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HEALTH LITERACY: AN OVERVIEW OF THE MEDICAL SECRETARIAL TRAINING IN TURKEY

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Abstract

Background: Health literacy has a measure of capacity to access, understand, assess, and apply health information in individuals' decision-making processes to maintain and improve life-quality quality of life. Research is a descriptive study aiming to determine the health literacy level of medical secretary' students who are health professionals and the influencing factors of health literacy in the future.

Method: The research was conducted between April 30 and June 1, 2018, and the study group consisted of 55 medical secretary students who study in Ankara University Vocational School of Health in Turkey. The participants were given the questionnaire which was composed of 3 sections (socio-demographic information, health status, and the Health Literacy Survey-European Union/HLS-EU scale) and 70 questions used for data collection purposes.

Results: The average age of the group was 21.4 ± 4.1 . The average score of participants' general health literacy index was calculated as 33.9 ± 7.42 ($n=55$). Approximately 70% of participants ($n=55$) were found to have adequate health literacy.

Conclusions: It is very important that the medical secretaries working as secretarial and patient orientation personnel in the health sector are health literate in terms of their own health and health service quality. Health literacy can't be considered independent of the general literacy level. Hence, in the lifelong learning process, individuals need to be supported in school and work life.

Keywords: Health Education; Health Literacy; Healthcare Management; Healthcare Professionals; Medical Secretary.

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1. Introduction

Nowadays, the health system has finally become the more complex structure for both supply and demand. Within this complex structure, health literacy and health communication in the process of improving the health of the community is now much more important than the old one. The scope of the health literacy should be expanded to include the ability to access, understand, evaluate, and communicate information on the social determinants of health (CSDH, 2008). Health literacy is

an important determinant of health, and the concept that has entered our life 45 years ago just became more visible in the last decade (Rudd, 2015a) and is constantly evolving (Nutbeam, 2008; Rudd, 2015a).

The health service providers, acting on the assumption that the beneficiaries of the health service are conscious individuals, considering that patients and their relatives are health literate. However, the facts do not always coincide with this assumption (Kripalani et al., 2010; Kutner, Greenburg, Jin, & Paulsen, 2006; Mitchell, Sadikova, Jack, & Paasche-Orlow, 2012; Parker, Baker, Williams, & Nurss, 1995; Sørensen et al., 2015; Turkoglu et al., 2018; von Wagner, Knight, Steptoe, & Wardle, 2007; Wallston et al., 2014; Yuen, Knight, Ricciardelli, & Burney, 2018). Such that the complexity of the diagnostic processes, the increase in the addition of medical information every day, the level and the differences of general education and culture of the people, the increase in the number of migrants and the accompanying problems, age-related physical and cognitive problems, understanding, listening, learning and remembering skills, and other psychosocial factors are negatively affecting the level of health literacy, therefore, health care delivery is facing even more difficult situations (Kripalani et al., 2010; Mitchell et al., 2012; Parker et al., 1995; von Wagner et al., 2007; Wallston et al., 2014; Yuen et al., 2018).

With the differences across Europe, the prevalence of inadequate and problematic health literacy is quite high, (Sørensen et al., 2015) and it is a big question at a time when it will not be seen as the problem of minority groups alone (Consortium, 2012). According to the United States data, about one in four of the population have limited health literacy and are therefore forced to use the health system, make health decisions, and receive quality health care (Wallston et al., 2014). Less than half of the people in Australia have minimal literacy and mathematical knowledge to perform the daily basic functions (Adams et al., 2009; Bush, Boyle, & Ostini, 2010). Given that health literacy is often at a lower level than literacy and numeracy, it can be understood how serious problem it is, for the communities and the parts of the healthcare systems.

Health literacy is considered to be an important factor in improving the individual's health level (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Raynor, 2012; von Wagner et al., 2007). Such that, poor literacy skills are associated with the worse health outcomes (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011) and the poorer health care utilization and predict unmet medical outcomes (Rudd, 2015b). The better health literacy enables health-friendly environments, efficient policies, effective promotional efforts, the better self-care with the fewer risks, and results in the improved health care outcomes and the lower health costs (İlgün, Turaç, & Orak, 2015; Raynor, 2012).

Health literacy can be described as the combination of the knowledge, attitudes, skills and networks that individuals, families and communities need to manage their health (Sørensen et al., 2012). Its adequacy helps to protect people's health, to manage small diseases, to access health care and health services, to follow agreed treatments and personal care routines, and to support a healthy society (Von Wagner, Steptoe, Wolf, & Wardle, 2009).

Achieving these goals requires a health understanding and factors that affect it requires the understanding of health care services and the motivation to play an active role in managing how they work and their health. All health-related tasks which maintaining to protect health depend on

the degree of health literacy (Lloyd, Thomas, Powell-Davies, Osten, & Harris, 2018; Paasche-Orlow & Wolf, 2007).

The concept of health literacy, which is considered to be important in many aspects, from production to management, quality (Kahraman, Karagöz, Yalman, & Yusuf, 2018) to cost of health care (Rasu, Bawa, Suminski, Snella, & Warady, 2015), is defined as the capacity to acquire, process, understand and use health knowledge in its most general form (İlgün et al., 2015; Kutner et al., 2006; Nutbeam, 2008; Parker et al., 1995; Raynor, 2012; Rudd, 2007, 2015a, 2015b; Rudd, Moeykens, & Colton, 1999). However, the definition of health literacy is becoming increasingly complex with many skill categories and practices within the context of being “literate” in the relevant sense (Batterham, Hawkins, Collins, Buchbinder, & Osborne, 2016; Berkman, Davis, & McCormack, 2010; Haun, Valerio, McCormack, Sørensen, & Paasche-Orlow, 2014; Lloyd et al., 2018; Rudd, 2015a; Sørensen et al., 2015; Sørensen et al., 2013).

According to the index developed by the HLS-EU Consortium, health literacy is related to general literacy. Health literacy has a measure of capacity to access, understand, assess and apply health information in individuals’ decision-making processes to maintain and improve lifelong quality of life (Durusu-Tanrıöver, 2014).

Over the past decade, more than fifty tools have been developed (Haun et al., 2014) and numerous studies have been conducted to measure individuals’ health literacy skills (Baker, 2006; Duong et al., 2017; Durusu-Tanrıöver, 2014; Haun et al., 2014; İlgün et al., 2015; Kirsch, 1993; Kutner et al., 2007; Kutner et al., 2006; Nutbeam, 2008; Parker et al., 1995; Raynor, 2012; Rudd, 2007; Sørensen et al., 2015). Despite the numerous researches on the sickness dimension of health literacy, however, there are few researches on many topics, especially health care, health care administration and policy, medicine, nursing, dentistry, pharmacy services that affect health (Coleman, 2011; Deniz, Öztaş, & Akbaba, 2018; Güven, Bulut, & Öztürk, 2018; Rudd, 2015b). For example, issues such as how health professionals can improve the literacy skills of the public, the responsibilities of the education sector, the communication skills of specialists and more attention to facilitating or hindering factors in the health context are pointing to gaps in health literacy writing for researchers (Rudd, 2015a). Moreover, individual contributions of health professionals to health literacy levels and also other individuals’ contribution to these need to be investigated as well.

The researches have an important role in bringing about healthcare-related problems and solutions to be developed for healthy individuals and communities, and for a sustainable health system. In this context, the aim of the research is to determine the health literacy levels of the medical secretary students who are both health worker and an individual, as well as health professionals and the influencing factors of health literacy in the future.

2. Materials and Methods

A descriptive cross-sectional and quantitative research design was used to determine the health level and the influencing factors of the medical secretary students who are a future health professional. The study group consisted of the students (n=84) who study at Ankara University Vocational School of Health Services, the Medical Secretary programme in 2018. The study

needed no further ethical approval. The students were informed of the research and questionnaire was distributed to 55 volunteer students (%65.5).

The questionnaire was used as the data collection tool. Surveys were shared online with Google docs via email between April 30 and June 1, 2018. The participant's responses to the questionnaire were composed of 3 sections of 70 questions used for data collection purposes and completed in approximately 15 minutes. In the first part of the questionnaire, there were 14 questions about socio-demographic information, there were 9 questions about health status in the second part, while there were questions about health literacy with 47 questions in the third section of the questionnaire.

The sections of the questionnaire and the number of questions/statements included are given below:

- Socio-demographic characteristics (14 questions)
- Health status (9 questions)
- Health Literacy Scale (47 questions)

The first part of the questionnaire consists of the 14 questions including participants' socio-demographic characteristics. The socio-demographic information consists of gender, age, marital status, education level, height, weight, education, family structure, living characteristics, income, book and newspaper reading habits. In the health status section of the questionnaire diet, exercise, tea, coffee, and water consumption, smoking, alcohol usage, health insurance and individual health perception of the participants were recorded.

In the third part of the questionnaire, Turkey Health Literacy questionnaire (HLS-T-Q) was used as a data collection tool. The HLS-T-Q is translated into Turkish for the first time by Durusu et al, the validity and reliability study was conducted for the European Health Literacy Questionnaire (HLS-EU-Q) and then was applied to 4924 people (Durusu-Tanrıöver, 2014). The questionnaire consists of 47 questions showing the four-point Likert type (very easy, easy, hard, very difficult) scale feature. The questionnaire was first developed as the HLS-EU-Q for Consortium of European Health Literacy Surveys and applied to 8102 individuals over 15 years of age from 8 European countries such as Germany, Netherlands, Austria, Spain, Italy, Greece, Bulgaria and Poland. The related report was published in 2012 (Sørensen et al., 2015). This scale is based on the perception of each person by how much 'easy' or 'difficult' behaviour is indicated in each question. Sub-indices based on the average values of the health literacy parameters were formed within the HLS-EU concept. The scale was analyzed within a matrix of healthcare literacy, information access, comprehension, evaluation, and application in the areas of health care, disease prevention and health improvement (Table 1).

Table 1: Health literacy-EU Matrix Questionnaires

Health Literacy	Access	Comprehension	Evaluation	Application	Total
Health care	1-4	5-8	9-12	13-16	1-16
Disease prevention	17-20	21-23	24-28	29-31	17-31
Health promotion	32-36	37-40	41-43	44-47	32-47

In the analysis of the data, statistical package program (IBM SPSS Statistics for Windows, Version 25.0) was used. Normal distribution suitability of variables was analyzed by Shapiro-Wilk test. The data are normally distributed (Tabachnick & Fidell, 2007). For the descriptive statistics in data analysis, mean and standard deviation in continuous variables and number and percentage values in categorical variables were used. The average score for the index of health literacy and general and sub-index scores was calculated by comparison with the results of the EU and Turkey. In order to be able to use a questionnaire for index score calculation, at least 80% of the number of questions must be answered in each index and sub-index. In this study, it was observed that all participants answered at least 80% for index calculations and all of the questionnaires were evaluated. Indices are standardized as specified in form so that '0' shows the lowest health literacy, '50' the highest health literacy on a scale of '0' to '50'. To allow convenient calculations with indices and to simplify comparisons, four scales (general health literacy, health care, disease prevention, health promotion) were standardized on a metric between 0 and 50, using the following formula:

$$I=(X-1) *(50/3)$$

'I' is the specific index calculated.

'X' is the mean of all participating items for each Individual.

'1' is the minimal possible value of the mean (leads to a minimum value of the index of 0).

'3' is the range of the mean.

'50' is the chosen maximum value of the new metric.

Health literacy level, with the aim to make them comparable with Turkey and the European study, were grouped into four categories. Using the scores on the 47 items measuring health literacy a comprehensive general index of health literacy was constructed. For that purpose, mean-based item raw scores were computed for respondents who gave valid answers to at least 80% of all health literacy questions (n=55). To simplify comparisons between scores on the general health literacy index and its various sub-index, all scores were transformed to a unified metric with a minimum of '0' and a maximum of '50', where '0' represents the 'least possible' and '50' represents the 'best possible' health literacy score. The resulting four levels were 'inadequate' (0-25), 'problematic' (>25-33), 'sufficient' (>33-42) and 'excellent' (>42-50) health literacy. In some analysis, it was used the 'inadequate' and 'problematic' levels were combined to a single level, called 'limited health literacy' (0-33); 'sufficient' and 'excellent' levels were combined to a single level called 'sufficient health literacy' (34-50).

Internal consistency was assessed by determining the Cronbach's alpha coefficient for the reliability of the health literacy indices. As all index internal consistency values are above 0.80, they are considered highly reliable (Table 2) (Cortina, 1993).

Table 2: Internal reliability coefficients of the health literacy and sub-indices.

Health Literacy	Cronbach alpha
General Health Literacy	0.977
Health care	0.916
Disease prevention	0.933
Health promotion	0.946

3. Results

Socio-demographic status and general health features of the participants are given in Table 3. The mean age of participants was calculated as 21.4±4.1, height 165.9±7.6 cm and weight 61.7±11.5 kg. According to the answers given to the questionnaires, 87.3% (n=48) of the participants were female, 96.4% (n=53) were single, 52.7% (n=29) were first year students and 45% (n=29) had a mean monthly income of between 1600 and 3000 TRY, 85.5% (n=47) of the children were in the nuclear family, and 85.5% (n=47) were living in more crowded families than in 3, and 80% (n=44) were living in their own houses and apartments. When the students who participated in the research had a reading habit of reading books and magazines, 40% of the participants (n=22) did not read any newspapers and 38.2% (n=21) read at most 5 books per year. The mean years of education of participants was calculated as 13.9±0.97.

According to the findings of healthy living habits, 76.4% (n=42) of the participants are not on diet and 18.2% (n=10) of the participant's diet is based on their own knowledge. 92.7% (n=49) of the participants answered daily exercise habits mostly such as walking. Mean daily tea consumption of the participants was 2.73±1.94 cups and coffee consumption was 1.04±0.86 cups and water consumption was 4.09 ± 3.43 cups. Participants' health insurance was found to be covered by general health insurance at 83.6% (n=46) and 60% (n=36) of the participants' health perception as was good (Table 4).

Table 3. Socio-demographic status and general health features of the participants (n=55).

		N	%
Gender	Male	7	12,7
	Female	48	87,3
Marital status	Married	2	3,6
	Single	53	96,4
Year in the university	First year	29	52,7
	Second year	26	47,3
Years of education	13 years	25	45,5
	14 years	23	41,8
	15+ years	7	12,7
Income	≤1600 TRY	10	18,2
	1601 TL-3000 TRY	29	52,7
	3001-4500 TRY	10	18,2
	4501 TRY ≤	6	10,9
Family	Nuclear family	47	85,5
	Extended family	7	12,7
	Fragmented family	1	1,8
Number of people living in the family	≤3	8	14,5
	3+	47	85,5
Residential ownership	Own house	44	80
	Rent	11	20
Living house features	Detached house	11	20
	Apartment	44	80
	None	22	40

Newspaper reading habit (newspaper / week)	1-3	28	50,9
	4-7	5	9,1
Book reading habit (book/year)	None	2	3,6
	1-5	21	38,2
	6-10	13	23,6
	11+	19	34,5

A majority of 81.8 % of respondents in the total sample indicated no alcohol consumption. In total, a majority of the respondents (65.5%) indicated that they never smoke. The Body Mass Index (BMI) was calculated by the answers to the questions on self-assessed weight and heights included in the questionnaire. The BMI, according to the WHO classification is an index of weight for height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2). According to the analysis, it is seen that 76.4% ($n=42$) of the participants are in normal weight (Table 4).

Table 4: Health status of the participants ($n=55$)

		N	%
Weight status (BMI)	Underweight	5	9,1
	Normal Range	42	76,4
	Overweight	6	10,9
	Obese	2	3,6
Diet	I'm not on a diet.	42	76,4
	I follow diet given by a dietician.	3	5,5
	I diet based on my own knowledge.	10	18,2
Exercise	I do not exercise	4	7,3
	Exercise (walking, collective sports, swimming, pilates,	49	92,7
Smoking	I'm smoking now.	17	30,9
	I was smoking earlier, but I quit.	2	3,6
	I never smoked.	36	65,5
Alcohol	No	45	81,8
	Yes	10	18,1
Health insurance	General Health Insurance	46	83,6
	General Health Insurance and Private Insurance	1	1,8
	Private insurance	1	1,8
	Neither	2	3,6
	Not know	5	9,1
Health status	Very good	11	18,3
	Good	36	60,0
	Normal	12	20,0
	Bad	1	1,7

Findings of participants' health literacy and sub-literacy index scores were given in Table 5. While the general health literacy index score of the students who answered the questionnaire was 33.9 ± 7.42 ($n=55$). The means and standard deviations of the indices are varied by sub-index. The highest means is calculated the health promotion ($X=34.4 \pm 8.34$) and then the healthcare ($X=34.2 \pm 6.89$) and then disease prevention ($X=33.1 \pm 8.92$).

Table 5: Means of the health literacy indices (n=55).

	X	SD
General	33.9	7.42
Health Care	34.2	6.89
Disease Prevention	33.1	8.92
Health Promotion	34.4	8.34

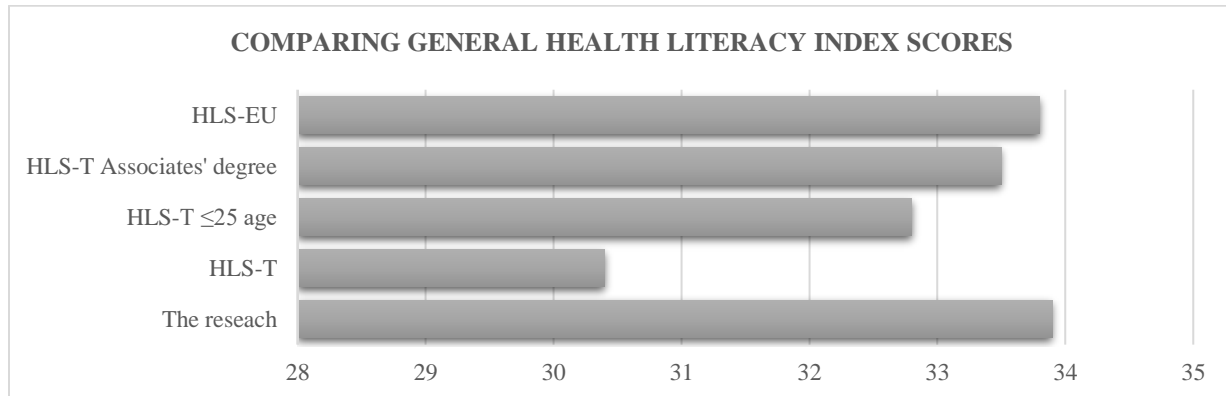


Figure 1: Comparing the research general health literacy index scores with HLS-T-Q and HLS-EU-Q index scores.

The study showed that (Figure 1) HLS index was above the average of the health literacy scale (HLS-T) made using Turkey's (Durusu-Tanrıöver, 2014) general population (30.4), where the individuals were 25 years of age (32.8) and with associate degree education (33.5).

Table 6: Compare results of the present study, HLS-T-Q and HLS-EU-Q for the prevalence of the general HL (n=55).

Health Literacy	Results of the present study (%)	HLS-T-Q (%)	HLS-EU-Q (%)
Inadequate	7,3	24,5	12,4
Problematic	34,5	40,1	35,2
Sufficient	41,8	27,8	36,0
Excellent	16,4	7,6	16,5

According to the categorized health literacy, it was seen that 41.8% of the participants were 'sufficient' and 16.4% of them were in the level of 'excellent' health literacy (Table 6 and Figure 2). Correlation analysis revealed a positive statistically significant relationship between age and general health literacy ($r=0.272, p \leq 0.05$). When the relationship between the participants' first and second grades and the general health literacy status was examined, 69.6% (n=16) of the participants with inadequate or problematic health literacy were of the first grade, 59.4% (n=19) were of the second grade students. This result shows that there is a meaningful relationship between the grade of the students and their level of general health literacy ($\chi^2=4.496, df = 1, p \leq 0.05$).

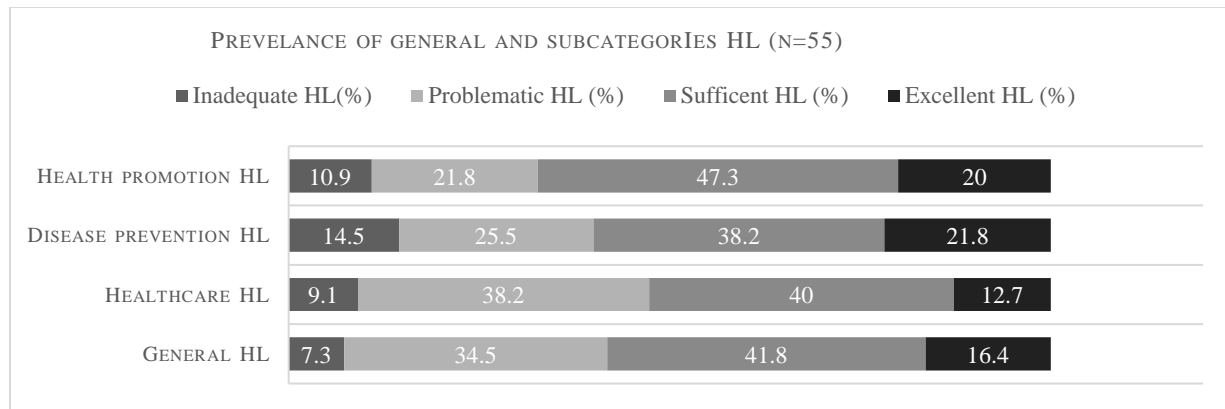


Figure 2: Prevelance of general and subcategories HL (n=55)

4. Discussions

This research aims to describe the health literacy level of medical secretary students as health worker candidates. According to the results of the research, the average age of participants is 21.4 years. According to sociodemographic characteristics they are mostly single, living in minimum living conditions, generally not having any health problems, and participating in medical secretarial training for at least one year.

The average educational year of the participants is 13.9 years. According to UNESCO in overall literacy in Turkey for 15-24 years old male was 99.81%, for female 99.17%, and 99.49% was in total (UNESCO, 2018). The effective variable in calculating the human development index of a country is the average year of education. According to the UNDP, it was increased from 1980 to 2012 in Turkey (from 2.9 to 6.5) although not at the desired level (12.9 years) (Malik, 2013).

In this study, the HLS-EU-Q was used and shown to be a valid tool to provide comprehensive measurement. The participants' overall health literacy averages were 33.9 ± 7.42 . This finding health literacy scale (HLS-T) made using Turkey's (Durusu-Tanrıöver, 2014) general population compared with the results of the study (30.4), 25 years of age (32.8) and associate degree education (33.5) were above average.

The findings were found to be consistent with the results of a similar study, including 8 different European countries (33.8 ± 8 years) (see Figure 1). When we look at the sub-indices, it is seen that the index of health promotion, health care, and disease prevention index is above the general health literacy average.

The health literacy is not independent of general literacy skills at population or subpopulation (Rudd, 2007). This relationship between general literacy and health literacy (Sørensen et al., 2012; von Wagner et al., 2007) has proven to the work well beyond the country average for the duration of schooling and the health literacy average. The results are close to or even above to those of other research findings, in terms of age and educational level, and this can be explained by the fact that there is also a training curriculum for health services in addition to administrative services education in medical secretarial training.

The research which including 1222 people who work in primary health care services, is one of the few researches on the healthcare workers' health literacy levels (Deniz et al., 2018). According to this research, which was conducted after in-service training on the primary care health services, the average of health literacy is 37.58 ± 7.49 for the age group of between 21 and 25 years, and for which the assistant health worker and the associate degree education were 35.0 ± 7.24 . Although they appear to be similar groups to those in our study, the participants were working as health personnel in that study. Therefore, the participants of the current study who are still students have the lower overall health literacy than those employed as health workers. It can be argued that the employed participants with higher overall health literacy level can be due to both their professional experience and the support of in-service training they have attended.

When the general health literacy index was categorized, it was determined that 64.6% of the Turkish population were in the 'inadequate' (24.5%) or 'problematic' (40.1%) health literacy categories (Durusu-Tanrıöver, 2014). In our study, it was seen that 41.8% of the participants were 'sufficient' and 16.4% of them were in the level of 'excellent' health literacy. These results also indicate that health literacy levels are in good condition according to the general population of the participants.

Another finding is the positive relationship between age and general health literacy. The fact that participants are in the age range of 21-25 years is in accordance with the literature that this age group has higher health literacy than other age groups. In almost all studies of health literacy in Europe, (Sørensen et al., 2015; von Wagner et al., 2007) America, (Kirsch, 1993; Rudd, 2007) Asia (Duong et al., 2017) and Turkey (Deniz et al., 2018; Durusu-Tanrıöver, 2014; Güven et al., 2018) this age range is at higher literacy level than the general population.

According to researches, the lowness of health literacy can cause on the one hand the bad health results such as the weak doctor-patient relationship, increasing in hospitalization, applying to hospital again in 30 days, consulting to emergency room and disease, and death rates, on the other hand, it can cause be decreasing in mammography usage, vaccination, cancer screening, and proper drug usage rates (Baker, 2006; Berkman et al., 2004; Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Berkman, Sheridan, Donahue, Halpern, Viera, et al., 2011; Davis, Williams, Marin, Parker, & Glass, 2002; Kripalani et al., 2010; Mitchell et al., 2012; Raynor, 2012; Rudd et al., 1999; Sørensen et al., 2012; Williams, Davis, Parker, & Weiss, 2002).

Health literacy is a dynamic product of the interactions between individuals, patients, employees, organizations, and systems (Naccarella, Wraight, & Gorman, 2016). On one hand, health literacy is influenced by aspects of the health care system at the population level (Sørensen et al., 2012) which reflects the enormous complexity in the delivery of effective healthcare and quality health outcomes (Rasu et al., 2015; Sørensen et al., 2012).

5. Conclusions and Recommendations

In this study, it was found that approximately 70% of the 55 associate medical secretarial students studying at Ankara University in 2018 and volunteering to participate in the research have sufficient health literacy. It is very important that this group, working as a secretary and patient

guidance personnel in the production of health services in the health sector, has health literacy in order to facilitate their own health and access to the health services of the patients they serve.

Health literacy can't be considered independent of the general literacy level. In the ever-changing and developing world, it is necessary to earn the awareness of lifelong learning for individuals to become general and health literate. In this process, it is important that individuals support themselves in their own efforts and in school and business life. It should not be forgotten that the individuals in associate degree education are a special group in between the age group of adolescents and adults and should be supported in terms of individual development and awareness period. This is why, besides vocational education (knowledge, skills and attitude) at associate degree level, it is necessary to support with life-long education consciousness, general culture (acquiring habits such as newspaper and book reading, attending to cinema, theater, concert, exhibition), healthy life behaviors, education given at school is important in bringing positive behaviors in development. It is recommended that health literacy training should be added to the curriculum so that issues related to health literacy are acquired at the level of knowledge, skills and attitudes. In addition, individual development should be encouraged by encouraging students to participate in social, cultural and artistic activities in elective courses and extracurricular times outside professional courses.

Developmental education support for health literacy in formal and in-service training should be provided for all employees who are directly or indirectly involved in the production of health services, not just medical secretaries. It is suggested that managers of health institutions should give the in-service training of healthcare literacy training full play, especially for the administrative service class.

Our research has been limited to a specific group and limited participants, and it is not possible to generalize the results. However, to our knowledge, this is the first study with medical secretaries and may provide expected significant contribution to the literature to some extent. Similar comparable research can be done in terms of other health professionals, and it will facilitate the determination of the level of health literacy and training needs according to occupational groups.

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