

Health Literacy Among University Students and Associated Factors: A Cross-Sectional Survey Among Pharmacy Students

Bülent KIRAN^{1*} , Elif Gizem KARACA¹ , Hür HASOY² 

¹ Department of Pharmacy Management, Faculty of Pharmacy, Ege University, 35100 Izmir, Turkey.

² Department of Public Health, Faculty of Medicine, Ege University, 35100 Izmir, Turkey.

* Corresponding Author. E-mail: bulent.kiran@ege.edu.tr (B.K.); Tel. +90-532-774 93 89.

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ABSTRACT: Health literacy is an important topic for both healthcare service providers and recipients to ensure cost-efficient utilization of healthcare services and to improve health outputs. The study intended to identify health literacy of students at the faculty of pharmacy, who are future healthcare professionals. This cross-sectional study comprises 691 undergraduate students enrolled in the Faculty of Pharmacy at Ege University. "Health Literacy Scale of Turkey" was used to measure health literacy, which is the dependent variable of the study; and the questionnaire, which was used as the data collection tool, was implemented through face-to-face interviews. Correlation between categorical data was identified by chi-square test and logistic regression analysis. 548 students responded to the questionnaire (Response rate=79.3%). Students attending 1st year had 2.53 (95%CI=1.47-4.36) times higher odds of having inadequate health literacy; those who did not exercise ran 1.98 times (95%CI=1.32-2.97) higher odds of having inadequate health literacy. The odds of having inadequate health literacy were 3.44 times (95% CI=1.02-12.35) higher among the students residing abroad as opposed to those living in a metropolitan city, and it was 1.70 times (95% CI=1.13-2.55) higher among those living in city centers. Identified health literacy rates were low when compared to the health literacy rates of pharmacy students in other countries. These results will contribute to incorporate the concept of health literacy into pharmacy education, particularly through adjustments to be made on the curriculum for new students.

KEYWORDS: Health literacy ; pharmacy students ; pharmacist's training ; healthcare.

1. INTRODUCTION

The concept of "Health literacy" was used in a social policy article on health education for the first time in 1974, and it was introduced as a concept directly associated with overall literacy [1,2]. The World Health Organization defined this concept as the entirety of cognitive and social skills determining the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health [3]. Health literacy is important in ensuring fluent and efficient communication among recipients of healthcare services and healthcare service providers, in helping patients to understand the diagnosis and treatment of their diseases, in sharing of responsibilities during treatment and effective use of healthcare services [4]. When such interaction is not achieved due to inadequate health literacy, adverse material and spiritual outcomes abound for individuals and society alike. These outcomes can be outlined as negative health outputs and failure to use healthcare services in a cost-efficient manner [5].

It has been documented that only 12% of adults in the US attained proficient health literacy levels, with 35% at basic and below basic level of health literacy [6]. A study conducted with 8 different countries in Europe indicated that inadequate or problematic health literacy levels in the participating countries varied between 28.7% and 62.1% [7]. A study conducted in 2014 in Turkey revealed that health literacy of 64.6% of the adult population in the country was "inadequate" or "problematic" [8].

Health literacy of a society is an important factor helping to increase the quality of healthcare services provided to the society as well as the number of healthy individuals, to overcome healthcare inequalities, and to control healthcare spending [9]. In this context, many countries recognized the significance of health literacy, with studies focusing on this issue gradually multiplying. However, it has been observed that studies on health sciences students are rare [10,11]. Health literacy levels of the faculty of pharmacy students should be high since they will provide services in the field of healthcare after graduation. Pharmacy students' deficient

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knowledge about health literacy could negatively affect their skills in providing healthcare to patients [12]. Accordingly, we planned to carry out a study with faculty of pharmacy students, who are some of the most important stakeholders among healthcare service providers.

Pharmacists in Turkey are crucial in protecting and promoting the community health as they are easily accessible and provide free-of-charge consultancy services [13,14]. As a matter of fact, a circular issued in 2019 by the Republic of Turkey Ministry of Health classified community pharmacists as primary healthcare counsellors [15]. Therefore, having the students at the faculty of pharmacy, who are future pharmacists, acquire health literacy is important in terms of both protecting and promoting community health and improving the quality of pharmacy services. On the other hand, identifying pharmacy students' health literacy rates and factors related thereof could also contribute to identifying how health literacy training will fit into the new arrangements to be introduced to pharmacy education. The aim of this study was to assess the health literacy of all undergraduate students, from the 1st to 5th year, at Ege University's Pharmacy Faculty and to analyze its association with sociodemographic characteristics, health status and habits.

2. RESULTS

The response rate of the questionnaire, which was answered by 548 students, was 79.3%. 329 out of 548 students who participated in the study (60%) were female students. Average age of the respondents was 21.9 ± 2.8 , with minimum 18-year-old and maximum 56-year-old respondents. The group with the highest participation in the study were (23.2%) 5th-year students. Moreover, 86.12% of the students resided in city centers or metropolitan areas for the most part, and a closer study into their perceived financial income-expense ratios revealed that financial income of the families of 67.7% was equal to their financial expenses, and the families of 17.3% had lower financial income compared to their expenses. On the other hand, 90% of the students had social security coverage under the Social Security Institution (SSI), 4.6% were covered by one of the other social security systems, 4.9% had no social security coverage. Educational attainment of respondents' fathers revealed that 44.2% held either an associate or undergraduate degree (Table 1).

Among the students, 91.8% did not have chronic disease, 88% did not use any medication on a regular basis; however, 67.5% had gone to a healthcare facility due to various health issues at least twice within the last year. 70.1% of the respondent students had body mass indexes in the 19-24 range, which is deemed to be healthy, and 26.8% exercised regularly. In terms of smoking and alcohol consumption, 26.5% of the respondents smoked while 46.9% consumed alcohol (Table 2).

The association between the health literacy of the respondents and the independent variables are analyzed with chi-square analysis and given in Table 3 and Table 4. Accordingly, the 1st- through to the 4th-year students of and below the age of 21, who have resided abroad or in city centers the longest, who did not regularly exercise, who consumed alcohol were found to have inadequate health literacy level ($p < 0.05$). No statistically significant association was found with the other independent variables.

As seen in Figure 1, 16.2% of the respondent students had excellent health literacy, 36.3% had adequate health literacy. About half of the respondent students (47.5%) were found to have limited or inadequate health literacy.

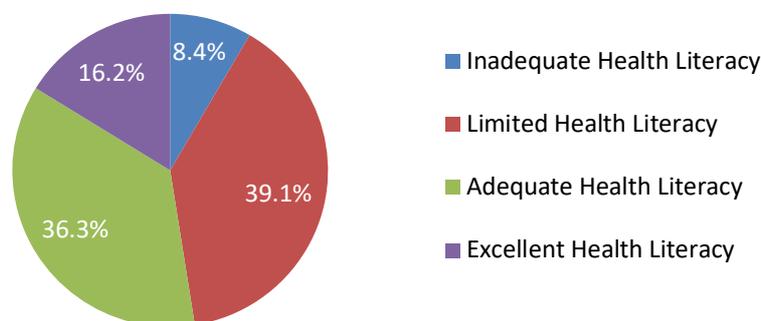


Figure 1. Health literacy of respondents

Table 1. Socio-demographic characteristics of the respondents, (n=548)

Variables	Number	%
Gender		
Female	329	60
Male	219	40
Age Groups		
21 Years-of-Age and Below	257	46.9
22 Years-of-Age and Above	288	52.6
Missing	3	0.5
Year of Attendance		
1 st Year	112	20.4
2 nd Year	99	18.1
3 rd Year	98	17.9
4 th Year	108	19.7
5 th Year	127	23.2
Missing	4	0.7
Type of High-School		
Science High School	130	23.7
Anatolian High School	301	54.9
Teacher-Training Anatolian High School	79	14.4
Medical Vocational High School	6	1.1
Other	32	5.8
Characteristics of the Place of Longest Residence		
Village/Town	63	11.5
City Centre	317	57.8
Metropolitan Area (Big City)	155	28.3
Abroad (Foreign Nationals)	12	2.2
Missing	1	0.2
Education Attainment of the Father		
Literate	2	0.4
Primary School	81	14.8
Secondary School	50	9.1
High School	132	24.1
Associate-Undergraduate	242	44.2
Graduate	28	5.1
Missing	13	2.4
Income-Expense Ratio		
Income Smaller than Expenses	95	17.3
Income Equal to Expenses	371	67.7
Income Bigger than Expenses	81	14.8
Missing	1	0.2

Table 2. Overall health and habits of the respondents (n=548)

Variables	Number	%
Presence of a Chronic Disease		
Yes	45	8.2
No	503	91.8
Regularly Used Medication		
Yes	66	12.0
No	482	88.0
Admission to Hospital		
Never been admitted	335	61.1
Once	121	22.1
Twice	52	9.5
Three times and more	39	7.1
Missing	1	0.2
Application to any Healthcare Facility within the Last Year		
Never applied	71	13.0
Once	106	19.3
Twice	155	28.3
Three times and more	215	39.2
Missing	1	0.2
Smoking		
Yes	145	26.5
No	369	67.3
I quit	34	6.2
Alcohol Consumption		
Yes	257	46.9
No	265	48.4
I quit	26	4.7
Regular Exercise		
Yes	147	26.8
No	400	73.0
Missing	1	0.2
Body Mass Index		
18 and below (underweight)	51	9.3
19-24 (healthy weight)	384	70.1
25-29.9 (overweight)	95	17.3
30 and above (obese)	18	3.3

Table 3. Cross table results

Variables	Health Literacy Level		n	p
	Number (%)			
	Adequate	Inadequate	Total	
Sex				
Female	177 (53.8)	152 (46.2)	329	0.475
Male	111 (50.7)	108 (49.3)	219	
Age				
21 and below	120 (46.7)	137 (53.3)	257	0.011*
22 and above	166 (57.6)	122 (42.4)	288	
Year				
1 st Year	47 (42.0)	65 (58.0)	112	0.002*
2 nd Year	45 (45.5)	54 (54.5)	99	
3 rd Year	52 (53.7)	46 (46.9)	98	
4 th Year	58 (53.7)	50 (46.3)	108	
5 th Year	84 (66.1)	43 (33.9)	127	
Type of High School				
Science High School	57 (43.8)	73 (56.2)	130	0.053
Anatolian High School	161 (53.5)	140 (46.5)	301	
Teacher-Training A. H. S.	46 (58.2)	33 (41.8)	79	
Medical Vocational H. S.	2 (33.3)	4 (66.7)	6	
Other	22 (68.8)	10 (31.3)	32	
Place of Longest Residence				
Village/Town	33 (52.4)	30 (47.6)	63	0.016*
City Centre	153 (48.3)	164 (51.7)	317	
Metropolitan Area (Big City)	97 (62.6)	58 (37.4)	155	
Abroad	4 (33.3)	8 (66.7)	12	
Education Attainment of the Father				
Literate	2 (100)	0 (0)	2	0.158
Primary School	41 (50.6)	40 (49.4)	81	
Secondary School	18 (36)	32 (64)	50	
High School	69 (52.3)	63 (47.7)	132	
Associate-Undergraduate	132 (54.5)	110 (45.5)	242	
Graduate	16 (57.1)	12 (42.9)	28	
Income-Expense Ratio				
Income Smaller than Expenses	53 (55.8)	42 (44.2)	95	0.280
Income Equal to Expenses	187 (50.4)	184 (49.6)	371	
Income Bigger than Expenses	48 (59.3)	33 (40.7)	81	
Social Security				
None	14 (51.9)	13 (48.1)	27	0.996
SSI	259 (52.5)	234 (47.5)	493	
Other	13 (52.0)	12 (48.0)	25	
Healthcare Worker in the Family				
Yes	89 (57.4)	66 (42.6)	155	0.160
No	199 (50.8)	193 (49.2)	392	

Table 4. Cross table results

Variables	Health Literacy Level Number (%)			p
	Adequate	Inadequate	Total	
Presence of Chronic Disease				
Yes	27 (60.0)	18 (40.0)	45	0.296
No	261 (51.9)	242 (48.1)	503	
Regularly Used Medication				
Yes	38 (57.6)	28 (42.4)	66	0.384
No	250 (51.9)	232 (48.1)	482	
Hospital Admission				
Never been admitted	176 (52.5)	159 (47.5)	335	0.549
Once	68 (56.2)	53 (43.8)	121	
Twice	23 (44.2)	29 (55.8)	52	
Three times and more	21 (53.8)	18 (46.2)	39	
Application to any Healthcare Facility within the Last Year				
Never applied	33 (46.5)	38 (53.5)	71	0.603
Once	53 (50.0)	53 (50.0)	106	
Twice	83 (53.5)	72 (46.5)	155	
Three times and more	118 (54.9)	97 (45.1)	215	
Smoking				
Yes	76 (52.4)	69 (47.6)	145	0.336
Used to/has quit	22 (64.7)	12 (35.3)	34	
No	190 (51.5)	179 (48.5)	369	
Alcohol Consumption				
Yes	150 (58.4)	107 (41.6)	257	0.037*
Used to/has quit	12 (46.2)	14 (53.8)	26	
No	126 (47.5)	139 (52.5)	265	
Regular Exercise				
Yes	96 (65.3)	51 (34.7)	147	0.000*
No	191 (47.8)	209 (52.3)	400	
Body Mass Index				
18 and Below (Underweight)	29 (56.9)	22 (43.1)	51	0.110
19-24 (Healthy Weight)	200 (52.1)	184 (47.9)	384	
25-29.9 (Overweight)	45 (47.4)	50 (52.6)	95	
30 and Above (Obese)	14 (77.8)	4 (22.2)	18	

Logistic regression analysis results of the variables associated with health literacy are presented in Table 5. According to the regression analysis results, 1st-year students had 2.53 (95% CI=1.47-4.36) times and 2nd-year students had 2.21 (95% CI=1.27-3.85) times higher odds of having inadequate health literacy than the 5th-year students. Moreover, students residing abroad were found to be 3.44 (95% CI=1.02-12.35) times more likely to have inadequate health literacy than those students living in a big (metropolitan) city, and those living in the city center were 1.70 (95% CI=1.13-2.55) times more likely to have inadequate health literacy. Among respondent students, those who did not exercise were found to be 1.98 (95% CI=1.32-2.97) times more likely to have inadequate health literacy compared to those who did exercise.

Table 5. Logistic regression analysis of the variables related to health literacy level

Variables	Inadequate Health Literacy (%)	95% C.I. for EXP(B)
Age		
21 years of age and below	53.3	1.53 (1.07 - 2.17) *
22 years of age and above (Ref)	42.4	1,00
Place of Longest Residence		
Abroad	66.7	3.82 (1.05 - 13.82) *
City Centre	51.7	1.79 (1.19 - 2.67) *
Village/Town	47.6	1.33 (0.72 - 2.45)
Metropolitan Area (Big City) (Ref)	37.4	1,00
Regular exercise		
Those who do not exercise	52.3	2,04 (1.36 - 3.05) **
Those who exercise (ref)	34.7	1,00
Alcohol Consumption		
Yes	41.6	0.74 (0.52 - 1.05)
No (ref)	52.6	1,00

* p<0.05; ** p<0.001

3. DISCUSSION

This study examined factors associated with the health literacy levels as well as the health literacy levels of 1st-5th-year undergraduate students at the Faculty of Pharmacy of Ege University. Nearly half of the pharmacy students (47.5%) had inadequate or problematic health literacy. Adequate health literacy was increased in correlation with their age and year at school. Those students who lived in metropolitan cities and regularly exercised had adequate health literacy at a higher ratio than the other students.

Study found that 52.5% of the Pharmacy Faculty students had excellent or adequate health literacy, while health literacy among 47.5% were either inadequate or problematic. A study conducted in Turkey by Güven et al. with students at the faculty of health sciences showed similar results: 55.7% of the students had “adequate or excellent health literacy” while 44.4% had “inadequate or problematic health literacy” [16]. Another study conducted among the senior year students of the health sciences faculty at another university showed that 42.2% of the respondents had either adequate or excellent health literacy whereas 57.8% had either problematic or limited health literacy [17]. Health literacy rates identified under that study were lower than the findings of our study, which may be associated with the educational institution, the department at which students were studying and its curriculum being different.

However, our study results become particularly thought-provoking when considered within the wider context of other studies conducted worldwide with pharmacy students. According to a study conducted with PharmD (Doctor of Pharmacy) students at a pharmacy faculty in Pakistan, 91.9% of the respondents, and according to a study conducted with 1st-year PharmD students at an accredited pharmacy faculty in the US, 89% of the respondents were found to have adequate health literacy [11,18]. As per the results of the present study, Turkish pharmacy faculty students have lower health literacy compared to their peers in Pakistan and the US. However, this may be due to the differences in the education programs of the two group of respondents or the situation can also be attributed to the tool used for measuring health literacy. As a matter of fact, students who participated in our study are undergraduate students at the faculty of pharmacy while those who participated in the studies conducted in Pakistan and the US were enrolled in a Professional Doctorate Program for Pharmacists having already completed a pharmacy undergraduate program. Elsborg’s study [19] conducted with students enrolled in a health-related study program in Denmark indicated that graduate students had a higher health literacy compared to undergraduate students. On the other hand, 79.6% of the students who took part in the study of Newsome et al. in the US had professional experience in the

provision of healthcare services, which is considered to be a contributing factor to a higher rate of health literacy.

Health literacy rates improved as respondents' year in school and age went up, and students aged 22 and above had higher adequate health literacy than those aged 21 and below. Also, students attending 5th year had higher adequate health literacy than those 1st year and 2nd year. A number of studies carried out by Zhang et al. with the students at faculties of medicine and nursing as well as a study carried out in Pakistan with faculty of pharmacy students suggested that as students' age and the year at school went up, so did their health literacy rate [10,18,20]. Similar other studies conducted with students enrolled in faculties of health sciences, nursing and medicine in our country are also supportive of our findings [21–23]. This may be due to the fact that as students' year in school and age went up, the health-related education they receive becomes more advanced as they move up in years. On the other hand, increased practical professional skills gained through internships as well as theoretical knowledge acquired during senior year at school are thought to have contributed to their health literacy. Accordingly, training is strongly correlated with health literacy. As a matter of fact, a study conducted in Indonesia found that students enrolled in health-related departments had higher health literacy compared to those enrolled in other departments [24]. In a study conducted in California among PharmD students, students were delivered health literacy training and responded to pre- and post-survey questions. Post-training survey results showed improved health literacy knowledge among students in 3 out of 14 subjects [25]. Also, Institute of Medicine, the American Medical Association and the American Pharmacists Association recommend that health literacy training and competencies be incorporated into the training of healthcare service providers in all schools [25,26].

Students living in metropolitan areas had higher health literacy compared to those living in smaller cities and abroad. Studies carried out among faculty of pharmacy students in Pakistan and faculty of medicine students in China also found that students living in urban areas had higher health literacy compared to those living in rural areas [10,18]. Another study conducted among students enrolled in vocational school of health services had similar results and found that students who lived in cities for extended periods of time had higher health literacy compared to those who lived in villages and towns [22]. This is considered to be due to the fact that people living in metropolitan areas have better opportunities to access education, healthcare services and health-related information. However, another study conducted in our country among students enrolled in the faculty of nursing found no statistically significant correlation between the place of residence and health literacy levels of students [21].

The study herein found that students who exercised had adequate health literacy at 1.98 times higher ratio compared to those who did not exercise. A study conducted among university students in the 6 big cities of Greece showed that students who regularly exercised had 1.3 times higher health literacy compared to those who did not exercise [27]. A study conducted among adults in the US and another one conducted in the Netherlands among the elderly aged 65–89 found similar results; and lower level of health literacy is found to be associated with insufficient physical activity [28,29]. This correlation between physical exercise and health literacy is thought to be due to the fact that healthy living habits multiply as access to and knowledge of health-related information increase.

This study is important as it is the first one looking into health literacy levels of students enrolled in the faculty of pharmacy in Turkey and factors associated thereof. However, the study also has certain limitations. First and foremost, the questionnaire was only administered to the pharmacy students and there was no control group. It was not possible to compare the results to the non-pharmacy students or to the general society. As the study was conducted with students enrolled in faculty of pharmacy in one province of Turkey. Findings emerging in this context have limited generalizability. Although the TSOY-32 was valid for the Turkish population, the external validity outside of Turkish province was not conducted. In the study herein, students were excluded if they were not present at school during the day the questionnaire was administered. This could lead to nonresponse bias. There may be a bias as the responses to the questionnaire, which was used as the data collection tool in this study, were based on self-reporting of the students. It has been previously documented that Body Mass Indexes based on self-reported height and weight values underestimate the prevalence of overweight in younger populations [30,31]. However, self-reported weights and heights can provide economical and valid measures in university students in developing countries [32]. Since fathers were accepted as the head of family, their educational attainment status was questioned. This may have created a limitation for the families with single female parents.

4. CONCLUSION

This study concluded that 52.5% of the students enrolled in the Faculty of Pharmacy at Ege University had adequate health literacy. Even though health literacy levels identified under the study were high in comparison to the general levels found in Turkey, they remain lower compared to students enrolled in pharmacy faculties elsewhere in the world. In this context, including health literacy in the curricula of all pharmacy faculties would prove beneficial considering the importance of the health literacy concept in pharmacy practices as well as its impact on the community health and the national economy. It would be beneficial to add health literacy-related targets to the national core education program.

On the other hand, given that students under this study had improved their health literacy as they grew older and moved up in seniority at school, incorporating courses related to health literacy concept into the curricula of the first years would facilitate the acquisition of the relevant awareness and knowledge at earlier ages and years at university. Students living in metropolitan cities were found to have adequate health literacy levels at higher ratios compared to those living in small cities and abroad. It would be beneficial to take additional action to increase access to health and education services as well as to health-related information in rural areas such as small cities, villages, towns. Additionally, initiatives to help university students to acquire healthy living habits could also be helpful considering that the students who exercise regularly have adequate health literacy at higher ratios compared to other students. Consequently, findings of this study are estimated to contribute to national and international literature while offering a perspective for future interventional studies.

5. MATERIALS AND METHODS

5.1. Study Population

The data of this cross-sectional study was collected during the spring term of 2017-2018 academic year at Ege University, Faculty of Pharmacy. The questionnaire was administered before the midterm exam and collected after the exam. Study population comprised 691 undergraduate students. Study aimed to reach out to the entire population. The students who were present at the school at the time the data was being collected and whose informed consent was obtained were included in the study.

5.2. Variables

Level of health literacy was the dependent variable of the study. The "Health Literacy Scale of Turkey-32" (TSOY-32), which was developed by Okyay et al. based on the Conceptual Framework of the European Health Literacy Project, was used to identify students' health literacy levels. The TSOY-32 was a valid instrument commonly used among the university students in previous studies [16,33]. The scale consists of two health-related dimensions (treatment and service, prevention from diseases and health promotion) and four processes for obtaining information about health-related decision-making and practices (access, understanding, evaluation and use/application). The Cronbach's alpha value was 0.93 for the overall scale, 0.88 for the "Treatment and Service" sub-dimension, and 0.86 for the "Protection from Diseases and Health Promotion" sub-dimension in the present study. The details about the TSOY-32 were presented in the supplementary file 1. TSOY-32 is a 5-point Likert scale varying from "easy", "fairly easy", "fairly difficult", "difficult" and "don't know" with 32 items. Possible score based on the answers to the scale varies from 0 to 50. Health literacy level based on the achieved score is then evaluated in four categories, namely, 0-25: inadequate health literacy, >25-33: problematic/limited health literacy, >33-42: adequate health literacy, >42-50: excellent health literacy [34]. For the analysis, inadequate and problematic/limited health literacy levels were included in the "inadequate health literacy" group, adequate and excellent health literacy levels in the "adequate health literacy" group.

The socio-demographic characteristics and overall health and habits of the students were independent variables. The high schools were classified according to four main school categories (Science High School, Anatolian High School, Teacher-Training Anatolian High School, Medical Vocational High School). Income-expenditure ratio was categorized into groups to reflect the gap between income and expenditure. These groups were "income higher than expenditure", "income equal to expenditure", and "income higher than expenditure". The variable of "the place of longest residence of students" was categorized as "Village/Town", "City Centre", "Metropolitan Area (Big City)". However, Turkish universities are vastly popular among students from underdeveloped and developing countries. Accordingly, the option of "International (Foreign Nationals)" has been added for international students and Turkish students who previously lived abroad. Smoking and alcohol consumption: students were asked whether they smoked and consumed alcohol ("yes"/"no"/"I quit"). Regular exercise: Students were asked whether they exercised regularly ("yes"/"no").

Body mass index: The body mass index was calculated using the students' self-reported height and weight data. Body Mass Index data was categorized as "18 and below" (underweight), "19-24" (healthy weight), "25-29.9" (overweight), "30 and above" (obese). The questionnaire consisted of 52 questions. 20 of them inquired the socio-demographic characteristics. The health literacy level was asked with 32 questions by using the TSOY-32 scale.

5.3. Data Collection and Statistical Analysis

A questionnaire was utilized as a data collection instrument. The self-administered questionnaire was applied with 548 undergraduate students attending the Pharmacy Faculty at Ege University. 143 students did not participate in the study because of being absent at school during the actual data collection due to illness, non-attendance etc. None of the students refused to participate in the study.

IBM SPSS Statistics for Windows, version 25.0 (IBM Corp., Armonk, N.Y., USA) was used for statistical analysis. Negligibly low missing data was excluded from the analysis. Chi-square test was utilized to identify any association between categorical data. Logistic regression analysis was conducted on year of attendance, place of longest residence, regular exercise, and alcohol consumption -variables revealing an association with health literacy by the chi-square test. 5th-year-students group, metropolitan dwellers, those who exercise regularly and those who do not use alcohol were selected as the reference category. The study adopted the statistical confidence interval of 95% and the level of significance is $p < 0.05$.

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Conflict of interest statement: The authors declared no conflict of interest.

Ethical approval: Ethical approval for this study was obtained from Ege University's Scientific Research and Publication Ethics Board for Health Sciences (Date:15.05.2018 Protocol No: 153-2018).

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