ANDREIA CRISTINA ALVES DE SOUSA

Health literacy and its associated factors among University students

Universidade Fernando Pessoa

Faculdade de Ciências da Saúde

Porto, 2020

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Declaro para os devidos efeitos ter atuado com integridade na elaboração deste Trabalho de Projeto, atesto a originalidade do trabalho, confirmo que não incorri em plágio e que todas as frases que retirei de textos de outros autores foram devidamente citadas ou redigidas com outras palavras e devidamente referenciadas na bibliografia.

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(Andreia Cristina Alves de Sousa)

Trabalho apresentado à Universidade Fernando Pessoa como parte dos requisitos para obtenção do grau de licenciada em Ciências da Nutrição.

Orientadora:

Professora Doutora Andreia Oliveira

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List of Abbreviations

UFP – University Fernando Pessoa

BMI – Body Mass Index

METER - Medical Term Recognition Test

OR – Odds ratio

CI – Confidence intervals

WHO – World Health Organization

Health literacy and its associated factors among University students

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Resumo

Introdução

A literacia em saúde mede a capacidade dos indivíduos de adquirir e entender conceitos básicos de saúde. Espera-se que os estudantes universitários, devido à sua alta escolaridade, apresentem altos níveis de literacia em saúde, embora nenhum estudo anterior tenha identificado a prevalência e seus fatores associados em estudantes universitários de Portugal.

Objetivos

O objetivo deste estudo é quantificar o nível de literacia em saúde entre estudantes universitários de Ciências da Saúde avaliar os seus fatores associados.

Metodologia

Um estudo observacional transversal foi realizado na Universidade Fernando Pessoa. Os participantes foram alunos do primeiro ano de um dos sete ciclos de estudos em ciências da saúde em 2019-2020, que frequentavam o ensino regular e que falavam e compreendiam a língua portuguesa. A amostra final incluiu 165 participantes (125 mulheres, 40 homens, idade média de 20 anos). Foi alcançada uma proporção de participação (entre os elegíveis) de 84%.

Para a recolha dos dados, foi desenvolvido um questionário estruturado de autopreenchimento, incluindo o METER (Medical Term Recognition Test) para avaliar a literacia em saúde, previamente validada na população adulta portuguesa, e perguntas sobre características sociodemográficas, estilos de vida e índice de massa corporal (IMC) auto-reportado. *Odds ratio* (OR) e os respetivos intervalos de confiança a 95% (IC) foram calculados por modelos de regressão logística, após ajuste por sexo, idade e IMC.

Resultados

A pontuação mediana de literacia em saúde foi de 35,0, variando de 0 a 39 (intervalo possível de 0 a 40). A prevalência de literacia em saúde baixa foi de 9,7% e 52,1% apresentaram literacia em saúde funcional em saúde (pontuação 35-40).

Homens, estudantes com mais de 20 anos, pais com menos escolaridade, estudantes portugueses, não trabalhadores, não fumantes, que assistem mais de duas horas por dia

de TV e que se autodeclararam com sobrepeso ou obesidade reportaram pontuações mais elevadas em literacia em saúde, mas encontraram-se diferenças apenas para idade da participante, escolaridade da mãe e o IMC auto-reportado.
Em análise multivariada, apenas excesso de peso / obesidade foram significativamente associados a um grau funcional de literacia em saúde (OR = 3,17, IC 95%: 1,07-9,41).

Conclusões

Apenas uma fração limitada dos estudantes universitários de ciências da saúde apresentou literacia em saúde funcional (52%). O estado nutricional auto-reportado foi o único fator significativamente associado à literacia em saúde; aqueles classificados como com excesso de peso ou obesidade tiveram 3 vezes mais probabilidade de ter um grau funcional de literacia em saúde.

Palavras-chave: literacia em saúde, estudantes Universitários, fatores epidemiológicos, índice de massa corporal

Abstract

Background

Health literacy measures the ability of individuals to acquire and understand basic health concepts. University students, given their high education, are expected to show high levels of literacy in health, although no previous studies have identified the prevalence and its associated factors in University students from Portugal.

Objectives

The aim of this study is to quantify the level of health literacy among University students of Health Sciences and to study its associated factors.

Methodology

A cross-sectional observational study was conducted at the University Fernando Pessoa. Participants were 1st year students of one of the seven study cycles in Health Sciences in 2019-2020, attending to regular education, and speaking and understanding the Portuguese language. The final sample included 165 participants (125 women, 40 men, mean age of 20 years). A participation (among the eligible) of 84% was achieved.

For data collection, a structured self-completed questionnaire was developed including the METER (Medical Term Recognition Test) to assess health literacy, previously validated in the Portuguese adult population, and questions on sociodemographic characteristics, lifestyles and self-reported Body Mass Index (BMI). Odds ratio (OR) and the respective 95% confidence intervals (CI) were calculated by logistic regression models, after adjustment for sex, age and BMI.

Results

The median health literacy score was 35.0, varying from 0 to 39 (possible range 0-40). The prevalence of low health literacy was 9.7%, and 52.1% had a functional health literacy (scoring 35-40).

Men, students older than 20 years old, those with less educated parents, students who are Portuguese, non-workers, non-smokers, who watch more than 2 hours a day of TV, and who self-reported themselves as overweight or obese showed higher median health literacy scores, but significant differences were only reported for participant's age, mother's education and self-reported BMI status.

In multivariate analysis, only overweight/obesity was significantly associated with a functional health literacy degree (OR=3.17, 95%CI: 1.07-9.41).

Conclusions

Only a limited fraction of University students of Health Sciences showed a functional health literacy (52%). Self-reported nutritional status was the only factor significantly associated with health literacy; those classified as having overweight or obesity were 3 times more likely to have a functional health literacy degree.

Keywords: Health literacy, University students, Epidemiologic Factors; Body Mass Index

1. Introduction

Health Literacy is characterized by the ability of individuals to acquire and understand basic health concepts in order to choose better health decisions (1). Among the consequences of inadequate health literacy, there is an increase in morbidity and mortality (2), so it is emerging to increase knowledge about its prevalence and to identify important determining factors.

Around the world, some studies have assessed health literacy in different population groups. The European health literacy survey (HLS-EU) was conducted in eight countries: Austria, Bulgaria, Germany, Greece, Ireland, The Netherlands, Poland and Spain (n=1000 per country, n=8000 total sample) (3). At least 1 in 10 participants (12%) showed insufficient health literacy and almost 1 in 2 (47%) had limited health literacy (insufficient or problematic). However, the distribution of levels differed between countries (29-62%). Subgroups within the population, defined by financial deprivation, low social status, low education or older age, had higher proportions of people with limited health literacy, suggesting the presence of a social gradient (3).

University students, given their high education, are expected to show high levels of literacy in health. In Laos, a study was carried out in 2016 to determine the level of health literacy in university students from first year (107 from environmental sciences and 137 from administration and economics) (4). By using the Health Literacy Survey Questionnaire – Europe, the study found that 36.1% of students showed an "inadequate" level of health literacy, 56.6% a "problematic" level and only 7.0% achieved "adequate" levels of health literacy (4).

In Denmark, a study was carried out in 2017 to assess factors associated with health literacy in Bachelor and Master university students enrolled in health-related study programmes (5). Women and Master students had a higher Health Literacy Questionnaire score. It was also found a positive correlation between the health literacy score and the parent's education level (5).

Another study conducted in 2017, in the USA, showed that almost all students on first year doctorate pharmacy (n=57, 90%) had high health literacy and no correlations were found with other factors (6).

A recent study conducted at a large public University in northern Jordan revealed that female students, students from the health-related faculties, and those who do not smoke have higher levels of health literacy compared to their counterparts (7).

Overall, health literacy and its determinants differ across populations and differences can be partially explained by the use of different assessment methods. Health literacy can be measured based on word recognition or pronunciation. Examples of such instruments are the Medical Term Recognition Test (METER), the Rapid Estimated of Adult Literacy in Medicine (REALM), the Short Assessment of Health Literacy for Spanish-speaking Adults (SAHLSA) and the Medical Terminology Achievement Reading Test (MART). There are also instruments that assess written comprehension and numeracy, such as the Newest Vital Sign (NVS) and the Test of Functional Health Literacy in Adults (TOFHLA) (8). In 2014, a study was carried out to assess intercultural adaptation and validation of the METER health literacy assessment instrument in the Portuguese adult population (8). The authors compared the health literacy among population groups; doctors scored better than any other group (health researchers, other researchers, general population with varying degrees of education) (8).

Despite the importance of an adequate health literacy, there are still no published studies in Portugal that identify the prevalence and its associated factors in University students. Thus, the aim of the current study was to quantify the level of health literacy among University students from first year of Health Sciences related courses and to study its associated factors.

2. Methodology

2.1. Sample selection and recruitment and study design

A cross-sectional observational study was conducted at the Faculty of Health Sciences and at the Higher Health School of the University Fernando Pessoa (UFP). University Fernando Pessoa is a private University of Porto, Portugal reaching over than two thousand students. With the motto “Nova et Nove” (innovate in knowledge and teaching methods), UFP aims at teaching, research, community outreach and the provision of services in the fields of training (https://www.ufp.pt/inicio/conhecer-a-ufp/).

The Faculty of Health Sciences includes three courses (Bachelors) related to health: Nutrition Sciences, Pharmaceutical Sciences and Dental Medicine and the Higher Health School includes four courses, also related to health: Clinical Analysis and Public Health, Physiotherapy, Nursing and Speech Therapy.

The inclusion criteria for the study participants were: attendance to the 1st year of the study cycle in 2019-2020, attendance to regular education, to speak and understand the Portuguese language (given the nature of the health literacy scale, adapted for the Portuguese population). The final sample included 165 participants (125 women, 40 men, mean age of 20 years). A participation proportion (among the eligible) of 84% was achieved.

2.2. Ethics

The study protocol was submitted to the Ethics Committee of the University Fernando Pessoa, having obtained a positive opinion for its performance (Attachment A). Each participant gave a written informed consent to participate in the study according to the Helsinki Declaration (Attachment B).

2.3. Data Collection

Data was collected from October until December 2020 by the application of a structured self-completed questionnaire (Attachment C), designed to assess the concepts under study. This questionnaire was delivered personally in class, after authorization of the Director of the Faculty and the class teacher and after the student's written consent (Attachment D) for participation. The consent was delivered together with the questionnaire, but collected and stored separately so that there was no identification of the participants.

The instrument used to collect health literacy was the METER (Medical Term Recognition Test). This is an instrument used to measure health literacy, previously validated for use in the Portuguese adult population (9), showing high levels of consistency and reliability. The main author of this tool (Dagmara Paiva), granted authorization for its application in this study. There are two dimensions of the METER instrument, one dimension for “words” (which includes words existing in the health

area) and another dimension for “non-words” (which includes words not existing in the health area). Each participant selected the ones that are terms existing in the health area. Then, the sum of all correct answers marked were done and cut-offs were defined: the scoring scale varies between 0-40, with a number of correct answers between 0-20 being considered to show low literacy; 21-34 marginal/average literacy; and 35-40 is indicative of functional levels of health literacy (10).

The questionnaire also comprised questions on sociodemographic characteristics, namely gender, students’ age (collected as a continuous variable and then categorized into ≤20 and >20 years old), parent’s education (competed years of schooling categorized into ≤9, 10-12 and >12 years), nationality and working status (yes vs. no). Lifestyles, such as alcohol consumption (categorized into drink daily, drink at least 1 glass per week, drink less than 1 glass per week and ex-drinker for at least 6 months), sports practice (yes v. no), sleeping duration during week and weekend days (collected as a continuous variable and then calculated the mean hours of sleeping, stratified by <8 vs. ≥8 hours/day), TV time (<2 vs. ≥2 hours/day), and fruit and vegetables consumption (assessed by a qualitative food frequency questionnaire and then converted into <5 vs. ≥5 portions/day) were assessed.

Self-reported weight (kg) and height (m) was used to calculate body mass index (BMI), by dividing weight by squared height, and then categorized according to the World Health Organization criteria (11) into Underweight (<18.5 kg/m^2), Normal weight (18.5-24.9 kg/m^2), Overweight (25.0-29.9 kg/m^2), and Obesity (≥30.0 kg/m^2). The first two and the latter two categories were combined in the analytic statistical analysis.

2.4. Statistical analysis

The collected data were computerized in a database of the IBM SPSS Statistics software (version 26) with subsequent statistical treatment. A descriptive analysis was carried out (calculation of means and respective standard deviations (SD) or medians and interquartile distances, when appropriate). Continuous quantitative variables were compared using the Mann-Whitney test, given the non-parametric nature of the health literacy variable distribution.

Logistic regression models were run to test the associations between the participant's characteristics and health literacy as a dichotomous variable (functional vs. low/average health literacy as reference class). *Odds ratio* (OR) and the respective 95% confidence intervals (CI) were calculated. Two models are presented: a crude model (with no adjustment for potential confounders), and a multivariate model after adjustment for sex, age and BMI status. Other confounders were tested by adding them to the multivariate models (e.g. education, fruit and vegetables intake, TV time), but the results remained very similar and thus they were not included in the final models.

3. Results

Table 1 describes the participant's characteristics. Participants are 1st year students of a Faculty of Health Sciences (41.8%) or Higher Health School (58.2%). The majority were women (75.8%), aged less than 21 years old (78.2%), and from parents with no high education background. More than 90% were Portuguese, and only 20% were worker students. Almost 70% of the participants were non-smokers and most participants reported to drink less than a glass of alcohol a week (84%) and to be physically active (72.7%). Ninety percent reported to sleep less than 8 hours a day (91%) and a large percentage (83.6%) to watch more than 2 hours of TV a day. Three quarters consumed less than 5 servings of fruits and vegetables per day (74.5%) and have a normal weight (75.8%).

In this sample of 1st year University students, the median health literacy score was 35.0 (interquartile range 33.0-36.0), and the mean score was 32.0 (SD=8.69). It varied from 0 to 39 (possible range of the METER tool 0-40). The prevalence of low health literacy (0-20 score) was 9.7%, and 38.2% of participants reached an average health literacy (scoring between 21-34). Approximately 50% had a functional health literacy (52.1%). Due to the low sample size of participants with low health literacy, for statistical analyses purposes, this category was combined with the average health literacy.

Table 2 shows the distribution of the health literacy score according to participant's characteristics. Men, students older than 20 years old, those with less educated parents, students who are Portuguese, non-workers, non-smokers, who watch more than 2 hours of TV a day, and who self-reported them as overweight or obese had a higher median health literacy score. Significant differences were found regarding participant's age,

mother's education and self-reported BMI status. Although for the other characteristics, some median scores seem to be relatively different according to comparison groups, they did not reach statistical significance (the magnitude of differences were, in general, low).

Table 3 reports the associations between the participant's characteristics and health literacy (functional vs. low/marginal as reference).

In multivariate analysis (after adjustment for age, sex and BMI status), men were 72% more likely to have a functional health literacy degree, compared to women (OR=1.72, 95%CI:0.81-3.68). Older students had also higher odds to have a functional health literacy degree compared to the younger counterparts (OR=1.66, 95%CI: 0.72-2.82). Students whose parents are more educated were less likely to have a functional health literacy degree, as well as those who were not Portuguese, who were student workers and who were current smokers or alcoholic beverages drinkers. No major differences were found neither according to the type of school attended nor for sleeping habits and between students who practice sports and those who did not. Those who spend more time watching TV (≥ 2h/day) were more likely to have a functional health literacy degree (OR=1.39, 95%CI: 0.57-3.42). Regarding a global measure of diet quality, students who consume more than 5 portions a day of fruits and vegetables were 25% more likely to have a functional health literacy degree (OR=1.25, 95%CI: 0.58-2.68). Although none of these associations reached statistical significance, the magnitude of the differences suggests possible associations.

Self-reported nutritional status was the only factor significantly associated with health literacy; those classified as having overweight or obesity were 3 times more likely to have a functional health literacy degree (OR=3.17, 95%CI: 1.07-9.41), compared to underweight and normal weight students, even after adjustment for age and sex. Other confounders were tested (e.g. education, fruit and vegetables intake, TV time), but the results remained very similar (results not showed).

4. Discussion/Conclusions

The results of the present study show that only 52% of 1st year University students of Health Sciences reported a functional health literacy, and almost 10% had a low health

literacy, i.e. they failed to mark correct words existing in the health area. Several factors seem to be associated with health literacy, such as an older age, the male sex, lower mother's education, lifestyles (non-smoking, watching TV ≥ 2h/day). Although none of these associations reached statistical significance, the magnitude of the differences suggests possible associations. Self-reported overweight/obesity was the only factor significantly and positively associated with health literacy**.**

Previous studies conducted among University students have already reported very different levels of health literacy, highly dependent of the population. In the USA, in 2017, a study showed that almost all students (90%) on first year doctorate pharmacy had high health literacy (REF), whereas in Laos in 2016, only 7.0% of University students from first year achieved adequate levels of health literacy (REF). However, these were from non-health related courses (environmental sciences, administration and economics), which together with different socioeconomic backgrounds and health literacy assessment methods might explain these huge population-based differences.

In the current study, male students were more likely to have a functional health literacy degree, corroborating the results found in a study conducted in Texas to a group of undergraduate and graduate University students (12), and unlike a study among Danish University students that find no relationship (5).

Although some previous studies did not find statistically significant differences of health literacy levels according to age (6), in our study older students had significantly higher median scores of health literacy compared to the younger counterparts, suggesting that they could have had previous contact with other health bachelor degree or accumulated knowedge in the health field. However, in multivariate analysis, the association was no longer significant.

Our study also suggests that students whose parents, particularly mothers, are more educated were less likely to have a functional health literacy degree. These results go against the existing literature. In Denmark, it was also found a positive correlation between the health literacy score and the parent's education level among Bachelor and Master university students (5). Another study in China showed that participants whose parents had completed high school had higher scores than those whose parents had not completed high school (13). Although the results are contradictory, these differences may be caused by the fact that in the current study all students have achieved the

University level and are in the 1st year of the study cycle, which reveals a similar and high educational background between them, clearly more important than familial educational level.

Regarding lifestyle habits, studies have already shown that non-smokers are more likely to have a functional health literacy degree, compared to smokers (7) and the results of the present study corroborate these findings. This association highlights a relationship between a cluster of healthier lifestyles and health literacy.

Self-reported nutritional status was the only factor significantly associated with health literacy; those who self-reported themselves as having overweight or obesity were 3 times more likely to have a functional health literacy, compared to underweight and normal weight students. In Taipei, a study found that individuals, belonging to a sample of patients from the Healthcare and Management Center, with a higher BMI were associated with lower health literacy scores (14), but the studied sample had very different characteristics from our sample, especially the age range (23 to 88 years).

A population-based study among individuals aged 18–93 years in Portugal, using the validated Portuguese version of HLS-EU-Q, reported a significant inverse association between BMI and health literacy; inadequate health literacy individuals having higher BMI status and those with excellent health literacy exhibiting lower BMI (15). This tool is different from the METER, used in the current study. The HLS-EU-Q assessment includes 3 dimensions operationalized by 47 items: “Curative and palliative care of disease” (the first 16 items), “Disease prevention” (the following 16 items) and “Promoting health” (the last 15 items), and assesses the difficulty experienced in preselected health indicators/tasks.

Our study was carried out in University students in the first year of graduation, which perhaps explains the difference in the results obtained, in comparison with most of the literature. Our sample has a similar level of education and individuals with overweight can benefit from health literacy to control and reduce their weight since low health literacy has been identified as a risk factor for several diseases, such as obesity (16). Thus, because they are highly educated students, they became interested in changing their condition and, through research on the disease, they acquired knowledge about health in order to overcome it.

This study has some limitations that deserves further discussion. It was performed at a single site and had a relatively small sample size, thus we cannot discard a lack of power to detect some of the associations. The wide confidence intervals corroborate the lack of precision of some of the estimates. In addition, although all students from the Faculty of Health Sciences and from the Higher Health School were invited to participate, only 84% did it. A possible section bias cannot be discarded. There are a low number of male students, at least in the courses that participated in the study (courses related to health), although it is well known that health-related degrees have more female students than males.

An advantage of the current study was the use of a validated assessment tool of health literacy for the Portuguese population, with high educational level (9). We were also able to relate health literacy with a range of sociodemographic, lifestyles and nutritional status characteristics, although no physical measurements were performed. Thus, self-reported body mass index status might have been underestimated. It is well known that population-based samples tend to underestimate their weight and overestimate their height, which could have biased the association estimates (odds ratio) towards the null. Nevertheless, a significant positive association was found between overweight/obesity and health literacy, after adjustment for potential confounders. In addition, due to the cross-sectional nature of our study, we are unable to show if students have overweight or obesity due to the lack of health literacy, or because they have an abnormal health condition, they have become more literated in health.

More research is needed to study health literacy and associated factors, using larger samples and a prospective design. In the future it will be interesting to compare results between several areas of study, such as courses outside the health area.

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7. List of Tables

Table 1. Participant's characteristics: sociodemographic, lifestyles and nutritional status (n=165 University first year students of Health Sciences)

	n (%)
Sex	
Female	125 (75.8)
Male	40 (24.2)
Age (years)	
≤20	129 (78.2)
>20	35 (21.2)
Course attended belongs to:	
Faculty of Health Sciences	69 (41.8)
Higher Health School	96 (58.2)
Father's education (years)	
≤ 9	59 (35.8)
10-12	70 (42.4)
>12	24 (14.5)
Mother's education (years)	
≤ 9	53 (32.1)
10-12	61 (37.0)
> 12	44 (26.7)
Nationality	
Portuguese	153 (92.7)
Non-Portuguese	11 (6.7)
Student worker	
No	126 (76.4)
Yes	36 (21.8)
Current smoking habits	
No	114 (69.1)
Yes	51 (30.9)
Alcohol consumption	
Daily	35 (21.2)
At least 1 glass/week	18 (10.9)
< 1 glass/week	84 (50.9)
Ex-drinker for at least 6 months	23 (13.9)
Sports practice	
No	45 (27.3)
Yes	120 (72.7)
Sleeping duration (hours/day)	
< 8	91 (55.2)
≥ 8	73 (44.2)
TV time (hours/day)	
< 2	25 (15.2)
≥ 2	138 (83.6)
Fruit and vegetables intake (portions/day)	
< 5	123 (74.5)
≥ 5	38 (23.0)
Self-reported Body Mass Index status	
Underweight	11 (6.7)
Normal weight	125 (75.8)
Overweight	16 (9.7)
Obesity	7 (4.2)

Table 2. Distribution of the Health Literacy score according to participant's characteristics.

	Health Literacy score (0-40) median (IQR)	**p-value***
Sex		0.237
Female	34.0 (35.5-36.9)	
Male	36.0 (33.0-36.0)	
Age (years)		
<20	34.0 (32.5-36.0)	**0.018**
≥20	36.0 (33.0-37.0)	
Course attended belongs to:		0.317
Faculty of Health Sciences	35.0 (33.0-36.0)	
Higher Health School	35.0 (33.0-36.0)	
Father's Education (years)		0.505
≤ 9	35.0 (33.0-37.0)	
10-12	34.0 (32.0-36.0)	
≥ 13	35.0 (32.0-36.0)	
Mother's education (years)		**0.028**
≤ 9	35.0 (33.0-36.0)	
10-12	34.0 (33.0-36.0)	
≥ 13	34.0 (28.0-36.0)	
Nationality		0.136
Portuguese	35.0 (33.0-36.0)	
Non-Portuguese	33.0 (32.0-35.0)	
Student worker		0.339
No	35.0 (33.0-36.0)	
Yes	34.0 (32.5-36.0)	
Current smoking habits		0.311
No	35.0 (33.0-36.0)	
Yes	34.0 (31.0-36.0)	
Alcohol consumption		
Daily	35.0 (32.5-36.0)	0.775
At least 1 glass/week	34.5 (33.0-36.0)	
< 1 glass/week	34.0 (33.0-36.0)	
Ex-drinker for at least 6 months	35.0 (32.5-37.0)	
Sports practice		
No	35.0 (33.0-36.0)	0.890
Yes	35.0 (32.0-36.0)	
Sleeping duration (hours/day)		
< 8	35.0 (33.0-36.0)	0.718
≥ 8	35.0 (32.0-36.0)	
TV time (hours/day)		
< 2	34.0 (23.0-36.0)	0.390
≥ 2	35.0 (33.0-36.0)	
Fruit and vegetables intake (portions/ day)		0.506
< 5	35.0 (33.0-36.0)	
≥ 5	35.0 (33.0-36.0)	
Self-reported Body Mass Index status		**0.005**
Underweight/Normal Weight	34.0 (32.5-36.0)	
Overweight/Obesity	36.0 (34.0-37.0)	

*Significant p-values (p<0.05) are in bold-type.

Abbreviations: IQR: inter-quartile range

Table 3. Associations between the participant's characteristics and Health Literacy (functional vs. low/marginal as reference).

	Crude Model	**Adjusted model***
	OR (95%CI)	**OR (95%CI)**
Sex		
Female	1	1
Male	1.52 (0.74-3.14)	1.72 (0.81-3.68)
Age (years)		
≤20	1	1
>20	2.07 (0.95-4.51)	1.66 (0.72-3.82)
Course attended belongs to:		
Faculty of Health Sciences	1	1
Higher Health School	1.00 (0.54-1.86)	0.92 (0.48-1.78)
Father's Education (years)		
≤ 9	1	1
10-12	0.89 (0.45-1.79)	0.98 (0.47-2.06)
>12	1.18 (0.45-3.08)	1.04 (0.37-2.88)
Mother's Education (years)		
≤ 9	1	1
10-12	0.49 (0.23-1.05)	0.57 (0.26-1.28)
> 12	0.33 (0.14-0.75)	0.33 (0.13-0.81)
Nationality		
Portuguese	1	1
Non-Portuguese	0.51 (0.14-1.81)	0.42 (0.10-1.86)
Student worker		
No	1	1
Yes	0.76 (0.36-1.60)	0.63 (0.28-1.41)
Current smoking habits		
No	1	1
Yes	0.75 (0.39-1.45)	0.65 (0.32-1.32)
Alcohol consumption		
Daily	1	1
At least 1 glass/week	0.76 (0.24-2.37)	0.65 (0.19-2.25)
< 1 glass/week	0.99 (0.45-2.18)	0.93 (0.40-2.16)
Ex-drinker for at least 6 months	1.47 (0.51-4.27)	1.48 (0.48-4.52)
Sports practice		
No	1	1
Yes	0.94 (0.47-1.86)	0.89 (0.42-1.89)
Sleeping duration (hours/day)		
< 8	1	1
≥ 8	0.88 (0.48-1.63)	0.97 (0.50-1.86)
TV time (hours/day)		
< 2	1	1
≥ 2	1.52 (0.64-3.57)	1.39 (0.57-3.42)
Fruit and vegetables intake (portions/day)		
< 5	1	1
≥ 5	1.14 (0.55-2.37)	1.25 (0.58-2.68)
Self-reported Body Mass Index status		
Underweight/Normal weight	1	1
Overweight/Obesity	4.05 (1.42-11.53)	3.17 (1.07-9.41)

*Model adjusted for sex, age and Body Mass Index status.

Abbreviations: OR: Odds ratio; 95%CI: 95% confidence intervals

8. Attachments

8.1. Attachment A - Opinion of the Ethics Committee

Universidade Fernando Pessoa
www.ufp.pt

Exma. Senhora
Prof. Doutora Sandra Gavinha
Directora da FCS

Porto, 28 de Novembro de 2019

Exma. Senhora Prof. Doutora,

A Comissão de Ética, depois de apreciar a documentação relativa ao projeto de graduação em Ciências da Nutrição, de Estudantes da UC de Projeto de Investigação (4º ano) da Licenciatura em Ciências da Nutrição da UFP e Responsável de turma: Doutora Andreia Cristina Alves de Sousa, intitulado, "Literacia em saúde e fatores associados em estudantes universitários", com data de entrada para análise pela Comissão de Ética no dia 4 de Novembro, considera nada haver a opor ao mesmo.

Com os melhores cumprimentos.

A Presidente da
Comissão de Ética da UFP
Teresa Toldy

Fundação Ensino e Cultura "Fernando Pessoa"
NIPC 502 057 602 • Reg. Comercial nº 26 Conservatória do Registo Comercial do Porto
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8.2. Attachment B – Informed consent to participate in the study according to the Helsinki Declaration

DECLARAÇÃO DE CONSENTIMENTO INFORMADO

Literacia em saúde e fatores associados em estudantes universitários

Eu, abaixo-assinado, (nome completo do participante no estudo) ----------

---,
compreendi a explicação que me foi fornecida acerca da participação na investigação que se tenciona realizar, bem como do estudo em que serei incluído. Foi-me dada oportunidade de fazer as perguntas que julguei necessárias, e de todas obtive resposta satisfatória.
Tomei conhecimento de que a informação ou explicação que me foi prestada versou os objectivos e os métodos. Além disso, foi-me afirmado que tenho o direito de recusar a todo o tempo a minha participação no estudo, sem que isso possa ter como efeito qualquer prejuízo pessoal.
Foi-me ainda assegurado que os registos em suporte papel e/ou digital (sonoro e de imagem) serão confidenciais e utilizados única e exclusivamente para o estudo em causa, sendo guardados em local seguro durante a pesquisa e destruídos após a sua conclusão.
Por isso, consinto em participar no estudo em causa.

Data: _____/_____/ 20____

Assinatura do participante no projecto:_____

O Investigador responsável ***Nome***: Andreia Cristina Matos Oliveira

Assinatura:

Comissão de Ética da Universidade Fernando Pessoa

8.3. Attachment C – Questionnaire for data collection

ID ☐☐☐☐

Literacia em saúde e fatores associados em estudantes universitários

No âmbito do curso de Ciências da Nutrição da Universidade Fernando Pessoa, na Unidade Curricular de Projeto de Investigação, estamos a desenvolver um estudo cujo objetivo é avaliar a literacia em saúde nos estudantes. Pedimos a sua colaboração para que responda a um conjunto de questões relativas aos seus dados sociodemográficos, estilos de vida e conhecimentos em saúde. Os dados por si fornecidos são anónimos e confidenciais. Antes de responder a este questionário, por favor, leia e assine a declaração de consentimento informado (no sentido de formalizar a sua vontade em participar).
Agradecemos desde já a sua colaboração!

1. Sexo 0. ☐ Feminino 1. ☐ Masculino
2. Qual a sua idade em anos completos? |__|__| anos
3. Qual é o seu peso? |__|__|__| Kg 4. Qual é a sua altura? |__| m |__|__| cm
5. Qual a sua nacionalidade? 1. ☐ Portuguesa 2. ☐ Outra
6. Que curso frequenta? _____
7. É trabalhador/estudante? 1. ☐ Sim 0. ☐ Não
8. Quantos anos completos de escolaridade tem ou tinha o seu pai? |__|__| anos
9. Quantos anos completos de escolaridade tem ou tinha a sua mãe? |__|__| anos
10. Fuma ou alguma vez fumou (se apenas experimentou, considere não)?
    1. ☐ Sim 0. ☐ Não

    Se sim,
    1. ☐ fuma diariamente
    2. ☐ fuma ocasionalmente (menos de 1 vez/dia)
    3. ☐ é ex-fumador
11. Bebe ou alguma vez bebeu bebidas alcoólicas? 1. ☐ Sim 0. ☐ Não

    Se sim,
    1. ☐ bebe diariamente
    2. ☐ não bebe diariamente, mas pelo menos 1 copo por semana
    3. ☐ bebe menos de um copo por semana/esporadicamente
    4. ☐ não bebe há pelo menos 6 meses
12. Atualmente pratica algum desporto ou exercício físico, de forma regular (incluindo andar, caminhar ou lazer)? 1. ☐ Sim 0. ☐ Não
13. Quantas horas dorme, em média, **por dia**:
    13.1. Num dia da semana: |__|__| horas
    13.2. Num dia de fim de semana: |__|__| horas

14. Quantas horas, em média, **por dia** vê televisão ou está sentado em frente a um ecrã (por exemplo, computador)? |__|__| horas

15. No último ano tomou algum tipo de suplemento (vitamínico/mineral)? 1. ☐ Sim 0. ☐ Não

16. No último ano tomou algum tipo de suplemento proteico? 1. ☐ Sim 0. ☐ Não

17. Estas perguntas têm como objetivo avaliar a frequência com que consome alguns alimentos. Procure responder às questões de uma forma sincera, indicando aquilo que realmente come e bebe e não o que pensa que seria correto fazer.

Relativamente aos **últimos 12 meses**, assinale para cada alimento referido nesta lista, preenchendo o respetivo círculo, quantas vezes por dia, semana ou mês o consumiu.

	Frequência								
	Nunca ou <1 mês	1-3 por mês	1 por sem	2-4 por sem	5-6 por sem	1 por dia	2-3 por dia	4-5 por dia	Mais de 6 por dia
Sopa de legumes	O	O	O	O	O	O	O	O	O
Vegetais no prato	O	O	O	O	O	O	O	O	O
Fruta	O	O	O	O	O	O	O	O	O
Sumo de fruta natural	O	O	O	O	O	O	O	O	O
Vinho (1 dose = 1 copo)	O	O	O	O	O	O	O	O	O
Cerveja (1 dose = 1 cerveja)	O	O	O	O	O	O	O	O	O
Bebidas brancas (vodka, gin, whisky; 1 dose = 1 bebida)	O	O	O	O	O	O	O	O	O
	0	1	2	3	4	5	6	7	8

.

18. Qual é o guia que existe em Portugal como instrumento de educação alimentar?

1. ☐ Pirâmide Alimentar
2. ☐ Roda dos Alimentos
3. ☐ Balança Alimentar
4. ☐ Tabuleiro Alimentar
5. ☐ Não existe

19. Qual pensa ser a recomendação mundial para o consumo de frutas e vegetais?

1. ☐ Não existe recomendação
2. ☐ 1 a 2 peças por dia
3. ☐ 3 a 4 peças por dia
4. ☐ 5 ou mais peças por dia
5. ☐ 7 ou mais peças por dia

ID ☐☐☐☐

20. A lista seguinte inclui alguns termos que existem na linguagem médica. Alguns desses termos estão relacionados com partes ou funções do corpo, com tipos de doenças ou com coisas que podem melhorar ou piorar a saúde. A lista também contém algumas palavras que podem parecer ou soar como termos reais, mas que não existem.

À medida que for lendo esta lista, **coloque uma cruz "X" ao lado das palavras que são termos reais**. Não tente adivinhar nem pesquisar na internet. Coloque uma cruz "X" ao lado das palavras só quando tiver a certeza que existem mesmo.

_____ Imígdala	_____ Jezum
_____ Artrite	_____ Súrgico
_____ Obesidade	_____ Malorias
_____ Gripe	_____ Cancro
_____ Nervosite	_____ Alcoolidade
_____ Sífilis	_____ Antibióticos
_____ Potássio	_____ Antideprimido
_____ Hormonas	_____ Colite
_____ Nervos	_____ Diabetes
_____ Anquia	_____ Otorringologista
_____ Cástula	_____ Nósea
_____ Ingesto	_____ Impetigo
_____ Intestigo	_____ Menstrual
_____ Exercício	_____ Gatarral
_____ Pústula	_____ Convulsão
_____ Cerpes	_____ Apêndice
_____ Rim	_____ Abdominável
_____ Urgência	_____ Enxuteca
_____ Xirope	_____ Dose
_____ Menopausa	_____ Hemorróidas
_____ Diagnóstico	_____ Testículo
_____ Candíase	_____ Olho
_____ Icterícia	_____ Obstérico
_____ Bexiga	_____ Sonambulação
_____ Aborto	_____ Drenação
_____ Hepatite	_____ Sexualmente
_____ Enatoma	_____ Purisia
_____ Unhal	_____ Fibrómico
_____ Asma	_____ Medicação
_____ Inflamatório	_____ Micróbios
_____ Anemia	_____ Gonorreia
_____ Linsoma	_____ Estómico
_____ Ceresiana	_____ Fadiga
_____ Stress	_____ Osteoporose
_____ Algérico	_____ Obstipação

(1=assinalou; 0=não assinalou)

21. Para o conjunto de questões que se seguem, assinale a opção que considera mais correta (**uma opção em cada pergunta**) tendo em conta os seus conhecimentos sobre nutrição.

A. Qual dos alimentos é **mais** rico em hidratos de carbono?

1.☐ Carne 2.☐ Manteiga 3. ☐ Pão 4.☐ Queijo

B. Qual dos alimentos é **menos** rico em fibra?

1.☐ Pão integral 2.☐ Feijão 3. ☐ Alface 4.☐ Carne

C. Qual dos alimentos é **menos** rico em gordura?

1.☐ Hambúrguer com maionese 2.☐ Carne grelhada 3. ☐ Pão 4.☐ Croissant

3

D. Qual dos alimentos é **mais** rico em proteínas?

1.☐ Leguminosas secas (feijão, grão, fava...)
2.☐ Pão-de-leite
3.☐ Esparguete com molho de tomate
4.☐ Maçã

E. Qual dos alimentos é **mais** rico em calorias?

1.☐ Pão 2.☐ Batatas 3. ☐ Salada de frutas 4.☐ Pudim flan

F. Qual das substâncias fornece **mais** energia por grama?

1.☐ Proteína 2.☐ Hidratos de carbono 3. ☐ Gordura 4.☐ Álcool

G. Qual a função das vitaminas e minerais?

1.☐ Aumentar tecido muscular
2.☐ Diminuir a gordura corporal
3.☐ Catalisar reações bioquímicas no organismo
4.☐ Fornecer energia

22. Para o conjunto de questões que se seguem, assinale se a afirmação é **verdadeira ou falsa** tendo em conta os seus conhecimentos sobre alimentação.

	Verdadeiro	Falso
A. Devem fazer-se 5 a 6 refeições por dia, com um intervalo de 3 em 3 horas.	◯ 1	◯ 0
B. As crianças e os adolescentes abaixo dos 17 anos não devem beber bebidas alcoólicas.	◯ 1	◯ 0
C. Um pão engorda mais que um croissant simples.	◯ 1	◯ 0
D. Devem comer-se 2 a 3 peças de fruta por dia.	◯ 1	◯ 0
E. Pode reduzir-se o consumo de carne substituindo-a por leguminosas secas (feijão, grão,...), que também são ricas em proteínas.	◯ 1	◯ 0
F. O pão escuro (de mistura ou de centeio) é mais saudável que o pão branco.	◯ 1	◯ 0
G. Em todas as refeições principais a porção de vegetais deve ser superior à porção de carne/peixe.	◯ 1	◯ 0
H. Deve reduzir-se o consumo de sal substituindo-o por ervas e especiarias.	◯ 1	◯ 0
I. A carne vermelha (vitela) é mais saudável que a carne branca (peru ou frango).	◯ 1	◯ 0
J. Nas refeições principais (almoço e jantar) devemos alternar entre beber água e beber sumos (incluindo néctares de fruta ou "Ice Tea").	◯ 1	◯ 0
K. A água engorda.	◯ 1	◯ 0
L. Comer um prato de sopa ao jantar é uma refeição equilibrada.	◯ 1	◯ 0
M. Comer uma laranja ao jantar é prejudicial para a saúde.	◯ 1	◯ 0
N. O pão torrado engorda menos que o pão fresco.	◯ 1	◯ 0

Muito obrigada pela sua colaboração!

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