

# Nutritional Importance, Benefits, and Malnutrition in Elderly Population

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**Abstract:** *Cross-sectional studies show that low body weight and undernutrition are common among people of old age, particularly in those who are hospitalized or institutionalized. There is a high prevalence of underweight and malnutrition among nursing home residents, whereas some other studies noted that more than 10% of elderly people admitted to hospitals were malnourished. Among the community-dwelling elderly people malnutrition is a serious medical condition and can increase the risk of hospitalization, slow recovery time, morbidity and mortality and elderly persons are particularly vulnerable to malnutrition. The process of aging also is also a factor that affects other nutrient needs. Therefore, there is a need to review nutritional benefits and effects of malnutrition.*

**Keywords:** Nutrition, Elder Population, Malnutrition, Cause, Prevalence, Benefits.

## 1. INTRODUCTION

One major human body requirement is nutrition for health life and living throughout life span (WHO) (2018). Nutrition is required from the early stage of human development right from child conception to adulthood. This is because good and balanced diet is important for human being both for physical and mental development. From the earliest stages of fetal development, at birth, through infancy, childhood, adolescence, and on into adulthood and old age, proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity, health and well-being. It is an essential foundation of human and national development (WHO, 2000). The WHO's slogan "Health for All" means that people should have access to things that make life healthy at all times in wherever they find themselves in life. This must be followed with the opportunities to attend and reach to their best of health. This is only achievable with good nutrition. Nutrition and health can not be separable. Health depends to a large extent on nutrition, and nutrition depends on the food intake. So food is the most important single factor for health.

Food can be defined as anything solid or liquid, which meets the needs for energy, building, regulation and protection of the body, it also provides it with essential substances called nutrients and keeps it well. Intake of the right kinds and amounts of food can ensure good nutrition and health, which may be evident in our appearance, efficiency, emotional well-being and protects the body from disease and regulates body functions. Nutrition can be defined as the science of food, nutrients and other substances they contain that are at work in the body (Shubham, 2021). The activities of food and its nutrients in human body help the body to ingest, digest, absorb, metabolise and excrete. That is to say nutrition includes everything that happens to food from the time it is eaten until it is used for various functions in the human system. Nutrients are components of food that are needed by the body in adequate amounts in order to grow, reproduce and lead a normal, healthy life (Shubham, 2021).

Nutrients are the constituents in food that must be supplied to the body in suitable amounts which include water, proteins, fats, carbohydrates, minerals etc. We need a wide range of nutrients in proteins, fats, carbohydrates, minerals and vitamins to keep ourselves healthy. Thus there are several nutrients, over 40 essential nutrients supplied by food, which are used to produce literally thousands of substances necessary for life and physical fitness. Nutrition is the result of the kinds of foods supplied to the body and how the body uses the food supplied (Sumati & Rajagopal, 2006). World Health Organization (2019), defines malnutrition refers to deficiencies or excesses in nutrient intake, imbalance of essential nutrients or impaired nutrient utilization. The double burden of malnutrition consists of both undernutrition and overweight and obesity, as well as diet-related noncommunicable diseases.

## 2. METHODS

The research design for this study is both quantitative and qualitative. The source and methods of data collection for this study are descriptive and narrative based on secondary data from textbooks, archival materials, the internet, official gazette newspapers, magazines, academic journals, seminar papers, bulletins, and materials that have relevance and related contents on the subject matter of the study. Data are analyzed based on contents and documentary evidence of the secondary data collected. The reliability and validity of the secondary data are predicated on the fact they have publication criteria.

## 3. DISCUSSION

### 3.1 Aging and Nutrition

Successful aging is a multidimensional concept that is characterized by avoidance of disease and disability, maintenance of high levels of physical and cognitive functioning, and sustained engagement in social and productive activities (Rowe and Kahn 1997).

Aging of an individual is influenced by genetic and environmental factors. It has been estimated that environmental factors may account for as much as 75% of the aging process (Ozaki et al., 2007; Steves et al., 2012; Mangino, 2014). Good nutrition throughout the lifespan supports healthy aging (Mathers et al., 2013). Nutrition has multidimensional effects on cognition, mood, functional ability, and survival (Tolmunen et al., 2004; Morley et al., 2010; Anderson et al., 2011, Safouris et al., 2015). Cognitive decline in the body can be prevented with good nutrition and balanced diet. Fatality and muscle mass loss can also be prevented at the same maintaining functional strength in the body (Morley et al., 2010, Bauer et al., 2013, Safouris et al., 2015). Nutrition is also important in preservation of normal immune functioning (Lesourd, 2004). Essential macro- and micronutrients and trace elements are needed in maintaining the health of individuals and play crucial roles in both immune functioning (Lesourd, 2004; Woods et al., 2013; Mocchegiani et al., 2014).

### **3.2 Importances of Nutrition**

Jackman's Lodge, (2021) said Good nutrition is an important element of health, no matter the age you might be. He further says, it becomes even more essential as we get older because maintaining a healthy diet can help us cope with ongoing illnesses and other health problems (Jackman's Lodge, 2021). Good nutrition is associated with health and reduced risk of cognitive decline. Good diet quality is defined as a balanced diet in accordance with nutrition recommendations that may also reduce the causes of mortality and postpone frailty and disability (Morley et al., 2010; Anderson et al., 2011; McNaughton et al., 2012, Nordic Nutrition Recommendations, 2014). Understanding what constitutes good nutrition and being careful with what you eat also helps you maintain or improve your health. Good nutrition gives you energy, can help control your weight, and may also help prevent some diseases, such as heart disease, high blood pressure, type 2 diabetes, osteoporosis, and even certain cancers. Unfortunately, as you age, your body and life change and what you need to stay healthy also changes as well. You might need fewer calories, for example, or more protein.

### **3.3 Healthy Nutritional Intake for Elderly Population**

Common nutritional deficiencies in elderly person's include low intake of energy, protein, fruit and vegetables, fiber, micronutrients, and long-chain polyunsaturated fatty acids (Bonnefoy et al., 2015; De Groot et al., 1999; & Setiati et al., 2008). Adequate protein intake contributes to the growth and maintenance of muscle mass (Bonnefoy et al., 2015). Key micronutrients that may be lacking in the diets of elderly people are vitamins, zinc, calcium, iron and selenium (Bonnefoy et al., 2015; De Groot et al., 1999; Van et al., 2008 & Setiati et al., 2008). In order to maintain physical performance and ability, Vitamin D should be taken regularly. This also helps to build and keep the bone strong and at the same build the immune system. There are some food intakes in form of fruits and vegetables such as soya beans, meat, fish, egg ect, which contain oil and protein to promote nutritional and healthy diet. The elderly people need these mostly (Lee et al., 2011).

For the aged people to live healthy, they require to some foods, fruits and vegetables that contain vitamins B12, B6 and minerals like zinc. Vitamin D can be gotten from fortified dairy foods (Van, 2011). The quantity of protein intake aged people require is >25g/meal. This helps to increase the mass of their muscle. In order to reduce their frailty, 20ug, which is equivalent of 800IU of Vitamin D (Feart et al., 2009; Scarmeas et al., 2009).

### **3.4 Benefits of Healthy Nutritional Intake for Elderly Population**

- Reduce the risk of some diseases, including heart disease, diabetes, stroke, some cancers, and osteoporosis
- Reduce high blood pressure
- Lower high cholesterol
- Improve your well-being
- Improve your ability to fight off illness
- Improve your ability to recover from illness or injury
- Increase your energy level

### **3.5 Malnutrition in Older Population**

As life expectancy increases, some health challenges, such as illnesses increase, which can be prevented or at least, improved on if good nutrition is maintained (Anderson et al., 2011). Some causes of malnutrition in the aged persons can be due to diarrhea, depression, disease, dementia, dysfunction and drugs (Pouliou et al., 2012; Clodagh, 2015). Some of these factors influence the environment of the elderly population, which have a significant impact on nutrition. If an elderly person is residing in a hospital or care home facility, it has been shown that they are more likely to have a poor nutrition status compared to a community-dwelling elderly person. Indeed, some investigators have shown that up to 60% and 80% of European geriatric hospital patients are malnourished (van Bokhorst-de van der Schueren et al., 2013, & Fávoro-Moreira et al., 2016).

Malnutrition in the diet of aged persons is subject by several internal and external factors, as dentition, dysgeusia, and dysphagia (Pouliou et al., 2012, Clodagh, 2015). Some of these factors influence the environment of the elderly population, which have a significant impact on nutrition. 13 If an elderly person is residing in a hospital or care home facility, it has been shown that they are

more likely to have a poor nutrition status compared to a community-dwelling elderly person. Some empirical literature have revealed that about 60% to 80% of hospitalised aged people in Europe are due to malnutrition (van Bokhorst-de van der Schueren et al., 2013, & Fávoro-Moreira et al., 2016).

Malnutrition has been identified as an imbalance between nutrient need and intake (Rothenberg, 2002). Malnutrition may be due to undernutrition, overnutrition, or lack of specific nutrients (Donini et al., 2007). Both undernutrition and overnutrition negatively affect health and longevity (Rothenberg, 2002). Malnutrition in older people can be defined as anorexia or wasting, sarcopenia, and cachexia (Hickson, 2006). The loss of appetite and physiological decline with involuntary weight loss is called anorexia of aging (Morley, 2001). Anorexia can independently be used to predict mortality (Rolland et al., 2006). Cachexia is a severe wasting disease caused by a variety of illnesses that produce proinflammatory cytokines (Yeh et al., 2008). It is characterized by weight loss, lean and fat tissue loss, reduced appetite, and increased cortisol production in the body (Morley et al., 2007 & Thomas, 2007). Sarcopenia is described as a related, involuntary loss of skeletal muscle tissues with age (Walston, 2012). All these conditions may overlap, and it is thus difficult to distinguish them completely from one another in older individuals suffering from malnutrition (Morley et al., 2011).

Diets related factors have been identified as the causes of elderly being sick. Changes naturally occur among the elderly as aging process. Most diseases suffered by elder people are as a result of dietary factors, some of which have been there since inception. The factors then compound by different changes that naturally occur with the aging process. Certain types of dietary fat seem to be associated with cancer of the colon, pancreas and prostate. Atherogenic risk factors such as increased blood pressure, blood lipids and glucose intolerance, all of which are significantly affected by dietary factors, play a significant role in the development of coronary heart disease. Degenerative diseases such as cardiovascular and cerebrovascular disease, diabetes, osteoporosis and cancer, which are among the most common diseases affecting older persons, are all diet-affected.

World Health Organisation (WHO) has prioritized healthy aging between 2016 and 2030, therefore there is need to promote good intake of nutritional by the aged people (WHO, 2020a). Improvements in public health and medical care are well acknowledged factors in the large improvements in infant and childhood mortality observed in the first half of the 20th century. Increased longevity in adults is also now increasingly common in the developed world. "Diet and lifestyle, coupled with maintenance of a healthy body weight are important in the maintenance of health for all age groups but are crucial for healthy aging. Maintaining a good nutritional status has significant implications for health and wellbeing, delaying and reducing the risk of developing disease, maintaining functional independence and thus promoting continued independent living" (Leslie & Hankey, 2015, p. 648). Malnutrition is most common among the people living in that society and the older ones are not excluded. Older people are prone to malnutrition, because most of them are self dependent and are no longer handy to cook healthy diet for themselves, even in seemingly healthy independent older adults, diet quality has often been poor and nutrient intake low (de Groot et al., 1999; Anderson et al., 2011). The risk of malnutrition is associated with older age, gender and presence of disease number of older people is increasing rapidly worldwide. It has been estimated globally that the number of people  $\geq 60$  years of age will more than double from 2013 to 2050 (Department of Economic and Social Affairs, 2001).

### 3.6 Types of Malnutrition

According to World Health Organization (WHO) (2020) there are two types of malnutrition conditions and they are: *Undernutrition*-which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals). *Overweight*- obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes, and cancer).

### 3.7 Eldely Population Malnutrition Prevalence

As independently living older people are very diverse in health and nutrition, so is the prevalence of malnutrition. The prevalence of malnutrition varies between 13% and 25.3% and the risk of malnutrition between 5% and 57% (Johansson et al. 2009, Söderhamn et al., 2012; Bollwein et al., 2013; Nykänen et al., 2013; Hyun & Lee, 2014, Farre et al., 2014, Chien & Guo 2014; Krzyńska-Siemaszko et al., 2015, Chavarro-Carvajal et al., 2015, Burman et al., 2015). A study in Finland, shows that 15% of independently living people over 75 years of age are at risk of malnutrition (Nykänen et al. 2013). The prevalence of malnutrition is higher in the older population than in younger adults (Kyle UG, et al, 2002, Fávoro-Moreira, 2016).

In those studies in which malnutrition was highest, the participants were either very old (mean age 90 years) or had low income (Hyun & Lee, 2014, Burman et al. 2015, Krzyńska-Siemaszko et al., 2015). Independent, newly diagnosed AD patients showed prevalence of risk of malnutrition (14%) similar to that of most of the independently living older people, whereas CG-dependent home-dwelling Alzheimer disease (AD) patients showed considerably higher prevalence of malnutrition (23%) and risk of malnutrition (59%) (Droogsma et al., 2013; Rullier et al., 2014). Also a study in the sub-Saharan Africa, shows the correlation between older adults, nutrition, health. The Findings of the study showed that up to half (6-48%) of elderly in sub-Saharan Africa are underweight and almost a quarter (2.5-21%) are overweight, while 56% of older South Africans are obese. Low-quality diets

contribute to poor nutritional status. Poverty, HIV/AIDS, and complex humanitarian emergencies are major determinants of undernutrition (Kimokoti, et al, 2008).

### **3.8 Effect of Malnutrition on Older Population**

The effect of malnutrition on elderly population is extremely varied, as regards to this study only few will be taken.

#### **3.8.1 Immunity**

According to Green (1999) and Stratton, Green and Elia (2013). one of the consequences of malnutrition is that immune function is affected thereby causing cell-mediated immunity

#### **3.8.2 Wound healing**

Due to lack of nutrient, the cells and tissues find it difficult to regenerate the tissues which result in wound not healing quickly rather slowly, a condition known as malnourished surgical patient (Stratton, Green & Elia, 2003).

#### **3.8.3 Gastrointestinal function**

For the healthy living of the aged people, there is the need for them to have sufficient nutrition. When this is lacking the risk factors include but not limited to blood flow in the intestine, and pancreatic challenge. This also causes the colon to lose its capacity in water absorption and electrolytes, and secretion of ions and fluid, which are found in the small and large bowel. This may further lead to diarrhea and other associated mortality issues in elderly people with severe malnutrition cases (Saunders, 2010).

#### **3.8.4 Cardio-respiratory function**

Saunders (2010) further observes that individuals that are malnourished have the problem in reduction in their cardiac muscle mass. This also has the complications in renal functions known as renal perfusion and glomerular filtration rate.

#### **3.8.5 Muscle function**

Weight loss is one of the most obvious signs of malnutrition. Depletion of fat and muscle mass, including organ mass, are all elements of weight loss and often the muscle function declines before changes in muscle mass occur (Green, 1999; Stratton et al., 2013).

#### **3.8.6 Protein-energy malnutrition (PEM)**

Protein-energy malnutrition develops as a result of lack of protein in the body, which means when the body's needs for protein or energy or both are not satisfied. The origin of PEM can be primary or secondary (Pavenden, 2010). Primary PEM is caused by insufficient food intake, whereas secondary PEM is caused by an underlying disease, such as hypermetabolism (Morley, 2010). Unintentional weight loss in older people increases the risk of death, even if a person is overweight (Bales & Buhr, 2008). PEM is associated with decreased lymphocyte proliferation and impaired immune response (Lesourd, 2004).

#### **3.8.7 Psychosocial effects**

In addition to other medical related effects, malnutrition may result in apathy, depression, anxiety and self-neglect.

#### **3.8.8 Other factors**

- Increase risk of death
- Increase risk of hospitalization

### **3.9 Causes of Malnutrition in Elderly Population**

The causes of malnutrition are extremely varied, and they can be divided into three main types: medical, Lifestyle, and psychological (Dan, 2021) and also Malnutrition is associated with older age, gender and presence of disease (Leij-Halfwerk et al, 2019). When several risk factors are present, an individual is more likely to become malnourished. As a result of these risk factors, the range of foods chosen may be more limited and extra care must be taken to ensure a balanced diet.

- Lifestyle
- Lack of knowledge about food, cooking, and nutrition
- Isolation/loneliness
- Poverty
- Institutionalization
- Inability to shop or prepare food

#### **3.9.2 Psychological factors**

- Confusion
- Dementia

- Depression
- Bereavement
- Anxiety

### 3.9.3 Medical factors

- Poor appetite
- Drugs, alcohol
- Mental disturbances
- Sensory perception: loss of taste and smell
- Manual dexterity example stroke, arthritis
- Poor dentition, oral problems and dysphagia
- Malabsorption example decreased gastric acid production
- Previous surgery
- Bacterial overgrowth
- Other disease states, for example, respiratory disorders (lung cancer), gastrointestinal disorder (diarrhea), endocrine disorders (diabete), neurological disorders (Parkinson's disease), infections (urinary tract infection), physical disability (poor mobility), drug interactions, for example (digoxin), etc.

### 3.10 Signs Malnutrition in Elderly Population

There are several signs of malnutrition in the elderly. According to (Taibat, 2020) a person is considered malnourished if they have a body mass index (BMI) under 18.5, or have unintentionally lost greater than 10% of their weight in the last three to six months. People with a BMI of less than 20 with an unintentional weight loss greater than 5% within the last three to six months might also be considered malnourished. But it's not always easy to spot the signs of malnutrition. Part of this is because it can happen gradually over a long period of time or signs are often considered as a natural part of aging. But some common signs of malnutrition in older people may include their clothing, jewelry and dentures becoming loose, having a reduced appetite, lack of interest in food and drink, tiredness, altered mood, and weakness. Taibat (2020) further explains that healthcare providers in primary care or care homes will use screening tools to identify those at risk of malnutrition, these tools look at a person's BMI, alongside the amount of unplanned weight loss experienced between three to six months to determine their risk. But for those living on their own, their nutritional status could still be overlooked. As malnutrition numbers continue to grow, friends and family members of older people should look out for possible signs of malnutrition.

## 4. CONCLUSION

Despite the body of evidence describing the personal and clinical consequences of malnutrition and its economic impact on the healthcare system, malnutrition on elderly remains a considerable problem with reported high frequencies, especially in situations of dependency. This has been attributed to poor awareness and lack of time or education in medical as well as nursing staff, but recognition and treatment of malnutrition in older adults is undeniably a challenge even when identified early. All in all, it is estimated that roughly a quarter of adults over the age of 65 are at high risk of malnutrition across various settings.

World Health Organization (2020b) reports that malnutrition affects people in every country and around 1.9 billion adults worldwide are overweight, while 462 million are underweight. In the presence dispensation, many families cannot afford or access enough nutritious foods like fresh fruit and vegetables, legumes, meat, and milk, while foods and drinks high in fat, sugar, and salt are cheaper and more readily available, leading to a rapid rise in the number of adults including elderly person's who are either underweight or overweight and obese, in poor as well as rich countries.

## 5. RECOMMENDATIONS

Malnutrition can easily lead to the deterioration of an elderly person's health, and such, it is necessary that both caregivers, patients and health practitioners should engage in effective communication observation and be proactive in trying to curb malnutrition. From the findings of this studys the following recommendations are:

- i. Healthcare practitioners and providers should develop more and better ways of creating awareness on malnutrition to the general public. Practices involving free clinical diagnoses can greatly impact the population of those individuals that are unaware. Awareness of any nutrition-related health problems and timely intervention can be a big help in preventing the downward slide towards frailty that leads to loss of independence and reduced quality of life. (Carolyn Bunney, 2015).
- ii. Work needs to be carried out to ensure the most appropriate and beneficial aspects of technology are effectively utilized within the healthcare centers (Kitt et al., 2019).

- iii. Also proper education needs to be carried out on the various types of malnutrition, as it may help home caregivers and individuals to better understand the types and also learn how to better manage and care for them.
- iv. Finally, programs and policies should be designed to prevent undernutrition as well as its long-lasting effects and should be addressed particularly to old adult health and education, and these programs should include a diet of good quality (Vinicius, J. B., Martins, et.al.,2011).

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