



MALNUTRITION IN ELDERLY, POSSIBLE CAUSES AND NURSES INTERVENTION

Shakirat Adeyanju

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<p>Malnutrition is an age related challenges facing elderly globally. Possible cause of malnutrition in elderly is hidden, therefore the research is aim at investigating the cause of malnutrition in elderly. The research would examine the following question.</p> <ol style="list-style-type: none"> 1. What is malnutrition in elderly? 2. What are the possible causes of malnutrition in elderly? 3. What Nursing interventions exist in caring for elderly at the risk of malnutrition? <p>The articles gotten were analysed using an inductive content analysis. The theoretical framework used for the study is the Dorothea Orem’s Self – care Deficit theory that views nutrition as part of self-care. The theory is a universal theory that focused on the following; the theory of nursing systems, The theory of self-care deficit, The theory of self-care.</p> <p>According to finding gotten from the selected articles, both the nurses and elderly plays essential role relating to malnutrition. There is no specific definition for malnutrition in elderly because it varies individuals. The cause of malnutrition in elderly is age related and theses included the preventable and unpreventable. Understanding and educating the elderly on their various nutritional status is also important. All the publications, laid emphasis on the need to educate and train the nursing staffs on the nutritional needs in order to manage and enhance the healthy living of elderly. Nurses must be responsible to detect and manage the nutritional status of elderly before derailing. As the individualized care progressive, nurses should provide self-care based on the assessment of the following care dependency, medications, cognitive or psychosocial risk factors, disease, environmental situation, physiological changes.</p> <p>The scope of this study investigated the causes and nursing preventive measures of malnutrition in elderly and it is essential to state the good and adequate orientation coupled with monthly or quarterly nutritional screening of the elderly would prevent malnutrition in elderly.</p>	
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FOREWORD

I would like express my profound gratitude to ARCADA University of Applied Science for the great opportunity give to write thesis. Also appreciation goes to my supervisor Pamela Gray for the guidance, advice and words of encouragement. Lots of love and honor to my irreplaceable parents Mr. and Mrs. Olawale Ojuko. To outstanding friends that turns out to be my irresistible family and my cute son Abdulsalam loving you is like food to my soul. My acknowledgement would be incomplete without extending my love to my siblings.

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1 INTRODUCTION

According to (Lahmann, Tannen & Suhr 2015), the international publications inferred considerably large number of people are malnourished and also highlighted the unavailability of accurate data relating to home care sector in comparison the intramural sector. In addition, there is progressive increment of 5 to 10%, 30 to 60%, and about 85% of malnutrition in the elderly living at home, hospitals and institutionalized resident respectively. Furthermore, 28% of the prevailing malnutrition risk are deduced from elderly are in connection with the outpatient in Turkey, (Cankurtaran et al. 2013). As the finding progresses, it is recorded that there has been an increment of about 85% of malnourished individuals leaving the NHS hospitals in England in past 10 years. In addition, approximately over 7 million people residing in the UK are at the risk of malnutrition. Annually, £13billion inquired and larger share is spent on elderly from age 65 and above (Merrell et al. 2012). The previous studies above coupled with experience during various practical training with elderly in different health units' service as the motivational factors for the thesis topic. During my training at the hospital, it is not the responsibility of the nurses to cook and shop for the patient, but their utmost tasks is to ensure the patient eat adequately. Food is essential to everyone and its play great role in the development of individuals. Feeding is usually part of the nurses responsible and clearing is the duty of the kitchen staff. Sometimes nurses document the patient refuses to eat without stating why and the role played. There is a need for nurses to understand the need for persuasion and also the point of the patient is left alone. The thesis is commissioned by Lovisa and it is aimed at investigating what is malnutrition in elderly, the possible causes of malnutrition and nurse intervention.

2 BACKGROUND

Globally, current demographic change relating to ageing population as lead to rise in absolute number and proportion of elderly. The number of elderly from 60 years and above is estimated to increase from 544 million in 1995 to 1.4 billion by 2030(United Nations 2000). Similarly, the population in the European is increasing on daily basis with middle aged been the highest ageing in the world, while percentage increment from 14% in 2010 to 25% in 2050 is estimated (WHO European Region 2014). The increments in the elderly population posed the need to look into the meaning of malnutrition, possible causes and nurse's intervention. Malnutrition in elderly is inevitable but it is usually unnoticed issues with elderly living at home. Malnutrition in elderly varies in individual and these has led to no exact definition for it. Malnutrition in elderly occur when there is lack of stability between nutritional intake and nutritional needs. Malnutrition is also viewed as inadequate intake of important nutritional elements. Similarly, it is also regards protein-energy malnutrition which can be primary or secondary issue. Primary issue is a result of inadequate food intake while secondary issues is caused by disease.(Bachrach-Lindströ et al. 2007a, Verbrugghe et al. 2013). The early signs are not easily detectable with elderly live at home because there is lack of regular screening system couple insufficient health care professional visit. The signs include weakness, dullness, poor concentration, infection risk.(Lahmann, Tannen & Suhr 2015). According to (Merrell et al. 2012), malnutrition is referred to lack of nutrients such as energy, protein and minerals which lead to malfunction of the body composition and function, clinical results.

2.1 Malnutrition and contributing factors in elderly

Globally, current demographic change relating to ageing population as lead to rise in absolute number and proportion of elderly. The number of elderly from 60 years and above is estimated to increase from 544 million in 1995 to 1.4 billion by 2030 (United Nations. Department of International Economic and Social Affairs. Population Division 2000). Similarly, the population in the European is increasing on a daily basis with middle aged been the highest ageing in the world, while percentage increments from 14% in 2010 to 25% in 2050 is estimated (WHO European Region 2014). The increment in the elderly

population posed the need to look into the meaning of malnutrition, possible causes and nurse's intervention. Malnutrition in elderly is inevitable, but it is usually unnoticed issues with elderly living at home. Malnutrition in elderly varies in individual and these have led to no exact definition for it. Malnutrition in elderly occurs when there is a lack of stability between nutritional intake and nutritional needs. Malnutrition is also viewed as inadequate intake of important nutritional elements. Similarly, it is also regards protein-energy malnutrition, which can be a primary or secondary issue. Primary issue is a result of inadequate food intake while secondary issues is caused by disease (Bachrach-Lindströ et al. 2007a, Verbrugghe et al. 2013). The early signs are not easily detectable with elderly live at home because there is lack of regular screening system couple insufficient health care professional visit. The signs include weakness, dullness, poor concentration, infection risk (Lahmann, Tannen & Suhr 2015). According to (Merrell et al. 2012), malnutrition is referred to lack of nutrients such as energy, protein and minerals which lead to malfunction of the body composition and function, clinical results.

During an investigation conducted in 2009 at Belgian nursing home, it was discovered that 58.7% of the elderly are vulnerable to malnutrition. Similar studies involving 2329 patients in 90 elderly units located in Belgian hospitals, it was deduced that 43% of the patient were vulnerable to malnutrition while 33% are malnourished in 2010 (Verbrugghe et al. 2013). Institution, cultures, and professions affect the meaning of malnutrition. According to (Keller 1993) malnutrition can be viewed from four different perspectives and these include Undernutrition due to inadequate food intake, over nutrition due to eating more than what is needed, Lack of food particular nutrient and Disproportion in the food intake. The term under nutrition is sometimes used substitutable for malnutrition. Malnutrition leads to malfunction, disability and affect the quality of life. Clinically, malnutrition is detected, but interventions are usually not in place (Ennis, Saffel-Shrier & Verson 2001). Malnutrition could also be defined as a condition in which excessive or insufficient energy, protein and other essential nutrients causing malfunctions in the body shape, function and clinical outcomes (Harris, Haboubi 2005). Clinically, malnutrition is viewed from two perspectives: firstly, it is referred as inadequate food consumption; and secondly, it is viewed as protein energy under nutrition (PEU) or protein-caloric malnutrition (PCM) which is the continued loss of both lean body mass and adipose tissue as a result of inadequate intake of protein and energy. PEU are of three kinds, namely: marasmus, kwashiorkor (hypoalbuminemia), and a combination of both (Bachrach-Lindströ et al. 2007a).

2.2 Possible causes of malnutrition

Malnutrition mostly occur in elderly as result of physical changes related to ageing. The consequence of malnutrition in elderly living at home differs from institutionalized elderly. Failure to examine and analysis the cause of malnutrition result to huge problems. Elderly living at home experiences challenges such as not be able to perform daily life activities and their functionality deteriorate and they also experience falls and fractures while institutionalized elderly are faced with problems such as pressure ulcers, cognitive decline, infections, and anaemia and extend the duration in the hospital. (Cankurtaran et al. 2013) in the case of the residential based elderly, it is difficult to detect malnutrition because of infrequent contact with the health care professionals and this result in morbidity, mortality and increases the admission rate in the hospital.

The following are factors that determine the nutritional status of elderly: physiological, socioeconomic and psychological changes. Elderly are at high risk of malnutrition due to physiological factors such as loss of appetite, taste bud and swallowing problem and the interaction between the medication and nutrient intake. Furthermore, the socioeconomic factors include lifestyle, livelihood, and living conditions. Lastly, the psychological factors such depression and cognitive impairment also play a leading roles.

Environmental factors are not left out and might lead to higher risk. These can further be divided into intrinsic (internal factors) and extrinsic which are the external factors (de Morais et al. 2013, Suominen et al. 2005).

The preventable and unpreventable cause of malnutrition has been identified (Bachrach-Lindströ et al. 2007a, Suominen et al. 2009, Lahmann, Tannen & Suhr 2015)

The cause can grouped into the following: Cognitive or psychosocial risk factors, Disease, Environmental situation, and Physiological changes.

This is related to the mental wellbeing of an individual and the mini mental status examination (MMSE) is general used to detect the cognitive status of the elderly. The MMSE test is centre on the time and space, uptake, attention, mathematical skills, ability to remember things and language. The test determines the quality of wellbeing and the accuracy of the elderly.(Verbrugghe et al. 2013).

2.3 Disease

The existence of one or coexisting of disease such as arthritis, cancer, diabetes, Parkinson's disease, Alzheimer's disease and depression are causative factor to malnutrition in elderly. The treatment of disease result in the following: multiple medication intake, reduces duration of stay in the nursing homes, affect the result of the comprehensive geriatric assessment scale, changes or modifies the diet plan of the elderly.(Lahmann, Tannen & Suhr 2015, Verbrugge et al. 2013, Cankurtaran et al. 2013).

Minimal dietary intake has adverse effect on wound healing and the protein-energy malnutrition has connection with the entire body protein and inadequate micronutrient alters the nutritional status. the variation in the nutritional status affect the healing process and strength of the wound, synthesis of collagen, skin tend to be inelastic, and unable to produce antibodies that fight and prevent infection. The fragile body is prone to pressure ulcer which has relation with immobility, weight loss and the impairment of immune system. Assessment and follow up of the nutritional status reduces the malnutrition and assist in the prevention of pressure ulcers. previous studies has shown that there is a connection between malnutrition and pressure ulcer so in order to detect and prevent pressure ulcer, the nutrition screening and examination has be set as guideline for admission of patient with pressure ulcer.

Furthermore, the study into the connection between pressure ulcer and nutrition status has been entangled because there is no standardized definition for malnutrition, lack of unified screening tools, and finally inadequate information as regards the role of malnutrition in pressure ulcer. In particular, elderly with multi-morbidity, malnutrition is a common result of diseases. Therefore, it is challenging to determine the best screening tool that show altered nutrition status of multi-morbid elderly during hospital admission.(Steinhausen-Thiessen, Schulz 2007)

2.4 Environmental situations

Malnutrition is common among elderly living at home because they encountered changes which is age related and they also faced inadequate nutritional supply in the environment.(Lahmann, Tannen & Suhr 2015). Malnutrition in elderly living at home also have

cost implications which affect the patients, the healthcare provider and the broader society.(Verbrugghe et al. 2013). Detection and management of malnutrition is the main problem encounter in both home care and hospital (Kozáková, Zeleníková 2014). The organizational and individual factors affecting the nutritional status both home care and hospitalized elderly are as follows

Table 5: organizational and individual factors affecting the nutritional status of elderly

Organizational Factors	Individual Factors
lack of regulation adherence	Ageism
inadequate timing	Abuse
residents management	vision and impaired speech
miscommunication among staffs	communication problems
lack of expertise such as dietician	sensory loss of taste and smell
lack of knowledge as regards nutritional needs	low nutrient intake
inadequate screening and delay in diagnosis	eating disorder and swallowing problems
lack of staff training	disease , pain and medication

2.5 Physiological changes

They can be referred to as the unpreventable changes because they are age related. As stage progresses, most elderly experience the following: Deficiency in the recommended daily allowance for multivitamins and minerals when the energy consumption is inadequate; inadequate food consumption as result of loss appetite because the taste bud is not adequately functioning that is elderly cannot differentiate between sweet and sour, absorption and nutrients usage problems, reduced lean body mass as result of changes in body compositions. Change in body composition is experienced due to the aging progress.

The change in body composition alters the medication function, physical strength, quality of life and perceptible to trauma and diseases. Sarcopenia occurs when there is a reduction in the lean body mass. The lean body mass is about 45% at age 30 and gradually reduces to approximately 27% at age 70. The reduction in the lean body mass is coupled with an increase in the fat mass. Increment that occurs is from 14% to 30% from age 30 to 70 respectively. The increase in fat mass has multiple factors such as reduction in physical activity, reduction in the growth hormone secretion, weakened sex hormones and also reduction in the metabolic rate. The increment in fat experienced by elderly also results in insulin resistance and prone to ischemic heart disease, stroke and diabetes (Ahmed, Haboubi 2010a, Fuhrman 2009).

The studies intend to show how nurses can improve and understand on the nutritional needs of the patient as important as the medication they administer. The assessment of elderly's nutritional status is the starting point in order to determine the vulnerability. The assessment which is carried out through screening helps to identify the status of the elderly followed by the intervention. The screening exercise is usually tasking due to no standardised approach to the assessment of nutritional status therefore the assessment requires a detailed multivalent assessment which assists in explicating the measure. The expenses, desirability and witness of the elderly differs in a situation (Jensen et al. 2013). There are various types of nutritional screening tools for detecting the nutrition status of elderly and this includes; nutritional screening initiative (NSI) and mini nutritional assessment test. (MNA). The nutritional screening and assessment is centred on the anthropometric and biological criterion. The tools in general determine the malnutrition and nutritional risk of individuals (de Morais et al. 2013).

- a. NSI questionnaire known as 'determine your nutritional health' is formulated for expert working with elderly to know the nutritional status of the elderly. The questionnaire helps to examine the factors contributing towards malnutrition in elderly. The questionnaire basically entails the diet and overall condition of the elderly. The purpose of this study, a most recent version of the questionnaire was used and binary classification function as constraint (de Morais et al. 2013).
- b. The nutritional status of elderly can also be examined with use of mini-nutritional assessment test. The test is appropriate for both methodical and broad studies of elderly in living various health sectors. The result of the test indicates prolonged hospital stay, mortality and rehabilitation to nursing homes (Suominen et al. 2005).

c. SF-36 known as the 36- item short form health survey that assess the elderly living in the environs. The result gotten are easily interpreted using the various statistically methods (de Morais et al. 2013).

3 THEORETICAL FRAMEWORK

The theoretical framework gives a detailed reason to why the highlighted research question exists. Orem's self-care deficit theory of nursing is the theoretical framework relating to this research because the theory is further divided into three sub-theories in which requisite are line with the following: Individual stages of development and goals, Health conditions, Developmental states, Energy consumption and expenditure, Atmospheric conditions and also the theory gives room to investigate possible causes of malnutrition alongside nurse's intervention by assessing the need for care, approaches and required interventions. According Orem in 2001, nursing can be viewed as part of the health sector that provides authorized care to individuals. In order to understand the theory and its divisions, it is essential to explain the basic concept used (Smith 2012).

- a. Self-care: These entails the daily activities carried out by an individual at a given period. The self-care are goals oriented in order to maintain healthy and continuous living of an individual.
- b. Dependent care: As the name implies, it is a form of care that is rendered to people due to inabilities to perform the self-care. The service are discharged within a given time frame to ensure healthy and continuous living of individuals.
- c. Self-care requisites: is designed for the purpose of self-care and the following has to be considered; the type of care required and the objectives of the care provided.
- d. Universal Self-care requisites: The goals of dependent and self-care requisites are assessed. During the assessment, it is important to know the origin and the present and continuous situation of the human structural and functional unpaired condition most be known. Listed below are eight known self-care requisites that requires adequate control among human being: Respiration (air intake), Nutrition (food and fluid or water intake), Bowel regulation (elimination and excretion process), Movement, Irritability, Growth, Human safety; and Development of human functioning in relation to their limits. Other self-care requisites relating to the theory includes developmental self-care requisites, health deviation self-care requisites, therapeutic self-care demand, self-care agency, dependent-care agency, and self-care deficit.

- e. Nursing agency: These are bodies or individuals responsible for assessing, planning and implementing the need of persons in order to attain the required therapeutic self-care demands. Other nursing terms relating the theory include nursing design, nursing systems.
- f. Helping methods: Helping method from the nurses' view is a systematic and structured way of providing care. The following has to be considering during the care provision: Applying and assisting another, Instructing and following, Provision of Psychological and physical care, Provision and controlling the environment to enhance the developmental grow.
- g. Basic conditioning factors: These are factors that affect the therapeutic self-care demand. The factors varies in individuals and these includes: Age, Sex or Gender, Developmental condition, Health condition, Living condition, Healthcare factors, Family condition, Sociocultural, Resources Available, and Other environmental condition.

The empirical evidence application according to Orem in 2001, nursing is purposeful practical in which qualified persons applies the theoretic knowledge of nursing in real and practical situations. The application of theoretic knowledge has to be well structured during nursing care. According to the self-care deficit theory of nursing, attaining the individual therapeutic self-care demand and maintaining the patient self-care agencies are the required result.(Smith 2012).

3.1 Assumption and assertion of the theory

The assumption relating to this theory were devised in the early 1970s. Orem in 2001, highlight five fundamental nursing law (Smith 2012) and these include;

1. Human being demand continual input: They engage in continuous interaction among themselves and their environments for functionality and sustainability.
2. Human agency: Ability of act dependently and decided in order to know the want and needs
3. Mature human beings experience privations: every person are unique. It is an action experienced during self-care and people's involvement in ensuring sustainability.
4. Human agency: identifies, develop and deliver care for self and others

5. Groups of human beings with regulations: assign individuals to provided care and deliberate decisions about self and others.

Orem's theory is a universal theory that focused on the following assertion: (Smith 2012): The theory of nursing systems, the theory of self-care deficit, and the theory of self-care.

1. The theory of nursing system: The theory of nursing system describe nursing as actions performed by human (nurses). These actions are planned and discharged following the task of the nursing agency for individuals or group of people with health-related issues or limitations. Care provided can be self-care or dependent care and these include diagnosis, prescription and management.
2. The theory of self-care deficit: It is the essential part of the theory. Self-care deficit is the relationship that exist between the self-care agency and self-care demand and it is aimed at ensuring the self-care are below the demand for self-care. The concept of theory of self-care deficit is aimed at accessing the need for care or nursing. Nursing is required when the care that is dependent care or self-care given to individual is unlimited or insufficient.
3. Theory of self-care: Self-care is a care individuals perform and it has law that governs people in order to enhance continuous living, good health, and development. Self-care would also be referred as an action system because it expand the concept of self-care, self-care demand and self-care agency towards the basic of the required actions and limit of the individual benefiting of the care. Self-care must be acquired and the laid that principles must be followed by individuals.

The theory of self-care also covers the theory of dependent-care in which the need for care, approaches and result of dependent care are considered. *Figure 1: R indicates a relationship between components; < indicates a current or potential deficit where nursing would be required (Smith 2012)*

below shows the conceptual framework for nursing (Smith 2012)

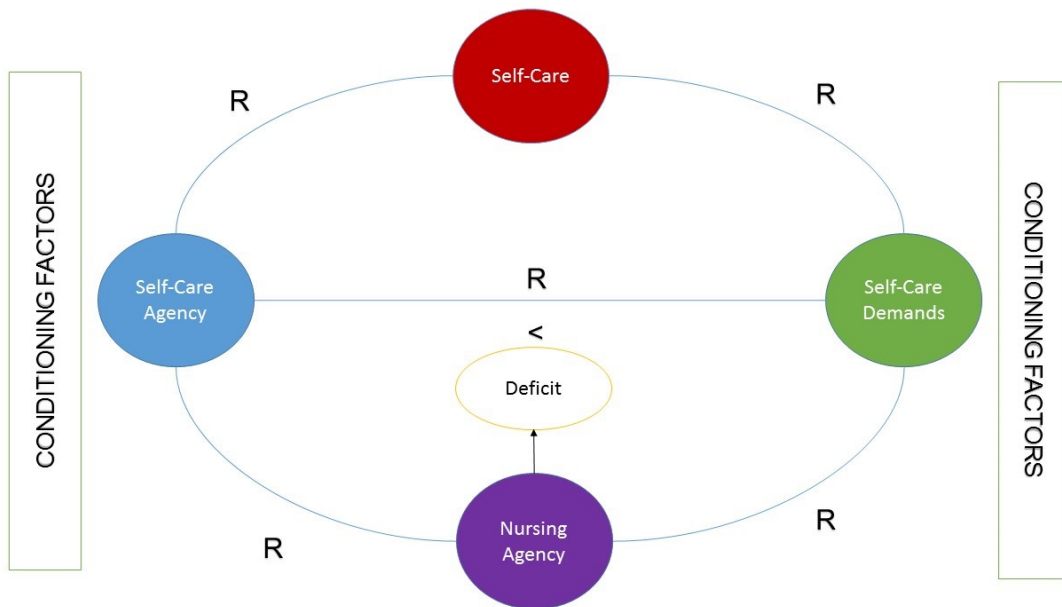


Figure 1: R indicates a relationship between components; < indicates a current or potential deficit where nursing would be required (Smith 2012)

4 AIMS OF THE STUDY AND RESEARCH QUESTIONS

The aim of this study is to investigate using the literature review to examine the meaning and possible causes of malnutrition in elderly and assess what nurses intervention can minimise the malnutrition in elderly. The commissioned thesis by the city of Lovisa is aimed at institutionalised elderly care and the findings from this research will probable assist the healthcare professionals to build up and evaluate the nutritional needs of the elderly living at home and therefore, improve and boost the nutritional needs of the elderly.

The research would examine the following question:

4. What is malnutrition in elderly?
5. What are the possible causes of malnutrition in elderly?
6. What Nursing interventions exist in caring for elderly at the risk of malnutrition?

5 METHODOLOGICAL APPROACH

Qualitative research is governed by explanatory methods that enlightening, decode and translate the meaning of certain experiences in relation to happenings globally. Qualitative research is used during findings and it has continuous development of the grounded theory and produces recent publications in the area of ethnography. Qualitative research is described as a motion research that utilities observation and interview. It has an inductive characteristics and focuses on aim selections of the participants. The method uses during a qualitative research include Grounded theory, phenomenology and ethnography. Qualitative research methods is also use within the health sector to provided answer to questions that might be difficult to answer using the quantitative method. In the past years, research done in the health sector has been done using quantitative methods. In order to use the qualitative research method the research is expected to broad knowledge of its theoretical basis, methodology and evaluation method (Al-Busaidi 2008).

The inductive approach is a structured method that investigate qualitative data influenced by a set goals. It mainly focused on reviewing of the data to formulate concepts, themes, or a model through the knowledge acquired from the raw data. The fundamental of inductive analysis approach include compressing the board and diverse data into summary, establishing a clear and justifiable connection between the goals and the finding through the data and developing a theory about the fundamental form of approaches that are visible in the data (Thomas 2006).

The research aim at identifying the possible causes of malnutrition in elderly and also nurses intervention towards improvement. In order to provide answer to the research questions in the study, qualitative data approach were used and a systematic review of articles through inductive analysis were employed. According to (Kitchenham 2004) Systematic literatures review description entail identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest relating to that research.

5.1 Data collection

Data collection is the process in which the writer shows the credibility of a data and it also requires the suitable procedures or guidelines in order for the content analysis to meet the target of the writer. Credibility also known as reliability which encompass the aim of

the research and the approach in which the data addresses the research question. During the data collection, consideration should be given procedure in which relevant data are gotten. The relevant data gives an insight the research questions. In situations where content analysis approach is used the data gotten are unorganised but collected through Interviews, observations, diaries and authored documents. The researcher can adopt two or more of the highlighted methods which can be opened and semi-structured. Whenever inductive content analysis is used, it is essential to data are unstructured. Reliability can also be viewed by investigating the relationship between authentication and data collection approach which provides the researcher vision on whether to use descriptive or semi-structured questions? (Elo et al. 2014). The approval relating to the commission of thesis has been duly signed by the commission parties involved. With the help of Arcada University of Applied Sciences' library database, the following search engines were accessed Academic Search Elite and Cinahl (EBSCO), Science Direct, PubMed, Nelli Portal and Sage in order to get relevant articles to provide possible answers to the research question. As the search for relevant articles progresses the following inclusion and exclusion criteria were considered,

Table 1: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Published articles from 2000 to date	published Articles before 1999
Free access articles	Charged articles
Detailed articles	Abstract only
English articles	Other languages
Scientific article	Non-scientific articles

With consideration to the inclusion and exclusion criteria, the following are key phrases the author used during the search for the articles. Table 2 shows the search engine, search key phrase, year, results and selected article

Table 2: Search process

Databases used	Search words	Year	Results	Selected article
EBSCO	Malnutrition and elderly AND Finland	2004-2014	8	5
	Malnutrition and elderly AND European	2000-2014	51	
	Malnutrition and elderly AND nurses role	2000-2014	6	
Science Direct	Malnutrition in elderly living at home	2000-2014	5,305	11
Sage	Malnutrition in elderly living at home	2000-2015	2352	10
PubMed	Malnutrition in elderly living at home.	2000-2015	77	6
Cinahl (EBSCO)	Nutritional nursing intervention AND malnutrition in elderly.	2000-2015	70	5
	Nutritional education AND malnutrition in elderly	2000-2015	20	4
Nursing Collection 1 (OVID)	Nutritional needs for elderly	2000-2015	3	1

The abstract of the selected articles were read in order to determine the relevancies of the articles to the research question and the 21 articles were selected in order to provide possible answers to the research questions. The table 3 below comprises of the final selected articles alongside the author's name, title, journal and year of publication.

Table 3: Extracted articles

Author(s)		Articles	Journal and year
1	Nils A.. Lahmann et al.	Underweight and malnutrition in home care: A multicenter study.	Clinical Nutrition, 2015
2	Suominen, M.H., Kivisto, S.M. & Pitkala, K.H.	The effects of nutrition education on professionals' practice and on the nutrition of aged residents in dementia wards	European journal of clinical nutrition, 2007
3	Jensen et al	Recognizing malnutrition in adults: definitions and characteristic, screening, assessment, and team approach	American society of parenteral and enteral nutrition, 2013
4	M. Verbrugge et al.	Malnutrition and associated factors in nursing home residents: A cross-sectional, multi-centre study	Clinical Nutrition , 2013
5	R. Kozakova, R. Zelenkova.	Assessing the nutritional status of the elderly living at home	European Geriatric Medicine, 2014
6	Tappenden et al	Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition	American society of parenteral and enteral nutrition, 2013
7	H.Soini et al	Characteristics of the Mini-Nutritional Assessment in elderly home-care patients	European journal of clinical nutrition, 2004
8	J.Merrell et al	Addressing the nutritional needs of older people in residential care homes	Health and social care in the community, 2012
9	M.Cankurtaran et al	Turkish nursing homes and care homes nutritional status assessment project (THN-malnutrition)	European Geriatric Medicine, 2013
10	MH Suominen et al	How well do nurses recognize malnutrition in elderly patients?	European journal of clinical nutrition , 2009
11	M.Bachrach-lindstrom et al	Attitudes of nursing staff working with older people towards nutritional nursing care	Nutrition and older people, 2007

12	Jefferies et al	Nurturing and nourishing: the nurses' role in nutritional care	Journal of Clinical Nursing, 2011
13	Fuhrman, M.P.	Home Care for the Elderly	Nutrition in Clinical Practice, 2009
14	Chernoff, R.	Normal Aging, Nutrition Assessment, and Clinical Practice	Nutrition in Clinical Practice, 2003
15	Ahmed, T. & Haboubi, N.	Assessment and management of nutrition in older people and its importance to health	Clinical interventions in aging, 2010
16	Bååth, C et al	Interrater reliability using Modified Norton Scale, Pressure Ulcer Card, Short Form-Mini Nutritional Assessment by registered and enrolled nurses in clinical practice	Journal of Clinical Nursing, 2008
17	DiMaria-Ghalili et al.	Integrating Nutrition in the Comprehensive Geriatric Assessment.	Nutrition in Clinical Practice, 2014
18	Sahyoun, N.R.	Nutrition education for the healthy elderly population: isn't it time?	Journal of Nutrition Education & Behaviour, 2002
19	Eide, H.D et al	Barriers to nutritional care for the undernourished hospitalised elderly: perspectives of nurses	Journal of Clinical Nursing, 2015
20	Stechmiller, J.K.	Early Nutritional Screening of Older Adults: Review of Nutritional Support	Journal of Infusion Nursing, 2003
21	Söderhamn, U. & Söderhamn, O	A successful way for performing nutritional nursing assessment in older patients	Journal of Clinical Nursing, 2009

5.2 Data analysis

During literature review, the various views on the use of concepts, procedures and interpretation in content analysis are presented. Nevertheless there are similitude approaches by the researchers in analysing the process. The researcher used distinctive approaches or

a flowing text. The characteristic prevail in the stages of analysing in conjunction with the researcher view and gestate the data. The four stages involved in data analysis include the contextualization, the categorization, and the compilation (Bengtsson 2016).

The research was carried out using inductive content analysis. The finding of articles is provide answer to the research questions. The articles were read and further category in subsection. The findings relating to the 3 research questions were deduced and question 1 and 2 was answer in the background of the research work while question 3 that conforms to what nursing interventions exist in caring for elderly at the risk of malnutrition can be found in the findings section.

Table 4: data analysis

	Category	Subdivision
Question 3 What Nursing interventions exist in caring for elderly at the risk of malnutrition?	Nutritional education	i. Nutritional education for nurses ii. Nutritional education for elderly iii. Nurses connection with other healthcare professionals
	Nutritional assessment	i. Screening tools ii. Fundamentals of nutritional assessment
	Nutritional needs for elderly	i. Individual care plan ii. Required energy and nutrients supplement

5.3 Ethical consideration

Scientific writing is said to be good when the authors follows the guidelines principles provided by the school and engage in using right approaches such as proper use of information, confidentiality, causing no harm and bias in order abide by the research ethics (Ranjit Kumar 2014).

The author adhere strictly to ethical guidelines of Arcada University of applied sciences and also following thesis guideline provided throughout the process of writing the thesis. The research topic was revised and approved by the supervisor. The articles and book used was got from the Arcada library which include the academic databased and the library shelf. The articles used are scientific and free to access and referencing was done. The articles were read and interpreted using inductive content analyses.

6 FINDINGS

The findings in content analysis is can be linked to transferability, compatibility, and reliability. Finding should be stated systematically and thoroughly by considering the connections between the data and results. The systematic way of reporting content analysis depend understanding of the researcher and it is usually challenging and can also result in unproductive analysis and also make the abstraction difficult (Elo et al. 2014). In this chapter the writer provide possible answer to the research question 3- what nurses intervention is exist in caring for elderly at the risk of malnutrition?

The nurses play vital role in determining client that are vulnerable to malnutrition. Furthermore they also carry out precautionary measures relating the cause of the malnutrition. Nevertheless, the approaches of nurses towards elderly are both positive and negative. From previous studies, nurses in the elderly unit assumed responsibility for nutritional evaluation and care but insufficient knowledge coupled with lack of backing from the physicians. The Swedish guidance lighted that both the registered nurses and the physicians liable for assessing the nutritional status but the nurses play the following role; supplying, ordering, serving of food and observing food intake. The lighted task requires adequate knowledge and relevant tools for detecting and assessing the elderly. It is also highlighted the approaches of nurses and the lecturers towards elderly is after nursing student at the nursing school. Nutritional Nursing Care Scale has been developed to assess the nurse's behaviour towards eating and nutrition in general. The scale entails the nursing process such as assessment, nutritional requirements, eating, environment, and individualization. The scale is general use among nurses in all aspect of geriatric care (Bachrach-Lindströ et al. 2007a).

The precautionary measure towards improving the nutritional needs of elderly living at home include: Education, Individual care plan, Screening, Time management, Medication.

6.1 Nutritional Education

Nutritional status of elderly can be improve by educating nurses and other healthcare providers towards understanding the nutritional challenges faced by elderly. Also adult

education can also improve the nutritional status of elderly (Suominen, Kivisto & Pitkala 2007).

6.1.1 Nutritional education for nurses

Previous studies has shown that nutritional education program assist nurses and other healthcare professionals in improving their knowledge about the nutritional requirement of elderly and furthermore the program help to suppress weight loss and impaired mental activities. The nutritional education program entails lessons, group discussion, individual task and reports. During the program, emphasis are led on the nutritional norms and challenges, nutritional assessment and procedures (MNA), energy food composition, food components, individual food and food timetables. The nutritional education program objectives are carried out in various categories in order to assess and identify the nutritional requirement of each elderly (Suominen, Kivisto & Pitkala 2007). According to (Suominen, Kivisto & Pitkala 2007), the table 4 below show the education process incorporating nutrition as a part of the good care of nursing home residents. All the publication, laid emphasis on the need to educate and train the nursing staffs on the nutritional needs in order to manage and enhance the healthy living of elderly. Furthermore, lack of prompt documentation is also faced by the nurses therefore provision of stress free electronic documentation program coupled with reminder component should be included. Initiating the new nurses relating to the nutritional screening and also educating the healthcare professionals would guide towards understanding and implementing the nutritional needs in elderly living at home. Quarterly or monthly nutritional screening is recommended with or without clinical matters. (Cankurtaran et al. 2013, Jensen et al. 2013, Suominen et al. 2009, Bachrach-Lindströ et al. 2007b). Figure 2 indicates the educational process for including nutrition as part of nursing assessment.

According to (Tappenden et al. 2013, Jefferies, Johnson & Ravens 2011), the following are essential precautionary measures;

- a. Nutritional screening to all the patient, they are meeting for the first time
- b. Ensure patient undergoing enteral and parenteral nutrition get the required amount at the right time. Avoid interruption during administration and also verify is the patient has any gastrointestinal discomfort

- c. Develop a meal timetable in an encouraging surrounding and elderly have personalised nutritional care plan. Furthermore, elderly get the required assistance during meal
- d. Thrive to provide oral nutrition supplements during medication or between food intake in order to improve the stability and nutrient
- e. Documentation of quantity of food intake progressive and assess the eating habit within 24 hours of admission
- f. Provision of food supplement when patient is not allowed eat during the mealtime because of practitioner's order.
- g. Understand health condition and medication of patient that can affect the nutritional intake
- h. Availability of nutritional care resource nurse in all clinical settings

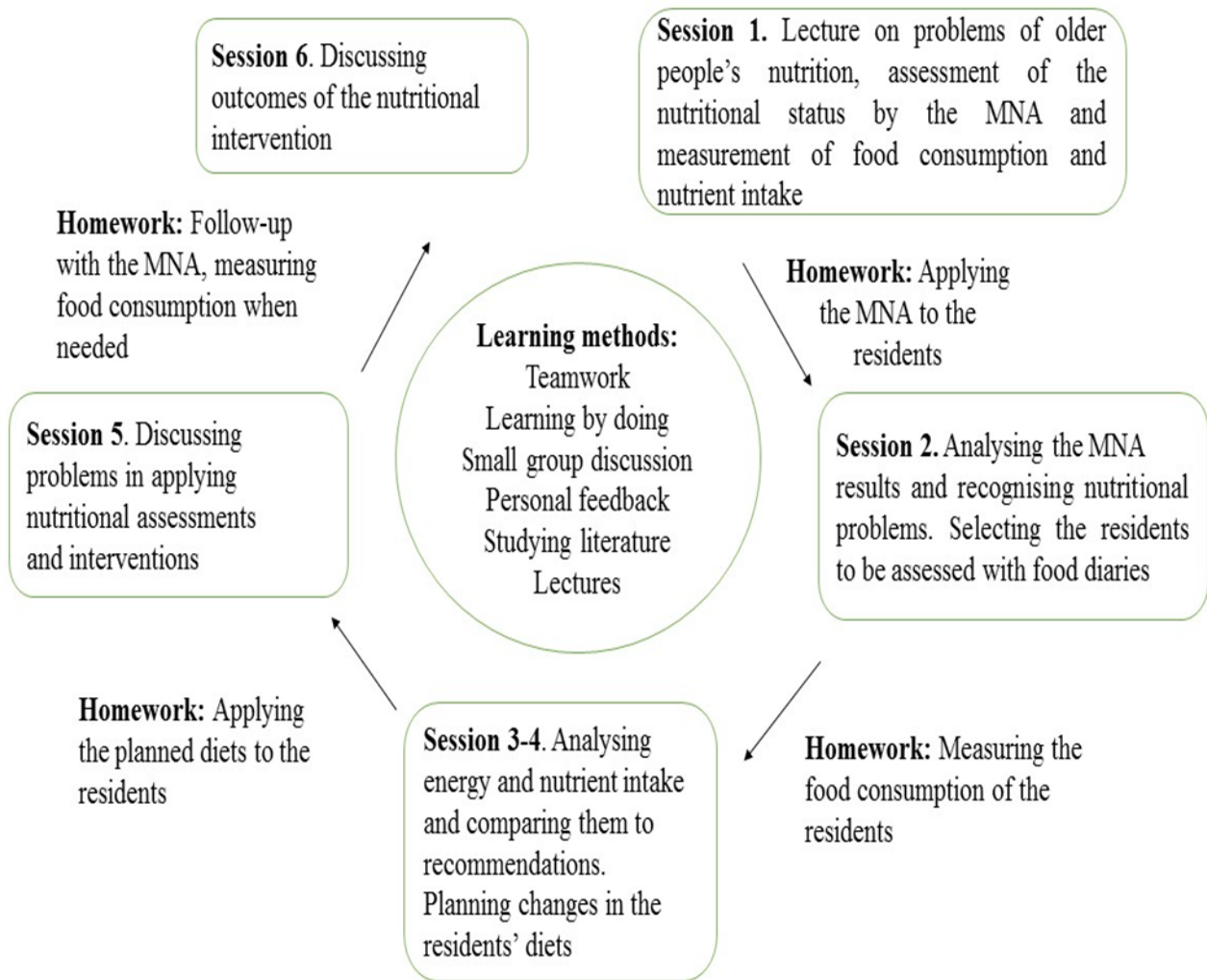


Figure 2: Educational process: incorporating nutrition as a part of the good care of nursing home residents (Suominen, Kivisto & Pitkala 2007)

<p>Printed Materials – Optimized readability and understanding</p>	<ul style="list-style-type: none"> • Use large size and boldface for printing. • Add clearly and comprehensible pictures. • Make material culture and language-specific. • Make material age and Educational level-specific.
<p>Teaching sessions – Keeps the learner engaged in the education</p>	<ul style="list-style-type: none"> • Verify that the learner’s vision are in good condition and verify that hearing aid is on. • Turn off distracters such as the television and radio. • Provide sufficient lighting. Keep each teaching session short and focused on one concept. • Keep eye contact with the learner and speak slowly and distinctly. Request feedback from the learner. • Involve the family and caregiver in the education session. Production refreshment or interludes

educational material and teaching session for elderly (Sahyoun 2002).

Figure 3: Tips for Educational Materials and Teaching Sessions for Elderly People modified (Fuhrman 2009)

6.1.3 Nurses connection with other healthcare professionals

Early detection and intervention of malnutrition can be enhanced when there is a connection among the healthcare professionals. The healthcare professional such as nurses, physician, dietitians, medical practitioners. The healthcare professional work as team in order to obey and review the policies relating to nutritional screening, provide nutritional care plan, document the progress of the plan for easy of accessibility to all. (Jensen et al. 2013, Tappenden et al. 2013).

The teamwork between nurses and other healthcare professionals enhanced the examination of nutritional challenges elderly encounter. The teamwork should exist between nurses and practical nurse in order to state the eating strengthen and carry out activities relating to the nutritional needs of the elderly; similarly, there should a connection between the nurse and the physician in order to discuss eating problems such as alteration in mood and swallowing challenges. In addition to these, nurses should also have connection with the speech therapist in order to investigate the swallowing challenges. Furthermore, the dietician should not be left so that the nurses can get guidelines relating to the nutritional status of the elderly (Söderhamn, Söderhamn 2009).

The connection between the health service's Department of Nutrition and Dietetics and Food Services Department is important to safeguard all the following eight measures highlighted above; teamwork would also enhance the professionals to understand the role alongside their limits. It is the role of the dietitians to develop nutritional care plan while the nurses put the care plan into practices (Jefferies, Johnson & Ravens 2011).

6.2 Nutritional assessment

Assessment is one of the stages in the nursing process aimed at identification of challenges faced by the patient. The challenges are usually followed by nurse's intervention. For instance, patients with hip fracture and stroke are likely to face nursing challenges such as pressure ulcer and malnutrition (Bååth et al. 2008, Chernoff 2003).

Nutritional intake is best assessed by a dietician. Various methods can be used the assessment and these include the 24-hours recall. Interview that focus on only food consumption in the last 24-hours. The limitation of the 24-hours recall, it does not focus on the patient's regular food intake and the information can be altered if the patient cognitive status are altered. Similarly, a food frequency multi-questionnaire can be used in

analyzing within a period. The questionnaire is used during the assessment involving lot of people (Ahmed, Haboubi 2010b).

6.2.1 Fundamentals of nutritional assessment

The nutritional screening tool determines the nutritional status by stating those at the risk of malnutrition or those that may be malnourished, consideration should be given to a more comprehensive assessment by applying the tools in line with the aging processes. The tools are part of component of the nutritional screening and they include Anthropometric measures, biochemical measures, Immunologic assessment, Examination of social and economic status, medication evaluation and mobility assessment.

a. Anthropometric measures is the essential part of the nutrition assessment and it can be referred to the measurement of the size and proportion of the body which include height, weight, skinfold measures, body dimension. Transformation in muscle, bone, fat, and skin integrity are also altered during the aging process. Height is the most prominent changes that appear because there is a reduction in height as aging approaches. The height reduction alters the skeletal uprightness which affect the backbone. Height reduction also lead to the weakening of the vertebrae, shrinking of the vertebral discs, kyphosis evolution, and the effects of osteomalacia and osteoporosis. Both genders experience reduction in height but it is common in elderly female osteoporosis. The body composition and physis are affected because elderly loss the ability to stand upright which result in ectopic changes in the thoracic cavity, breathing and gastrointestinal problems may also occur. The alteration in the height can result in neuromuscular disorders, paralysis, or loss of lower limbs makes the measurement of the height difficult. The recumbent height or selection of anthropometric sites are measured ranging from 1.5–1.7. The height reduction hinders correct calculation of the weight to height ratio that plays essential role in nutrition assessment. Weight is also essential part of anthropometric measure that changes as age progresses and it is essential to note the changes because it occurs at different frequencies in elderly, body mass index (BMI) is widely used for estimation of the weight to height ratio in elderly. Other Anthropometric measures include skinfold measures, mid-arm muscle circumference, hip to-waist ratio, knee-to-heel measures, and total arm length (Chernoff 2003).

b. Biochemical measures: Aging process is also affect biochemical measures. The laboratory measure in which the renal function experiences declination. The declination result in fluid imbalance and dehydration that result in long-term chronic illnesses; and influences drug–drug or drug–nutrient interactions. Serum transferrin is widely known biochemical measures that alters aging process. The increment in tissue iron leads to reduction in the circulation of serum transferrin levels. There is an inverse proportional relationship between the serum transferrin and iron stores. Minimal serum transferrin should be appraised in line with the serum iron level and other biochemical measures to regulate the serum transferrin. The regulation of the serum transferrin range stops the transportation of iron.

Serum albumin has been proposed to be a stable predictor of nutritional status. An elderly that serum albumin below 4.0g/dl is said to be dehydrated; has cancer, renal disease, or hepatic disease; or using medication that alters the function of the hepatic. Present study proposes that serum albumin is a predictive factor of problems relating to infections acquired in the hospital or vulnerable elderly. It also results in readmission, prolonged hospital stay, and other obstacles in line with protein energy malnutrition in elderly. Furthermore, serum albumin has affliction with other elements that is experienced in the healthcare aptitude such as bed rest, shifts in fluid compartments, cytokine mediation, inflammatory processes, or inadequate dietary intake. All other biochemical measures are within range unless there is any drug interference or existing chronic disease in elderly. Consideration has been given to the relationship between Serum cholesterol level and heart and vascular disease. Low serum cholesterol has connection with poor health in elderly which can result in mortality and it should be checked properly from the perspective of comorbidities and health status (Chernoff 2003)

c. Immunologic assessment: Examination of immune proficiency is usually part of nutrition assessment because poor nutrition composed of host-defence mechanisms. The prevalence of anergy occurs as aging progresses and reaction to skin test antigens seems to be high after prolonged duration in elderly. Differentiating the changes that occurs between protein energy malnutrition and depressed immune response is demanding because of other factors such as comorbid conditions. The importance of the examinations are of less significance in elderly.

d. Examination of social and economic status: after the nutritional screening has been done, a detailed examination which includes the social and economic history, the location

and whom the elderly has lived with provides information relating to the past healthcare history and property, financial status, daily living activities, education level, and other factors as regards health and nutrition risks. It is important to check family lineage, society and church activities in case the elderly have to live alone. Furthermore, the assessment should entails alcohol consumption in connection with physical and physiologic measures (Chernoff 2003) .

e. Medication evaluations: Medication histories are essential data to check in elderly because they are likely to be prone to drug-drug interaction due to many drugs usage. Medications are administer to oversee the well bell of elderly and it can be categories supplement, prescribed and prescribe medications. The connection with medications and malnutrition can be view from two perspectives. Firstly, the multiple medication usage leads to the following side effect anorexia, changes in the taste bud and odour, xerostomia, intestinal disorder, dehydration and weight loss. From previous studies, about 51% of 1100 elderly living in the community administer over 5 medication on daily basics and this can be referred to as polypharmacy. The prominent Medications used by elderly has the following subsections GI agents, antihypertensive, diuretics, analgesics, β -adrenergic receptor antagonists, and antihyperlipidemics. The medications also affect ingestion, absorption, distribution, and elimination of nutrients, vitamins and minerals. Progressively, the distribution and excretions of medications hindered the drug therapy. The drug therapy can be monitored if there is a drug-nutrient relationships which can be viewed by assessing the interval at which therapeutic range has been met and also examine DNI relationship is required to meet any clinically significant point. Furthermore, when the set goals are not met, there is need to adjust the DNI relationship by changing the medication, or observing the possible side effect that may occur. Medication history evaluation provide insight towards understanding the changes in appetite, weight loss, reports relating taste perception and saliva production changes. (Cankurtaran et al. 2013, DiMaria-Ghalili 2014, Chernoff 2003).

f. Mobility assessments: The ability of the elderly using equipment to examine the performance as regards daily living activities. The daily living activities includes feeding, location transfer, toileting and bathing without help, continence control. It is important for elderly to perform this task dependently. Management of instrumental activities that involves the daily living activities add value to the assessment of elderly. Having discussed the criteria and limitation of the screening tools; the nutritional status are unstable

due to inadequacy of age-adjusted standards that provides data during the planning of individual health and nutritional status. The changes that occur assist during nutrition care plan for elderly. Nutritional status assessment, identification and intervention of nutritional needs, rehabilitation are part of the problems nutritional professional faced with (Chernoff 2003).

6.2.2 Screening tools

The present approaches used during nutritional assessment has been gotten from various sources and these are used in assessment nutritional status of healthy elderly and unhealthy elderly with chronic or severe illnesses. The physiologic aging and appropriate measures of nutrition assessment are questionable. The first stage of the nutritional assessment is the nutrition screening. Nutrition screening is valuable when the following are met: it indicate the contributing factors of malnutrition; it shows the presence of poor nutritional status; it leads to prevention of malnutrition; it will reduces suffering; and the situation of malnutrition can be reverted. Nutritional tools can be classified into two types; those that detect the risk for malnutrition and these include the Nutritional Screening Initiative (NSI), Meals-On-Wheels, Dr. D.Dig, and the Scales acrostics. The second class are used in the clinical setting for diagnosing malnutrition and these include The Subjective Global Assessment and the Prognostic Nutritional Index (Chernoff 2003).

Having discuss some of the screening process in brief in the background of this studies, it will be essential to discuss in details the screening processes used. Nutritional screening is general used in all sector of health care such a hospitals and community care. It is easy and fast tool for detecting the nutritional status of the patient. The most commonly known nutritional screening tools include subjective global assessment (SGA), the mini nutritional assessment (MNA), and malnutrition universal screening tool (MUST). The accessibility, reliability, mutual agreement between the patient and the examiner are the necessary measures has to be considered before the selection of the tools. The nutritional status of elderly should be incorporated into the elderly care plan.(Kozáková, Zeleníková 2014, Suominen et al. 2009). Discussed below are other screening tools in detection of malnutrition in elderly.

Subjective global assessment (SGA): the subjective global assessment is three segment. The first segment is referred to as the medical history which is related to weight change,

dietary intake, gastrointestinal symptoms and functional capacity. The second segment is physical examination which entails loss of subcutaneous fat, muscle wasting, ankle and sacral edema and ascites. Finally, the last segment is the overall assessment which is in line with clinical experience of the examiner. (Kozáková, Zeleníková 2014).

The mini nutritional assessment (MNA): the mini nutritional assessment is the most detailed tools and is universally used for examination of elderly. MNA is designed for purposes of identifying the risk of malnutrition in the vulnerable elderly and indicate elderly that needs immediate intervention. It composed of 18 questions which is further divided into four parts and these include Anthropometric measurements (consideration is given to the elderly weight loss, weight, height, mid-arm and calf circumference) General assessment (in these segment the lifestyle, medications, health status, mobility, neuropsychological problems, and skin lesions are looked into), Dietary assessment (examines the meal duration, meal and liquid intake, appetite, and functionality of the taste bud), Subjective assessment or evaluation (individual perception of nutrition status in line with other health status). The score ranges from 0 to 30 points. The scores above 24 show patient that are healthy with no nutritional problems, scores within the range of 17 to 23.5 indicates patients that are vulnerable to malnutrition and below 17 score are malnourished.(Cankurtaran et al. 2013, Lahmann, Tannen & Suhr 2015, Verbrugghe et al. 2013, Soini, Routasalo & Lagström 2004, Kozáková, Zeleníková 2014, Suominen et al. 2009, Bauer et al. 2008). Mini nutritional assessment is available in various language and mini nutritional assessment (MNA) has been recommended by the European Society of Clinical Nutrition and Metabolism (ESPEN) for the nutritional screening in elderly.

Malnutrition universal screening tool (MUST): the malnutrition universal screening tool consist of three criterion with the score ranging from 0 to 2. The stage entail the evaluation of the body mass index (BMI). This is done by dividing the person's weigh in kg by the square of the height. When the $BMI > 20\text{kg/m}^2 = 0$, $BMI 18.5 - 20.0\text{ kg/m}^2 = 1$ and $BMI < 18.5\text{ kg/m}^2 = 2$. Furthermore, checking the weight loss in the last 3-6months. The weight loss $< 5\% = 0$, the weight loss within 5% to 10% = 1 and finally the weight loss greater than 10% = 2. Conclusively, the finally criterion is the effect of acute diseases. The sum score is increases by 2 if there has been no food intake in last 5 days or more. (Kozáková, Zeleníková 2014, Lahmann, Tannen & Suhr 2015, Suominen et al. 2009, Verbrugghe et al. 2013). The limitation of the screening tools is as follows; the screening tools are mainly

used during the hospital stay and sometimes with the outpatient or longer term care sectors. The availability of the screening tools to all the healthcare sector would enhance early detection of malnutrition and provide immediate nursing intervention. The second limitation relating to the screening tools is unavailability to access the nutritional status of obese elderly, conclusively, the nutritional screening tool are not useful when their essential parts are not available. The availability of the screening tools would motivate the healthcare professionals to incorporate nutritional screening using evidence-based technique (Jensen et al. 2013).

6.3 Essential nutritional needs for elderly

Nutritional needs of elderly is faced with various challenges such as disease, medications interaction, altered activity levels, and chewing and swallowing problems alters dietary intake. The consideration should also be given to nutritional needs, body composition, physical impairments, comorbid factors, psychosocial problems, and cognitive status that prominent in elderly (Fuhrman 2009, Chernoff 2003).

6.3.1 Individual care plan

Insufficient time and staffing is the one of the challenges nurses in the home care sector encountered because the client depend on healthcare providers since most of them living alone and do not have friends or family visiting on regular basics (Verbrugge et al. 2013, Lahmann, Tannen & Suhr 2015, Bachrach-Lindströ et al. 2007b)

Some studies has shown nurses give more consideration to documentation and medication compared to assisting elderly with feeding. Relatively, some nurses' understand the need to help during meal but inadequate measures coupled with insufficient timing lead to giving more consideration to the ill and deprived elderly (Eide, Halvorsen & Almendingen 2015).

The care dependency such as feeding relating to the nutritional care is known to be one of the predominant factors of malnutrition and underweight. Appetite stimulant such as healthy food, nutritional talks and adequate management of pain has been found to be productive ways of dealing with malnutrition and underweight. Obtaining the required

knowledge about individual dietary needs and following the nutritional guidelines for elderly. These has been a good intervention because it enable the client to participate in the nutrition care that will improve the client food and energy consumptions. The approaches to the individual care plan is in accordance with the meals and the meal timetable. The main challenges in this regards include the client refusal of care or the health professionals fail to examine the patient (Lahmann, Tannen & Suhr 2015, Merrell et al. 2012, Soini, Routasalo & Lagström 2004, Suominen et al. 2009).

6.3.2 Required energy consumption and nutrients supplement.

Health promotion and nutritional needs of elderly can be improved when nurses have knowledge that aging is a contributing factors to nutritional requirements. Furthermore, the nutritional and energy needs of elderly can be discovered by paying attention to the individual physical and cognitive status in connection with social, economic, cultural and religious factors. A.S.P.E.N. Practice Guidelines focused mainly on evidence-based research and recommendation of screening exercise and nutrition assessment for elderly at the of malnutrition risk with consideration for age, lifestyle, and drug–nutrient interactions. There is a reduction in the lean body mass and energy requirement as aging progresses.

Frequent documentation that occur is as result of reduction in the energy metabolism. Metabolic activity is reduced due to the reduction in the protein mass. Regulation of the cell function for homeostatic requires the basal energy that helps in the metabolic processes. A complete reduction in the body protein leads to reduced energy needs that affect the metabolic mass functioning. Reduced physical activities can be connected to bone and joint diseases, chronic heart failure, neurological disorders, poor vision, or fractures due to imbalance or osteoporosis. Evidence has shown that vulnerable elderly can be at advantage of strength training activities. Muscle strength can be rebuilt through a frequent training programs; independence can be achieved by increasing assurance in functional abilities and daily exercising can result in protein development, maintenance of muscle mass, and calories are also reduced. Dissatisfaction set in elderly because they experiences in ability to smell nor taste that leads to decreased nutrient intake. Multivitamin which serves as supplementary diet increases the vitamin level of elderly living at home and reduces financial healthcare expenses by lowering heart failure diseases and also developing the immune system in elderly. Previous studies indicate when that elderly take

required calories, inadequacies as regards nutrient are reduced. The daily required energy consumption in elderly is 30 kcal/kg. Carbohydrates such as whole grains are a primary of energy and consumption of complex carbohydrates that have indigestible fibers are highly recommended for elderly.

Fluid intake can also be jeopardized as result of reduced entry, inability of feel thirsty, intentionally restraining due to incontinence, and insufficient intake of liquids with nutrition support. Thirst is regulated by osmoreceptors found in the aorta and renal processes. The required fluid intake by elderly is estimated to be 30 mL/kg body weight, and a minimum of 1500-2000 mL/d. It is of great important that the nurses discuss with elderly issues relating to energy, nutrient, and fluid intake to determine any challenges that requires nutritional intervention. Common challenges such infection and fever are causes of dehydration among nursing home residents

Clinical signs are not sufficient to detect dehydration in elderly therefore the assessment of daily fluid intake can be used. The assessment has 3 stages and these are stage 1, 30 mL/kg body weight; stage 2, 1 mL/kcal/energy consumed; and Stage 3, 100 mL/kg, 50 mL/kg for the next 10 kg, and 25 mL/kg for the remaining kg (Fuhrman 2009, Chernoff 2003, Stechmiller, Arnp 2003).

6.3.3 Protein and fat requirement

The recommended daily allowance (RDA) for protein is 0.8 g/kg body weight for elderly ranging from 51 years and above. Increased protein requirements in elderly can be related the decrease in lean muscle mass therefore the positive nitrogen balance can be regulated to be nourished elderly 1.0 g/kg body weight. About 25% of home bound and institution-alized elderly experiences immobility which results in a negative nitrogen balance (a gradual loss of protein tissue) and also the recommended daily allowance for protein are not met. protein insufficient is also occur during Acute or chronic illness, surgery, infections, and bone fractures and similarly, bed-bound or chair-bound elderly need increased protein dietary to revive and maintain nitrogen balance. The insufficient dietary protein intake in elderly can be attributed to difficulty in chewing, food cost, and lack of knowledge about dietary cholesterol and fats that are found in protein foods.

Fat is an essential nutrient that produces fatty acids and is a carrier for fat soluble vitamins such as vitamins A, D, E, and K. Varying opinion regards the fat requirements in the elderly. Fat plays vital role in the etiology of cardiovascular disease, obesity, and certain types of cancer has been therefore reduction in fat intake has been recommended. The connection between saturated fat and serum cholesterol has led to the recommendation to reduce intake to less than 10% of total calories. The Framingham Heart Study has indicated that serum cholesterol can anticipate coronary heart disease in elderly above age 60. Health promotion exercise such as weight loss, dietary loss in sodium, nutritional therapy, and reduced alcohol intake are urged for elderly. Diets that contains vegetables, fruits, and whole grains low in fat, but high in fibres, and rich in micronutrients (Stechmiller, Arnp 2003, Chernoff 2003).

6.3.4 Vitamins and mineral requirement

caloric intake below 1500 kcal/day lead to mineral and vitamin deficiencies and also Calcium intake relating to elderly experiences continuous reduction. Reduction in the absorption of calcium has connection with osteoporosis. According to the National Academy of Sciences, 50% increase in calcium intake is advocated for elderly from 800 mg to 1200 mg/day. The National Institutes of Health also advocate that elderly from age 65 and above should consume 1500 mg of calcium. Most elderly are faced with the difficulty in taking the required amount of vitamin D due to lack of exposure to rays of sunlight or inability of the body to convert the active form by the kidneys. The Recommended Daily Allowance for vitamin D is 600IU per day for elderly from age 70. Recently, physicians are prescribing one or more nutrients for elderly. The function of calcium and vitamin D are interwoven therefore the reduction in absorption of calcium is due to changes related to vitamin D levels, use of laxatives for constipation, and atrophic gastritis. 1200mg and 800 IU of additional calcium and vitamin D respectively reduces the risk of hip fractures and non-vertebral fractures in most studies. The recommended daily allowance of vitamin A is appropriate in elderly because Hepatic stores of vitamin A increases with age. The excess vitamin A result excessive production of biochemical and older biochemical changes that demolish the liver. Reversal in the case of vitamin B because the metabolism and absorption decreases alongside aging and medication usage. Low intake of Vitamins B12, B6, and folate are not left out in elderly. 2.4µg of vitamin B12 is required daily.

Studies has shown that low concentrations of any of B vitamins is related to hyperhomocystinemia and it is a risk factor for cardiovascular disease. Furthermore, vitamin E intake is within the range of 400 to 800 IU daily and it reduce the rate of non-calamitous myocardial infarctions in elderly with ischemic heart disease. Evidence shows that consumption of folate may lower blood homocysteine levels which reduces the vulnerability of coronary artery disease. Supervision of potassium levels prevent hypokalaemia effects. Inadequate zinc intake slows down the healing process of wound, alters the functionality of the immune system, and taste sensitivity. 100 mg of zinc intake is required on daily basic (Stechmiller, Arnp 2003).

7 DISCUSSION

7.1 Discussion related to the findings

According to finding gotten from the final articles, both the nurses and elderly plays essential role relating to malnutrition. There is no uniform definition of malnutrition in the elderly because it is based on individual's health conditions and physiological changes. Malnutrition in the elderly is inevitable and it occurs when there is a lack of stability between nutritional intake and nutritional needs. The cause of malnutrition in elderly is age related and these include disease, environmental situation and physiological changes.

Early detection can be done by evaluating the fundamental of nutritional assessment such as anthropometric measures, biochemical measures, Immunologic assessment, Examination of social and economic status, medication evaluations and mobility assessment. Some of the measures are composed of the nutritional screening tool and that nutritional screening tools indicates elderly that are malnourished, at the risk of malnutrition and also healthy.

Nutritional education is part of the nurse's intervention that exist in caring for malnourished elderly. Nutritional education is required by the elderly and nurses coupled with other healthcare professionals. Educating the nurses towards the nutritional status of elderly serve as preventive measures. The preventive measure provides the nurses with adequate knowledge about the nutritional norms and challenges, nutritional assessment and procedures (MNA), energy food composition, food components, individual food and food timetables. All the publication, laid emphasis on the need to educate and train the nursing staffs on the nutritional needs in order to manage and enhance the healthy living of elderly. Nurses must be responsible to detect and manage the nutritional status of elderly before derailing. As the individualized care progressive, nurses should provide self-care based on the assessment of the following care dependency, medications, cognitive or psychosocial risk factors, disease, environmental situation, physiological changes. The nutritional needs of the elderly, such as carbohydrate, nutrient, fat, mineral, fluid requirement should be given almost consideration to prevent and detect elderly at the risk of malnutrition and also it serve as a way of preventing diseases and enhances the healing of wound.

The good connection between nurses and other healthcare professionals such as practical nurses, speech therapist, physicians, and dieticians would assist in detecting eating problems such as mood, swallowing and adverse effect of medication in elderly at the risk of malnutrition. The role and the limits of all the professionals would yield a positive result towards the nutritional status. Furthermore, it is also important to say elderly also have a role to play toward improving their nutritional needs. The nurses should educate the elderly on nutritional norms and challenging. Possible intervention should also be demonstrate in a friendly and respectful manner to motivate the elderly on the importance of nutrition.

Conclusively, the scope of this study to investigate the possible causes and nursing intervention that exist in caring for the elderly at the risk of malnutrition and it is essential to say monthly or quarterly nutritional screening would reduce malnutrition risk of the elderly living at home. The most famous screening tools used is the mini nutritional assessment (MNA).

7.2 Discussion related to the theoretical framework

In order to investigate the problem and provide possible solutions to malnutrition in elderly living at home using literature review. The finding of this study was analysed in accordance to self-care deficit theory of nursing by Dorothea Orem. This theory comprises of 3 sub-theories that is the theory of nursing systems describing nursing as actions performed by nurses; The theory of self-care deficit is the essential part of the theory because is the relationship that exist between the self-care agency and self-care demand and lastly, The theory of self-care which is a caring individuals perform and it has law that governs people in order to enhance continuous living, good health, and development. The theory at large centred on the role of nurses and the patients during the care. Furthermore the theory also emphasised the approaches in the nurses' discharge their duties abiding to the regulations.

Nutrition is an essential part of self-care, and there is a connection between self-care and health. According to Dorothea Orem, self-care is a human regulatory function that must be acquired and purposely carried out over time. Self-care requisite led emphasis on sufficient food supply and fluid intake, such as water in order to regulate the functions of the human within agreeable norms with life and health. Nurses should develop their ability to identify and develop a concept particular to self-care requisites and therapeutic self-

care demand. An individual's self-care demand cannot be manifest unless it is estimated and it is essential for nurses to use credible, and accurate approaches in the nutritional assessment of elderly. Furthermore, nurse's responsibility should be giving patients advice and education encompassing the nutritional needs aimed at preventing malnutrition and encouraging healthy dietary. Health promotion in the elderly has a connection with healthy eating.

8 CONCLUSION

Conclusively, the scope of this study to investigate the possible causes and nursing intervention that exist in caring for the elderly at the risk of malnutrition and it is essential to say monthly or quarterly nutritional screening would reduce malnutrition risk of the elderly. The most famous screening tools used is the mini nutritional assessment (MNA). Choosing the theoretical for the study was really challenging but having done through the findings from the articles, the Orem's self-care deficit theory of nursing reviews that nutrition is part of self-care. The nurses can also use the theory as guideline in order to understand the procedure and ruling as regards caring for elderly at the risk of malnutrition.

8.1 Strengths and limitations and recommendations

The study is carried out by reviewing most recent and relevant articles to investigate malnutrition in elderly; possible causes and nurse's intervention. The articles gotten indicates that malnutrition in elderly is a prevailing problem faced globally. The arcada guideline is duly followed and the author ensured that the findings were not influence by the previous knowledge to the research topic.

The first limitation is the use of articles which is as result of language barrier between the author and country of residence (Finland). A quantitative analysis is recommended to address this situation broadly and secondly, lack of fund to purchase relating articles was also encountered.

According to the finding from the articles, the author would recommend the following:

1. The nurses in the home care system should incorporate the nutritional screening on admission to check the nutritional status and also repeat the screening quarterly.
2. The nurses in the home care system should also give important to individualized meal plan as much as the medication admitted. Furthermore, nursing should look into the multiple medication and their possible side effect.
3. The nursing school should incorporate nutritional courses into the curriculum of the nursing student.
4. Quarterly seminar and leaflet should be organised for nurses to revise their nutritional knowledge.

5. Malnutrition is truly age related but there is need to enlighten the client on the important of food to the body.

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