



# **Effects of loneliness on mental health of elderly people: The role of the nurse**

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<p>Abstract:</p> <p>This study is a part of Arcadas Lovisa-project about healthy aging which is commissioned by Lovisa City. The purpose of this study is to find out what are the effects of loneliness on mental health of elderly people, what is the nature of relationship between loneliness and health and to discuss what nurses could do about these problems. The research questions were: 'What effects does loneliness have on mental health of elderly people?', 'What is the nature of the relationship between loneliness and health in general?' and 'What should be done by nurses to alleviate the possible adverse effects of loneliness on mental health of elderly people?' Rautasalo et al.'s Geriatric Rehabilitation Nursing Model was used as a theoretical framework. The research method used was literature review with 10 articles. Analysis was conducted using Graneheim &amp; lundman (2004)'s qualitative content analysis in nursing research. Findings shows that loneliness can be a major cause of cognition decline, poor self-esteem, anxiety, depression, restlessness, sleep disorders, alcohol abuse, suicidal behavior, feeling helplessness and threat, behavioral withdrawal, sense of emptiness, shyness, negative emotions, impaired quality of life, disability, higher systolic blood pressure, more use of social and health care services and even mortality. Loneliness can have a bidirectional relationship with poor health and it can correlate with some health disorders to generate new health problems. Nurses can help the elderlies to reduce the harmful effects of loneliness through educating them and leading them to involve in more social activities and group works and also enhancing their health. More studies could be done about the gender differences in perceiving the two types of loneliness and the treatment and prevention processes.</p>	
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# 1 INTRODUCTION

It is natural that human beings search for happiness and social interactions during their lifespan including in their old age, but according to Marcoe et al., Sippola & Bukowski and Lopata loneliness accompanies a significant number of people from very early age till the end of their lives (see Gierveld et al. 2006 p. 485).

Although Loneliness is not solely related to old age, elderly people are one of the most vulnerable age group to the symptoms of this problem (Donaldson & Watson 1995, Hawkey & Cacioppo 2007). According to Luanaigh & Lawlor loneliness is common among elderly people. Andersson argues that the popularity of loneliness has a U-Shaped form among age groups which means that loneliness is more popular among teenagers and older elderly population than among mid-age groups. There are also some indications that the level of loneliness increases in a slow rate among retired people population (see Nummela et al. 2010).

Research has shown that more than 30% of older people in Finland are suffering from Loneliness (Tilvis et al. 2010). It is important to notice that there is not just a single and unique definition for old age or elderly people. In fact many factors such as the birth country, gender and physical health contribute to the old age definition. Even though the United Nations standards do not include an arithmetic criterion for defining old age, but in its documents the age of 60 and plus years refers to the older population group. (WHO 2014)

As Gorman suggests that the process of aging is dynamic biological changes which are mostly out of human being's control. Each different society has own feeling about the old age. While in most of developed countries the age of 60- 65, which is equals to the retirement age is considered to be the start point of old age, in other societies the old age is not related or is less related to the chronological definition of old age. In some developed countries the age which contribute to the loss of role in society due to physical obstacles caused by age factors is considered the beginning of old age (see WHO 2014).

Seemen points out that studies over the period of last decades have indicated that the deficiency of social relationships enhances the feasibility of poor health. The same studies show a continuous increase in social isolation especially in developed western countries. According to McPherson and Smith-Lovin & Brashears a general social survey conducted in United States during year 2004, showed that the participants' statement of "having no one to discuss important matters with" was increased by three times than the same survey in 1985 (see Hawkley & Cacioppo 2007).

Wengner and Burholt suggest that there is a direct relationship between social isolation and loneliness which means the increases in social isolation cause more cases of loneliness. Demakakos, Nunn & Nazroo argue that the level of loneliness during most of the lifespan shows almost stability, but increases among the socially isolated oldest old age (age 85 or older) ( see Hawkley & Cacioppo 2007).

Forbes suggests that the level of loneliness among elderly people is not higher than among adult age group population, but the older people's population and the life expectancy are increasing continuously and so it brings new course of challenges with the oldest-old people's cases. He stresses that the rate of loneliness occurring cases among elderlies changes from few percent up to half of this particular age group population. He also claims that more than thirty percent of elderly people suffer from some sort of difficulties caused by loneliness and even it causes severe health related issues in 10% of mentioned population age group (see Tiikkainen & Heikkinen 2005).

According to International Council of Nurses (ICN) 2006 (see Fry & Johnstone 2012 pp. 212-213), the nurses' four main ethical responsibilities include: To promote health, preventing illness, restoring health and alleviating suffering. It also suggests that the nurses have to respect all the components of human rights which are right to live, to choose, to health, to be treated with dignity and in a respectful way.

The right to health is a very basic and essential right for each individual and the nurses should recognize their responsibility toward promoting and restoring each individual's health (Fry & Johnstone 2012 pp. 69-119). In this code (ICN), four elements are defined about the extent of responsibility of nurses:

1. Nurses and people: Primary responsibility of nurses is to provide care for everyone who needs care. It includes developing an environment in which all the rights of the person in need be preserved. The nurses should provide the person with all information which available about the care process and to be aware that the patients information will be confident.
2. Nurses and practice: Nurses have to try to develop their competency continuously through learning process. They should also preserve their health to be able to provide care for others and to assess their own competency regarding taking responsibility.
3. Nurses and profession: The nurses have to be active in improving the clinical nursing standards, researches, leadership and management.
4. Nurses and co-workers: The nurses cooperate with other health care team members and they have to attempt to maintain the safety of individuals, families and communities in every situation.

As mentioned above, according to the third element of ICN codes of ethics for nurses (2006) nurses have to be active in order to improve the nursing professional knowledge, based on research and studies.

Studies have recurrently shown the elderly people population is very vulnerable to physical and mental diseases (Donaldson & Watson 1995, Hawkley & Cacioppo 2007) and because of their special needs they have to be classified in a higher priority to be served (Fry & Johnstone, 2012 pp. 212-213). I have therefore chosen to study the effects of loneliness on health of elderly people and the role of nurse in preventing and alleviating its outcomes, because firstly, the loneliness is a subject that quit recently has been classified as a clinical and empirical issue by some experts (Peplau & Perlman 1984 pp.123-133) and secondly, the elderly population and the rate of loneliness among elderlies increasing globally (Rautasalo et al. 2008) therefore there will be a great need for further studies.

The purpose of this paper is to find out the possible relationship or correlation between loneliness and health, to see how the loneliness effects the health of older people and especially how loneliness effects on mental health of this age group and to discuss the

nurse's role as a health promoting and alleviating suffering agent. Knowing the effects of loneliness on elderly people's mental health will help us to provide them with more proper care plans. This study is a part of Arcadas Lovisa-project about healthy aging commissioned by Lovisa City.

## **2 BACKGROUND**

According to World Health Organization (WHO), worldwide the proportion of old aged population over 60 years old is growing in a higher rate than other age groups of whole population. Although growing aging population as the result of improvements in public health care and socioeconomic enhancement should be considered as a successful experience, but from the other hand it causes a series of new problems to taking care of physical and sociological needs of this specific group of population (WHO 2014).

The life expectancy age is growing globally but in developed countries it is more prominent. Finland with its life expectancy of 77 years for males and 83 years for females has one of the highest age of life expectancy among other European Union's countries (WHO 2012).

Aging process is an unavoidable and continuous process in human lifespan which starts at the beginning of life and continues until its end. According to WHO every human being of every age including the older aged people should have access to the proper physical and social health care (WHO 2012).

### **2.1 Anatomy of Loneliness**

In this section first several definitions of loneliness will be discussed according to various sources in order to get a clear picture of how experts argue this concept. Later on the author try to compare loneliness to social isolation and have few words about the types of loneliness, risk factors and historical review.

### **2.1.1 Definition of loneliness concept**

There are several different definition about loneliness based on different theoretical approaches which have studied loneliness from different dimensions. Many experts consider loneliness as an unpleasant avoidance behavior, some of them see loneliness as a pathological response and a few of them even see it as a positive event (Peplau & Perlman 1984 pp.123-133).

In some other cases loneliness is defined as a negative feeling which is perceived individually and is connected to the individual's personal experience of lack of social contacts. In these cases loneliness is defined according on two separate basis. One is based on external factors related to not having enough social connections while the other one has its origins in internal causes like the sort of personality and psychological situations (Singh & Misra 2009).

Zilboorg argues that loneliness is a continuous catastrophic event and he equates the loneliness as an internal worm that slowly and continuously eats the heart of the person, a problem that the person can do nothing about it (see Peplau & Perlman 1984 pp.123-133). Perlman and Peplau (1984), who studied loneliness in an empirical context, define the loneliness as an undesirable experience which happens when an individual cannot be satisfied by the quality or the number of social connects which he or she obtains.

According to Rook loneliness is a persistent situation of emotional condition in which an individual feels alienated, refused or misinterpreted by others. In this situation person may suffer from absence of proper social partners for different pleasant interactions, especially the interactions which make the person to feel social integration and give him or her a chance for showing emotional intimacy (see Donaldson & Watson, 1996).

According to Giervald et al. (2006 pp. 485-486) the most recent and repeatedly used definition in European countries is related to Jenny de Jong Gierveld 1987, who expresses loneliness as experiencing a condition in which one can suffer from unacceptable or undesirable quality of specific social connections. This condition may consist the situations



in which the quantity of the social connections is not considered acceptable or desirable or the individual cannot feel the expected quality of intimacy which is wished.

In many above mentioned definitions the central point of loneliness is considered as the assessment of differences between the wanted and the received social connects based on their quantity and quality (Gierveld et al. 2006 pp. 485-486).

### **2.1.2 Historical review of loneliness**

According to Gierveld et al. (2006 p. 485) the oldest document found about loneliness is written by Zimmermann between 1785 and 1786. The first psychological research has been documented by Zilboorg in which he differentiated between lonesome and loneliness. He believed that the loneliness stems from childhood experiences.

Sullivan in 1953 had the same opinion with Zilboorg that the roots of loneliness originate from early ages in human lifespan and it continuously grow up till eventually pop up as a full scaled loneliness phenomenon (see Peplau & Perlman 1984 pp. 123-133).

Later on attempts to define loneliness concept initiated by Fromm Reichman in 1959 with the title of "Loneliness". Her research is the earliest document which is published and speeded very widely. She stated that continuous loneliness results in many psychological problems (Gierveld et al. 2006, Peplau & Perlman 1984). Later on Perlman and Peplau in 1981 started the empirical study about loneliness. (Gierveld et al. 2006 p. 485).

### **2.1.3 Loneliness vs Social Isolation**

Loneliness and social isolation are different concepts but their differences and distinguishing characteristics are not easily seen. Social isolation means a situation, in which the person objectively avoids having relationships with others whereas a lonely person is in a subjective state in which the person is surrounded by negative feelings which stem from social isolation (Nummela et al. 2010, Luanaigh et al. 2012, Tilvis et al. 2011).

Social isolation can be perceived as the opposite of social participation while loneliness is the opposite of belonging. Loneliness and social isolation's association is multidimensional and complex. Loneliness might be one feasible result of having a limited number of social connects. There is no need for an individual who is suffering from loneliness to be socially isolated and every socially isolated individual is not suffering from loneliness. There are people who have very few social relationships but never consider themselves as lonely, and other people who have a huge net of social connections and still do not feel belongingness (Gierveld et al. 2006 p. 486).

#### **2.1.4 Types of Loneliness**

Some researchers articulate different types of loneliness for instance Zimmerman argues that there are two types of loneliness: positive and negative. When the person willingly withdraw from society to achieve some higher purposes like meditation, serving God and contemplation it is considered a positive kind of loneliness. In contemporary literature positive sort of loneliness is named privacy which means that you willingly and freely choose to avoid social contacts for a specific period of time. A negative type of loneliness is a state in which the person undesirably and unwillingly suffers from lack of social connections. Nowadays the negative type of loneliness is used by researchers and theorists in their definition of loneliness (see Gierveld et al. 2006 pp. 486-487).

Other experts such as Weiss classify loneliness as emotional and social loneliness. Weiss argues that emotional loneliness is created by a lack of close emotional relationship like losing a partner, a lover or an intimate friend which is accompanied by an intensive sense of emptiness, restlessness and anxiety, while social loneliness results from lack of a wider range of meaningful relationships like connection with friends, workmates and the neighboring population which accompanies the sense of boredom and is margined socially. He stresses that emotional loneliness can be treated by initiating new intimate relationships and is not solved just by having family or friends' support because it cannot fill the emptiness resulting from absence of the attachment person (see Gierveld *et al.* 2006 pp. 486-487, Peplau & Perlman 1984 pp. 123-133). Loneliness could be short-term and in transient level which caused by some kind of temporary situations or a life-long problem which persists during whole lifespan (Tiikkainen & Heikkinen 2005).

### **2.1.5 Risk factors**

There are many factor affecting the feeling of loneliness which some are listed as follow:

1. Cultural differences: There are some studies which show that people raised up in some cultural contexts are more vulnerable to loneliness than others. For example even though living alone is more common in countries in Northern Europe than Southern Europe, the feeling of loneliness is more common in Southern countries (Gierveld et al. 2006 p. 492).
2. Social exclusion: Some studies indicate that the risk of feeling loneliness for minority ethnic groups are higher than the rest of population (Gierveld et al. 2006 pp. 492-493).
3. Age factor: Researches shows that the distribution of loneliness is higher in adolescence and the oldest old age groups of population (Nummela et al. 2011, Schoenmakers et al. 2012, Tiikkainen & Heikkinen 2005, Hawkley & Cacioppo 2007).
4. Gender differences: The gender differences have been reported as a risk factor for loneliness. In some studies shows that loneliness is more common among women than men but the effects of loneliness are more lethal in men than women (Tilvis et al. 2011). Some other studies show that men feel more social isolation than women but women suffer more from emotional loneliness than men (Nummela et al. 2011).

## **2.2 Health**

According to Üstün & Jakob's "Re- defining health" document available in Bulletin of the World Health Organization (2014), the word 'health' is stemmed from the ancient English word 'hoelth', which means the condition of being good, and it referred the general soundness of the body. According to the same document, there are different ways of defining 'health' available in the books and internet, some based on religious or cultural believes which gives a divine view of health while others based on empirical and medical views. For instance, Australian Aboriginal people believe that health is not just include the physical well-being of a person, but it associated with social, emotional, spiritual and cultural well-being of the whole community or a high proportion of practicing Muslims'

view of health is related to Prophet Mohammed's opinion about well-being, illness and death and the Holy Koran's verses like "*The Lord of the worlds; it is He who heals me when I am sick, and He who would cause me to die and live again*" (Koran 26: 80). The first medical and empirical definition of health is given by Hippocrates (c 460-377 BCE), who focused on environmental improvement like sanitation, personal hygiene and balanced diets. He considered health as a balance between four fluids: blood, yellow bile, black bile, and phlegm. Any imbalance of these fluids resulted in illness or poor health. The most popular definition of health is created by the World Health Organization (WHO) over fifty years ago (see WHO 2014).

The health definition as indicated by WHO in their glossary of globalization, trade and health terms publication includes: "*Health is a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity.*" According to the same document health is a basic right for every individual which is proved by Universal Declaration of Human Rights (1948). Also health is a bases for developing and a major cause of economic enhancement and stabilization of every country and a prominent cause to decrease the amount of poverty (WHO 2014).

However, the health definition in old age context is controversial and do not match exactly with what WHO suggested. There is a common sense that the absolute absence of disease cannot be interpreted or be expected in health definition of elderlies, because the feasibility of occurring of diagnosable illnesses in this age group is elevated. Borchelt et al. state that in an elderly context health might be interpreted as a multifaceted concept. The disease's diagnosis processes have to be integrated with evaluation of difficulties related to the symptoms. In addition, according to Rowe and Khan, the health definition in elderly age groups should be considered according to their situation connected to cohort and age principles (see Singh & Misra 2009).

### **2.2.1 Mental health**

While talking about physical health most of lay people can easily distinguish the meaning of 'health' and 'illness' terms, but when discussing mental health there is a wide range of misuse and misinterpretation of these terms. According to WHO (2005) "There is no

health without mental health.” This statement help us to remember that we have to consider the whole person while talking about health. In other words it means a bio-psycho-social or holistic model of health related to multi-dimensional aspect of Health. So mental health does not mean not having any kind of mental disorder (Kozier et al. 2010 pp. 83-84)

WHO defines the mental health as follow: “A state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.” (WHO 2014)

According to this definition, mental health is not the absolute absence of mental disorders, but it is a condition in which individuals are able to act according to their ultimate level of their own inner abilities, and they can achieve their own life aims and using their full potentials which include relationships, family, work, education, etc (Kozier et al. 2010 pp. 83-84).

According to the United Kingdom’s Faculty of Public Health (FPH), there are other less commonly accepted definitions of mental health which one of them defines the mental health shortly as: ‘Feeling good and functioning well’. This definition does not say what wellbeing might be as the WHO definition does for instance for being productive and contributing. It simply consists two component of subjective wellbeing (feeling good) and psychological wellbeing (functioning well) (FPH 2010).

Mental health in FPH’s point of view includes the capacity of recognizing our own abilities, living a meaningful life, contributing positively in our communities, making positive connection with others, feeling happiness and joy and peace of mind, having a good degree of resilience toward life’s difficulties and stresses and taking responsibility for ourselves and others (FPH 2010).

### **2.2.2 Social health and its connection to mental health**

According to United Kingdom's Faculty of Public Health (FPH) social health includes the foundation of social equality, capital and trust. It is also the antidote against antisocial behaviors such as crime, violence and racism. Public health experts usually consider many aspects as social health determinants such as social capital, trust, relationships, networks and equality in incomes.

Social wellbeing depends on some factors such as the overall personal mental health in a group or society, the quality of local or national government, the availability of services and supports for those in need, the quality of distribution of national and international resources such as incomes, the standards related to interpersonal connections in a community or group such as being available for others needs and having compassion and respect toward them.

Although mental and social health are closely connected and interfere each other's domain and even sometimes they are been confused and misplaced in the literature, but are distinct concepts. It is obvious that there is a bi-directional connection between these two concepts, as the mental health is related to attributes of the individual and social health connected to the overall attributes of 'others' (FPH 2010).

### **2.3 Relationship between health and loneliness**

Repeated studies have indicated that the nature of relationship between health and loneliness might be casual. Some studies show that this causal relationship is bidirectional which means that a poor health may causes increased loneliness and increasing loneliness results in poor health (Nummela et al. 2010, Tiikkainen & Heikkinen 2005).

According to Green et al. many health-related problems are the results of loneliness and it is one of the 3 major causes which leads to depression. At the same time loneliness is one of the main factors for suicides and suicidal behaviors. Also Hansson et al. suggests that loneliness is connected to some psychological problems such as poor adjustment or being displeased with family and social contacts (see Singh & Misra 2009).

Some studies have proved the adverse effects of loneliness on many aspects of human life as: psychological well-being, life quality, cognition, depression, mortality and more costs for society because of excessive use of health services by lonely person (Rautasalo et al. 2008)

Several studies indicate the harmful effects of loneliness on elderly cognition. This studies have shown the adverse effect of loneliness on development of dementia and Alzheimer's disease (AD). In these studies loneliness affected adversely almost on all component of cognition examination's measures like semantic, working and episodic memory and the speed of processing (Luanaigh et al. 2012, Tilvis et al. 2011).

Loneliness has also negative impacts on physical aspect of life of elderly people. Some studies have shown that the increased level of loneliness results in a higher Systolic Blood Pressure (SBP) which results in higher risks for cardiovascular disease. In addition, it showed with increasing the participants' age the relationship between loneliness and SBP will be in a higher level. It have been shown that the level of loneliness also effects the amount of urinary epinephrine levels (Hawkey & Cacioppo 2007)

### **3 THEORETICAL FRAMEWORK**

According to experts it has been indicated that using nursing theoretical models by nurses in analysis of their own actions and decision making processes, help them to enhance the type of documentation which they do (Rautasalo et al. 2004). LoBiondo-Wood argues that fitting a study or research inside of a theoretical frame-work context empowers the research and it provides the researcher with more confidence about the evidences which are collected for her or his results (see Green, H. 2014).

The framework guiding this study is Geriatric Rehabilitation Nursing Model which is a quite new theory in nursing. This model is developed by Pirkko Rautasalo RN PhD the assistant professor and Sirkka Lauri RN PhD the emeritus professor of department of Nursing Science of University of Turku, Finland and Seija Arve RN PhD the director of nursing in Turku City Hospital, Finland.

This model was chosen because first, all the developer are nurses and so quite aware of the nursing practice and its challenges related to the geriatric field. Secondly this model is quite new so it better fits the new problems (like the rapid increase of elderly population in developed country and especially in Finland) which are occurring in recent decades in the geriatric field. Thirdly, as the author of this paper lives in Finland and this work is a part of Lovisa City project for improving the elderly care in Finland, it is quite fair to choose a model which have developed by some experts who are well aware of the problems and challenges which elderly in Finish society confront. Forth, the loneliness in elderly context is well related to the geriatric rehabilitation processes. Finally, the author of this paper observed that in many research articles, researchers quite often reference to the developers of current model as a source of information.

### **3.1 Elements of Nursing in Geriatric Rehabilitation model**

In geriatric rehabilitation concept of nursing includes continuous interactions between an elderly patient who suffers from specific health related issues and a nurse who can offer the competence and skills and professional knowledge. During these interaction processes nurses act as a member of multi-professional team and elderly patients belong to a family (Rautasalo et al. 2004).

Stineman point out that the purposes of geriatric rehabilitation are to retain and regain functional abilities, enhance quality of life, improve psychological and sociological situation and to decrease the possibility of functioning decline. To achieve these aims the elderly patient and the nurse have to act according to their commitments to the rehabilitation procedure (see Rautasalo et al. 2004).

The Geriatric Rehabilitation Nursing model (Rautasalo et al. (2004) has four elements which have to be present to obtain optimal results in providing care for elderly people (Appendix 1). The four elements in this model are 1) Patient and family, 2) The nurse and the multidisciplinary team, 3) Patient's commitment and 4) Nurse's commitment.

1. **Patient and family:** According to this model, the patient is someone who has a sort of disorder or disease and needs rehabilitation. In case of elderly patients a



severe health disorder may cause a feeling of helplessness. Every decline in physical abilities can cause serious damage to the self-esteem of elderly and enhance the depressive symptoms. Because the healing processes in this age group is very slow, the rehabilitation plan should fit with the aging processes.

This model suggests that it is very beneficial that the family members be involved in the rehabilitation processes from very early stages, as they could be a reliable source of encouragement for the elderly and in conducting the rehabilitation itself. It is quite important that the patient and his or her family be educated to have enough knowledge, and actively be involved in the decision making processes. In the case of older patients who suffer from sort of mental disorder which effects adversely on their ability to make decision the family member can play an advocacy in favor of the patient.

2. **The Nurse and the multidisciplinary team:** It is considered that in a multidisciplinary team nurses have much more information about the different aspects of abilities which one patient could have. In such a multi-professional team cooperation is the most prominent point which means that each profession member uses its own skills to deal with situation while let the other profession members accesses his or her skills. It is necessary to know that all the team members independent of their professions are equally important. Also it is believed that if each professional member just contribute in interactions related to patient's situations according his or her professional skills and underestimate the other professions' abilities and skills, the holistic approach which is an important key point in health care will be compromised.

Cooperation in teamwork also includes that all members of the team participate equally in making decisions according to their professions knowledge and be responsible for their own decisions and actions. For the cooperative work be effective the aims have to be well explained, the field and the degree of contribution of each member and the plan of work have to be defined.

3. **Patient's commitment:** The elderly patients' commitment to the treatment is related to many factors such as: the degree of acceptance and adaption to health

state changes and caring process, the degree of preparation for taking responsibility about treatment processes and to what extent they and their family members could trust health care workers. One of the most important part of patients' commitment to treatment is the patient's own perception about health.

If the health care experts, the patients and their families cooperate in health situation assessments and defining the aims of treatments, it is more feasible that the patients accept responsibility and make a commitment to attain these aims.

4. **Nurse's commitment:** Nurses' commitment in patient's rehabilitation context leads their every decisions and interventions that have to be done to enhance the patients will for attaining the treatment goals. In nursing practice patient's support and encouragement is the core of caring. In rehabilitative approach nurse poses the expertise and knowledge to support the elderlies in their emotional situations to explore the right way and to empower the elderly's commitment to the treatment. In this approach nurse attempts to prevent and alleviate risk factors like depressive symptoms, bed wounds and problems with notations.

It is fair to look at the meaning of health in elderly rehabilitation nursing context in which health is considered as elderly's own experiences about the available sources and power for independent functionality.

## **4 AIMS AND RESEARCH QUESTIONS**

The purpose of this study is to find out is there a relationship between loneliness and health in general and if there is a relationship what is the nature of this relationship, what are the effects of loneliness on mental health of elderly people and to discuss the role of nurse as a health promoting and alleviating suffering agent.

Through this study the author tried to find out the answers to the following three formulated research questions:

1. What is the nature of the relationship between loneliness and health in general?
2. What effects does loneliness have on mental health of elderly people?
3. What should be done by nurses to alleviate the possible adverse effects of loneliness on mental health of elderly people?

## **5 METHODOLOGY**

This is a literature review, in which the inductive approach is taken to analyze the collected data from different sources. In this chapter first the methods which used for data collection will be presented and later on the collected data will be analyzed according to Graneheim and lundman (2004) method.

### **5.1 Data collection**

For data retrieval processes, multiple search engines and verity of key words and phrases related to core research questions were used. Initially an advanced search was conducted in “Academic Search Elite (EBSCO)”. The first search was conducted using the Boolean-phrase: “loneliness AND mental health AND elderly people” resulting in 41 hits.

Because of the fact that every day new knowledge is produced, and more recent knowledge is more applicable to today’s situations the search result were limited by choosing the last 10 years articles which decreased the number of hits to 17.

Reading through the titles and the abstracts of these 17 articles seven were eliminated resulting in eight articles for further studies and investigations. The pre inclusion criteria were to what extent these article’s abstracts were related to formulated research questions and to what extent they shared the same keywords as research questions included. The articles which did not meet these conditions were excluded.

As the number of articles reviewed were not sufficient to conduct a reliable literature review, the search was broadened to get more results. Using the same search engine with the same search conditions as mentioned in the initial search the last word of three search words was changed to aging as follow: “loneliness AND mental health AND aging” resulted in 50 hits.

The same pre inclusion and exclusion criteria were used to choose the most relevant articles to research questions. In this phase another seven articles were chosen, so the number of the all chosen articles reached to 15.

In this phase in EBSCO's advanced search "loneliness AND nursing AND elderly people" words were used to find some articles which are looking to the research problem from nursing prospective which is more related to the third research question in this paper. The search resulted in 26 hits. Implying the above mentioned pre inclusion and exclusion criteria three articles were chosen.

The second search was conducted using the same processes as mentioned in the initial phase, but this time with choosing "PubMed database". In PubMed database the advanced search was used with the following search words with followed fields which are shown in brackets: "loneliness [Title/Abstract]) AND health [Title/Abstract]) AND elderly people [Title/Abstract]" which resulted in 62 hits. Choosing Full text and recent "10 years" options reduced the results to 27 hits, which with clicking on "Free full text" option the result were limited to 14 hits.

After repeating the process of pre inclusion and exclusion used in the primary search, two articles were chosen and added to the number of articles found in the first search.

In the third search the advanced search of "Science Direct" was used. Searching for phrases "effects of loneliness" and "elderly people" in "TITLE-ABSTR-KEY" was conducted while refining search results with choosing "Journals and All" options and limiting of time period to "2003 till present" had an outcome of 55 hits. Applying the filters in "topics" option to "loneliness, depressive symptom and aging study" decreased the output to 15 articles. After repeating the process of pre inclusion and exclusion, two articles were added to the number of articles found in the first search.

The fourth and final search was done with "Sage Journals" advanced search with "loneliness and aging" as "Title" and limited to "years 2004 – 2015" in "all sage contents" and resulted in two hits. Implying the pre inclusion and exclusion mentioned in the previous searches one article was chosen.

### **5.1.1 Implying inclusion and exclusion criteria**

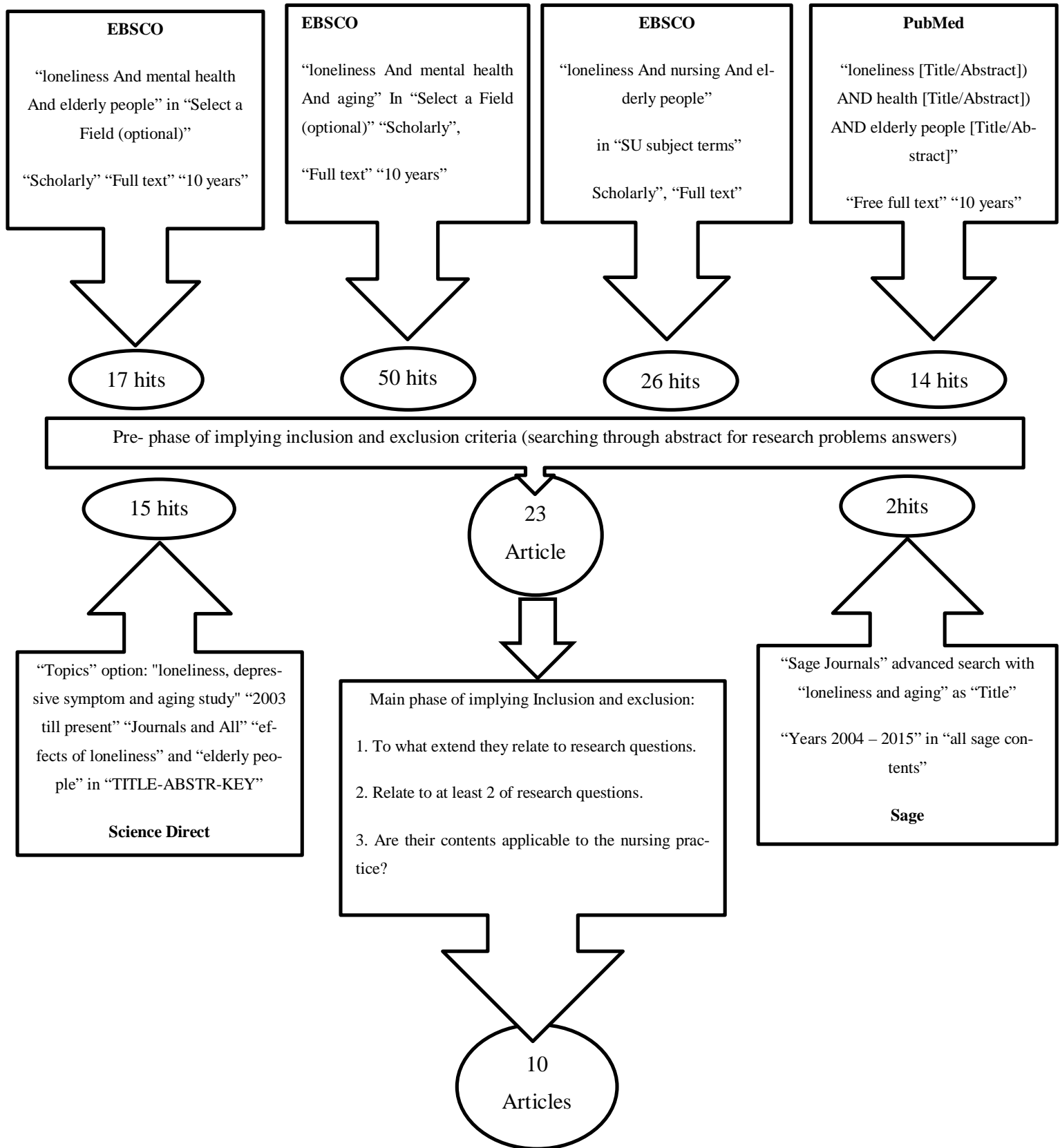
The total number of articles which went through the second phase of inclusion and exclusion was 23. In this section each article was read carefully and the articles which did not

met the inclusion criteria were eliminated. The total number of articles which eliminated were 13 articles. The inclusion criteria included:

1. To what extent they were related to research questions.
2. They should be related to at least two of research questions.
3. To what extent this articles contents are applicable and interpretable to the nursing practice.

Flow chart no1, illustrates the processes of data collection and implying the inclusion and exclusion criteria.

Flow chart 1: Illustration of data collection processes and implication of the inclusion and exclusion criteria.



## 5.2 List of articles chosen for the study

The following ten articles were chosen on the basis of inclusion and exclusion criteria which were implied in two phases as mentioned earlier:

1. Title and Author/s: Aging and Loneliness: Downhill Quickly? Hawkley, L. C. & Cacioppo, J. T. (2007). Journal's name, date, volume, issue and pages: *Current Direction in Psycho-logical science*. August 2007. Vol.4, 187-191. Source and type of article: Sage Journals, qualitative.
2. Title and Author/s: Associations between loneliness, depressive symptoms and perceived togetherness in older people. Tiikkainen, P. & Heikkinen R.-L. (2005). Journal's name, date, volume, issue and pages: *Aging & Men-tal Health*. November 2005; 9(6): 526–534. Source and type of article: EBSCO, quantitative.
3. Title and Author/s: Coping with loneliness: What do older adults suggest? Schoenmakers, E. C. et al. (2012). Journal's name, date, volume, issue and pages: *Aging & Mental Health*. April 2012; 16(3). Pp. 353-360. Source and type of article: EBSCO, quantitative.
4. Title and Author/s: Effects of Psychological Group Rehabilitation on Social Functioning, Loneliness and Well-being of Lonely, Older People: Randomized Controlled Trial. Rautasalo, P. E. et al. (2008). Journal's name, date, volume, issue and pages: *Journal of Advance Nursing*. August 2008; V.65 (2). Pp. 297-305. Source and type of article: EBSCO, quantitative.
5. Title and Author/s: Loneliness: A Challenge for Nurses caring for Older People. Morphy F. Journal's name, date, volume, issue and pages: *Nursing Older People*. Jun 2006; V.18 (5). Pp. 22-25. Source and type of article: EBSCO, qualitative.
6. Title and Author/s: Loneliness and Cognition in older people: The Dublin Healthy Aging Study. Luanaigh, C. et al. Journal's name, date, volume, issue and pages: *Aging and Mental Health*. April 2012; V.16 (3). Pp. 347-352. Source and type of article: EBSCO, quantitative.
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8. Title of Unit of analysis and Author/s: Loneliness in Elderly People: An Important Area for Nursing Re-search. Donaldson, J. M. & Watson R. Journal's name, date, volume, issue and pages: Journal of Advanced Nursing. 1996; v.24 (5). Pp. 952-959. Source and type of article: EBSCO, qualitative.
9. Title of Unit of analysis and Author/s: Suffering from Loneliness Indicates Significant Mortality Risk of Older People. Tilvis, R. S. Et al. 2011. Journal's name, date, volume, issue and pages: Journal of Aging Research. 2011 vol. 2011. Pp. 1-5. Source and type of article: PubMed, quantitative.
10. Title of Unit of analysis and Author/s: The Effect of Loneliness and Change in Loneliness on Self-related Health (SRH): A Longitudinal Study among Aging People. Nummela, O., Seppänen, M., Uutela, A. Journal's name, date, volume, issue and pages: Archive of Gerontology and Geriatrics. 2011; v.53. Pp. 163-167. Source and type of article: ScienceDirect, quantitative.

### 5.3 Content analysis

There are several different approaches for performing qualitative content analysis. Hsiu-Fang & Shannon (2005) have referred to three of these approaches as follow:

**Conventional content analysis** which means an open coding of the empirical materials so there are not defined categories for coding. This approach emphasize that the analysis should be done based on grounded theory. It follows an inductive approach. **Directed content analysis** which is more organized than an open coding approach and the basic coding stem from a theory or initial researches. It is a deductive approach and is a way of comparing and discussing the outcomes of varies researches or theories. **Summative content analysis** which concern mostly to identify or to assess the quality of existing specific words or phrases inside the text. This approach is used to precept the words' meaning in the context of the text. In addition to the latent meaning, this approach focuses on the qualitative aspect of deeply analyzing of sentences and contents which contain these words (Hsiu-Fang & Shannon 2005)

Another approach for qualitative content analysis is introduced by Graneheim & Lundman (2004). This approach is more concerned about qualitative content analysis in nursing researches which uses an inductive way through reading the whole texts, each



text several time, to obtain a big picture of the contexts. In this approach the concerned meaning units are condensed, coded and classified under categories which contain the main points of the unit of analysis (the text) and manifest its content (Graneheim & Lundman, 2004).

The method of data analysis and the terms used in this section are all based on Graneheim & lundman's (2004) qualitative content analysis in nursing research. This approach was chosen because it is more care centered and also because it is an inductive approach, so using it each concept or new idea will be interpreted in its own context, within the big picture. In the next few sentences the author will present the key concepts of content analysis which may be used in present paper, according to the Graneheim & lundman (2004).

According to Graneheim & lundman (2004): **qualitative content analysis** includes an organized processes for classification, evaluation and objective testing of qualitative data. The visible and obvious meaning of a text is considered **manifest content**, while the interpretation and underlying meaning of a text is called **latent meaning**. **Unit of analysis** consist of full text or (here) each article, which can be keep in mind as a context in analysis of meaning units. The words, sentences and paragraphs which are related together based on their content and context are called **meaning units**. The process of shortening of meaning units without losing the main point is considered as **condensation**, while description and interpretation and creating codes, categories and themes is named **abstraction**. Parts of the transcript which refers to a specific issue is called **content area**. **Code** includes the label which is chosen to refer to a meaning unit. **Category** consists of several codes that have similar content. Each category may consist two or more **sub-categories** which are equal to the codes. **Theme** consists of a series of interpretation and underlying meaning, or a description of latent meaning of a text.

### **5.3.1 Step 1: reading and coding**

After reading through 23 articles and filtering them through the inclusion and exclusion criteria 10 articles were chosen which were relevant to the thesis subject.

Later on the articles (the unit of analysis) were read more carefully and at the same time notes were made on the margin of the papers when relevant and interesting data was found. In the notes, the main keywords of the meaning units were used as labeling cods, so that the next time that author read the text or search for the same subject he could easily find it. In this stage different colors were used for different codes, key words were underlined and stars or other signs were used beside the codes. Putting stars or other signs beside the codes helped to show the degree of importance or the degree of relevancy to this thesis' subject.

### **5.3.2 Step 2, listing and categorizing the codes**

In this stage the notes which had been made in the margins were reviewed and the different types of information that had been found, were listed. Later on, reading through the list each piece of information was categorized according to the relevancy of the codes in such a way that all codes had to get into a relevant category, but no code could fall into more than one category.

Table 1 in Appendix 2 shows a short example of the processes which were started from several meaning units and came up with just two categories. As can be noticed, each meaning unit in this article in first level, was condensed as shorter as possible while trying to use the same words from the text to maintain the manifest content. Later on the condensed meaning unit was interpreted (latent content) considering the whole context. Graneheim & lundman (2004) argue that there is no unique interpretation for text and it is very important to consider it in trustworthiness of a paper. For the latent meaning of the condensed meaning unit be more accurate and more relevant to the overall context of the article, each article was read several times separately to prevent the other articles influence on data interpretations. The same process was repeated with all unit of analysis before and during the writing this paper. After interpretation of each meaning unit it was coded, and the codes were categorized.

Notice: Table 1 in Appendix 2 illustrates an example of inductive qualitative content analysis used in this paper. Table 2 in Appendix 3 illustrate the content analysis of 10 chosen articles which resulted to major and minor categories.

### 5.3.3 Emerging sub- themes and theme from collected categories

Table 3 shows the major and minor common categories among the above mentioned 10 articles and how these categories can be gathered to make a theme. Important notice: Only the categories which are related to the subject of this paper are included in this table.

Table 3. Illustration of the most common categories and their distribution inside the 10 unit of analysis and coming up with a theme.

Theme	Relationship between loneliness and health of aged people and related treatment									
Sub-theme	Relationship between loneliness and different factors							Treatment of loneliness		
Major & minor categories	Effects on health		Nature of relationship			Gender differences	Age factor	measurement	Coping strategies	Nurses role
	Mental	Physical	Unidirectional	Bidirectional	correlation					
Units of analysis	1,2,3,4, 5,6,7,8, 9,10	1,2,3, 4,5,9	1,4	2,3,5, 6,7,9, 10	2,3,5, 6,7,8,	9,10	1,2,3,8, 10	5,8	2,3,4,5, ,6,7,8,9, 10	4,5,8

## 5.4 Ethical consideration

According to Fry & Johnstone (2012 p. 15) ethics includes a system of standards and principles which guide the actions and they function by defining the sort of behavior and conduct that are allowed, compulsory and forbidden. Angelica et al. (2000) emphasis that every sort of research can confront ethical issues. These issues rise when the researcher want to generalize some information in accordance to benefit of public while preventing harm to the privacy and rights of participants or other authors. Through using a set of proper ethical standards one can minimize or eliminate the amount of harm which may occur during the research processes.

As Arcada University of Applied Sciences has own standards and instructions in writing scientific research which are outlined in Thesis Guide 2009 version 1.2, the author of this paper tried to maintain this guideline's standards as much as possible.

In the first place the topic of this thesis is chosen after discussing the subject with the supervisor for obtaining the proper guidance and in accordance to the commission between Lovisa city and Arcada University of Applied Sciences. In the data collecting processes, because the author is a registered student in Arcada University of applied sciences, he used his official right in obtaining the articles through official academic databases so there is no use of any sort of piracy or unofficial electronic sources to avoid copyright violation.

The author has strictly avoided quotations without referencing them correctly and honestly and in fact he mostly preferred to paraphrase the quotations to prevent any kind of plagiarism. Even though the author endeavored to use primary sources, in cases when he could not access the original and primary sources, he honestly referenced them through the secondary sources according to Arcada's guidelines.

In all processes of collection, analyzing and generalizing the data, the participants and articles authors' privacy and copyright is highly respected. In whole processes of scripting this paper has tried to avoid a copy and paste process, except with the meaning unit part of table 1 which had to be exactly the same as the main texts. There is no fabricated data or falsification of concepts, ideas, themes and categories presented in whole of this paper. In whole process of data collection, analysis and interpretation has tried to be objective and to avoid any form of bias and influencing personal views. In the whole processes of content analysis, each article was analyzed separately and independently in such a way that the other articles content had minimum influence on the interpretation of the specific articles content.

## **6 FINDINGS**

In this chapter the major categories which emerged during data analysis processes in alphabetic order will be presented (The numbers inside the brackets represent the chosen analyzed articles which mentioned in data analysis section). Table number 2 in appendix 3 illustrates how qualitative inductive analysis of ten articles resulted in major and minor categories.

**Age factor:** These studies show that the level of loneliness is relatively stable until oldest old age (age>85), but the elderly population and the life expectancy is rising so in the future more lonely elderly will be expected. They also show that poor health, loss of loved people like husband or wife and retirement leads to loneliness in elderlies. [1, 2, 3, 8, 10].

**Coping strategies:** Acceptance, increased social involvement, involving with religion, social interaction with family and friends, reading, gardening, lowering expectancies, increasing number of contacts and intensifying the exist relationships, developing new positive relationships and friendships, participation in religious activities and voluntary work are all ways of coping with loneliness. [2, 3, 4, 5, 6, 7, 8, 9, 10].

**Effects on health:** These studies repeatedly indicate that loneliness has major adverse effects on physical and mental health of most of age groups. Loneliness is associated with poor self-image, inability to cope with inevitable losses, confusion between present and past, reduced ability to concentrate, low level of activity, restlessness, amorphous dissatisfaction, suicidal behavior, anxiety, alcohol abuse, sleep problems, sense of emptiness, shyness and reluctance to take social risks. Loneliness speeds up the age related decline in physiological recovery through impact on pre-illness pathways. Loneliness in adolescence and young adults is a predictor cardio-vascular diseases like elevated vascular resistance, it is also related to slightly higher BMI, higher prevalence of smoking, bigger number of chronic stress, feeling of helplessness and threat. In older adults (age50-68), loneliness is related to higher Systolic Blood Pressure (SBP) and the older the person the stronger the relationship would be. It also related to higher urinary epinephrine excretion and a greater risk factor for sleep dissatisfaction. Loneliness may causes poor quality of life, reduced cognitive ability, disability, mortality and an increase in social and health care facilities' use. [1, 2, 3, 4, 5, 6, 7, 8, 9, 10].

**Gender differences:** Even though effects of loneliness are more obvious in men rather than women but decreased loneliness after group interventions gives more health benefits to the lonely men than lonely women. It suggests that men my suffer more from social isolation but women from emotional loneliness. [9, 10].

**Measurement of loneliness:** It is possible to measure the level of loneliness but some people do not want to accept that they are lonely which make it complicated. There are different ways by which loneliness's scale can be measured which the newest one is the UCLA Scale. [5, 8].

**Nature of relationship between loneliness and health:** There is a close connection between loneliness and health problems. Loneliness usually cause different health problems, but from the other hand poor mental and physical health may increase the level of loneliness and in some cases, loneliness and some of health problems correlate in causing new health problems. Few studies point out the unidirectional relationship [1, 4], some bi-directional relationship [2, 3, 5, 6, 7, 9, 10] and some other correlation [2, 3, 5, 6, 7, 8].

**Nurses' role:** Nurse's role in alleviating loneliness in elderly care can be defined in social implication of nursing practice. Nurses might develop their level of education about loneliness, its signs and clinical syndrome, help to increase social interaction and the quality of these interactions between elderly people. They can also encourage elderlies to involve them in group works leading by nurse including techniques like reminiscence, touch, drama and art. They also can tutor the elderlies and support their commitments by providing them with opportunities to impact the content and the processes of group meetings and also influence on decision making procedures. [4, 5, 8]

**Types of loneliness:** There are two type of loneliness including emotional loneliness which stems from the need of proximity and love and Social loneliness which can be satisfied through social interactions. Elderlies who have social interactions with feeling security and proximity suffer less from loneliness and depression. [2]

There might be less relevant or less popular categories which are not mentioned here but they are presented in table 2 in appendix 3.

All categories together formulated two subthemes which include: **Relationship between loneliness and different factors** and **Treatment of loneliness** which resulted in formulating a theme: **Relationship between loneliness and health of aged people and related treatment.**

## **7 DISCUSSION OF FINDING**

The results of analysis of these 10 articles reveal that loneliness is common among elderly people and it causes both mental and physical health problems and they suggest that elderly people are more vulnerable to its symptoms. They also reveal that nurses might develop their education level about loneliness and its symptoms, help to increase social interaction and the quality of these interactions between elderly people, involve them in group works including techniques like reminiscence, touch, drama and art. Table number 4 in appendix 4 provides a detailed illustration of the answers that each article provided to my three research questions.

### **7.1 Effects of loneliness on Health**

According to these studies loneliness can be a major cause of cognition decline, poor self-esteem, anxiety, depression, restlessness, sleep disorders, alcohol abuse, suicidal behavior, feeling helplessness and threat, behavioral withdrawal, sense of emptiness, shyness, negative emotions, impaired quality of life, disability, higher systolic blood pressure, more use of social and health care services and even mortality.

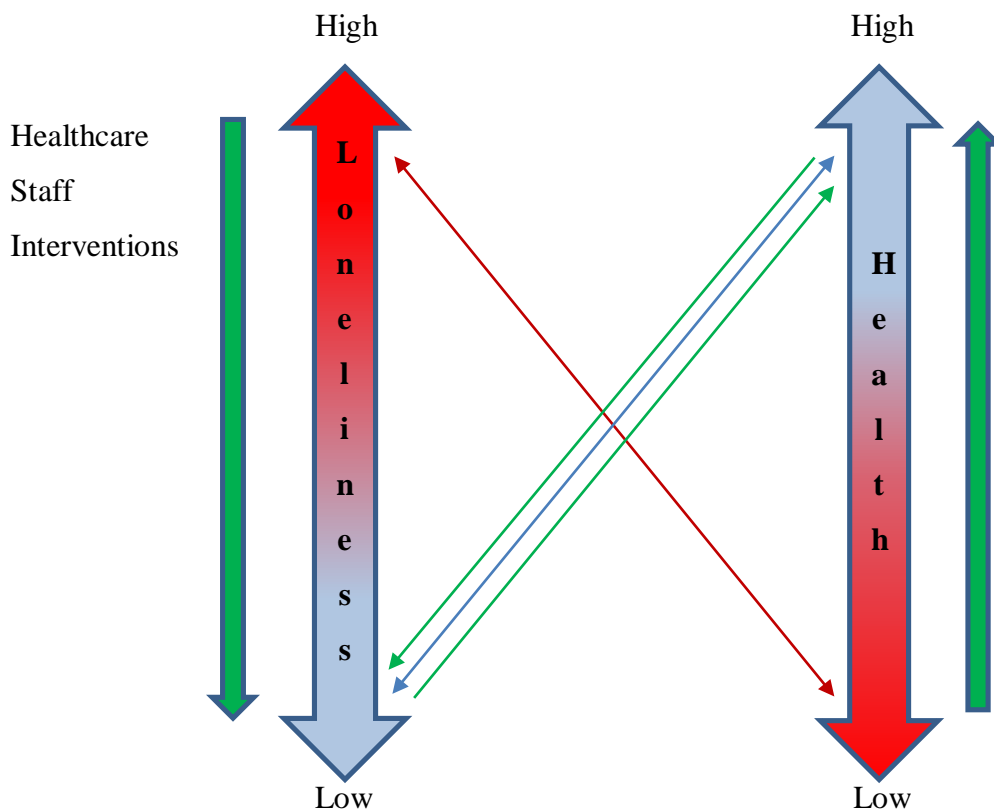
Knowing the effects of loneliness on health of elderlies helps the nurses and other medical experts to consider loneliness as a major clinical problem which leads to more severe physical and mental problems, so they can seek the proper cure and prevention plans. Loneliness can be cured and prevented through different ways and strategies which some of them includes involving the elderlies in social interactions, same age friendship networks, religious activities, educational activities and voluntary work like gardening. It is also important that nurses educate the elderlies and teach them the coping strategies like lowering their expectations and acceptance.

### **7.2 Nature of relationship between loneliness and health**

Seventy per cent of these articles (7 of 10) indicate a bidirectional relationship between loneliness and health which means that from one side feeling loneliness increases risk for poor mental and physical health and from the other hand, poor mental and physical health

may enhance the prevalence of loneliness. It also means that decrease in level of loneliness may result in better health and treatment of health problems may decline the feeling of loneliness. Figure 2a indicates the bidirectional relationship between the degree of loneliness and the level of health and also the two ways that healthcare professionals can enhance their client's health.

Figure 2a: illustration of bidirectional relationship between level of loneliness and health. The green arrows illustrate the effects of health care staff's proper interventions.



Sixty per cent of articles (6 of 10) show a correlation between loneliness and some kind of health problems which means that loneliness alongside some sort of health problems (such as depression), can cause emerging new health problems. For example loneliness and depression can correlate in suicidal behaviors, alcohol abuse, shyness and low self-esteem.

Nurses and healthcare staff's awareness of the bidirectional and correlation nature of relationship between loneliness and health problems helps them to find new holistic care



strategies. In a holistic care approach, the nurse or medical staff will not focus just on one side of problem (for instance only on alleviating the level of loneliness by involving them in peer or friendship groups), but they can try to reduce the level of loneliness (using the mentioned strategies) to achieve more health benefits and at the same time they can attempt to enhance the physical and mental health of the elderlies which in its turn helps the elderlies decrease the level of their social isolations. Figure 2b indicates the correlation between loneliness and poor health, which may cause new health problems.

Figure 2b: illustration of correlation between loneliness and poor health in creating new health problems.



### **7.3 Implying nurse's role through theoretical frame work**

As table 3 in the methodology chapter indicates no more than 3 of 10 of these articles include a direct suggestion to what nurses should do, but it also reveals that 9 of 10 of them contain general suggestions about coping strategies which nurses could use as resources.

The geriatric Rehabilitation Nursing Model (Rautasalo et al. 2004) which could be found in the theoretical framework chapter with detailed explanation of components, can be used by the nurses as a frame work and guide line in dealing with loneliness and its symptoms in elderly care. In this model a client centered care plan is suggested in which the elderly patient/ client is involved in all processes of caring such as assessment the situation and defining the goals, planning, implying the plans and decision making. The nurses' role in this model regarding the loneliness and its complication is mostly a leadership role which help the elderlies to break down the boundaries of social isolation and achieve mastery of their lives.

According to the above mentioned theory commitment to action and a balanced and equal interaction between nurses and elderlies are highly demanded to achieve the results. One of the elements of this model includes nurses' commitment to patient rehabilitation processes. Nurse's commitment regarding the results of this study can be interpreted as follow: First, nurses have to try to update their education daily. The education in this case could be about loneliness, its signs and symptoms, its measurements, its correlation with other disorders and also about how to be a good leader and teacher for the elderlies. Second, supporting and encouraging the elderlies and their families, through educating them and helping them to involve in different social activities such as: group intervention, peer support, techniques like reminiscence, touch, drama and art. Third, cooperation with other health care staff in enhancing the physical and mental health of the elderlies which may lead to a decrease in levels of loneliness.

In the other hand, elderly's commitment can include cooperation with health care staffs in defining the goals such as alleviating the level of loneliness, cooperation in measuring the level of loneliness such as being honest in answering the loneliness scale's measuring questions and also commitment to continuing the rehabilitation processes till achieving the demanded results.

It is obvious that the nurses and the family member of the elderlies play a very important role in motivating the elderlies to stay on their commitments. Nurses and medical staff can motivate the elderlies through providing them with enough necessary information about the processes, being available at the right time and right place, kindness, caring, encouragement and having a sense of humor.

## 8 CRITICAL DISCUSSION

Even though the author has tried to cover all of the main points of these articles in content analysis there is always a possibility that other person can find new issues to discuss. It is also possible that this 10 articles do not contain all the information regarding the subject of this theses and its research questions so some more accurate studies and more resources are required.

The area of study is very vast so more studies could be done about the gender differences in perceiving the types of loneliness and the treatment and prevention processes.

Regarding the nurses' role, because most of the nurses are very busy with the medical care processes and it makes them to be less aware of the problem of loneliness of elderly, it is better to provide them with better work conditions. This goal can be achieved by reducing the medical care hours of nurses through employing more nurses or practical nurses, so in this way nurses could have more time to communicate with the elderly, educate them and lead them to participate in group interventions and other activities which helps reducing loneliness and its harmful symptoms.

According to Graneheim & Lundman (2004), the findings of a study have to be in a high level of trustworthy and evaluation of each research study should be done in relation to the process used to create those findings. There are different concepts which define trustworthiness in qualitative and quantitative approaches. For explaining different aspects of trustworthiness in qualitative studies, concepts such as **credibility**, **dependability** and **transferability** could be used.

**Credibility** is related to the aspects of the research's focus and it indicates the level of confidence that data and its process of analysis can present the focus which is intended. One of the most important issues to obtain a high level of credibility is to choose the most relevant meaning units. For instance, it is better to choose the meaning units that are not so broad, because the long and broad meaning units can include various meanings which can question the degree of credibility. Credibility is also related to the way of judging the differences and similarities between categories. In this study the author tried to select the

most suitable meaning units and the most relevant articles to achieve a high level of credibility.

**Dependability** is another component of trustworthiness. It is about searching for meanings which can be used for both factors of instability and factors of phenomenological changes. It means the extent to which the collected information may change over time during the data analysis processes. The author has strictly attempted to choose the most recent evidence based data to minimize the time effects on data quality.

**Transferability** is another aspect of trustworthiness which includes the degree to which the results of a study could be transferred to other studies with different contexts. In this aspect it is demanding to explain the processes of unit selection, data collection and data analysis processes. The author has clearly described all the above mentioned processes in enough details.

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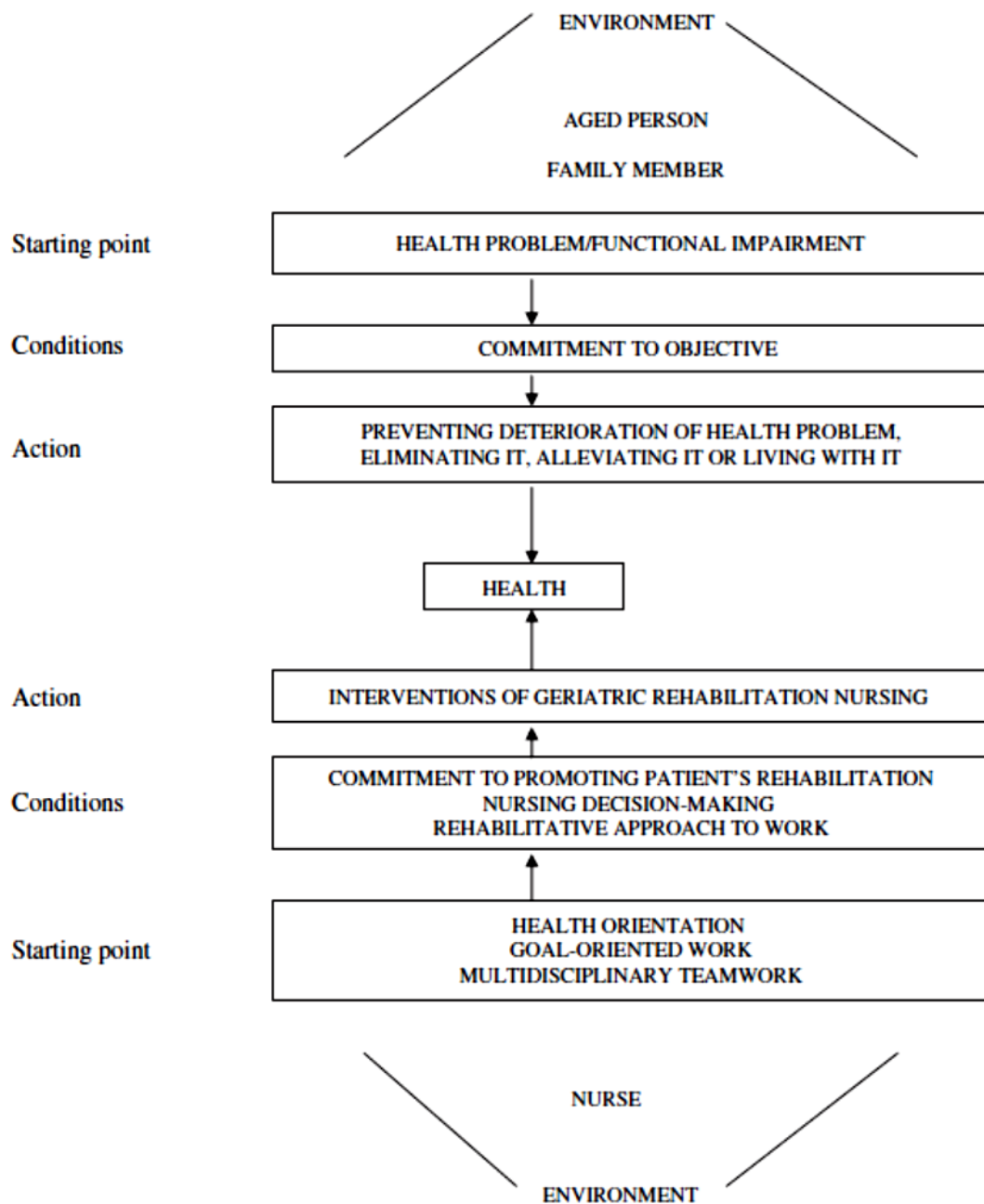
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## 10 APPENDICES:

### Appendix 1

Figure 1. Geriatric rehabilitation nursing model





## Appendix 2

Table 1. An example of inductive qualitative content analysis of Aging and Loneliness:  
Downhill Quickly? Hawkey, L. C. & Cacioppo, J. T. (2007).

Meaning unit	Condensed meaning unit, using the words from text	Condensed meaning unit's latent meaning	Codes	Categories
Research over the past several decades has repeatedly shown that a lack of social ties increases risk for poor health.	Researches show that lack of social ties increases poor health.	Loneliness leads to health problems.	Loneliness, poor health	Physical health
The accrual of loneliness effects with age is well illustrated in a recent longitudinal study// In this study social isolation in childhood and feelings of loneliness in adolescence and young adulthood predicted how many cardiovascular risk factors.	Longitudinal studies show that loneliness in childhood and adolescence predicts cardiovascular disease in older ages.	Researches show that loneliness is a risk factor for cardiovascular disease in older people.	Loneliness, cardiovascular disease	
Lonely young adults exhibit higher levels of TPR than nonlonely individuals do, but levels of systolic blood pressure (SBP) do not differ as a function of loneliness. // Moreover, a significant loneliness-by-age interaction showed that the older the participant, the stronger the association between loneliness and SBP.	Lonely Young adults have a higher total peripheral resistance (TPR) and systolic blood pressure (SBR) and by increasing age the association will become stronger.	Loneliness in young adult increases TPR and SBR, and the older the adult the stronger this relationship.		
Poor health behaviors are appealing mechanistic candidates for associations between loneliness and health. // Lauder et al. (2006) revealed loneliness differences in physical activity. On the other hand, in Lauder et al.'s (2006) sample, smoking was more prevalent in the lonely group than it was in the non-lonely group.	Poor health behaviors like smoking and being obese to some extent are related to loneliness.	Loneliness is a risk factor for being obese and smoking.	Loneliness, smoking, obesity	
However, in middle-aged and older adults, loneliness was associated with significantly greater urinary epinephrine excretion in an overnight urine sample. Higher levels of overnight urinary epinephrine reflect higher blood levels of circulating epinephrine and indicate greater activation of the sympathetic adrenomedullary system in lonely than nonlonely adults, consistent with greater loneliness-related wear and tear of this physiological system with age.	In middle-aged and older adults, loneliness related to more epinephrine in overnight urine which is a result of a greater activation of sympathetic adrenomedullary system.	Loneliness increases the epinephrine's secretion in middle-aged and elderlies.	Loneliness, neurological problems	

Lonely young adults also reported longer sleep latency and greater daytime dysfunction, even though Nightcap estimates of actual sleep hours did not differ between lonely and nonlonely individuals. // Moreover, among 70-year-old adults in the Jerusalem Cohort Study, loneliness at study onset proved to be a significant risk factor for sleep dissatisfaction 7 years later.	Lonely young adults suffered from sleep latency and more daytime dysfunction. Loneliness proved to be a major factor in sleep dissatisfaction of elders.	Loneliness caused sleep disorders and daily dysfunction among young adults and elders.	Loneliness, sleep disorder, daytime dysfunction	Mental health
Lonely individuals also employ different coping strategies than nonlonely individuals do. In the OSU sample, loneliness was inversely associated with active coping, seeking emotional support, and seeking instrumental support, and was positively associated with behavioral withdrawal. // In the CHASRS sample, lonely individuals again were found to be less likely to seek emotional support and more likely to report behavioral withdrawal coping styles that tend to perpetuate stress.	Lonely people use different coping strategies. They use behavioral withdrawal rather than active coping like seeking emotional and instrumental support.	Loneliness affects adversely on coping strategies leading to behavioral withdrawal.	Loneliness and withdrawal	

### Appendices 3

Table 2 illustration of finding: Major and minor categories formulated during content analysis of 10 chosen articles

Article Number	Categorized condensed meaning unit's according to Graneheim & Lundman (2004) (Categories names in Bold and Italic characters)
1	<p><b>Age factor:</b> The level of loneliness is relatively stable until oldest old age (age&gt;85).</p> <p><b>Risk factors:</b> Social isolation is a risk factor for increase loneliness.</p> <p><b>Effects on health</b> -Loneliness speeds up the age related decline in physiological recovery through impact on pre-illness pathways. - Loneliness in adolescence and young adults is a predictor cardiovascular diseases like elevated vascular resistance, it is also related to slightly higher BMI, higher prevalence of smoking, bigger number of chronic stress, feeling of helplessness and threat. – In older adults (age50-68), loneliness is related to higher Systolic Blood Pressure (SBP) and the older the person the stronger the relationship would be. It also related to higher urinary epinephrine excretion and a greater risk factor for sleep dissatisfaction.</p>

2	<p><b>Correlation:</b> Loneliness and depression correlate in elderlies and involve in negative feeling and adverse experiences in sociality. <b>Age factor:</b> The level of loneliness is not changing till the oldest age but elderly population and life expectancy is rising generally. <b>Complexity:</b>-The increase in level of loneliness or depression is not described only by age, but there are other factors such as changes and losses in health and social connects which make it more complex. <b>Bidirectional Relationship:</b> Loneliness may be an outcome of poor mental health. Loneliness often leads to depression but some depressive individuals do not feel lonely.- The quality of relationships are more important than the number of them. <b>Types of loneliness:</b> – Two sort of loneliness include emotional loneliness which stems from the need of proximity and love and Social loneliness which can be satisfied through social interactions. Elderlies who have social interactions with feeling security and proximity suffer less from loneliness and depression. <b>Treatment:</b> – Elderlies who feel lonely can be helped with providing the chance to participate in social activities and peer groups to preserve their mental health.</p>
3	<p><b>Age factor:</b> - Poor health and loss of loved people like husband or wife leads to loneliness in elderlies aged over 75 years. <b>Popularity:</b> Between 10% till 40% of population in western society feel lonely. <b>Bidirectional Relationship and correlation:</b> Loneliness causes mental and physical health problems and it correlate with sleep problems in causing poor physical health. Sever physical health may result in loneliness. <b>Coping strategies:</b> Acceptance, self-improvement, trying to involve in more social activities, involving in religious and solitary interactions, reading, gardening, seeking new friends, sociality with relatives and lowering the expectations about relationships are all in coping strategies. Active coping: The person actively tries to reduce the level of loneliness through eliminating the source of stress by changing his or her own behavior. Regulative coping: The person tries to reduce the emotional outcomes of loneliness.</p>
4	<p><b>Effects on health:</b> Loneliness causes poor quality of life, reduced cognitive ability, poor health, disability, mortality and an increase in social and health care facilities' use. <b>Quality of relationship:</b> - Loneliness in elderly people is related mostly to the quality of contacts and not to their number. <b>Treatment:</b> -Group meeting, talking about health issues related to loneliness, art experiences discussions and participation of the elderlies in the defining the content of interventions, where effective ways of alleviating loneliness among elderlies. <b>Effects of intervention:</b> The intervention effects positively on the elderlies' psychological wellbeing and enhances their social functioning through finding new friends. <b>Feeling of being needed:</b> In elderly people the feeling of being needed enhances significantly the prognostic agent for survival because it gives meaning to their lives. <b>Nurse's role:</b> Plan and perform the interventions while cooperating with elderlies in all stages, commitment to action by self-</p>

	education and tutoring the elderlies and supporting their commitments by providing them with opportunities to impact the content and the processes of group meetings and also influence on decision making procedures.
5	<p><b>Nurses' role:</b> Nurses should be able to diagnose loneliness and its symptoms among all age group of their patients. In elderlies diagnosing loneliness enhances their quality of life. <b>Multi-dimensional loneliness:</b> It is difficult to define it because it is complex, so there are different definitions as some researchers define it as a natural part of human life, there are others who suggest that it is clinical or psychological state. <b>Measurement:</b> It is possible to measure the level of loneliness but some people do not want to accept that they are lonely which make it complicated. <b>Loneliness vs social isolation:</b> This two concepts are connected in many ways but they are independent realities. Some people can be socially isolated but not feel lonely while others have a numerous contacts but suffer from loneliness. <b>Causes of loneliness:</b> Sudden separation, disease, retirement, loss of family contacts, disability and fear of increased social violence all are listed in causes of loneliness. <b>Correlation of Loneliness and depression:</b> Loneliness and depression are the major risk factors in declined quality of life in elderly people. They also correlate in cognition decline and occurring dementia. <b>Bidirectional relationship between Loneliness and physical health:</b> Studies show that disability leads to less connection and loss of social interactions and from the other hand loneliness may result in poor health.</p>
6	<p><b>Loneliness vs social isolation:</b> loneliness is a subjective negative feeling which is connected to the inadequate social or emotional interaction while social isolation is an objective experience of the number of contacts. <b>Effects on health:</b> Different studies have shown that loneliness affects adversely on cognition and it enhances the possibility of occurring dementia and Alzheimer disease. <b>Loneliness and depression correlation:</b> Loneliness associated with impaired processing speed but not depression. May be the co-existence of depression with loneliness results in decreased processing speed. <b>Treatment:</b> Interventional study shows that participation in intervention groups is beneficial in reduction of loneliness and enhancement of cognition in elderly people. <b>Bidirectional relationship:</b> As loneliness may increases the risk for decline cognition, the impairment in cognition itself may results in loneliness.</p>
7	<p><b>Factors affect aging:</b> Religion, social interactions, self-rated health, coping skills and socioeconomic state are some of factors which influence aging. <b>Depression-loneliness correlation:</b> There are studies that show in oldest old people, depression can be linked to mortality only when loneliness is perceived by this people. <b>Bidirectional relationship:</b> While depression and other mental and physical problems may result in loneliness, studies suggest that loneliness by itself may result in depression. <b>Treatment:</b></p>

	Spending time with family, visit neighbors and friends, making new friends and belonging to a group are some ways to alleviate loneliness.
8	<p><b>Effects on health:</b> There is interaction between aging process and loneliness in many ways which effects on health adversely. <b>Loneliness as a stigma:</b> There is a problem with loneliness researches because many of lonely elderlies do not accept that they are lonely and may lead to bias in studies.</p> <p><b>Theories of loneliness:</b> There are four major theories related to loneliness: Psychodynamic theory, existential theory, interactionist theory and cognitive theory. <b>Depression-loneliness correlation:</b> Loneliness and depression share the same roots and they correlate in suicidal behaviors, alcohol abuse, shyness and low self-esteem. <b>Measurement of loneliness:</b> There are different ways by which loneliness's scale can be measured which the newest one is the UCLA Scale. <b>Nurse's role:</b> Nurse's role in alleviating loneliness in elderly care can be defined in social implication of nursing practice. Loneliness can be recognized by the nurse and be treated through proper interventions and also addressed to the social services.</p>
9	<p><b>Loneliness vs social isolation:</b> Loneliness is a subjective feeling about non satisfying connections with other people, social isolation is an objective experience which related the quantity of connections.</p> <p><b>Bidirectional relationship:</b> Poor health, lower education, poor vision and hearing, loss of husband or wife, depression and unsatisfying relationships are the most common cause of loneliness. Effects of loneliness include poor health, disability, mortality, cognitive problems, declined quality of life and increased use of social and health services. <b>Gender factors:</b> Effects of loneliness are more obvious in men rather than women. <b>Treatment:</b> Psychological group interventions can reduce loneliness and its adverse effects on health.</p>
10	<p><b>Age factor:</b> Loneliness follows a U shaped distribution pattern which means loneliness is more popular among adolescence and very old aged elderlies. Retirement causes an increase in loneliness in this age. <b>Bidirectional relationship:</b> Not only loneliness causes poor health through stress patterns, but also poor health can increase the level of loneliness. <b>Loneliness vs social isolation:</b> It is difficult to distinguish loneliness from social isolation. Loneliness is subjective negative feeling about the understanding of social isolation, while social isolation includes an objective situation in which the person does not have a lot of contacts. <b>Gender factor:</b> Decreased loneliness after group interventions gives more health benefits to the lonely men than lonely women. It suggests that men may suffer more from social isolation but women from emotional loneliness. <b>Treatment:</b> Studies show that group interventions such as common activities and education can decline the level of loneliness.</p>

Table 4. The answers to three research questions by each unit of analysis.

Studies	1. What is the nature of the relationship between loneliness and health in general?	2. What effects does loneliness have on mental health of elderly people?	3. What should be done by nurses to alleviate the possible adverse effects of loneliness on mental health of elderly people?
Donaldson, J. M. & Watson R. (1995)	Loneliness and depression share the same roots and they correlate in suicidal behaviors, alcohol abuse, shyness and low self-esteem. Unidirectional relationship between health and loneliness (loneliness is considered as a symptom of depression).	Poor self-image, inability to cope with inevitable losses, confusion between present and past, reduced ability to concentrate and low level of activity, restlessness, amorphous dissatisfaction, suicidal behavior, anxiety, alcohol abuse.	More education about loneliness and its signs and clinical syndrome, help to increase social interaction and the quality of these interactions between elderly people, work in groups leading by nurse including techniques like reminiscence, touch, drama and art.
Hawkey, L. C. & Cacioppo, J. T. (2007)	Unidirectional relationship between loneliness and health is studied (loneliness leads to physical and psychological problems).	Loneliness contributes and accelerates age-related decreases in physiological resilience, it effects on health behaviors, stress exposure, psychological and physiological stress response and restorative processes, feeling helplessness and threat, behavioral withdrawal, sleep dissatisfaction.	Not clear answer, and not suggestions for prevention.
Luanaigh, C. et al. (2012)	Loneliness and depression correlation: Loneliness associated with impaired processing speed but not depression. May be the co-existence of depression with loneliness results in decreased processing speed. Bidirectional relationship between cognitive impairment and loneliness.	Lower score in global cognition, impaired processing speed and reduced visual memory independent of depression, pre/ morbid IQ and demographic factors.	Indirect answer (latent meaning), interventions which focus on treatment or modifying loneliness could improve the cognition.
Morphy F. (2006)	Correlation and bidirectional relationship between loneliness and mental and physical health.	Development of dementia, cognition problems.	More education for nurses and health care staff to recognize sign and symptoms of loneliness. Better working conditions for nurses to have more time to talk to the patients. Helping the elderlies to

			maintain better networks, indirect interventions like lifelong education.
Nummela, O. et al. (2011)	Bidirectional relationship between poor health and loneliness. Decrease in loneliness effects health positively and deterioration in health causes loneliness.	Not very clear just mentioned that loneliness has adverse effects on health. Association between changing in loneliness and self-rated health have been studied.	Indirect answer (latent meaning), encourage the elderly to do voluntary work, seeking help from close persons, arranging educational and social activity interventions.
Rautasalo, P. E. et al. (2008)	This study do not point out the bidirectional relationship between health and loneliness but the effects of loneliness on health (unidirectional relationship).	Poor subjective health, reduced psychological well-being and cognition, depression, disability, increased used of health and social services, mortality.	Arranging well planned client centered psychological group intervention, peer support, educating the nurses and the elderlies.
Schoenmakers, E. C. et al. (2012)	Bidirectional relationship, correlation between loneliness and poor health and old age.	Poor physical and mental health, sleep problems, sense of emptiness and lack of confidant, shyness, reluctance to take social risks.	Indirect answer (latent meaning), helping them with coping strategies like, acceptance, increased social involvement, involving with religion, social interaction with family, friends, reading, gardening, lowering expectancies, increasing number of contacts and intensifying the exist relationships.
Singh, A. & Misra, N. (2009)	Bidirectional relationship and correlation between loneliness and depression.	Cognitive function, mortality, depression, low self-esteem, impaired quality of life.	Indirect answer (latent meaning), help the elderlies to build new coping skills, developing new positive relationships and friendships, encourage them to participate in religious activities.
Tiikkainen, P. & Heikkinen R.-L. (2005)	Bidirectional relationship and correlation between depression and loneliness.	Depressive symptoms, negative emotions, adverse experience of social interaction.	Indirect answer (latent meaning), arranging contact with peers and friends, new contacts and different social activities.
Tilvis, R. S. Et al. (2011)	Bidirectional relationship between poor health and functioning and loneliness.	Poor functional status, depression, unfulfilled expectations in contact with friends, impaired quality of life, disability, cognitive decline,	Indirect answer (latent meaning), psychological group interventions, intervention in patients' weekly exercises and hobbies.

		mortality and more usage of health services.	
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