p>Singh H et al. (2020, 4 15). Current state of fall prevention and management policies and procedures in Canadian spinal cord injury rehabilitation</p>	<p>an exhaustive layout of fall prevention, the policy of management and proper strategies in Canadian SCI rehabilitation. This study described and made a comparison for those missing in hospitals which are affiliated from Canadian Universities and provide SCI recovery.</p>	<p>All Documents about preventing and managing the falls were investigated at 6 universities – affiliated hospitals</p>	<p>These documents were divided into 3 different sub categories: "pre-fall policies and procedures" "post-fall policies and procedures" "Communication between and amongst staff, patients, and families"</p> <p>The 1st category covers the definition of a fall, the evaluation of the risk for falls, and the strategies to prevent falls.</p> <p>The 2nd category is related to the recovery from a fall, the process of reporting incident and the fall classification.</p>

Appendix 2: EBSCOhost (MEDLINE) Search History

15:55, 31/08/2022

Print Search History: EBSCOhost



Wednesday, August 31, 2022 12:55:47 PM

#	Query	Limiters/Expanders	Last Run Via	Results
S4	(elderly or aged or older or elder or geriatric) AND (fall or falling or falls) AND (prevent or preventing or preventive or assessment or management or research) AND (nursing homes or care homes or long term care or residential care or aged care facility)	Limiters - Scholarly (Peer Reviewed) Journals; Linked Full Text; Date of Publication: 20120101-20221231 Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	154
S3	(elderly or aged or older or elder or geriatric) AND (fall or falling or falls) AND (prevent or preventing or preventive or assessment or management or research) AND (nursing homes or care homes or long term care or residential care or aged care facility)	Limiters - Scholarly (Peer Reviewed) Journals; Linked Full Text Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE	238

Appendix 3: EBSCOhost (Elite) Search History





Wednesday, August 31, 2022 12:50:40 PM

#	Query	Limiters/Expanders	Last Run Via	Results
S4	(elderly or aged or older or elder or geriatric) AND (fall or falling or falls) AND (prevent or preventing or preventive or assessment or management or research) AND (nursing homes or care homes or long term care or residential care or aged care facility)	Limiters - Full Text; Published Date: 20120101-20221231; Peer Reviewed Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - Academic Search Elite	180
S3	(elderly or aged or older or elder or geriatric) AND (fall or falling or falls) AND (prevent or preventing or preventive or assessment or management or research) AND (nursing homes or care homes or long term care or residential care or aged care facility)	Limiters - Full Text; Peer Reviewed Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - Academic Search Elite	249

Appendix 4: PubMed Search History

History and Search Details

 Download  Delete

Search	Actions	Details	Query	Results	Time
#22	...	>	Search: (elderly or aged or older or elder or geriatric) AND (fall or falling or falls) AND (prevent or preventing or preventive or assessment or management or research) AND (nursing homes or care homes or long term care or residential care or aged care facility) Filters: Free full text, Clinical Trial, Meta-Analysis, Randomized Controlled Trial, Review, in the last 5 years	132	09:33:49