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# Health literacy and food consumption habits of an adult population on the African island of Cabo Verde

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## ABSTRACT

### Background

**Food choices and health literacy are fundamental factors in health promotion; they help to establish epidemiological associations between food consumption choices and aspects of health. To deliver effective health policies to a sub-population in Africa, it is important to understand food consumption patterns and levels of health literacy within the population. The aim of this study was to assess levels of health literacy amongst food consumers living in Cidade da Praia, the capital city of Cabo Verde, and the relationship between health literacy and food consumption choices. The objectives were: to identify the health literacy level of food consumers in Cidade da Praia, to describe those consumers' behaviours and to assess the relationship between consumer habits and health.**

### Methods

**A questionnaire was applied to a sample of 210 individuals to characterize their health literacy level; their awareness of food labelling relating to ethical production, sustainable consumption and nutritional value; and their conscious decisions to choose healthier food products. Health literacy was evaluated using a Portuguese version of NVS, a tool by which health-related information – in this case nutritional information written on a food label – is used to demonstrate one's ability to use it to answer to questions.**

### Results

**The sample consisted of 210 individuals, 83 male (39.5%) and 127 female (60.5%), aged between 15 and 65 years. Evaluation of health literacy levels determined that 64.5% of the individuals have a high probability of having low health literacy. Of these, 46.9% read food labels frequently, primarily to check food expiration dates. No gender differences were observed in how labels were read (p=0.857). Awareness of sustainable and ethical practices was evident, as natural products and those claiming a fair working environment for producers influenced consumer choices. Participants recognized the relationship between food and health: 71% reported that they prefer buying food which displays health claims including low-fat, low-salt and low-sugar content.**

### Conclusion

**There is a fundamental need to improve health literacy levels in this African sub-population. The population is already displaying awareness of sustainability and healthier content in consumption choices. The study respondents refer to and are influenced by food labels but may not have the basic or health literacy levels to make the most of the information provided. By increasing health literacy, people will be empowered to make healthier food choices and consequently health can be promoted through consumer behaviour.**

**Keywords:** Health Promotion, Nutrition, Health Literacy, Consumer Behaviour

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## INTRODUCTION

Food choice is a complex phenomenon influenced by several factors that intertwine and influence the consumer within a dynamic process.[1] Eating habits are strong determinants of individual health. Throughout the last century, food choices have shifted alongside social dynamics, leading to an array of rapid changes in eating patterns.[2] Today, what we choose to eat is determined by a complex interaction of social, economic, technological, literacy and commercial factors that are, together, responsible for the adoption of patterns of consumption. Sometimes, they can be related to social acceptance or an individual's integration into a group[1]. For example, today's young adults are major consumers of fast food and soft drinks; they consume less fruit, vegetables and milk than previous generations and many eat almost the same food every day, leading to excesses or deficiencies of certain nutrients.[3]

Food literacy refers to the level at which an individual is able to obtain, process and understand basic information about food, in order to make appropriate decisions about health.[4] There are many factors contributing to the understanding of nutritional aspects and healthy eating habits but, among these, language and the ability to read and understand information is paramount.[5,6] The study of health literacy is important not only to ensure the quality of information but also to enable it to be communicated in a way that is most appropriate for the age of the target population, to ensure that individuals are better prepared to make appropriate health decisions.[7] For younger people, computers and technology are appropriate tools through which to acquire health promotion competences.[8,9]

The term 'health literacy' was first used in an article published in 1974, on health education as a political issue affecting the health system, educational system and mass communication.[10] In 2015, UNESCO – the United Nations Educational, Scientific and Cultural Organization – defined literacy as "the ability to identify, understand, interpret, create, communicate and use new technologies, according to different contexts".[11] Literacy involves an ongoing process of learning that enables the individual to achieve their goals and to develop their potential and knowledge, so that they can participate fully in society and make appropriate health-related decisions.[3] Health literacy is fundamentally dependent on basic literacy levels. Its development is related to education, transmission and translation of health information, as well as to aspects of education policies and the reduction of structural barriers to health.[12]

There is considerable evidence that people with low health literacy (including low numerical competence) have less ability to understand the contents of computer-accessed booklets on food or drugs[13] and find navigating health information difficult.[14] There is a clear association between health literacy and functional literacy (the ability to read and write to a sufficient level that one is able to function in society in general). Evidence linking low levels of health literacy to poor health in individuals indicates that a low level of health literacy can lead to mis-understandings in the communication of health information and consequently to poor perceptions and applications of health care.[15] It is not surprising, therefore, that a low level of literacy is related to poor clinical outcomes[3]. Low health literacy is associated with increased risk of adult obesity, for example, and low parent health literacy may be a risk factor for the development of early childhood obesity.[16]

Health literacy plays an important role in an individual's ability to make informed decisions and to enact behavioural changes based on these decisions. Health behaviours are also influenced by psychosocial attributes, such as self-efficacy,[3] which relates to personal capacity, and perception of the efficacy of that action.[17] People with higher self-efficacy are more likely to actively choose healthy diets than people with low self-efficacy.[3] Quantifying individuals' levels of health literacy is a fundamental aspect of public health, as it helps to develop epidemiological associations between diet/health literacy and aspects of health and consumer behaviour, especially with relation to population sub-groups. A case study of such a population – that of Cidade da Praia in Cabo Verde, an island off the coast of West Africa – is described in this study.

The levels of health literacy within the study population were evaluated using a Portuguese version of the Newest Vital Sign (NVS),[18,19] a well-established tool for assessing patients at risk for low health literacy that allows healthcare providers to adapt their communication practices to the patient's health literacy level. The NVS tool was used to: assess the level of consumer health literacy; to verify the relationship between health literacy and consumer behaviour in food consumption; and to characterize food consumers residing in the city of Cidade da Praia, Cabo Verde. The study focussed specifically on the health literacy and consumer behaviour of supermarket consumers.

## METHOD AND MATERIALS

In order to determine the relationship between the level of health literacy and consumer behaviour in food choices we applied a questionnaire using the Portuguese NVS. The questionnaire was applied to a sample of 210 consumers, who agreed to participate in the study while shopping at branches of the Cálu e Ângela supermarket in seven different locations within Cidade da Praia: Achada São Felipe, Achada Santo António, Bairro, Palmarejo, Platô, Terra Branca and Praia Shopping.

The questionnaire was divided into five sections: sample characterization (3 questions); health literacy (NVS) (6 questions); conscious consumption of food products (8 questions); ecological awareness on food consumption (7 questions) and concern about health aspects (2 questions). This has three methodological aspects:

1) Analysis of sample demographics based on qualitative and quantitative methodology;
2) Analysis of aspects relating to conscious consumption of food products – including ecological awareness and concern for health – from the qualitative and quantitative data;
3) The Portuguese version of the NVS. Respondents were shown health related information, including nutrition information on food labels, and were asked to demonstrate their ability to understand and use this information by answering questions.

The NVS evaluates the use of literacy and numeracy skills in the analysis of numbers and mathematical concepts. Statistical data analysis was performed using the SPSS 20 software statistical package, using descriptive and inferential statistical analysis.

## RESULTS

### Sample characterization

The sample consisted of 210 individuals, of whom 83 were male (39.5%) and 127 female (60.5%). Respondents were banded by age: 46.2% of respondents (97 individuals) were between 15 and 24 years of age, 35.7% (75 individuals) between 25 and 44 years of age, 14.8% (31 individuals) between 45 and 64 years of age and 3.3% (7 individuals) were 65 years of age or above.

In response to a question on level of education attained, 14.8% (31 individuals) had attended or completed primary education, 14.3% (30 individuals) had attended school until 9th grade, 41% (86 individuals) finished secondary education (12th grade) and 30% (63 subjects) had completed higher education.

### Health literacy

Use of the Portuguese NSV determined that 64.5% of the study participants (65% of men and 63.8% of women) had a high probability of possessing low health literacy. This was statistically significant when analysed using Pearson's correlation ($p=0.400$). Further analysis determined that 90.2% of the individuals with a basic level of education, 80% of the individuals who attended nine years of school, 65.2% of those who completed secondary education and 42% of individuals with higher education, had a low level of health literacy. The relationship between the level of health literacy and the level of general education was statistically significant ($p < 0.001$).

Exploring the same association by gender, 88.9% of males and 91% of females who reported only the basic level of education (4 years of school) had low literacy levels ($p=0.369$). This reduced to 61.5% of males but increased to 94.1% of females with 9 years of school education ($p=0.084$).

For those with high-school education (10– 12 years of education), 70.3% of men and 61.2% of women had low levels of health literacy (p=0.203). For those who had attended higher education, 39% of men and 38.4% of women (p=0.635) displayed low levels of health literacy.

A high level of health literacy was correlated with an individual's conscious decision to choose healthier foods (natural foods without preservatives); this relationship was statistically significant (p=0.020). Concern for environmental sustainability in food production (p <0.001) and willingness to try new food products (p=0.003) also showed statistically significant correlations, but there was no relationship between the gender of the respondent and health literacy (p=0.400), or with age (p=0.361).

**Consumer behaviour**

The respondents were questioned about their behaviour relating to reading food labels: 46.9% stated that they did read food labels, 38.1% said they did so daily and 71.9% said they understood the information on the food labels. The most frequent reasons given for this was to check the expiration date of the foods (for 90% of the individuals); and to see the content of ingredients including fat (20.5%), salt (13.3%) and sugar (11%). Of the study participants, 45.5% claimed to be responsible for all food purchases for their household.

When buying food, 52.4% of respondents said they use the label to compare products when making a purchase decision; 60% used it to select the most nutritious food; and 61% said they used shopping lists to guide their food purchases, with 75.7% showing a willingness to try new products that they have not purchased before. Only 3% of participants looked for support or information from the consumer protection association.

There was no significant difference in men and women's likelihood of reading labels (p=0.857) but women seemed more concerned about fat content than men (p=0.036) and were also more likely to be the person in charge of buying all grocery products for consumption in their home (p=0.019).

Awareness of sustainable consumption was evident in the sample, with 73% of individuals reporting that they make a conscious decision to buy natural or ecologically friendly products, with women (74.8%) more concerned than man (69.9%), though this difference was not statistically significant (p=0.827). 60% of the sample would choose natural or ecologically friendly products over others, and 62% of those would not mind paying extra for such products. There was no statistical difference among age groups (p=0.078). Ethical considerations of food production chains and the workers' conditions were equally important for men and women (79.5%).

**Relationship between consumer habits and health**

The individuals participating in the study reported awareness of the relationship between food and health. Of the total sample, 69% claimed to prefer to consume food without preservatives, though the difference between the frequency with which this was reported by women (70.9%) and men (65%) was not statistically significant (p=0.632). The difference (p=0.424) between the numbers of men (68.6%) and women (72.4%) who claimed they choose food that is labelled as being healthier (71% overall) was also not statistically significant.

## DISCUSSION

Across all age groups, educational levels and gender, 64.5% of study participants displayed a high probability of low health literacy. This value is higher than was found in a comparable population by Luis in 2010 (54%)[18,19] and also higher than the expected value proposed by OCDE of 7–47%.[20] This may put the residents of Cidade da Praia in danger of low health status, since health literacy is correlated with low social economic status and is often related to poorer health outcomes.[21] One study conducted in a comparable population in Ghana has shown previously that low health literacy can positively predict health status in a marginalized population.[22]

Fewer respondents (46.9%) reported reading food labels than had been found in previous studies by Luis (2010), in which 64% of the participants read the label[18,19], but is but similar to results observed by Leite (2007) and Lindhorst (2007)[23,24], though the

numbers of those who claim to always read the label are similar to other studies: 38.1% in the present study compared with 37% observed by Luis in 2010.[18,19] The number of participants who look for expiration dates and nutritional information on food labels (90%) corresponds with the Leite study[24], but not Luis.[18,19] In further comparison with the latter study, information about salt, fat and sugar content were highly valued and women are more concerned with the fat content than men. A 2019 study of the influence of food labelling in South Africa has shown that such labels can help consumers to decide what to buy, what they really want and what they need, and can also provide information on whether the product is free from chemicals or drugs.[25] The finding that women are more likely to be responsible for food purchasing for their household is consistent with other studies in populations that share similar cultural backgrounds.[18,19,24]

Using labels to guide decisions on which foods to buy – mentioned by 52.4% of the participants, with 60% using it to select the most nutritious foods – is in line with results observed by Leite in 2007[24]; according to Cha et al in 2015, consumers who frequently refer to food labels have higher quality diets. This behaviour can be affected by factors including age, sex and former nutritional experiences, however, and the effective use of a food label to improve dietary quality is dependent on the consumer having sufficient health literacy to understand and interpret the labels they find.[3]

Of the respondents, 60% said they bought organic products whenever they had the opportunity, and 62% of the individuals said they would not mind paying more for these products. This is in line with the results obtained in a study by Leite in 2007[24], while another study, conducted in South Africa, observed that as individuals become wealthier they demand more goods and are more health cautious; this is especially so for younger individuals[25]. By contrast, the present study found no statistical differences among age groups for consumer behaviour relating to natural and ecologically sustainable products, but all groups claimed to be willing to pay extra for products they considered to be higher quality and that would provide greater health benefits.[25] Higher income affords individuals opportunities to make better food choices, with higher levels of income correlating with higher levels of literacy, more self-control, less impulsiveness and healthier food consumption overall.[26] In contrast to previous studies by Luis[18,19]; Cowburn et al[23]; and Lindhorst et al[27] the present study did not find a relationship between age and health literacy.

## CONCLUSION

Health literacy is an important subject in health promotion, particularly when related to food consumption. Health and nutritional literacy are fundamental tools that enable individuals to increase nutritional knowledge, improve their dietary habits and consequently improve their health status.[28] Assessing the health literacy of individuals, and of populations, will support the development of more appropriate public health policies, resulting in better programmes tailored to the needs of patients, as has been highlighted in a recent systematic review.[2]

Improving health literacy in a population involves more than just the transmission of health information: it is an educational issue. Low health literacy levels were identified in this sub-population and this correlated with low educational attainment in general. Improving these indicators is essential for improving health status and empowering the population. Despite the low health literacy levels, however, it was possible to identify responsible consumer behaviour, evidenced by how reading food labels resulted in preference for food products that made health claims. These habits may not lead to gains in nutrition and health status, however, if consumers with low literacy levels have difficulty in understanding the information they read. Further studies of African populations' health literacy are necessary to prove that better communication skills will lead to improvements in health status.

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