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Andean products and the perception of food for the elderly, nuevo amanecer dining room in Lima

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Abstract---This research aimed to establish the relationship between Andean products and the perception of the diet of the elderly of the Nuevo Amanecer dining room, Cercado de Lima, 2020, the research was of a descriptive correlational type and non-experimental design, the sample was of 175 older adults who attend the Nuevo Amanecer Dining Room, for the collection of data two questionnaires were used. According to the results, it was found that the use of Andean products in the Nuevo Amanecer dining room, Cercado de Lima is perceived as regular by 44% also 32% refer that it is used efficiently, that is, with great variety and frequency, but there was a 24% that said that the use of Andean products in the aforementioned dining room is presented at a deficient level. On the other hand, in the case of the perception of the diet of the elderly, it was observed that the diet of 56% is regular, of 24% is good and 20% is perceived to occur at a bad level. On the other hand, it was concluded that Andean products significantly influence the diet of the elderly of the Nuevo Amanecer dining room, Cercado de Lima, 2020; having a result of Spearman's $Rho = 0.650$, being moderate and with a significance below 0.05, thus rejecting the null hypothesis.

Keywords---Andean product, elderly, food, nutrition.

Introduction

The type of food of Peruvians has been changing over time. Little by little, the consumption of traditional products has been abandoned to replace them with rather modern, industrialized, but not very nutritious products. These changes in food consumption patterns are due to a range of factors ranging from the merely

economic to the cultural. However, despite the abandonment of the consumption habits of traditional products, including those derived from Andean crops, there is a growing interest in researching, knowing and disseminating the benefits brought by the consumption of these products. The Pan American Health Organization (PAHO) mentioned that the biological and physical processes that normally occur with advanced age are: loss of teething, slowness of digestion and loss of appetite, difficulty managing food utensils; dietary restriction due to the occurrence of a number of frequent diseases in the advanced stage (Alvarado and Salazar, 2014). Based on the experience and observation made in the elderly population, it can be mentioned that this group faces the problem of cholesterol daily, given that meals, at least in our Peru, are made with enough oil and fats, mostly; which affects the health and vascular system of the elderly according to publications of the Ministry of Health itself (Sánchez and Pérez, 2010).

Developing countries will become increasingly dependent on cereal imports, so it is projected that by 2030, they could be producing only 86% of their own needs, with their net imports being in the order of 265 million tons per year, which represents almost three times the current levels. Countries in transition became large net importers of cereals over two decades until the early nineties. Since then, this trend has been reversed and they could be net exporters of 10 million tons per year in 2015 and 25 million tons in 2030 (Government of Peru, 2018). On the other hand, in our country according to the Ministry of Agriculture and Irrigation (MINAGRI), he said that today the annual per capita consumption of Andean grains reaches 2.3 kilograms, but the goal of the sector by 2021 is to increase its consumption to 3.5 kilos per person. Andean grains are considered superfoods or superfoods, for their high content of proteins, minerals, fiber and essential oils, which contribute significantly to good nutrition and health of their consumers. The four Andean grains are gluten free. Andean grains are recognized by Peruvian gastronomy for their great versatility, in particular quinoa, they lend themselves in the elaboration of a diversity of presentations (starters, soups, main courses, desserts, soft drinks, in bakery, pastry and appetizers) (Government of Peru, 2018).

The Andean grains at the national level represent the sustenance of more than one hundred and twenty thousand agrarian families, being the regions of greater production Puno, Ayacucho, Apurímac, Cusco, La Libertad, Cajamarca, Huancavelica, Junín, among other departments, mainly of the Andean zone. During 2018, the production of the four Andean grains was around 111 thousand tons, generating more than 5.5 million wages in the field, in addition to creating various jobs in their processing, transportation, marketing, research, among other activities. Similarly, quinoa in Peru has managed last year to increase production by 9% with more than 7 200 to separate thousands of additional tons, reaching approximately 86 000 tons. That year, quinoa managed to occupy the 10th place in the field of agro-exports with around US\$ 125 million in sales to more than 50 countries (Government of Peru, 2018).

Peru remains the world's leading producer and exporter of quinoa. In general, quinoa exports continue to increase since the beginning of 2005 with around 500 tons in placements, and whose greatest rebounds were made in 2013, 2014 and 2015, having maintained their rise reaching almost 51,500 tons in 2018

(Government of Peru, 2018). Likewise, it is important to contribute to the health of the elderly, Establish a strategy for the improvement of their quality of life, which is the correct diet; where Andean cereals and grains are an unlimited source of nutritional benefits such as the content of protein, minerals and fiber, important for the body and contribute a lot in the prevention of diseases, so their consumption are more than recommended are necessary; but it is the case, that many times there is no knowledge of the importance or benefits of these foods in the human body, not only to feed but to generate contribution in the physiological systems of the body, since its lack or lack of consumption, is due to ignorance in its preparation, which could combat problems such as the prevention of colon cancer, zinc deficiency, among others (Almirón, 2017).

In the study developed it was observed that the food or meals that are sold in the Nuevo Amanecer Dining Room of the Cercado de Lima do not exhibit Andean products as essential and main ingredients in the preparation of their meals, by virtue of the fact that the workers of the dining room only know how to prepare them in drink or only in stews, using mostly only quinoa, ignoring the others such as Kiwicha, Kañiwa, Tarwi, among others, where the nutritional value of these seeds are essential for the food and health of the elderly who attend the Nuevo Amanecer dining room of the Cercado de Lima.

Situations that are repeated in studies such as that of Aymer and Laura, (2017) where the objective of this study was to evaluate the influence of the application of the Healthcom method for the reassessment of the potentialities of Andean grains and the improvement of food security of extremely poor families in the district of Nuñoa, Melgar province, Puno region. The historical use of these Andean grains is based on nutritional, ecological and socioeconomic foundations that over the years have continuously contributed to the food security of the Andean inhabitants and are part of their culture, however, today, apparently, they are not regularly consumed by the population replacing them with products such as rice or noodles. another study was that of Calderón (2019) where it aimed to determine the nutritional status and practices on healthy eating. Finding that older adult in 36.4% of the female sex and 63.60% of the male sex. As for the nutritional status, 29.9% have a Normal nutritional status, with Thinness 30.8%, Overweight 17.8% and 21.5% Obesity. Huamán (2018) conducted research where the objective was to determine the prevalence of malnutrition in adults between 25 and 35 years of age from the Torres de Melgar human settlement, Villa Maria del Triunfo, during the period from June to October 2016. It was concluded that the prevalence of malnutrition in this group studied is high compared to the reports provided at the national level. Valenzuela (2016) on the other hand managed to conclude that quinoa has a high nutritional value due to its high content of proteins, amino acids, vitamins. Its high nutritional value is comparable to that of breast milk; however, it does not lead the list of cereals with the highest consumption in the Ecuadorian population as if rice, wheat, barley and oats do. Silva (2006) developed a study where he found that the protein content of the isolate and its amino acid composition was high and contained 10 essential amino acids: histidine, threonine, arginine, valine, methionine, isoleucine, leucine, phenylalanine, lysine and tryptophan. Being the most important to lysine, with a proportion that at least doubled the content in other cereals, ratifying its high nutritional quality. likewise, the amino acid content of

All isolate exceeded the pattern proposed by FAO, demonstrating its high nutritional quality (Nyandra & Suryasa, 2019).

Likewise, the study is theoretically justified; because it presents an analysis of the existing theories related to the study variables which will serve as a contribution to the work of other researchers who seek fundamentals in the diet with Andean cereals, which is essential, since a good quality and variety in food improves the diet and therefore the state of health of the population. Present results show how the use of Andean products in the diet of the elderly has developed, with which it will be possible to structure better strategies knowing the reality in the development of these variables pointing to the benefit of better health through the diet of older adults and at the same time improve their quality of life. Likewise, the research provides methodological processes in strict compliance with the procedure of the scientific method, in addition to the contribution of the instrument to evaluate the study variables, which will have the reliability and validation of the case.

Finally, the general objective was to analyze the level of influence between Andean products and the diet of the elderly of the Nuevo Amanecer dining room, Cercado de Lima, 2020, and as specific objectives it was necessary to identify the improvement that occurs between the combinations of Andean cereal flours and the feeding of the elderly of the Nuevo Amanecer dining room, fenced in Lima, 2020. As well as establishing the relationship between the contribution of amino acids and cell regeneration in the diet of the elderly of the Nuevo Amanecer dining room, surrounded by Lima, 2020.

On the other hand, in the rural communities of the Andes, the diet is essentially plant-based, predominating tubers (potato, goose and mashua), which are rich in carbohydrates, but poor in some essential amino acids. The consumption of grains (quinoa, cañihua and kiwicha), rich in lysine and methionine and legumes (tarwi, beans) compensate for the deficiencies of the tubers; in turn, it is mentioned that in the Puna agroecological zone, proteins of animal origin (alpaca) are consumed, which contributes to improving the diet (Ayala, 2014). The Andean region is one of the great centers of origin and domestication of numerous food plants grains, legumes, tubers, roots and fruit trees, constituting a true repository of phylogenetic material of unique and transcendental importance (Aymer and Laura, 2017).

Peru is considered the fourth country in the world with the greatest biological diversity, both ecosystems and species and genetic resources. For this reason, it was proposed to strengthen the productive chains of products and services derived from native biodiversity, based on their sustainable use and commercialization, which gave opportunities for rural producers to improve their living conditions (Jiménez et al., 2017). Sustainable use of native biological resources. Promotion of strategies and productive activities that support the use and sustainable conservation in areas with a high degree of diversity. Generation of economic benefits and their equitable distribution with local indigenous communities. Any productive or commercial activity participating in the program must be governed by the seven principles of biotrade. (Jiménez et al., 2017).

It is important to promote the consumption of Andean crops essentially for the elderly. Efforts should be directed towards researching and designing appropriate low-cost food processing technologies by encouraging small businesses to develop new and nutritious products based on Andean crops (Mujica and Jacobsen 1999). The nutritional quality of a product depends on both the quantity and quality of its nutrients. Quinoa and kañiwa do not have a high protein content compared to other cereals, as shown in Table 1 the range of chemical constituents for each cereal varies according to ecotype varieties (FAO, 2011).

Opaque Corn 2

Opaque 2 corn is a food in high demand by the population. In scientific nomenclature, *Zea mays*, name given to it by Linnaeus and means "grain that provides life" It is the most domesticated and evolved plant of the plant kingdom. It is said that it occupies a position comparable to that of man in the animal kingdom (Benítez, et al., 2006). The corn kernel is called in botany cariopsis or karyopsis; each grain contains the coating of the seed, or seminal cover, and the seed, as seen in Figure 1 on the structure of opaque corn 2 The figure also shows the four fundamental physical structures of the grain: the pericarp, shell, or bran; the endosperm; the germ or embryo; and the piloriza (inert tissue in which the grain and the stone). (FAO, 2011).

Wolf, Koo and Seckinger (1969) have adequately described the general anatomy and microscopic structure of these anatomical elements, having a similar concept with Araya (1996). Robutti, Hoseny and Wasson (1974) have studied the protein distribution, amino acid content and endosperm structure of opaque maize-2. At the endosperm, the largest part corresponds to about 83 percent of the weight of the grain, while the germ is equivalent on average to 12 percent and the pericarp to 5 percent. The rest is constituted by the piloriza, conical structure that together with the pedicel joins the grain to the spike (FAO, 2011).

Carbohydrates: In this way starch is 61%, sugars 1.4%, pentosans 6.0% and crude fiber 2.3%. The starch present is composed of 27% amylose and 73% amylopectin (Almirón, 2017). **Protein:** It represents 10% and is biologically balanced. The zein that is the main protein of the endosperm is very deficient in lysine (2%), tryptophan (0.5%). For the growth and maintenance of tissues of the human body, these levels must be doubled to 4 and 1% respectively (Araya, 1996). **Fats:** there is approx. 4.5% in the whole grain, being linoleic, palmitic and arachidonic acids among others. 80% of lipids are found in the germ (Araya, 1996)

Mineral Substances: Ash consisting of P (0.43%), K (0.40%), Mg (0.16%) S (0.14%) and other minerals 0.27% (Araya, 1996) **Vitamins:** There are significant amounts of carotene 4.85 mg/kg, vitamin A 4188.71 mg/kg, thiamine 4.54 mg/kg, riboflavin 1.32 mg/kg, niacin 14.11mg/kg, pantothenic acid 7.41 mg/kg and vitamin E 24.71 mg/kg. The amount of vitamin "A" varies with the yellow color of the grain, to the point that white grain corn practically lacks vitamin A (Araya, 1996).

Kiwicha

The kiwicha (*Amaranthus caudatus*), is an important crop in Peru, due to the high nutritional value of its protein. It contains 10 of the essential amino acids that necessarily have to be supplied daily in food, one of them being lysine (Ayala, 2014). Kiwicha was the sacred grain of the Aztecs and Mayans. The Spaniards banned its cultivation for its aphrodisiac effects and for being a sacred grain. In reality, it is not an authentic cereal, although due to its shape and cooking it is considered as such. It has a high percentage of proteins (16 g) of high biological value (it is rich in lysine and methionine), with the advantage that they are proteins easier to assimilate than animals (the body assimilates 74% of these compared to 60% of meat). It is a grain very rich in vegetable fats such as oleic and linoleic acid. It provides vitamin C, B2, pantothenic acid and minerals such as iron, phosphorus, magnesium, zinc and manganese (Bressani, 1993).

Amaranth, also known as kiwicha, has a high nutritional value since it can replace proteins of animal origin, due to the content and quality of its proteins (19 g/100 g). It has twice as much lysine (essential amino acid) as wheat. It is rich in dietary fiber (5.6 g/100 g), calcium (250 mg/100 g), iron, starch, vitamin C and B complex and polyunsaturated fats. In addition, kiwicha grain contains a series of nutrients that make it a food rich in bioactive compounds such as phytosterols, resistant starch, squalene, polyphenols, dietary fiber so it can be used in the preparation of functional foods and has a wide variety of applications in the food industry either as a whole grain, expanded or flour. (Burgos and del Castillo, 2020) It can be used in products such as breakfast cereals, sweets, pastries, baked goods, bars, granola and diet foods. The grain, clean and dry, is ground to obtain flour, used to fortify bread and cookies; or be subjected to the process of pre-cooking such as popping (popping), roasting, boiling, laminating, etc. (Burgos and del Castillo, 2020) Nutritional bars are products specially designed to help optimize physical performance and provide energy due to their nutritional composition, have less weight, small size, are resistant to different temperatures, fall apart in the mouth and are easily digested. (Burgos and del Castillo, 2020). In recent years, different research groups have worked on the formulation and obtaining of cereal bars, incorporating native ingredients such as carob and inflated quinoa and their evaluation regarding protein quality. Although in Argentina there is no protein deficiency, it is very important to promote food education on biologically complete proteins, that is, combinations of foods that can replace complete proteins such as those of meat, egg and dairy, to avoid deficiencies and health problems, especially in periods of growth or greater requirement (children and adolescents or pregnant women). (Burgos and del Castillo, 2020) On the other hand, it is very important to note that there is very little research regarding the elaboration of laminated products, usually inflated or popping grains are used as ingredients in the elaboration of the bars, which would be another alternative to use this precooked ingredient, which can provide differential textural characteristics. (Burgos and del Castillo, 2020)

Sesame

Sesame is an annual, erect, branched or unbranched plant. Its stem is generally quadrangular with a basal diameter of 1 to 3 centimeters and with a variable

height that can reach 2 meters. The surface of its stem can be carved, hairy or hairy depending on the variety of sesame in question; in addition, the seed of sesame is flattened; Seen from the front is ovoid in shape with a very narrow base and on one side, it presents a darker median line called *raje* (Doria, 2010). Likewise, sesame (*Sesamum indicum* L.) is native to India and Africa; it arrived in America as a result of the slave trade, who used its seeds as a condiment for their meals, and is currently grown in the most varied latitudes. In Ecuador it occupies small areas at the level of family farming; in 2017, 16 tons were harvested on 21 hectares, with a yield of 0.76 t.ha⁻¹ (FAO, 2018). In Ecuador several decades ago, breeding programs were developed to obtain more productive varieties resistant to the fungi *Macrophomina phaseolina* (Tassi) Goid. and *Cercospora sesami* Zimm.. Sesame seeds have high content of fiber, proteins, vitamins and minerals, as well as antioxidant properties which makes them an excellent food. From the seeds and the oil they contain, sesamol is obtained, a phenolic compound that is recognized as anticancer properties (Majdalawieh and Mansour, 2019).

In Latin America, the nutritional needs of crops are met through chemical fertilization. This fertilization is usually carried out indiscriminately, without taking into account the real needs of the plants or the requirements of chemical fertility of the soil, and at the cost of high environmental pollution, especially due to the high amounts of nitrogen and phosphorus that are incorporated into the soil (. Among the organic alternatives to stimulate the processes of growth and development of plants are the recycling of agricultural waste, the use of vermicompost, its leachate and efficient microorganisms. (Montoya et al., 2019)

Reception: The raw material is received weighed, and samples are taken for the laboratory, where analysis of % of impurities, % of fat, peroxide index and % of humidity are made, basically (Doria, 2010).

Cleaning: In this operation, the sesame grain is subjected to a sieve in order to remove leaves, coarse material, sands and other impurities of smaller size. (Doria, 2010).

Extraction: It is a cold mechanical operation that is carried out by compressing the seed against the walls of a seller made by an endless screw. There are also machines that perform the hot extraction operation with a temperature of 120 °C (Doria, 2010).

Storage: It is necessary to store the oil in tanks for the decantation of suspended solids in it (Doria, 2010).

Press filters: A motor pump carries the oil under pressure to a multiple modular filter consisting of a series of cast iron blocks, with cotton canvas filters between block and block to be filtered (Doria, 2010).

Storage: Filtered oil is stored in tanks for packaging and distribution. (Doria, 2010).

Packaging: Crude oil is packaged according to purchase requests. It is distributed in different materials and packaging sizes (Doria, 2010).

Combinations of cereal flours

We call flour the product obtained by grinding the grains of ripe cereals. Basically, wheat is used to obtain bread-making flour, although of course other cereals such

as rye, spelt, kamut, corn, soybeans, oats, barley, millet, quinoa, chickpea, triticale, etc. are used (Alegre and Asmat, 2016).

Amino acid intake

Amino acids are organic compounds that combine to form proteins. Amino acids and proteins are the fundamental pillars of life (Medline Plus, 2018). When proteins are digested or broken down, amino acids run out. The human body uses amino acids to produce proteins in order to help the body to:

Breaking down food

Grow

Repair body tissues

Carry out many other bodily functions

The body can also use amino acids as a source of energy.

The 9 essential amino acids are: histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine (Medline Plus, 2018).

Non-essential amino acids: non-essential means that our bodies produce an amino acid, even if we don't get it from the food we eat. Non-essential amino acids include: alanine, arginine, asparagine, aspartic acid, cysteine, glutamic acid, glutamine, glycine, proline, serine, and tyrosine (Medline Plus, 2018).

Lysine: Lysine is an essential amino acid and necessary for protein synthesis as well as for the metabolism of carbohydrates and fatty acids. It can improve energy production and calcium utilization. In addition, it appears to delay replication and improve healing of lesions caused by herpes simplex. Evidence suggests that lysine supplementation may improve angina symptoms in some individuals (Ecured, 2018).

Methionine: When we talk about proteins we refer to a type of nutrient that is composed of an infinity of amino acids. Some of them our body produces by itself, others instead we must obtain through food. This is the case of methionine, an essential amino acid in the body, but that our body does not produce, but it is through the intake of a certain type of protein that we get it (Vitónica, 2018).
Threonine: The main functions that threonine has in our body are based on the regulation of liver activities and the detoxification of this vital organ of the human body. Another important action that this essential amino acid has is its intervention in the formation of enamel, elastin and collagen of the teeth. In turn, it acts on digestive processes and prevents intestinal infections. In the synthesis of threonine, phosphate is transported, which is an important element to keep the amount of protein required in the body balanced. The insufficiency of this organic amino acid can cause accumulation of fat in the liver, intestinal problems and an improper assimilation of nutrients (Ecured, 2018).

Cell regeneration

Some animals can regenerate certain tissues and cell types such as musculature or blood cells; others can regenerate organs such as the heart or brain; and in some cases, there are animals that can regenerate more complex structures such

as limbs and even complete organisms from a small part of their body (Cebriá, 2018).

Stem cells: Stem cells are the raw material of the body; from them all other cells with specialized functions are generated. Under the right conditions in the body or in a lab, stem cells divide to form more cells called daughter cells (Mayo Clinic, 2018).

These daughter cells become new stem cells (self-renewal) or specialized cells (differentiation) with a more specific function, such as blood cells, brain cells, heart muscle cells, or bone cells. No other cell in the body has the natural ability to generate new cell types (Mayo Clinic, 2018).

Tissue repair: Tissue repair or tissue repair is a complex process in which the skin or other tissues are repaired after an accidental injury, illness or surgical intervention. Wound healing involves the activity of a complex network of blood cells, tissues, cytokines, and growth factors that results in increased cellular activity and causes intense metabolic demand for nutrients (Laboratorios Fontaine, 2018).

Antioxidant capacity

ns by which energy is obtained produce reactive oxygen molecules (ROS). ROS can damage biomolecules such as lipids, proteins, carbohydrates, proteins and DNA; and this has been linked to chronic diseases such as cancer, cardiovascular diseases, inflammatory processes, diabetes and aging (Navarro, Periago and García, 2017).

Feeding the elderly

The diet of the elderly person should be a balanced diet (according to the needs of energy, proteins, fats, vitamins and minerals). This in order to avoid deficiencies in the consumption of nutrients such as protein, thiamine, vitamin C, calcium, iron and folates, and ensure a healthy diet (Verdeza, 2018). The objective of an adequate diet in the elderly is to maintain an optimal state of health, which allows to cover the nutritional needs to avoid deficiencies, maintain adequate body weight, delay the occurrence or progression of diseases related to nutrition and avoid excessive intake of some nutrients (Verdeza, 2018).

Nutritional requirements

According to Bejarano, et. al. (2014) for the nutritional requirements of the elderly, a 1gr of protein is recommended for each k (Bejarano, et al., 2014)

Water: Water is the main chemical component of the body and accounts for 60 percent of body weight. The body depends on water to survive. Every cell, tissue, and organ in the body needs water to function properly (Medline Plus, 2019).

Vitamins and minerals: Vitamins and minerals allow the body to function as it should. You get vitamins and minerals from the foods you eat day after day, but some foods contain more vitamins and more minerals than others (Medline Plus, 2019).

Carbohydrates: They are one of the main types of nutrients. They are the most important source of energy for your body. Your digestive system converts these carbohydrates into glucose (blood sugar). Your body uses this sugar as energy for its cells, tissues, and organs and stores any extra sugar in your liver and muscles for when it needs them (Medline Plus, 2019).

Fibers: It is a substance found in plants. Dietary fiber is a type of carbohydrate we eat. Eating the right amount of fiber has been shown to have a wide variety of health benefits. It helps you feel full for longer, which slows down excess intake and weight gain. Eating fiber-rich foods aids digestion and nutrient absorption (Medline Plus, 2019).

Protein: It is an important nutrient that forms muscles and bones and supplies energy. It can help with weight management by helping the person feel full and satisfied with meals (Medline Plus, 2019).

Eating behavior in the elderly

The relationship that is established between a person and food is defined as eating behavior or behavior. It is identified that this is acquired through life, with a family and social influence, in addition to other factors that condition it such as the availability of food, the symbolic value of these, their selection or the way they are prepared (Troncoso, 2017) For an older person, an adequate eating behavior favors the prudent delivery of energy and nutrients. It is understood that a balanced diet, that is, one that contains the nutrients necessary for the proper functioning of the body, is the basis of an appropriate quality of life, however, alterations in their eating behaviors, alter this balance, and may present effects on their nutritional status. These modifications can be caused by pathological situations, loss of the respective partners, rigid eating habits, deprivation in purchasing power, among other factors, being reinforced on certain occasions, by the sociocultural situation of an older person (Troncoso, 2017).

Eating is a habitual behavior, with behaviors learned from the initial stages of life and that are contextualized by guidelines given by families, society and also, by economic aspects. The human being has the peculiarity of not only talking about his diet, but also thinks about it, with rules and norms that are acquired through life and his individual experiences, allowing to establish identities and social significance (Troncoso, 2017) Regardless of the age group to which a person belongs, cultural changes have led to changes in food habits and preferences, identifying a marked preference for foods of less complexity at the time of preparation, which are generally characterized by a high energy density and sodium, in addition, a low content of healthy nutritional components, which has favored the presence of chronic pathologies, such as obesity. This situation is extrapolated to older people, although culturally they tend to prefer foods identified as natural, those that are perceived as healthier, without considering the chemical composition that they present. (Troncoso, 2017)

For the elderly, it is recognized that the state of health, well-being and longevity are directly related to the biochemical aspects of the food consumed. A healthy diet for these people should consider in particular, the enjoyment of their diet and

that it is varied; deliver sufficient volumes to maintain adequate body weight control; increase the consumption of fruits and vegetables and reduce foods of high energy density, especially fats, in addition to performing physical activity according to your condition. (Troncoso, 2017) It is important to reflect that the process of aging involves slow and progressive modifications over time, of a regressive nature that produce insufficiency in various organs, such as the digestive tract, affecting the oral, gastric and intestinal phase of digestion, with motor, secretory and absorption alterations. However, the first signs of aging in the digestive tract begin in the oral cavity, originating naturally as the darkening and wear of the teeth or product of the presence of diseases, such as periodontitis, medications or sociocultural effects, which could finally alter the process of swallowing food and alter the nutritional status of these people (Troncoso, 2017).

In general, adults under the age of 80 tend to be more independent, functional and physically fit, being able to perform basic activities to take care of themselves, compared to those older than this age, who tend to be more dependent and have more physical limitation. This situation can subordinate their eating behavior and, in this way, their quality of life and health (Troncoso, 2017) As the process of aging increases, the quality of life and their way of eating are dependent on the situation of autonomy that the elderly person presents, which directs among other aspects how and where to live, identifying people who remain in their own homes or others who must settle in some type of public or private institution (Troncoso, 2017). It is for this reason that the objective of the research was: to establish the relationship between Andean products and the perception of the diet of the elderly of the Nuevo Amanecer dining room, Cercado de Lima, 2020

Materials and Methods

The type of research is descriptive – correlational. Descriptive, since it has the ability to select the fundamental characteristics of the object of study and its detailed description in categories; and correlational, because its purpose was to know the relationship or degree of association that exists between the two study variables (Hernández, Fernández and Baptista, 2014; p.219). The study design is the non-experimental cross-sectional since there was no manipulation of the variables and it was done at a certain time and place (Hernández, Fernández and Baptista, 2014). On the other hand, the population was constituted by 320 older adults who attend the Nuevo Amanecer Dining Room, Cercado de Lima and the sample according to the formula of finite populations was 175 older adults.

As a data collection technique that was used in older adults, the survey consisted of 22 closed questions divided into 10 for the variable Andean products and 12 for the variable diet of the elderly, this technique according to Hernández, et. al (2014) uses a set of standardized research procedures. The instrument used is the questionnaire consisting of 22 items divided into 10 for the variable Andean products and 12 for the variable diet of the elderly, with a Likert scale. Both of them of own elaboration.

To process the information, a questionnaire of 22 closed Likert questions was used, which allowed to establish the current situation of the consumption of

Andean products and the diet of the elderly. This questionnaire was applied to the study sample in the Nuevo Amanecer Dining Room, Cercado de Lima, with the permission of the managers, in an average of 10 respondents a day on Monday, Wednesday and Friday, which makes 30 a week, 120 a month with which the survey was achieved in two months, in coordination with the work and studies of the thesis, with respect to the duration of the survey was 25 to 30 minutes per respondent.

Statistical analysis was performed through the frequencies and percentages in tables. For the hypothesis test, being an investigation that tried to find the degree of relationship between the variables, Spearman's Rho test was used. The research took into account the ethical aspect and considered the informed consent of the respondents.

Results

In Table 1, the majority of older adults (44.0%) perceive that the use of Andean products in the Nuevo Amanecer Dining Room, Cercado de Lima is regular, that is, they are used, but not in an adequate way that takes advantage of all their nutrients, in the same way 32.0% perceive that the use is given efficiently that is, it has a good preparation where its content is damaged. nutritional, finally a percentage of 24.0% of the sample was found that believes that the use is given in a deficient way, that is, that they do not even consider it in the menu.

Table 1. Distribution of the use of Andean products

Level	Frequency	Percentage
Deficient	42	24.0
Regular	77	44.0
Efficient	56	32.0
Total	175	100.0

In Table 2, according to the results obtained from the responses of older adults to the questionnaire of alimentation of the elderly, the majority (56.0%) have a regular diet, 24.0% a good diet and 20.0% have a bad diet, that is, nor do they consider the essential nutritional values in their diet such as proteins, vitamins, minerals, etc.

Table 2. Distribution of data on the perception of the diet of the elderly

Level	Frequency	Percentage
Bad	35	20.0
Regular	98	56.0
Good	42	24.0
Total	175	100.0

In Table 3, to correlate the use of Andean products with the diet of the elderly, it was found that of the group that perceives a deficient level in the use of Andean products, 16.0% have a poor diet and 8.0% a regular one. In the group that

perceives in the use of Andean products a regular level, 4.0% presents a poor diet, 28.00% regular and 12.0% good; finally, in the group that perceives in the use of Andean products at an efficient level, 20.00% presents a regular diet of the elderly and 12.0% good.

Table 3. Andean products according to the diet of the elderly

Andean products	Feeding the elderly							
	Bad	%	Regular	%	Good	%	Total	%
Deficient	28	16.0	14	8.0	0	0.0	42	24.0
Regular	7	4.0	49	28.0	21	12.0	77	44.0
Efficient	0	0.0	35	20.0	21	12.0	56	32.0
Total	35	20.0	98	56.0	42	24.0	175	100.0

In Table 4, the kolmogorov test for samples greater than 50 had a significance below 0.05 which implied that there was no normality and therefore a non-parametric statistic was used to test the hypotheses called Spearman's Rho.

Table 4. Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistical	gl	Sig.	Statistical	gl	Sig.
Andean products	,147	175	,000	,928	175	,000
feeding of the elderly	,166	175	,000	,927	175	,000

a. Lilliefors significance correction

Table 5 shows a significant relationship ($p \leq 0.05$), direct and positive (Spearman's Rho = 0.650) between Andean products and the perception of the diet of the elderly.

Table 5. Correlation test according to Spearman between Andean products and food of the elderly

		Andean products	Feeding the elderly
Rho de Spearman	Andean products	Correlation coefficient	1.000
		Sig. (bilateral)	0.650**
		N	175
	Feeding the elderly	Correlation coefficient	0.650**
		Sig. (bilateral)	1.000
		N	175

** . The correlation is significant at level 0.01 (bilateral).

Discussion

According to the results found, it can be said that it was found that the use of Andean products in the Nuevo Amanecer dining room, Cercado de Lima is

perceived as regular by 44% also 32% refer that it is used efficiently, that is, with great variety and frequency, but there was a 24% that said that the use of Andean products in the aforementioned dining room is presented at a deficient level. On the other hand, in the case of the perception of the diet of the elderly, it was observed that the diet of 56% is regular, of 24% is good and 20% is perceived to occur at a bad level; so, it was evidenced that by correlating the use of Andean products with the diet of the elderly, it was found that of the group that perceives a deficient level in the use of Andean products, 16.0% have a poor diet and 8.0% a regular one. In the group that perceives in the use of Andean products a regular level, 4.0% presents a poor diet, 28.00% regular and 12.0% good; finally, in the group that perceives in the use of Andean products at an efficient level, 20.00% presents a regular diet of the elderly and 12.0% good. Concluding that the use of Andean products significantly influences the perception of the diet of the elderly of the Nuevo Amanecer dining room, Cercado de Lima, 2020, having a result of Rho de Spearman = 0.650, being moderate and with a significance below 0.05; thus, rejecting the null hypothesis.

What is compared with the study of Aymer and Laura, (2017) where they mention that the historical use of these Andean grains is based on nutritional, ecological and socioeconomic foundations that over the years have continuously contributed to the food security of the Andean inhabitants and are part of their culture, however, today, apparently, they are not consumed regularly by the population replacing them with products such as rice or noodles, which agree with the objectives of the present research where it is intended to reassess the importance of the consumption of Andean grains or cereals, where a regular level was obtained according to the majority of the sample.

Another of the studies is that of Calderón (2019) who evidenced in terms of nutritional status that 29.9% of his sample has a Normal nutritional status, with Thinness 30.8%, Overweight 17.8% and 21.5% Obesity. So, it was concluded that they have a regular diet where they do not have a sufficient supply of nutrients, only a third presented a good diet and nutrition; which is consistent with the results obtained in the present research where it was found that the diet of older adults is of regular level which was related to a low level in terms of the consumption of Andean grains.

Likewise, the study of Valenzuela (2016) was found, who was able to conclude that quinoa has a high nutritional value due to its high content of proteins, amino acids, vitamins. Its high nutritional value is comparable to that of breast milk; however, it does not lead the list of cereals with the highest consumption in the Ecuadorian population as if rice, wheat, barley and oats do. The international quinoa market has registered important movements around fair trade systems due, among other factors, to the growing acceptance and changes in eating patterns of consumers, who have begun to value the multiple food benefits of this cereal and repair the positive impact of its consumption on the economic and social dynamics of the communities that produce it; where a concordance with the purpose of the present study to revalue Andean products for a constant improvement of the diet of the elderly population is presented, it should be said that the author mentions that despite its recognized benefits in the health of the person it is consumed as other less nutritious ones such as rice.

Conclusions

It is concluded that Andean cereals in Peru led to the development of many researchers, on the goodness that these cereals have from the nutritional point of view for consumers so the researchers developed Huamán in 2018, Valenzuela in 2016, Calderón in 2019, our research studies carried out from the point of view for its high nutritional value due to its high content of amino acid proteins, vitamins of these cereals coincide with the study carried out. Finally, it was found that there is a significant relationship between the contribution of amino acids with the diet of the elderly of the Nuevo Amanecer dining room, surrounded by Lima, 2020; having a result of Spearman's $Rho = 0.660$, being moderate and with a significance below 0.05, thus rejecting the null hypothesis.

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