



# CHARACTERISTICS RELATED TO LIFESTYLE IN ELDERLY PATIENTS IN A HEALTH CENTER OF THE ANDES IN PERU

## CARACTERÍSTICAS COLIGADAS AL ESTILO DE VIDA EN PACIENTES ADULTOS MAYORES EN UN CENTRO DE SALUD DE LOS ANDES EN EL PERÚ

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### ABSTRACT

**Introduction:** A correct lifestyle is vital in older adults to reduce their risk of diseases and loss of functionality. **Objective:** To determine the lifestyles of elderly patients in a Health Center in the Peruvian Andes. **Methods:** Observational, descriptive study with elderly patients from a health center. We worked with a previously collected database. Descriptive statistics were used. The study was approved by the institutional ethics committee. **Results:** Of the 74 patients evaluated, the mean age was 75.4 years and 52% were females. The mean BMI was 24.8 kg / m<sup>2</sup> and that of the abdominal circumference was 86.8 cm. 32.7% had a visual acuity of 70 in the right eye and 36.4% of 50 in the left eye. Glucose (mg / dL), hemoglobin (g / dL) and uric acid (mg / dL) had a median of 97, 15.4 and 7; respectively. Triglycerides and cholesterol had a mean of 182.2 mg / dL and 189.9 mg / dL; respectively. 5.4% of men had reactive PSA. 4% had diabetes, 21.6% hypertension, and 22.2% anemia; while 70.3% consumed alcohol, 6.8% smoked and 89.2% consumed soda. **Conclusions:** Some indicators of poor lifestyle were found, such as the consumption of alcohol and soft drinks, as well as indicators of conditions related to a poor lifestyle such as an average BMI close to being overweight, high triglycerides and cholesterol.

**Keywords:** lifestyle, elderly, rural health services

### RESUMEN

**Introducción:** Un correcto estilo de vida es vital en los adultos mayores para reducir su riesgo de enfermedades y de perder funcionalidad. **Objetivo:** Determinar las características coligadas al estilo de vida en pacientes adultos mayores en un Centro de Salud de los andes peruanos. **Método:** Estudio observacional, descriptivo con pacientes adultos mayores de un centro de salud. Se trabajó con una base de datos previamente recolectada. Se usó estadística descriptiva. El estudio fue aprobado por el comité de ética institucional. **Resultados:** De los 74 pacientes evaluados, la media de edad fue de 75,4 años y el 52% fue de sexo femenino. La media del IMC fue de 24,8 Kg/m<sup>2</sup> y la del perímetro abdominal de 86,8 cm. 32,7% tuvieron una agudeza visual de 70 en el ojo derecho y 36,4% de 50 en el ojo izquierdo. La glucosa (mg/dL), hemoglobina (g/dL) y el ácido úrico (mg/dL) tuvieron una mediana de 97, 15,4 y 7; respectivamente. Los triglicéridos y el colesterol tuvieron una media de 182,2 mg/dL y 189,9 mg/dL; respectivamente. Un 5,4% de hombres tuvieron PSA reactivo. 4% tuvieron diabetes, 21,6% hipertensión arterial y 22,2% anemia; mientras que 70,3% consumía alcohol, 6,8% tenía tabaquismo y 89,2% consumía bebidas gaseosas. **Conclusiones:** Se encontraron algunos indicadores de mal estilo de vida, como el consumo de alcohol y bebidas gaseosas, así como indicadores de condiciones relacionadas a un mal estilo de vida como una media del IMC cercano al sobrepeso, de triglicéridos y colesterol elevados.

**Palabras clave:** Estilo de vida, ancianos, servicios de salud rural

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## INTRODUCTION

The World Health Organization (WHO) considers an older adult as someone above 60 years of age. In 2018, there were 125 million people existed over 80 years of age, it is estimated that in 2050 the same number of older adults remain in China alone and 434 million in the rest of the world. In 2050, 80% of older adults will live in developing countries<sup>(1)</sup>. According to Instituto Nacional de Estadística e Informática (INEI), for the year 2020, Peru presented 4 million 140 thousand older adults which represented 12.7% of the total population, of which 15.6% are over 80 years of age, and 77.9% have a chronic disease<sup>(2)</sup>.

Encouraging older adults to adopt a healthy lifestyle may reduce their risk of developing a disability. The definitions of health and wellbeing in elderly have hanged with the increase in life expectancy. Cardiac diseases, cancer, and cerebrovascular diseases (CVD) have become the primary causes of death among older adults, while deaths due to infection have decreased. Currently, 80% of elderly with a mean age of 70 years are female, and 53% of elderly presented with arterial hypertension, 25% diabetes, and 8% CVD<sup>(3)</sup>. Adults that live to an advanced age suffer from high rates of non-transmissible chronic disease related to factors such as overweight, obesity, problems in blood pressure, diabetes, and altered lipid profile, and 80% have at least one and 50% have at least two chronic diseases<sup>(4,5)</sup>.

There is a strong association between the presence of geriatric syndromes (cognitive decline, incontinence, visual or auditive decline, low body mass index (BMI), dizziness) and dependence in daily life activities, and this problem is more pronounced in older adults residing in rural areas<sup>(5,6)</sup>.

Alcohol use in older adults is associated with a greater risk of falls and could negatively affect function and cognition, as well as general health. Risk factors of alcohol use among older adults include grieving, depression, anxiety, pain, disability and prior history of alcohol use<sup>(5)</sup>.

Smoking is a harmful habit that impacts quality of life as well as morbidity and mortality<sup>(7)</sup>. Smoking rates and tobacco use are lowest among older adults above 65 years of age than for younger people. However, the older generation has a longer history of high rates of

smoking and an excess of mortality related to smoking by lung cancer, cardiovascular disease and chronic obstructive pulmonary disease<sup>(5)</sup> and, furthermore, the excessive use of industrialized drinks, such as soft drinks, and bad eating habits lead to overweight and obesity, and these in turn lead to chronic diseases such as Type II Diabetes and cardiovascular diseases<sup>(8)</sup>. associated.

This study's objective was to determine which are the characteristics related to lifestyle in elderly patients in a health center of the Andes in Peru. This research was important because it allowed us to identify the condition in which the older adults in Peru find themselves, and therefore, create health promotion and prevention plans in the primary level of care in order to make decisions to improve their quality of life.

## METHODOLOGY

### Type and design

The research design of this study is observational, descriptive and cross-sectional type, carried out from a secondary data analysis from a prior study (9) with the objective of determining the quality of care in external patients from the Health Center of Huayana (Centro de Salud de Huayana) in 2017 and the characteristics collected from the clinical records of this health center, located in the district of Huayana, province of Andahuaylas, department of Apurímac, Peru. This is a community located at an altitude of 3178 masl and is characterized by quintile 1 poverty, preferably agriculture and livestock production, border with Ayacucho.

### Population and sample

Patients older than 60 years of age that were registered in the older adult roll of the Health Center of Huayana in 2017. Since we worked with all of the 78 patients registered, we did not perform a calculation of the sample size or sampling.

### Variables and instruments

The assessed variables included the following data: sociodemographic (age and sex), anthropometric (height (cm)), weight (Kg), body mass index (BMI) (Kg/m<sup>2</sup>), and abdominal circumference (cm), clinical (visual acuity in both eyes), laboratory (fasting glucose (mg/dl)), hemoglobin (g/dL), corrected hemoglobin according to altitude of 3000 masl (g/dL), triglycerides (mg/dL), cholesterol (mg/dL), and uric acid (mg/dL),



PSA (reactive (reactive : >4ng/ml /non-reactive) and hematocrit (%)), current diseases (type 2 diabetes mellitus,, hypertension and anemia) and bad habits (alcohol, smoking, and soft drink consumption). Since we worked with a data base previously collected for surveillance purposes, we did not use or create an instrument specific to this study. We decided to study visual acuity as well since, although not a characteristic commonly evaluated when assessing lifestyle, it may be greatly affected by conditions related to age such as cataracts or macular degeneration, which is known to have a close relationship with a healthy lifestyle <sup>(10)</sup>, and bad habits such as tobacco and alcohol consumption<sup>(11,14)</sup>.

### Procedures

All these variables were collected in a data base in order for surveillance of the main health problems in older adults, taken from the medical history information of each patient. Afterwards, the respective permission was requested from the Health Center of Huayana, and authorization of the use of that data base for research purposes was granted.

### Statistical analysis

A descriptive statistic was used, the quantitative variables were presented as measures of central tendency (mean or median) and dispersion (standard deviation or interquartile range) with prior assessment of its distribution, which was performed through bias and kurtosis test. The qualitative variables were represented through frequencies and percentages.

### Ethical aspects

All the procedures were performed with integrity and the fundamental rights of patients subjected to research. Confidentiality of all obtained data was guaranteed. Informed consent was not necessary since the data was obtained from secondary sources. The primary study from which the data was used as secondary analysis was approved by an ethical committee.

## RESULTS

From the 78 registered patients, the age mean was 75.4 ± 9.8. Regarding sex, masculine sex represented 47.4% (37) and feminine sex 52.6% (41).

**Table 1.** Anthropometric characteristics of older adults of PS. Huayana

Anthropometry (n=48)	Men	Women	Total
<b>Height (cm)*</b>	154,7±7,1	147,3±6,0	150,8±7,5
<b>Weight (Kg)**</b>	57,6 (53,1-62,3)	53,0 (48,5-62)	55,5 (51,1-62)
<b>BMI (Kg/m2)*</b>	24,7±3,1	25,0±3,7	24,8±3,4
<b>Categorized BMI</b>			
Normal weight	12 (44,4%)	15 (55,6%)	27
Overweight	12 (52,2%)	11 (47,8%)	23
Obesity	1 (33,3%)	2 (66,7%)	2
<b>Abdominal circumference (cm)*</b>	86±8,0	88,1±9,4	86,8±9,4

\* Mean and standard deviation \*\* Median and interquartile range



The average height of men was  $154.1 \pm 7.1$  and of women was  $147.3 \pm 6.0$ , the weight had an average of 57.6 for men with an interquartile range of 53.1 and 62.3, however for women it was 53.0 with an interquartile range of 48.5 and 62, the BMI was an

average of  $24.7 \pm 3.1$  in men, but in women it was  $25.0 \pm 3.7$ . Only 27 older adults were of normal weight, 12 men and 11 women were overweight, and only 2 women and 1 man were obese (Table 1).

**Table 2.** Clinical data of visual acuity in older adults of PS. Huayana

Clinical data	Men	Women	Total
<b>Visual acuity of the right eye (n=55)</b>	<b>26 (47,2%)</b>	<b>29 (52,7%)</b>	<b>55 (100%)</b>
<b>0</b>	1 (100%)	0 (0%)	1 (1,8%)
<b>30</b>	0 (0%)	2 (100%)	2 (3,6%)
<b>40</b>	3 (100%)	0 (0%)	3 (5,6%)
<b>50</b>	8 (53,3%)	7 (100%)	15 (27,2%)
<b>70</b>	10 (55,6%)	8 (44,4%)	18 (32,7%)
<b>100</b>	0 (0%)	7 (100%)	7 (12,7%)
<b>200</b>	3 (37,5%)	5 (62,5 %)	8 (14,6%)
<b>300</b>	1 (100%)	0 (0%)	1 (1,8%)
<b>Visual acuity of the left eye (n=55)</b>			
<b>0</b>	1 (100%)	0 (0%)	1 (1,8%)
<b>30</b>	2 (66,7%)	1 (33,3%)	3 (5,4%)
<b>40</b>	2 (50%)	2 (50%)	4 (7,3%)
<b>50</b>	10 (50%)	10 (50%)	20 (36,4%)
<b>70</b>	4 (44,4%)	5 (55,56%)	9 (16,4%)
<b>100</b>	1 (10%)	9 (90%)	10 (18,2%)
<b>200</b>	4 (66,7%)	2 (33,3%)	6 (10,9%)
<b>400</b>	1 (100%)	0 (0%)	1 (1,8%)
<b>NPL</b>	1 (100%)	0 (0%)	1 (1,8%)

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According to the clinical data on visual acuity, 70 is the most frequent measure among men and women (32.7%) where 55.6% are men and 44.4% are women.

The most frequent measure of visual acuity in the left eye was 50 (36.4%) which both men and women share 50% (Table 2).



**Table 3.** Laboratory characteristics of older adults of PS. Huayana

Laboratory data (n=37)	Men	Women	Total
<b>Glucose (mg/dl)**</b>	97,0 (92,2-108)	97,6 (87,5-107,0)	97,0 (88,1-107,5)
<b>Hemoglobin (g/dL)**</b>	15,4 (15,0- 16,1)	15,1 (14,1-15,4)	15,4 (14,9-15,8)
<b>Corrected hemoglobin (g/dL)*</b>	13,1 ± 1,1	13 ± 1,2	12,9±1,2
<b>Triglycerides (mg/dL)*</b>	177,2 ± 21,1	187,9 ± 19,8	182,2±20,8
<b>Cholesterol (mg/dL)*</b>	183,6 ± 19,3	195,9 ± 19,7	189,9±20,3
<b>Uric acid (mg/dL)**</b>	7,2 (6,9-7,5)	6,9 (6,6-7,2)	7 (6,9-7,3)
<b>Hematocrit*</b>	0,4 ± 0,0	0,4 ± 0,0	0,4 ± 0,0

\* Mean and standard deviation \*\* Median and interquartile range

In laboratory variable, we found that glucose in men had a median of 97.0 and an interquartile range of 92.2 and 108.0 and a median of glucose in women of 97.6 with an interquartile range of 87.5 and 107.0. We can observe that the median of hemoglobin was 15.4 in men with an interquartile range of 15.0 and 16.1 and in women the mean was 15.1 with an interquartile range

of 14.,1 and 15.4. Regarding the corrected hemoglobin, the mean in men was 13.1 ± 1.1 and in women 13± 1.2 with a total mean of 12.9±1.2. Regarding triglycerides, the average was 182,2 ± 20,8 where men had a mean of 177,2±21,1 and women had a mean of 187,9±19,8.

Other data of this type can be seen in Table 3

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**Table 4.** Disease characteristics of older adults of PS. Huayana

Current diseases	Men	Women	Total
<b>Diabetes mellitus (n=74)</b>			
<b>Yes</b>	0 (0%)	3 (100%)	3 (4%)
<b>No</b>	35(49,3%)	36 (50,7%)	71(96%)
<b>Arterial hypertension (n=74)</b>			
<b>Yes</b>	5 (31,3%)	11 (68,7%)	16 (21,6%)
<b>No</b>	30 (51,7%)	28 (48,3%)	58 (78,4%)
<b>Anemia (n=36)</b>			
<b>Yes</b>	4 (50,0%)	4 (50,0%)	8 (22,2%)
<b>No</b>	14 (50,0%)	14 (50,0%)	28 (77,8%)

Regarding the comorbidities such as Diabetes Mellitus, 4% represent those that have diabetes where only 3 women have diabetes mellitus and 96% do not have it. On the other hand, arterial hypertension, 21,6% presented it, of which 11 (68,7%) women presented it

and only 5 (31,3%) men presented it and 78,4% did not have arterial hypertension. Regarding anemia, 22,2% presented it, 4 men (50%) and 4 women (50%) presented with anemia and 77,8% did not. (Tabla 4)



**Table 5.** Characteristics of bad habits in older adults of PS. Huayana

Bad habits (n=74)	Men	Women	Total
<b>Alcohol</b>			
Yes	9 (40,9%)	13 (59,1%)	22 (29,7%)
No	26 (50%)	26 (50%)	52 (70,3%)
<b>Smoking</b>			
Yes	4 (80,0%)	1 (20,0%)	5 (6,8%)
No	31 (44,9%)	38 (55,1%)	69 (93,2%)
<b>Soft drink consumption</b>			
Yes	32 (48,5%)	34 (51,5%)	66 (89,2%)
No	3 (37,5%)	5 (62,5%)	8 (10,8%)

We observed that 29,7% consumed alcohol, of which only 40,9% of men consume alcohol and 59,1% of women consume it and 29,7% do not consume alcohol. We found that 6,8% had behaviors regarding smoking where 80% were men and 20% women and 93,2% did not present smoking behavior. Regarding coca cola use, 89,2% consume it, of which 48,5% were men and 51,5% were women and 10,8% did not consume it. (Table 5)

## DISCUSSION

The importance of improving lifestyle in older adults is related to a better quality of life and reducing risk factors for developing complications of chronic diseases and therefore increase longevity. In this study we evidenced that the mean age of older adults was  $74,5 \pm 9,8$  and 52% were of the feminine sex.

Based on anthropometric data, the median weight was 55,5 with an interquartile range of 51,1 and 62, the height and BMI mean was  $150,8 \text{ cm} \pm 7,5$  and  $24,8 \pm 3,4$ , respectively. These results are correlated with the Barron study published in 2017, where it is mentioned that older adults are normal weight, men as well as women (57,3% and 53,7% respectively)<sup>(15)</sup>, which would explain that a good lifestyle, with respect to nutritional habits and physical exercise. Considering that the rural population studied performs agricultural and livestock work, this probably keeps their BMI within acceptable values.

Regarding visual acuity, we found that in the right eye, visual acuity of 20/70 obtained the greater percentage of 32,7%, while, in the left eye 36,4% had a visual acuity of 20/50. In the study performed by Duran Badillo et al. in 2019 in Mexico, they evidenced that visual acuity in older adults in the right eye was 20/100 (36,2%) in first place, followed by 20/40 (30,9%), while in the left eye, visual acuity of 20/100 (39,4%) was first place and in second place was 20/40 (23,4%)<sup>(16)</sup>. It is important to consider that both studies resulted in a decreased visual acuity, since decreased visual acuity implies an increase in dependence for basic activities of daily life, which could lead to an increase in morbidity and mortality. It is important to emphasize the care of eye health especially in rural populations, where ophthalmological evaluations are not performed frequently.

Regarding the presence of comorbidities in older adults, in our study we obtained that 4% had Diabetes Mellitus, 21,6% had Arterial Hypertension, and the mean of triglycerides was  $182,2 \pm 20,8$ . In 2018 in Mexico, Alejandro Vega-Quintana performed a study where he tells us that the principle causes of comorbidity in a population of 324 older adults were: arterial hypertension 74.6% and diabetes mellitus: 37%<sup>(17)</sup>. The presence of comorbidities is associated with an increase in morbidity and mortality in older adults, which is why it is important to promote a healthy lifestyle, in order to reduce the presence of these or



decrease the acute and chronic complications that they could generate.

Regarding alcoholic drinks and tobacco, we evidenced that older adults consumed them in 29,7% and 6,8%, respectively. A study performed in Mexico in 2018 by Patricia Pavón-León et al, found results of lower consumption of alcohol and tobacco, with a percentage of 4,4% and 5,5% respectively<sup>(18)</sup>. In another study by Vidal et al in Chile in 2020, it was found that 19,2% of older adults consumed tobacco<sup>(7)</sup>. The results of smoking among older adults in this study as well as that performed in Chile show a higher prevalence to that reported worldwide, which is 13%<sup>(19)</sup>. We should consider the importance of eliminating bad habits in the entire population, including our patients in rural areas where prevention and promotion strategies were a great tool for avoiding these behaviors.

In this study, 89,2% of older adults consumed soft drinks, these results were similar to that found by Varela,

where 78% of older adults consumed industrialized drinks<sup>(8)</sup>. We should perform a study in our country in which the frequency of drink consumption is evidenced and prove the association to problems of overweight and obesity, and at the same time the appearance of chronic disease and lack of control of these. The consumption of these products, of high sugar and acidifying content, could trigger health problems, which every physician should take into account to promote health behaviors.

## CONCLUSIONS

We found some indicators of bad lifestyle, such as alcohol and soft drink consumption, as well as indicators related to bad lifestyle such as the mean of BMI close to overweight, elevated triglycerides and cholesterol levels. We suggest an analytical, prospective study of this population and to carry out lifestyle prevention and promotion strategies in patients of rural zones.

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