



Malnutrition in elderly people living in aged care Nurses Preventive Measures

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<p>Abstract:</p> <p>The most unrecognized and joint problems among the elderly who live in institutions are low B.M.I. and malnutrition. This research is a review of many psychological, economic, cognitive, and social factors through which older adults' nutritional status can be affected and how nurses can play their roles in preventing and addressing malnutrition in the affected patients. The goal of the research is to examine through the evaluation of pre-existing literature; to inspect the connotation and probable reasons of undernourishment in aged people, regarding the factors affecting like economic, social, cogitative, and psychological and assess how nurses' safety measures can minimalize the undernourishment in older adults.</p> <p>The selection of theoretical framework for this study is Dorothea E Orem's theory of self-care deficit; nutrition is a part of self-care. For the care of the elderly at the risk of malnutrition, the nurses can utilize this theory to understand the rules and procedures. The data collection process was done through the reliable sources, PubMed, Google Scholar, Sage, PMC, Research Gate, NCNI and Europe PMC. Search keyword used were: Malnutrition in the elderly people, Elderly people living in aged care, Nurse's care, and safety measures. This research findings indicate that role of nurses is essential for the determination of malnutrition's vulnerable clients. Additionally, relating the cause of malnutrition, nurses can also take care of the preventive measures. Medication, Individual care plans, Time management, Education, and Screening are the preventive measures for improving the nutritional needs of elderly living in aged care. Major screening tools to be used is Mini Nutritional Assessment Tool (M.NA), and other tools such as Malnutrition universal screening tool (MUST) and Subjective global assessment (S.G.A).</p>	
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1 Introduction

Malnutrition among the elderly has been a challenge and a recurring theme both nationally and internationally (Gaskill et al., 2008). Several adults who live in self-care institutions suffer from low B.M.I. and malnutrition. These adults suffer from malnutrition due to certain factors. Factors that lead to malnutrition in adults are psychological, economic, and cognitive. Past studies indicate that nurses assume nutrition as part of self-care for patients, especially the elderly. However, nurses can play some critical roles in addressing and preventing malnutrition in the affected elderly patients. Generally, my research explores adults at risk of malnutrition among adults and how nursing interventions can mitigate the issue. The theoretical framework for this study is strict but has been done through several scholarly articles' data. Additionally, Orem's theory of self-care deficit has been utilized as the base of the research. Orem's theory is used because it states that nutrition is a part of self-care (Biggs, 2008). For the care of the elderly at the risk of malnutrition, the nurses can utilize this theory to understand the rules and procedures.

I have chosen to write about the topic of malnutrition in the elderly living in aged care and the preventive measures both for my own awareness of this issue and to increase the level of knowledge about current measures to lessen malnutrition in the elderly in the nursing home.

2 BACKGROUND

The most unrecognized and joint problems among the old adults who live in institutions are low B.M.I. and malnutrition (Gaskill et al., 2008). Many diseases and inauspicious outcomes like some certain infections, increased risk of death, poor life quality, and pressure ulcers are associated with weight loss and protein-energy malnutrition (Gaskill et al., 2008; Sergi et al., 2005). Several studies investigate malnutrition in aged adults. Around 83% of adults who dwell in the community were at risk of malnutrition, as concluded by the systematic review of 54 studies conducted in 2016, utilizing validated tools for the screening of community-dwelling adults of age 65 or older for the susceptibility of malnutrition. Another 77 studies systematic review conducted in 2013 on nursing home residents' nutritional problems concluded that malnutrition varied broadly. Although according to most studies, 47-62% of the residents were at risk of malnutrition, and 20-39% were malnourished. Malnutrition is associated with higher costs of health care and a short-term mortality predictor, as it diminishes life's quality. This research is a review of many psychological, economic, cognitive, and social factors through which older adults' nutritional status can be affected and how nurses can play their roles in preventing and addressing malnutrition in the affected patients (Easthood, 2013).

2.1 Nutritional determinants

Several models have been established to illustrate and summarize nutritional determining factors for the elderly, but they focused more on dietary intake than malnutrition, which may be due to the factors except for insufficient intake. For instance, in the model DONE regarding nutrition and eating determinants, generated recently in the J.P.I. Knowledge Hub D.E.D.I.P.A.C., over 400 probable factors were categorized into environmental, interpersonal, individual, and political, related to many other age groups and the elderly (Stok et al., 2017, 2019). A model of factors that affect the intake of food in institutionalized elderly was developed by Keller et al. (2014), including governmental, institutional, and resident- and meal-related factors. Even after knowing relevant domains and

determinants, the mechanisms, and pathways by which these factors evoke malnutrition are of importance and interest concerning identify subsequent adequate interventions and high-risk persons.

There is a weak understanding of potential causes and their mode of action, and elderly protein-energy malnutrition's etiology theoretical framework has not been discovered (Eastwood, 2013). Hence, we aim to create a framework that would reflect potential causative mechanisms and many factors involved.

2.2 Factors that contribute to elderly's malnutrition

Current aging-related demographic changes are rising for the elderly on a global level. According to the United Nations Department of International Economic and Social Affairs Population Division (2000) estimation, the number of people aging 60 years or more will increase from 554 million to 1.4 billion between 1995 and 2030. The same as that, Europe has been found to have the highest aging globally as its population is increasing every day, the percentage that was 14% in 2010 is estimated to be increased up to 25% in 2050 (WHO European Region 2014). As the elderly population increases, the need to know the cause, prevention, and meaning of malnutrition is required. Malnutrition in terms of the elderly cannot be avoided. However, it usually gets ignored for the aged people living in the home. The primary cause of malnutrition, especially in the elderly, is stability lacking between nutritional need and nutritional intake. Inadequate intake of the essential nutritious element is viewed as malnutrition. It also has a secondary and primary issue that is protein-energy malnutrition (Bachrach- Lindström. et al. 2007a). Inadequate food intake can result in a primary issue, whereas a disease can be turned out as a secondary issue (Verbrugge et al., 2013). Due to lack of professional visits in terms of health care of elderly that stays at home, the early sign and symptoms of malnutrition cannot be detected. Infection risk, dullness, weakness, and poor concentration are the signs (Lahmann, Tannen & Suhr 2015). Malnutrition can also be defined as deficiency of nutrients like minerals, proteins, and energy, leading to the malnutrition of body function and composition (Merrell et al., 2012).

Around 58.7% elderly were found vulnerable to malnutrition while the investigation was conducted at a Belgian nursing home in 2009. According to the estimation in 2010, out of 2329 patients of overall 90 elderly units in Belgian hospitals, 43% of the elderly were vulnerable to malnutrition, and 33% were found to be malnourished (Verbrugghe et al., 2013). The meaning of malnutrition is affected by professions, cultures, and institutions. There are four different kinds to see malnutrition, according to (Weiss et al., 2016). They include Overnutrition due to eating excess food, Disproportion food intake, Undernutrition due to inadequate food intake, and Lack of food particular nutrient. The quality of life, disability, and malfunctions can result from malnutrition (Rasheed and Woods, 2013). Clinically, interventions of malnutrition are not there while it is. Another definition of malnutrition can be a state during which insufficient or excess protein and energy or maybe any other nutrient results in a malfunction in the body function, clinical outcomes, and shape (Harris, Haboubi 2005). From the clinical perspective, malnutrition could be of two types: inadequate food consumption and protein-caloric malnutrition (P.C.M.) or protein-energy undernutrition (P.E.U.), the continuous loss of adipose tissues and lean body mass due to inadequate energy and protein intake. According to (Weiss et al. 2016), there are three kinds of protein-energy undernutrition (P.E.U.): Kwashiorkor (hypoalbuminemia), Marasmus, and a combination of both.

2.3 Possible causes of malnutrition

Age-related physical changes are another possible cause of elderly malnutrition. Institutionalized elderly has different consequences of malnutrition as compared to the ones who live at home. Inability to analyze and examine the cause of malnutrition is resulting in significant problems. Institutionalized aged individual face problems like cognitive decline, anemia, pressure ulcers, infections, and they also experience an extend in their stay at the hospital while elderly staying at home face challenges like falls and fractures, functionality deteriorate, and they become unable to perform their normal daily life activities (Cankurtaran et al. 2013). Infrequent meetings with healthcare professionals undermine detection of malnutrition among the elderly staying at home, and this may result in mor-

tality, morbidity, and the rate of admissions in the hospital could be increased. The nutritional status of the elderly can be determined by the following factors: psychological, socioeconomic, and physiological changes.

2.4 Physiological and socioeconomic factors

Some of the physiological factors that the elderly is found to be at risk of malnutrition are swallowing and taste buds' problems, loss of appetite, and interaction between nutrient intake and medications. Moreover, living conditions, livelihood, and lifestyle are the factors included in socioeconomic (Verbrugghe et al., 2013). Poor living conditions because of poverty worsen malnutrition as the quality of food intake is compromised. The elder individuals who suffer from these problems tend to hide hunger. The hidden hunger is because of deficiency of essential vitamins and minerals. On the other hand, those who live a lavish life are also at risk of malnutrition. This can occur if they consume food deficient in right amount of key nutrients such as minerals and vitamin.

2.5 Cognitive factors

Cognitive impairment and depression play leading roles as factors of psychological changes. (Rock, Roiser Riedel, and Blackwell, 2014.). Most adults tend to suffer from cognitive impairment ranging from mild to severe according to age. These adults have trouble remembering and learning new things (Dodson et al., 2013). Therefore, they fail to take personal responsibility of ensuring that they eat food rich in nutrients. These psychological changes also make the adults to lose reasoning which may make them to fail eating.

2.6 Causative factors

Some of the causative factors of malnutrition in the elderly are cancer, depression, arthritis, Alzheimer's disease, Parkinson's disease, and diabetes. According to Lahmann, Tannen, and Suhr (2015), the following results can be seen during the treatment of disease: less duration of stay in the nursing homes, modification or change in the diet plan of the

elderly, multiple medication intakes, and influence the outcome of the comprehensive geriatric assessment scale. Wound healing can be affected by reduced dietary intake, and protein-energy malnutrition relates to the proteins of the whole body, and the nutritional status can get altered by an inadequate micronutrient. The nutritional status variations can affect the synthesis of collagen, process of healing, and strength of the wound; skin becomes unable to produce antibodies that help prevent infection, and skin also tends to be inelastic. Pressure ulcers have a fragile body as vulnerable to immune system impairment, weight loss, and immobility. The nutritional status follow-up and assessment assist in the prevention of pressure ulcers and reduce malnutrition.

According to previous studies, there is a link between pressure ulcers and malnutrition. To prevent and detect pressure ulcers, the nutrition examination and screening should be set as a guide to admit the patient of pressure ulcers. Moreover, the study related to the link between nutrition status and pressure ulcers has been intertwined due to lack of proper definition of malnutrition and unified screening tools and limited information regarding malnutrition's role in a pressure ulcer. The common cause of diseases is malnutrition, especially in an aged individual having multi-morbidity. Hence, it is difficult to examine the significant screening tool that gives multi-morbid elderly's altered nutrition status at the hospital admission time (Steinhagen-Thiessen, Schulz 2007).

2.7 Environmental situations

The inadequate nutritional supply and the challenges related to age are responsible for the malnutrition in the elderly living at home (Lahmann, Tannen & Suhr 2015). The broader society, health care providers, and the patients are affected by 7 cost implications present in the malnutrition of an elderly living at home. Management and detection of malnutrition are the major problems faced both at hospital and home (Kozáková, Zeleníková 2014).

The changes can be referred to as unpreventable because they are related to age. With the progression of the stage an elderly may face: less food intake due to the loss of appetite, which is due to malfunctioning of the taste bud, so the elderly become unable to differ-

entiate the tastes, recommended daily allowance deficiency for minerals and multivitamins when there is a less consumption of energy, problems of usage and absorption of nutrients, reduction in lean body mass due to the body composition changes.

Change in body composition is experienced due to aging progress. Physical strength, medication function, perspective to diseases and trauma, and life quality get altered by the change in body composition. Reduction in lean body mass resulted in Sarcopenia. At age 30, the lean body mass is around 45%, and it reduces at the age of 70 gradually, up to 27%. Lean body mass decreases as the fat mass increases. The increase is from 14% at age 30 to 30% at age 70. Reduce growth hormone secretion, reduced metabolic rate reduced physical activity, and weaken sex hormones are the multiple factors of increased fat mass. Increased fat in the elderly might lead to insulin resistance and vulnerability to diabetes, stroke, and ischemic heart ailment (Ahmed, Haboubi 2010a, Fuhrman 2009).

2.8 Assessments Tools

The nutritional status of the elderly can be determined by various types of nutritional screening tools such as mini nutritional assessment tests (M.N.A.) and nutritional screening initiatives (N.S.I.). The nutritional assessment and screening are dependent on the biological and anthropometric criteria. Generally, these tools' nutritional risk and malnutrition can be determined (de Morais et al., 2013). The experts in operation with the aged tend to recognize their nutritional health, a questionnaire of nutritional screening initiative was formulated as 'determine your nutritional health.' The factors enhancing malnutrition in the elderly can be determined through this questionnaire. The Diet and overall condition of the elderly are covered in this questionnaire. This study's objective was to use a recent version of this questionnaire and the binary classification function as a constraint (de Morais et al., 2013).

3 Theoretical Framework

Deficit theory is used for the theoretical framework in this study, according to which nutrition is also a part of self-care. The self-care theory, the self-care deficit theory, and the theory of nursing systems focus on the theory, and it is a universal theory. According to the theory given by Dorothea Orem, the analysis of this study is the self-care deficit theory of nursing (Biggs, 2008). This theory is dependent on three sub-theories which include; theory of self-care deficit, considered as the significant part of this theory due to the connection between self-care demand and self-care agency, the theory of nursing systems that describes the actions nurses have to perform, and in the last the theory of self-care that is the care an individual have to perform himself and according to the law of this theory it guides individuals on the way of improving their health, development, and living. The center of this theory is to clear the role of patients and nurses during care. Self-care is defined as a human governing role that should be taken care of, as said by Dorothea Orem. There is a link between health and self-care, and an essential part of self-care is nutrition. Self-care aims to attain sufficient food intake and food supply like water, which regulates the functions of the human body and improves the quality of life and health. Nurses should be capable enough to develop and recognize self-care requirements and the demand for therapeutic self-care. The demand for self-care cannot be cleared without estimation, and nurses are required to use accurate and credible methods for the elderly's nutritional assessment. Moreover, it is the nurses' responsibility to guide and educate the patients regarding their bodies' nutritional elements to encourage dietary fiber and prevent malnutrition (Holmberg, Klingberg, and Brembeck 2021). The elderly can achieve healthy eating through health promotion.

4 Aims of the study and research questions

The goal of the research is to examine through the evaluation of preexisting literature; to inspect the connotation and probable reasons of undernourishment in elderly people, regarding the factors affecting like economic, social, cogitative, and psychological and assess how nurses' safety measures can minimalize the undernourishment in elderly people.

The research question:

Q.1: What are the nursing interventions to lessen the risk of malnutrition in elderly people living in aged care?

5 Methodology

Qualitative research methods are used to provide answers to questions needed in the health sector using quantitative methods. Research has been done in the past years using quantitative methods. The study is done in a broad knowledge of its theoretical basis, evaluation basis, and methodology (Al-Busaidi 2008). In this thesis the author uses qualitative preexisting literature review. The research aims to identify the possible factors affecting older adults' undernourishment and nursing intervention towards improvement.

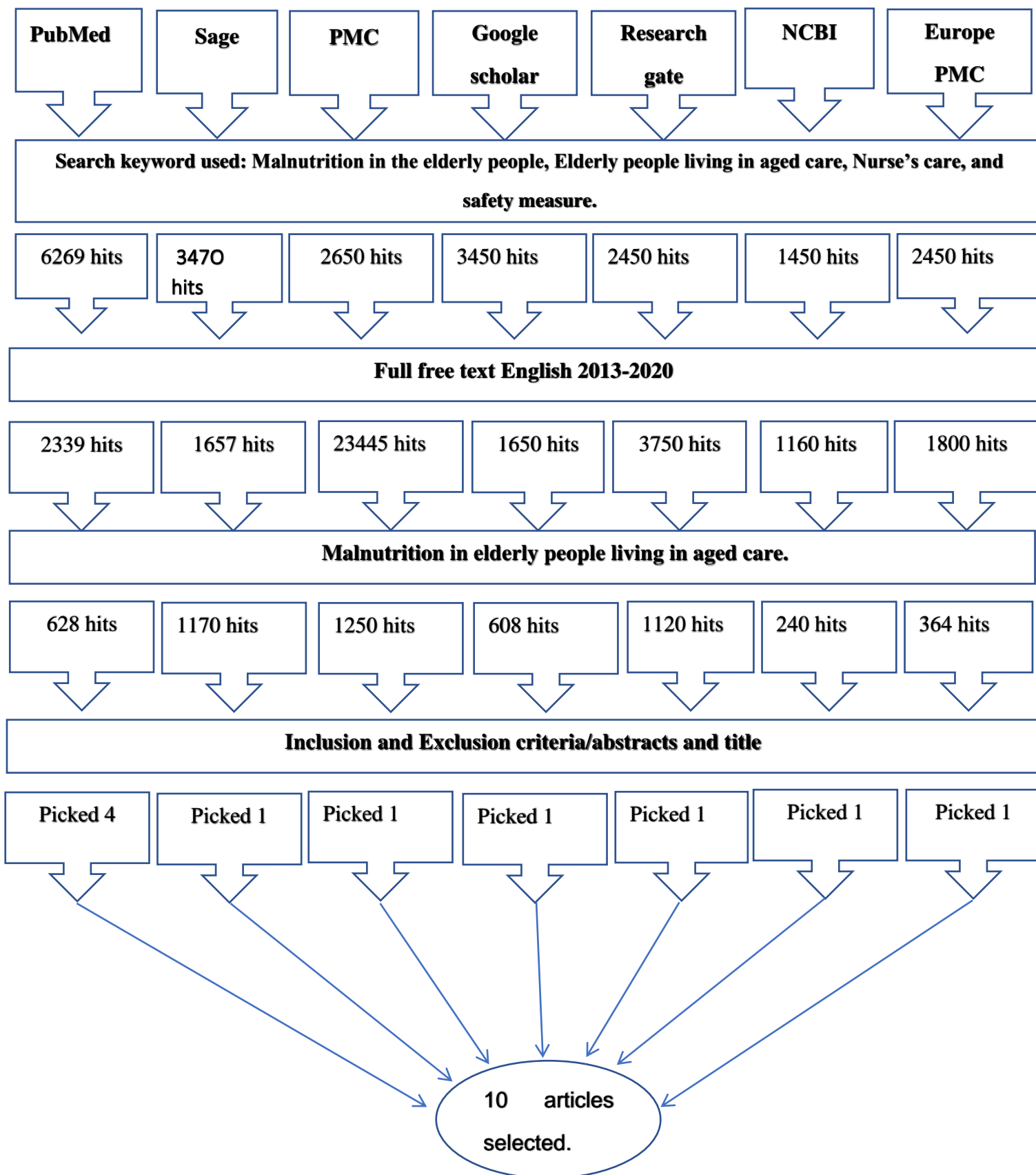
5.1 Data collection

It is the process of showing the credibility of data presented by the researcher that also requires respective guidelines for the analysis of data to meet the researcher target. Reliability is another name of credibility that encircles the research approach and aim in which the data address the research question. Insight of the research can be observed by using relevant data. Procedures should be considered through which the relevant data has been observed during the collection of data. Situations like where the approach of content analysis has been used, and unorganized data has been collected through authored documents, observation, diaries, and interviews. The researcher can adopt one or two highlighted methods that can be semi-structured and open. Inductive content analysis is essential for unstructured data. Another way to view reliability is to explore the relationship between data collection and authentication, which helps clean the researcher's vision regarding using semi-structured or descriptive questions? (Elo et al., 2014). To provide the most suitable answer to the research question, a few search engines have been used to get relevant articles. These search engines include Sage, Science Direct, Nelli Portal, Academic Search Elite, research gate, PubMed using the library databases. Following exclusion and inclusion criteria were used with the progress of relevant articles research.

(Table 1: Inclusion and exclusion criteria)

Inclusion criteria	Exclusion criteria
Free access articles	Charged articles
Detailed articles	Abstract only
Articles in the English	Other languages
Article related to malnutrition and nursing interventions	Articles which is not relevant to malnutrition and nursing interventions
Articles from academic databases such as PubMed, SAGE, Science Direct, Research gate, PMC, NCBI and Europe PMC.	Articles from non -academic databases.
Articles from 2010-2021	Articles older than 2000

(Figure1: Illustration of Data Collection)



(Table 2 List of chosen articles)

S.no	Date of publication	Title	Authors names
1	20.November.2019	Malnutrition in the Elderly (Manuel)	Dorothee Volkert, PhD, Eva Kiesswetter, PhD, Tommy Cederholm, MD, PhD.
2	2019	Management of Malnutrition in Older Patients—Current Approaches, Evidence and Open Questions.	Kristina Norman, Maryam Pourhassan, Ilse Reinders, Helen C. Roberts, Yves Rolland, Stéphane M. Sneider, Cornel C. Sieber, Ulrich Thiem, Marjolein Visser,
3	10.April.2019	The Challenge of Managing Undernutrition in Older People with Frailty.	Helen C Roberts, Stephen E R Lim, Natalie J Cox, Kinda Ibrahim
4	2018	Risk factors of refeeding syndrome in malnourished older hospitalized patients.	Maryam Pourhassan Ingeborg Cuvelier Ilse Gehrke, Christian Marburger, Mirja Katrin Modreker, Dorothee Volkert, Hans-Peter Willschrei, Rainer Wirth
5	2021	Journal of Nursing Education and Practice	Wagnild, G., Rodriguez, W. and Pritchett, G.
6	2013	Malnutrition in the elderly: A narrative review.	Agarwal E., Miller M., Yaxley A., Isenring E.
7	2010	Malnutrition in hospital: the clinical and economic implications	Löser, C.
8	2017	Body mass index and mortality among adults undergoing cardiac surgery: a nationwide study with a systematic review and meta-analysis.	Mariscalco, G., Wozniak, M.J., Dawson, A.G., Serraino, G.F., Porter, R., Nath, M., Klersy, C., Kumar, T. and Murphy, G.J.,
9	2019	Potentially modifiable determinants of malnutrition in older adults: A systematic review	M Kelly, E O'Herlihy 2, P W O'Toole, PM Kearney S Timmons, E O'Shea

10	2021	The food diary as a pedagogical strategy in undergraduate nursing, nursing education: A student evaluation	Holmberg, C., Klingberg, S. andBrembeck,P.
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5.2 Content analysis

The qualitative content analysis method is usually used to analyze the available data in nursing research. The objective of content analysis is to make a framework that will be helpful for further research processes. The inductive and deductive way is also done for content analysis. The compilation, the categorization, and the contextualization are the stages involved in the analysis of data (Bengtsson 2016). Inductive content analysis was used for the research. In this thesis, researcher going to use qualitative content analysis. Researcher will collect the literature and reviewing the results of that literature to find out the answers to our questions. Firstly, researcher read each articles several times in their entirety and organized primary data. Secondly, researcher re- read the articles and made a note and highlighted the data with color which was relevant to make a code. Lastly, the data was divided, shortened, and linked with similar ideas and subcategories were made to answers the research questions. Research question answer can be found in the findings section.

(Table 3 Data analysis)

Theme	Categories	Subcategories
Nursing Interventions	Nutritional education	<ol style="list-style-type: none"> 1. Nutritional education for nurses. 2. Nutritional education for elderly. 3. Nurse's connection with other healthcare professionals.
	Nutritional assessment	<ol style="list-style-type: none"> 1. Screening tools 2. Fundamental of nutritional education
	Nutritional needs for elderly	<ol style="list-style-type: none"> 1. Individual care plan 2. Required energy and nutrition
Unit of Analysis	Article no: 1,5,6,7	Article no:2,3,4,8,9,10

5.3 Ethical consideration

Good scientific writing is when the authors act according to the principles and guidelines provided and involve utilizing accurate methods like significant use of confidentiality,

information, causing no bias and harm to follow the ethics of research (Ranjit Kumar 2014). The researcher follows the thesis writing guidelines 2018, version 3.0(3.10.2018) that are given by Arcada University of Applied sciences. For the proper research ethics, integrity researcher also follows the guidelines by the Finnish National Board research Integrity (TENK Guidelines 2019). The supervisor has revised and approved the research topic. The library was used to extract concerned books and articles, including its library shelf and academic databases. Referencing has been done, and the considered scientific articles have free access. Inductive content analyses were used for the reading and interpretation of the articles.

6 FINDINGS

Content analysis findings can be linked to reliability, compatibility, and transferability. The links between the results and data should be considered for the statement of findings

both thoroughly and symmetrically. The researcher's understanding is the essential requirement for the reporting content analysis systematically; unproductive analysis can also be resulted along with the problematic abstraction as it is challenging usually (Elo et al. 2014). The researcher has provided the possible answer of the nursing interventions to lessen the risk of malnutrition in elderly people living in aged care in this chapter: For the care of old aged people at the risk of malnutrition, what nursing intervention exists? The role of nurses is essential for the determination of malnutrition's vulnerable clients (Wagnild et al., 2021). Additionally, relating the cause of malnutrition, nurses can also take care of the preventive measures. Although, the nurse's approach in terms of the elderly is both negative and positive. According to the past studies, nurses assumed nutritional care and evaluation responsibility in the elderly unit, but lack of knowledge combined with physicians' lack of backing. As per the Swedish guidance, both the registered physicians and the nurses are accountable for nutritional status evaluation, but the nurses carry out the following roles: observation of food intake, ordering, serving, and food supply (M Kelly et al., 2019). Relevant tools and adequate knowledge for assessing and detecting the elderly are required to fulfill the lighted task. To assess nurses' behavior towards nutrition or to eat in general, Nutritional Nursing Care Scale has been developed. Individualization, nutritional requirements, environment, assessment, and eating are the scale's nursing processes. In all aspects of geriatric care, the scale is general use among nurses (Bachrach-Lindström et al. 2007a). Medication, Individual care plans, Time management, Education, and Screening are the preventive measures for improving the nutritional needs of home-living elderly. Educating nurses and other health care providers regarding the understanding of challenges in terms of nutrition faced by the elderly can help improve the Nutritional Education Nutritional status of the elderly. It can also be improved by providing adult education.

6.1 Nutritional education

Educating nurses and other health care providers regarding the understanding of challenges in terms of nutrition faced by the elderly can help improve the Nutritional Education Nutritional status of the elderly.

6.1.1 Nutritional Education Required for Nurses

According to the studies conducted before, the nutritional education program helped healthcare professionals and nurses enhance their knowledge regarding the elderly's nutritional requirements. It also helped suppress their impaired mental activities and weight loss. The nutritional education program entails group discussion, lessons, individual reports, and tasks. In between the program, the focus was on food timetables, nutritional assessment, and procedures (M.N.A.), individual food, energy food composition, nutritional norms and challenges, and food components. To identify and assess the nutritional requirements of each elderly, the objectives of the nutritional education program were carried out in several categories (Wagnild et al., 2021). The emphasis in all publications was laid on the need for training and educating nursing staff regarding nutrition requirements to enhance and manage the elderly's healthy living. A stress-free electronic documentation program combined with the rest of the components should be provided to avoid the nurses' lack of prompt documentation (Loser, 2010). Educating the healthcare professionals and initiating new nurses for the nutritional screening would help implement and understand the nutritional requirements of the elderly staying at home. Nutritional screening, either quarterly or monthly, is recommended, including, or excluding clinical matters (Agrawal et al. 2013 Cankurtaran et al. 2013,). The educational process considering nutrition as a part of the nursing assessment. As per (Tappenden et al. 2013, Jefferies, Johnson & Ravens 2011), For the essential precautionary measures as a nurse we can perform the nutritional screening of all those patients, they have the very first session. Make sure the required amount is giving at the right time to the patient experiencing parenteral and enteral nutrition. Always verify if the patient is having any gastrointestinal discomfort and make sure there is no interruption during administration. Give a personal nutritional care plan to the elderly, the meal timetable should be developed in an encouraging surrounding. During the meal, the required assistance should be provided. For the improvement of Nutrients and stability, try to provide oral nutritional supplements between food intake or during medication. Assess the habit of eating within 24 hours of intake and documentation of food intake quantity. In the practitioner's order, food supplements

should be given as the patient is not allowed to eat during mealtime. Understand medication and health condition of the patient through which the nutritional intake could be affected. Make sure nurses are available in all clinical settings.

6.1.2 Nurse's Connection with other healthcare professionals

In any health care setting, several health care professionals engage in teamwork to ensure the patient's safety. When taking care of the elderly, other health care professionals should have a strong connection with the nurse to ensure that all information flows swiftly (Wagnild et al, 2021). This enables the nurse to know all the things concerning the patient. This way, it is easy to administer drugs for malnutrition. Also, the information from other health care professions helps the nurse quantify the food to be given to the elderly to avoid malnutrition. Therefore, the nurse should ensure a connection between him/her and other healthcare professions through thorough communication and sharing of information concerning the aging patients (Riley, 2015). Detection of eating problems like the adverse effect of a medication, swallowing, and mood in elderly at the risk of malnutrition can assist by the significant connection between other health professionals and nurses such as dietitians, physicians, practical nurses, and speech therapist. A positive result can be yielded toward the nutritional status by the role of all the professionals.

6.2 Assessment of Nutrition

This nursing process stage aims to identify the challenges patient is facing. The challenges are primarily according to the intervention of nurses. For example, nursing challenges like malnutrition and pressure ulcer are faced by patients with stroke and hip fracture (Bååth et al. 2008, Chernoff 2003). A dietician can best assess the nutritional intake. For the assessment, several methods can be used, like 24-hour recall. The only focus of the interview will be on the consumption of food in the previous 24-hours. The 24-hour recall limitations are the patient's regular food intake is not considered, and if the patient's cognitive status is altered, the information can be altered then. Likewise, a multi-questionnaire regarding food frequency can be used for the analysis within a period. A

questionnaire can be used to assess the significant number of people (Ahmed, Haboubi 2010b).

6.2.1 Screening Tools

Nutrition screening is the first step of nutritional assessment. Nutritional screening is worthy when: it shows the factors contributing to malnutrition; it indicates poor nutritional status; it leads to malnutrition prevention; it can return the situation of malnutrition by reducing suffering. According to the classification, there are two types of nutritional tools; first that can detect malnutrition's risk, and these are the Scales acrostics, Meals-On-Wheels, the Nutritional Screening Initiative (N.S.I.), and Dr. D. Dig. The second one is used for the clinical setting for the malnutrition diagnosis, and these are the Prognostic Nutritional Index and The Global Subjective Assessment (Chernoff 2003). In this study's background, we have already discussed a few screening processes; briefly, it is significant to discuss those screening processes in detail now. A nutritional screening tool is fast and easy for the detection of a patient's nutritional status. The malnutrition universal screening tool (MUST), the mini nutritional assessment (M.N.A.), and subjective global assessment (S.G.A.) are the most known tools for nutritional screening. The elderly care plan should include the nutritional status as well (Kozáková, Zeleníková 2014, Suominen et al. 2009).

The mini nutritional assessment (MNA): is the tool used universally for the elderly's examination and is also the most detailed tool. The purpose of MNA is to identify malnutrition's risks in the elderly that are vulnerable and represents the elderly that requires instant intervention. It consists of eighteen questions. The questions include change of food intake, weight loss, mobility, psychological stress / acute illness, body mass index (BMI), number of prescription medications, pressure ulcers / skin ulcers, number of complete meals, fluid intake, food intake, own view of nutritional status, upper arm, and leg circumference, etc. The range of the score is 0-30 points. Scores in the range of 17-23.5 shows the vulnerability of the patient towards malnutrition, and the patient having a score below 17 are said to be malnourished (Cankurtaran et al. 2013, Lahmann, Tannen & Suhr 2015, Verbrugge et al. 2013). The European Society of Clinical Nutrition and Metabolism (ESPEN) has recommended a mini nutritional assessment (MNA) for the elderly's nutritional assessment and it is available in several languages.

Subjective global assessment (SGA): It has three segments. Medical history is included in the first segment that is related to gastrointestinal symptoms, weight change, functional capacity, and dietary intake. Physical examination is included in the second segment which demands sacral and ankle ascites and edema, muscle wasting, and loss of subcutaneous fat. The overall assessment is included in the third segment which is according to the examiner's clinical experience (Kozáková, Zeleníková 2014).

Malnutrition universal screening tool (MUST): It includes 3 criteria having the range of score 0-2 points. The evaluation of the body mass index (B.M.I.) takes place in this stage. B.M.I. is calculated by dividing the weight of the person (kg) by the height (square). When the BMI $> 20\text{kg/m}^2 = 0$, BMI $18.5 - 20.0\text{ kg/m}^2 = 1$ and BMI $< 18.5\text{ kg/m}^2 = 2$. It also includes checking the amount of weight loss in the last three to six months. Weight loss less than 5% is equal to zero, the weight loss within 5-10% is equal to 1, and if greater than 10% it is equal to two. The effect of acute disease is the last criteria. If there has been no food intake in previous 5 or more days the sum score will be increased by two (Kozáková, Zeleníková 2014, Lahmann, Tannen & Suhr 2015, Verbrugghe et al. 2013). Some of the screening tools' limitations are that hospitals are used by hospitals when the patient stays, sometimes with the outpatients (Mariscalco et al., 2017). Malnutrition can be detected early, and instant nursing intervention can be provided if these screening tools are available to all healthcare departments. Unavailability to access the nutritional status of obese elderly is the second limitation related to the screening tools. So, these tools are not useful without their essential parts. The healthcare professionals will be motivated to include nutritional screening using the evidence-based technique when these screening tools are available (Jensen et al. 2013).

6.3 Nutritional need for elderly

As a person getting older, the body is not able to make certain vitamins and minerals like it used to so, the elderly needs more vitamins, minerals, and supplements than before. (Mariscalco et al., 2017)

6.3.1 Individual care plan

The elderly faces several challenges in nutritional needs such as medication interaction, disease, and dietary intake alteration due to swallowing or chewing problems. Body composition, comorbid factors, physical impairments, psychosocial problems, and cognitive status should be considered (Norman et al., 2019). Staffing, Insufficient time, and Individual care plan are some of the challenge's nurses face in the home care center. After all, the patient is dependent on them because most of them used to live alone, so they do not have any family or friends visiting or taking care of them (Verbrugghe et al. 2013, Lahmann, Tannen & Suhr 2015, Bachrach-Lindström et al. 2007b). According to some studies, rather than assisting the elderly with feeding, nurses focus more on medication and documentation.

In contrast, some nurses understand the need to help during meals, but insufficient timing combined with inadequate measures leads to more attention to deprived and ill elderly (Eide, Halvorsen & Almendingen 2015). One of the predominant factors of underweight and malnutrition is care dependency, such as nutritional care-related feeding. The productive ways of dealing with underweight and malnutrition are appetite nutrients like adequate pain management, nutritional talks, and healthy food. These are considered an essential intervention as it enables the client's participation in nutritional care to improve client's energy consumption and food. The challenge is if the client refuses the care or fails of health professional in examining the client (Norman et al., 2019). When nurses know that aging is a contributing factor to nutritional requirements, nutritional needs and health promotion of the elderly can be improved.

6.3.2 Required Energy and Nutrients Supplement

Additionally, the energy and nutritional needs of the elderly can be explored by observing individual cognitive and physical status in terms of religious, social, cultural, and economic factors (Volkert, Kiesswetter & Cederholm., 2019). The evidence-based research, recommendations of the screening exercise, nutrition assessment for the elderly at the risk of malnutrition is the focus of the A.S.P.E.N. Practice Guidelines with consideration for drug-nutrient interactions, lifestyle, and age. As aging progresses, there is a reduction in energy requirements and lean body mass. As a result of the reduction in energy metabolism, frequent documentation occurs. Due to the reduction in protein mass, metabolic

activity is reduced. Basal energy that helps in the metabolic processes is required to regulate the cell function for homeostatic. Metabolic mass functioning is affected by reduced energy needs due to complete reduction in the body protein. Reduction in physical activities can result in neurological disorders, bone and joint diseases, fractures due to imbalance, osteoporosis, chronic heart failure, and poor vision. According to the evidence, the advantage of strength training activities is available to vulnerable elderly. Through frequent training programs, muscle strength can be rebuilt; increasing assurance in functional abilities can help achieve independence, and exercise daily can reduce calories, maintain muscle mass and protein development. Due to the inability to smell and taste, the food intake of the elderly gets decreased. As per studies when the elderly inadequacies regarding nutrients take the 36 required calories get reduced. The 30 kcal/kg is the daily required energy consumption in the elderly. The reduced entry, insufficient intake of liquids with nutrition support, the inability to feel thirsty, and intentionally restraining due to incontinence can endanger the fluid intake. The osmoreceptors found in the renal processes and aorta regulates thirst. Among nursing home residents' dehydration is caused by fever and infection; daily fluid intake assessment can be used as the clinical signs are insufficient to identify dehydration in the elderly. There are three stages of assessment in stage one the bodyweight should be 30 mL/kg, 1 mL/kcal/energy should be consumed in stage 2, Stage 3, 100 mL/kg, 50 mL/kg for the next 10 kg, and 25 mL/kg for the remaining kg (Fuhrman 2009, Maryam et al., 2018).). The elderly ranging from 51 years and above are recommended to take protein in 0.8 g/kg body weight. An increase in protein requirements decreases lean muscle mass. Therefore, to nourish the elderly 1.0 g/kg body weight, the positive nitrogen balance can be regulated. Immobility is experienced by around 25% of the institutionalized and home-bound elderly resulting in a negative balance of nitrogen, and the daily recommended protein allowance would also be not able to be accomplished (Helen et al., 2019). During bone fractures, Acute or chronic illness, infections, and surgery, protein deficiency also occur. Likewise, to maintain and revive nitrogen balance, the chair-bound or ben-bound elderly need increased protein intake. The inadequate intake of protein dietary would result in food cost, difficulty in chewing, and lack of knowledge about fats and dietary cholesterol found in protein-rich food. An essential nutrient, fat produces fatty acids and carries fat-soluble vitamins like Vitamin E, D, K, and A. The role of fat is important in cardiovascular disease etiology and certain types of cancers and obesity. Hence, the fat intake of the elderly should be reduced. Due to the

connection between serum cholesterol and saturated fat, it is recommended to reduce calorie intake by up to 10%. The serum cholesterol can account for coronary heart disease in elderly above age 60, as indicated by the Framingham Heart Study. Reduced alcohol intake, weight loss, nutritional therapy, and dietary loss in sodium like health promotion exercises are recommended for the elderly. Diet having whole grains low in fat, high in fibers, vegetables, and fruits should be given (Stechmiller, Arnp 2003, Chernoff 2003). Below 1500 kcal/day caloric intake led to deficiencies of minerals and vitamins and reduced calcium intake. According to the National Academy of Sciences, a 50% increase in calcium intake is recommended for the elderly from 800 mg to 1200 mg/day. The elderly from age 65 and above consume 1500 mg of calcium as recommended by The National Institutes of Health. Most of the elderly are unable to take the required amount of vitamin D due to less exposure to the sunlight, and their body is also unable to convert it into an active form through kidneys. For the elderly aged 70 or above, the daily allowance for vitamin D is 600IU per day. Physicians are recommending one or more nutrients for the elderly recently. Due to the interwoven functions of vitamin D and calcium, the reduction in calcium absorption is related to the levels of vitamin D. Use of laxatives for atrophic gastritis and constipation. 800 IU and 1200mg of additional vitamin D and calcium reduce the risk of non-vertebral fractures and hip fractures in most studies. Because the Hepatic stores of vitamin A increase with age, the recommended daily allowance of vitamin A is appropriate in the elderly. Consumption of excessive vitamin A would result in excessive biochemical production and changes in older biochemical by which the liver gets demolished. This is reversed in the case of vitamin B because of absorption and metabolism decrease alongside medication usage and age. Less intake of folate, Vitamin B6, and B12 are not left out in the elderly. The required daily dose of vitamin B is 2.4µg. According to the studies, Vitamin B low concentration is related to hyperhomocysteinemia and cardiovascular disease risk. Moreover, daily intake of vitamin E is in the range of 400-800 IU, and the non-calamitous myocardial infarctions rate in elderly ischemic heart disease gets reduced by it. As per evidence, coronary artery disease's vulnerability can be decreased by lower blood homocysteine levels due to folate consumption. Hypokalemia effects are prevented by potassium level supervision. The wound's healing process gets slower by inadequate intake of zinc that alters immune system functionality and sensitivity of taste. The amount of zinc required daily is 100mg (Stechmiller, Arnp 2003).

7 DISCUSSION

Discussion is divided into two parts which is findings related discussion and theoretical related discussion.

7.1 Findings related discussion

As extracted by the final articles, the elderly, and nurses both play a significant role in malnutrition. Malnutrition depends on physiological changes and health conditions of an individual, rendering malnutrition definition less among the elderly. In the elderly, malnutrition occurs with the lack of stability among nutritional needs and nutritional intake and is inevitable in the elderly. Age-related issues like physiological changes, environmental situations, and disease cause malnutrition in the elderly. However, by evaluating basic assessment in terms of nutrition such as mobility assessment and medication evaluations, Immunologic assessment, anthropometric measures, Examination of economic and social status, and biochemical measures, early detection of malnutrition can be done. Nutritional screening tools also help measure it as it indicates the elderly that are healthy, at the risk of malnutrition, and the malnourished elderly. Strengthening nurse's connection with other healthcare professionals who have directly attended to the elderly patient is also significant. This intervention involves proper communication of ideas and information to help the nurse attend to the elderly appropriately to solve the malnutrition issues. The nurse's intervention includes nutritional education as a part used for the care of an elderly that is malnourished. It is required to provide nutritional education to the nurses and other health professionals, and the elderly. Training or education of nurses in terms of the elderly's nutritional status acts as a preventive measure. Adequate knowledge regarding individual food, nutritional assessment, and procedures (M.N.A.), food timetables, nutritional challenges and norms, food components, and energy food composition can be gained through these preventive measures. All the publications emphasized the need to train and educate all nursing-related staff regarding nutritional needs. The reason was to enhance and manage the elderly's healthy living. Before derailing of the elderly, his nutritional status should be managed and detect by the responsible nurse. With individualized care progression, the nurses should provide self-care consisting of the valuation of the next medications, physiological changes, care dependency, disease, cognitive or psychosocial risk factors, and environmental situation. The provision of the elderly's

nutritional needs like fluids, carbohydrates, fat, nutrients, and minerals should be considered detect and prevent the elderly at the risk of malnutrition. It can also enhance wound healing and prevent disease. Detection of eating problems like the adverse effect of a medication, swallowing, and mood in elderly in danger of malnutrition can help by the significant connection between other health professionals and nurses such as dieticians, physicians, practical nurses, and speech therapists. A positive result can be yielded toward the nutritional status by the role of all the professionals. Moreover, the elderly also has a significant role in improving their nutritional status. The elderly should be educated about the nutritional challenges and norms by the nurses. Demonstration of the possible intervention should be done in a respectful and friendly way to encourage the elderly regarding the significance of nutrition.

Remarkably, this research has its main objective at exploring the nursing interventions and probable causes in terms of the elderly's care, especially those at the risk of malnutrition. The danger of malnutrition for the older adults residing at home can reduce by quarterly or monthly nutritional screening. The mini nutritional assessment (M.N.A.) is the most famous screening tool.

7.2 Theoretical frame-related Discussion

This research's theoretical framework is based on exploring the issue and suggest possible solutions to reduce the risk of malnutrition for the elderly residing at home with a literature review. The self-care deficit theory of nursing by Dorothea Orem was used to analyze this study's findings. Dorothea Orem's consists of 3 sub-theories such as self-care theory; which is the care performed by the individual, and it also holds a law that guides people to improve development, good health, and continuous living; The theory of self-care deficit, which involve the rapport between self-care demand and self-care agency and is considered as the fundamental part of the theory. Lastly, the theory of nursing systems which describes the action that nurses should perform. There is a relationship between health and self-care. Nutrition is a vital segment of self-care. Self-care is described as the human regulatory function that must be obtained and carried out purposely over time, as defined by Dorothea Orem. Self-care includes providing adequate food and fluid intakes like wa-

ter to regulate the human body functions with health and life norms. Nurses should develop their abilities and identify the concept of self-care requirements particularly, along with therapeutic self-care demand. Nurses should use an accurate and credible approach for the nutritional assessment of the elderly, as it is not possible to manifest the self-care demands of an individual unless it is estimated. Notably, it is the nurse's responsibility to give advice to the patients and educate them regarding their nutritional needs to prevent malnutrition and encourage a healthy diet. Healthy eating is connected to health promotion in the case of the elderly.

8 Conclusion

In summary, this research had its main objective to explore nursing intervention and possible causes in terms of the elderly's care, especially those at risk of malnutrition. Malnutrition among the elderly in nursing homes is a major problem caused by several different one's factors, and malnutrition can lead to serious consequences, in the worst-case deaths. Nurses have a key role to play in preventing malnutrition among the elderly and covering the elderly nutritional needs. Early identification of patients who are at nutritional risk is complete essential to prevent malnutrition. The danger of malnutrition for the elderly living at aged care decreases by quarterly or monthly nutritional screening. The mini nutritional assessment (M.N.A.) is the most famous screening tool. Nutrition work among the elderly in nursing homes is necessary and basic health care. Cooperation between different professional groups and professionals, including nursing home doctors, are also of great importance in promoting professional care nutritional treatment for patients in nursing homes. Knowledge among nurses about the importance of continuous mapping and assessment of the patient's nutritional situation is important to be able to maintain normal nutritional status in the elderly. Nurses can perform several other measures such as pay attention to food and the environment at meals to increase and improve nutritional intake in the elderly.

8.1 Limitations, Strengths, and Recommendations

The study was done by extracting data from the most relevant and recent articles to assess malnutrition in the elderly by investigating the nurses' intervention and possible causes. According to the articles, I have learned that malnutrition in the elderly has become a global problem. The author assured that the research topic's preceding knowledge did not impact the extracted data. Lack of funds to buy relevant articles is also experienced. Further exploration of the topic of malnutrition in the elderly in aged care is of interest. More research can be done on how the health personnel's level of knowledge and competence can be increased to prevent malnutrition in the elderly in nursing homes. The author recommends the following according to the findings of the articles:

1. The nurses should investigate multiple medications and their side effects, and the nurses of the aged care system should give importance to individual food timetables like the administration of medicines.
2. For the revision of nurses' nutritional knowledge, leaflet and quarterly seminar should be organized.
3. Aged care system nurses should include the nutritional screening on admission and should repeat the screening quarterly.
4. In the curriculum of the nursing students, nutritional courses should be included.
5. Malnutrition is age-related, but it is necessary to educate the patient regarding the significance of food in the body.
6. Nurses should develop a strong connection with dieticians, physicians, practical nurses, and speech therapists. A positive result can be yielded toward the nutritional status by the role of all the professionals.

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