

# Factors associated with the Nutritional Status of Older Adults in Azogues – Ecuador

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**Abstract:- Nutrition plays an important role in the aging process, through changes in the body's functions and body. Psychological, physical, economic and social aspects trigger nutritional changes in the elderly. The main objective was to determine the association of various factors to the nutritional status of the elderly at the Rosa Elvira Geriatric Center in Leon. A non-experimental, observational, descriptive and analytical study was carried out. We worked with a sample of 36 people selected with non-probability sampling, for convenience. Eighty-one per cent were over 71 years of age, 67 per cent were women, 58 per cent were single, and 61 per cent had primary education. They carry out some type of physical activity  $p= 0.046$  (67%), the number of daily meals they eat (3 varied meals)  $p= 0.002$  (58%), they did not have loss of appetite for food  $p= 0.020$  (69%), in the form of feeding, they do it alone without the need for help  $p= 0.001$  (61%), and the time they have been in the geriatric center is also associated  $p= 0.001$ , 61% of the older adults are less than 5 years old. In conclusion, the highest percentage of older adults in the geriatric center remain within a normal nutritional state, due to the fact that, according to the average age, they still satisfy their needs, they feed themselves without the need for help, the three daily meals and they carry out some type of physical activity, since they have time available.**

**Keywords:-** Older adults, Nutritional status, Geriatric center.

## I. INTRODUCTION

Between 2015 and 2050, the proportion of the world's population over 60 years of age would double. By 2020, the number of people aged 60 and over is greater than the number of children under five. Today, there are 125 million people aged 80 or over. The rate of population ageing is much higher than in the past. All countries face significant challenges in ensuring that their health and social structures are equipped to cope with this demographic transition [1].

The ageing of the world's population is a phenomenon that marks the 21st century. On a global scale, every second 2 people are 60 years old and at the moment there are 810 million people in the world older than that generation. In Ecuador, 1,049,824 people are over 65 years old, equivalent to 6.5% of the total population. In the year 2020

it is 7.4%. By the year 2054 it is predicted that, 18% of the population. Life expectancy for women is higher at 83.5 years compared to 77.6 years for men [2].

Aging is not the same as being sick; changes are taking place in the organs and processes on the way to aging. Aging increases the risk of acquiring disabilities or diseases, and with it, the need to set goals for improving the health of the elderly [3]. The assessment of the geriatric patient should include 5 fundamental aspects: physical health, mental health, socioeconomic level, environmental circumstances and functional status. With age, all body cells change and deteriorate, leading to alterations in the structure and vital functioning of organs, systems and devices [4].

The geriatric patient has specific characteristics that require that, generally used to assess the general adult population. These include not only aspects of physiological aging, with a progressive decline in organ and system functionality, but also a decrease in functional reserve and alteration of the body's homeostasis [5].

When talking about malnutrition, especially in the elderly, two aspects must be considered: the first, due to excess or deficit. In terms of excess, people tend to consume more than the body needs, resulting in an increase in total fat consumption and central adiposity, reduction in body mass, greater predisposition to the comorbidities associated with obesity and decreased physical activity.

At the other extreme, malnutrition can be caused by inadequate access to food, due to the socio-economic difficulties of households, lack of awareness and knowledge about people's health. Eating habits and the same changes experienced by older adults such as problems with chewing or swallowing, gastrointestinal function, polypharmacy, etc. [6] [7].

The population of older people is increasing worldwide and, in many countries, will outnumber younger people in the near future. Therefore, meeting the food and nutritional needs of the elderly is essential to preserve well-being, functional independence and quality of life. [8]. Extended life expectancy offers opportunities, not only for older people and their families, but also for societies as a whole.

These additional years of life can be used to undertake new activities, such as continuing education, starting a new profession or taking up old hobbies. In addition, older people contribute in many ways to their families and communities. However, the extent of these opportunities and contributions depends largely on one factor: health [1].

Unintentional or unintended weight loss and malnutrition at this stage of life contribute to progressive decline in health. Nutritional risk increases in the elderly who are ill, poor and those who have limited access to medical care. Nutritional assessment in geriatric patients makes it possible to identify people at risk of malnutrition in order to provide them with nutritional support [9].

As a science, nutrition studies: food, nutrients, their action, interaction and balance in relation to health and disease, the processes by which the body ingests, digests, absorbs, transports, uses and excretes food substances, and the socioeconomic, cultural and psychological aspects related to food and nutrition. The elderly requires an average diet of 1,700 kcal/day, which should be varied, balanced and sufficient, and an average liquid intake of 200 ml/day [10].

[10]. Geriatric nutrition has always been underestimated, although everyone wants to facilitate senescence. Adequate nutrition is always important for better ageing [11]. To achieve a good food intake, attention must be paid to the preparation of meals, which must be easy to chew and digest, and taste good due to the dental, digestive and taste alterations typical of age. A vitamin supplement may be necessary as a dietary supplement [10].

As an older adult, old age is one of the most vulnerable and prone stages in terms of health status [11]. Common problems in old age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression, dementia, urinary incontinence, falls, delirium and pressure ulcers. There is no doubt that nutrition is involved in the development of diseases associated with a decreased life expectancy.

Age is one of the most important factors influencing the basal metabolic rate. Since, a person who does not have an extreme physical activity as professional athletes. Much of the energy intake is due to the basal metabolism, the fact

that it decreases with age, is of great importance in deciding what the energy requirements are for older people (PM). [12]. Malnutrition is a common concern in older adults due to changes in ageing, as well as other health, social and economic factors [13].

Nutritional status is measured by calculating a person's weight, height, or volume of fat according to age and sex. These tests, called anthropometrics, are useful and functional and, when compared to a reference model, help us determine whether an individual has a normal nutritional condition (weight based on age and height) or is deficient, overweight or obese [14].

Physical activities are also on the same tail as building aging, an easier process. Health conditions such as hypertension, cholesterol, kidney failure, joint problems, and heart problems should be considered when initiating some type of physical activity [11]. In the case of older adults, physical activity consists of recreational or leisure activities, transportation (walking, walking or cycling), occupational activities (when the person is still working), household chores, games, sports or exercises organized in the form of daily, family and community events. In order to improve cardiorespiratory and muscular functions and bone and functional health, and to reduce the risk of disease, depression and cognitive impairment When older adults are unable to perform the recommended physical activity due to their health status, they shall remain physically active to the extent that their condition permits [15].

In the Body Mass Index, physiological and pathological changes are considered, including bone demineralization, fractures, compression of intervertebral discs, dorsal kyphosis, scoliosis, flattening of the plantar arch, among others, that induce a decrease in the measurement of height, overestimation of BMI and discrepancy in the ranges of malnutrition and overweight in this population group, structural and pathological changes, including bone demineralization, fractures, compression of intervertebral discs, thoracic kyphosis, scoliosis, flattening of the plantar arch, among others, are known to cause a decrease in size measurement, overestimation of BMI and disparity in malnutrition and overweight ranges in this population community [16]. BMI provides an estimate of what a person thinks based on their height. Older adults are more likely to have a body mass index between 25 and 27 [10].

BMI = WEIGHT IN KG	HEIGHT IN METERS 2
Underweight	Less than 18.5
Normal weight	18.5 to 24.9
At risk of obesity or overweight	30 to 34.9
Obesity grade I	35 to 39.9
Obesity grade II	40 to 49.9
Obesity grade III or morbid	More than 50

Table 1:- Interpretation of body mass index [10].

In the elderly, the BMI may have a lower value due to changes in their physical structure, mainly those related to changes in the distribution of fat and size; greater difficulties in terms of collaboration (for example, it may be difficult to weigh or carve the patient). However, during ageing, anthropometric indicators can be important as a guide for medical and nutritional intervention among the various groups of elderly people.

Accurate assessment of nutritional status is necessary for early identification of malnutrition, assessment of risk situations, identification of causes of potential nutritional deficits, developing the action plan to improve nutritional status and evaluating the effectiveness of nutritional interventions [17].

Any clinical assessment should begin with an appropriate history; however, it should be borne in mind that in many cases it may be difficult to gather information due to certain sensory deficit conditions such as: hearing and visual impairment, impaired comprehension, difficulty in expression, aphasia, cognitive impairment and the ability to carry out various activities of daily living [5] [18].

The assessment of nutritional status is a requirement for the approach to care and its requirements, which begins with the preparation of a dietary history that includes: personal, social, economic, cultural, laboratory and food data (type, quantity, quality of food consumed throughout life), the health of the subject and culinary traditions and habits. This history is obtained through direct communication with the patient [10] [18].

Geriatric centers offer care services to adults over 65 years of age who require special protection on a temporary or permanent basis and cannot be cared for by their families; older adults who lack a permanent place to live and are in a situation of abandonment, lack of family references, poverty and extreme poverty, and are at high risk and wish to be admitted [2].

These are organizations that provide housing, social security and comprehensive care programs for older adults on a permanent or temporary basis [19]. These new programmed would require all service providers to have basic knowledge of gerontology and geriatrics, as well as more general skills needed to work in integrated care systems, including strong communication, coordination and information and communication technology management skills [20].

Health is a priority objective in all age ranges, with emphasis on older age groups where nutritional status is one of the key aspects of quality of life. Therefore, the objective of the study was to determine the factors associated with the nutritional status of older adults at the Rosa de León Geriatric Center.

## II. METHODOLOGY

An observational, descriptive study with an analytical component was conducted. The study population consisted of 40 adults over 60 years of age, from which a non-probabilistic sample was selected, for convenience, out of 36, who met the inclusion criteria: affordable to control for anthropometric measurements, of normal neurological status and who accepted to be part of the study. It was carried out in the Rosa Elvira de Leon Geriatric Center in the city of Azogues - Ecuador, during the period March-July 2019.

A survey was applied, through a questionnaire elaborated by the authors and validated by experts (a geriatrician and a university professor), where numerical and categorical variables were measured such as: age, sex, marital status, level of education, type of physical activity, degree of nutritional status, through the body mass index, number of daily meals, form of feeding and time spent in the Geriatric Center. The body mass index data were calculated with the measurement of weight and height, for which a scale with a measuring rod branded Detecto was used, properly calibrated and waxed.

For data analysis, a data matrix was created in the Excel 2013 program and for results analysis in the SPSS version 22 statistical package. Numerical variables with percentages and measures of central tendency (mean, standard deviation and ranges), frequencies and percentages in categorical variables and for inferential analysis, Chi-square was used with p-value analysis in the factors associated with nutritional status.

The study was feasible and accessible because there was adequate time of 3 months for data collection, with the necessary human, material and financial resources and the respective authorization of the director of the Institution and the acceptance and consent of the adults over 60 years of age of the Geriatric Center in the participation of the study.

**III. RESULTS**

Average BMI of 22.82, standard deviation + 3.14, range 17-31.

Characteristics	N	%
<b>Sex</b>		
Male	12	33
Female	24	67
<b>Source</b>		
Urban	31	86
Rural	5	14
<b>Marital status</b>		
Single	21	58
Free Union	1	3
Married	4	11
Divorced	2	6
Widower	8	22
<b>Schooling</b>		
None	9	25
Primary	22	61
Secondary	5	14
<b>Total</b>	<b>36</b>	<b>100</b>

Table 2:- Sociodemographic data of the Elderly, from the Rosa Elvira Geriatric Center in León.

In the Geriatric Center studied the population is 40 older adults, 36 were worked with because they meet the criteria for inclusion, of which 67% are female, 86% are from urban areas and the largest percentage are retirees, 58% are single, with a primary education level of 61%.

Variables	N	%
<b>Age</b>		
61-70 years old	7	19
over 71 years old	29	81
<b>Length of stay</b>		
<5 years	22	61
5to1m-10 years	10	28
>10a1m	4	11
<b>Weight classification according to BMI</b>		
Less 18.5 bajo peso	2	6
18,5-24,9 Normal	25	69
30-34.9 overweight	8	22
35-39.9 degree I	1	3
<b>Total</b>	<b>36</b>	<b>100</b>

Table 3:- Data by age, length of stay at the Rosa Elvira de León Geriatric Centre and weight classification according to BMI

Table 3 shows that 81% of adults are older than 71 years, of which 61% are less than 5 years in the Geriatric Center and present a normal nutritional status (MC 18.5 - 24.9) eutrophic patients, 69%, followed by 22% who in relation to weight and height present overweight (BMI 30-34.9).

Variables	Chi-square	p value	95% confidence interval	
			Lower limit	Upper limit
Physical activity	4	,046	,056	,065
No. Of daily meals	12,17	,002	,002	,003
Loss of appetite	5,44	,020	,024	,030
Way of feeding	13,17	,001	,000	,002
Length of stay in the Geriatric Center	14,00	,001	,000	,002

Table 4:- Factors Associated with the Nutritional Status of Older Adults

With the 95% confidence interval and a margin of error of 0.05, the factors that are associated with the nutritional status of older adults are presented: they do some type of physical activity  $p= 0.046$  (67%), the activities are: walking, dance therapy, they play basketball; the number of daily meals they consume (3 varied meals)  $p= 0.002$  (58%), did not have loss of appetite for food  $p= 0.020$  (69%), in the way of feeding themselves, they do it alone without needing help  $p= 0.001$  (61%), and also the time they have been in the geriatric center is associated  $p= 0.001$ , 61% of the older adults are less than 5 years old and most of them are retirees who live in the urban center of the city.

#### IV. DISCUSSION

Various studies have shown that the nutritional status of the population in general, and especially of the elderly, is an indicator of quality of life. The WHO points out: Older people contribute to society in many ways, whether in their families, in the local community or in society at large. However, the extent of these human and social resources and the opportunities we will have as we age will depend largely on one fundamental thing: our health.

The WHO policy framework recognizes six types of "key determinants of active ageing: economic, behavioral, personal, social, health and social systems and physical environment" [20].

Important biopsychosocial changes occur at this stage of life, making the older population particularly vulnerable to dietary changes that have an atramental impact on the course of the disease, both on growth and recovery. [17].

In the geriatric population, malnutrition and functional disability are factors that predict mortality and morbidity. It is estimated that approximately 35-40% of the elderly present some type of nutritional alteration such as: caloric-protein malnutrition, selective deficit of vitamins and/or micronutrients, inadequate water intake and obesity [20]. Adults over 60 years of age in this geriatric center still maintain a healthy lifestyle, with normal nutritional status (eutrophic patients).

Rosero [21], in a study of 426 older adults in Colombia, found that 61.7% were female, with an average age of 72 years. Riveros [22] 50% female. Giraldo [13], 60.9% of whom were women, approximately 50% were between 65 and 74 years of age, and 68% had completed

primary school. Another study [23] conducted in 12 social centers for the elderly showed that the average age of participants was 74.3 years and 51.67% were female. These figures are in proportion to those obtained in the study: 67% were female, 81% were over 71 years of age, and 61% had primary schooling.

Healthy aging is synonymous with aging without disability. While many older adults remain healthy and eat well, those in poorer health may experience difficulty meeting their nutritional needs. Aging presents a number of challenges to the maintenance of good nutritional health in older adults [8].

In nutritional assessment, the highest percentage (60.1%) is at risk of malnutrition, 31.8% have a normal nutritional status and 8.1% are malnourished [21]. A total of 60.1% of older adults were at risk of malnutrition and 6.5% were undernourished [13].

The 97.3% of older adults who are at nutritional risk fall into the following profile: people who have had acute illnesses in the last three months, eat less than five times a day and have little or normal appetite [23]. Sixteen percent of these individuals are dependent on all activities and only 15% are independent in all areas of life [22].

The present study shows a 6% malnutrition rate, 69% of older adults show a normal nutritional status, which is associated with the type of physical activity  $p= 0.046$  (67%), the number of daily meals consumed (3 varied meals)  $p= 0.002$  (58%), and no loss of appetite for food  $p= 0.020$  (69%), in the form of feeding, they do it alone without needing help  $p= 0.001$  (61%), and also associated the time they have been in the geriatric center  $p= 0.001$ , 61% of the older adults are less than 5 years old and most of them are retired people who live in the urban centre of the city.

#### V. CONCLUSIONS

Aging is a stage of life, it does not mean illness and death, the changes caused must be treated interdisciplinary. The normal nutritional state of the elderly at the Rosa Elvira de León Geriatric Centre, Azogues - Ecuador, is associated with the physical activity they do, the number of daily meals they eat, the way they eat without the need for help and the time they stay at the center, which is less than 5 years.

The ageing of the population, without severe complications, can be considered a success of public health policies and socio-economic development, but it also constitutes a challenge for society, which must adapt to it in order to improve the health and functional capacity of the elderly as much as possible, as well as their social participation and security.

Considering the appropriate social environments (geriatric centers and family environment) and healthy lifestyles (physical activity and prevention of comorbidities) as determinants of good health in older people, it is important to carry out research from the perspective of food and nutrition patterns. While many older adults remain healthy and eat well, those who are not in good health may experience difficulties in meeting their nutritional needs, functional independence, and thus quality of life.

➤ *Conflicts of Interest*

The authors do not report conflicts of interest.

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