

Health Literacy and Rational Drug Use in Türkiye: Quantitative and Qualitative Approaches

ABSTRACT

Background and Objectives: Health literacy (HL) helps individuals to promote their a quality life and affecting rational drug use (RDU). This study aimed to quantitatively and qualitatively determine the level of health literacy and rational drug use among individuals (age > 18 years) who lived in the central districts of Konya, Türkiye.

Materials and Methods: The study is the mixed research design. The sample consists of 465 people. The Health Literacy Scale and the Rational Drug Use Scale were used to conduct quantitative study. The unstructured interview method was also used to conduct the qualitative design. Statistical Package for the Social Sciences program (SPSS) and statistical tests (reliability, percentage, descriptive statistics, t-test, and ANOVA) were used to analysis data.

Results: The Cronbach Alpha values of the HL scale and RDU scale were 0.93 and 0.82, respectively. The average level of the HL was 98.75 ± 12.77 , and the RDU was 36.94 ± 4.47 . There was a significant difference between the groups according to the results of the analysis made between the participants' gender, marital status, central districts of residence, educational status, total HL level, and RDU ($p < 0.05$). While there was a significant difference ($p < 0.05$) in the level of HL according to the age groups of the participants, there was no difference in RDU ($p > 0.05$).

Conclusion: individuals were over the age of 18 residing in the central districts of Konya province had sufficient levels of HL and RDU.

Paper Type: Research Article

Keywords: Literacy, Health literacy, Rational Drug Use, Qualitative Study

Supporting Institution: This study is derived from the scientific research project number 201230001 supported by the Scientific Research Projects Coordination unit of Necmettin Erbakan University.

► **Citation:** KAYA S.D, KOCAOGLU M, YÜCELER A. Health Literacy and Rational Drug Use in Türkiye: Quantitative and Qualitative Approaches. *Journal of Health Literacy*. Summer 2022; 2(7): 9-23 .

Şerife Didem KAYA

* Assoc. Dr., Necmettin Erbakan University, Faculty of Nezahat Kelesoglu Health Sciences, Department of Health Management, KONYA, TURKIYE. (Corresponding author): dkaya@erbakan.edu.tr

Mustafa KOCAOGLU

Assoc. Dr., Necmettin Erbakan University, Faculty of Applied Sciences, Department of Management Information System, KONYA, TURKIYE.

Aydan YÜCELER

Assoc. Dr., Necmettin Erbakan University, Faculty of Nezahat Kelesoglu Health Sciences, Department of Health Management, KONYA, TURKIYE.

Received: 4 February 2022

Accepted: 10 May 2022

Doi: 10.22038/jhl.2022.64209.1277

Introduction

Elements with social factors are of great importance for individuals to lead a healthy life. Identifying the main themes that are related to the social and health determinants are necessary for a clearer understanding of the relevant subject; therefore, many studies have been carried out on this subject in the recent years (1).

The concept of literacy is also one of the social determinants of health. In this respect, literacy means “the ability to define, understand, interpret, combine, communicate, and calculate by using different types of written sources and records”, and it is also accepted as “a case that enables the individual to reach his goals by developing knowledge and power to address a wide audience of society” (2). According to these definitions, health literacy can be defined as the ability to find, understand, and use the information and services that individuals need to make and implement health-related decisions for themselves and others (3). Recently, an intensity has been in the reflections of the concept of literacy in the field of health. Because within the health system as a whole, it is expected that “individuals adopt health protection and development practices, are informed about the health services provided and active in making decisions about their own health, and know their responsibilities and rights”, but this is not possible due to various reasons. At this point, the concept of Health Literacy focuses on accessing and understanding of health information, and an effective communication with health information and health providers (4).

Health literacy draws attention as a concept that can be defined in different ways when viewed from different perspectives. It is accepted that the concept was used for the first time by Simond in an article with title “Health Education as Social Policy”. It is the fact that the use of the concept

becomes visible in wide geographies and it can be accepted at the international level (5, 6). Health literacy is defined as “it represents the cognitive and social skills that determine the motivation and ability of individuals to access, understand, and use information in a way that promotes and maintains good health” (7).

According to the American Medical Association (AMA), it is defined as “the ability of sick individuals to read and understand all health-related written materials and drug boxes and to put into practice what is said by healthcare professionals” (8). Individuals’ culture and linguistic trainings also mediate HL skills and capacities. HL skills also effective for everyone involved in disease prevention and early screening, and those worked in health promotion systems related to health care and health policy making services (9). Beyond literacy skills, HL includes the ability to realize and evaluate such health information as knowing healthy behaviors, correct use of drugs, and how to benefit from health services; understanding the informed consent forms and signing them; making decisions about self-care and disease management; using medical devices at home correctly; and taking on the role of caregiver (4, 10, 11). Therefore, HL helps individuals to lead a quality life as one of the factors affecting Rational Drug Use (RDU).

Rational Drug Use was defined by WHO as “patients take drugs in accordance with their clinical needs, in doses sufficient for their individual needs, in an adequate time frame, and at the least cost to themselves and their communities” (12). Rational Drug Use is “a systematic approach that starts with the correct diagnosis for a patient, selecting the most effective treatment according to the characteristics of the patient, initiating the treatment, monitoring, and evaluating the results” (13).

Showing what RDU is not is also helpful to understand what the concept actually means. According to this approach, irrational drug use is shown as “problems due to insufficient application of the RDU approach, such as over-prescribing drugs, misuse of drugs, unnecessary use of expensive drugs, or unnecessary consumption of antibiotics” (14). As a matter of fact, irrational drug use is caused by “lack of knowledge of the service provider and the field, problems in medical education, inadequacy in physician-patient interaction, inability to make an accurate diagnosis, pressure from patients to prescribe drugs, lack of legal legislation, and pressures of pharmaceutical companies on service providers” (15, 16).

It is understood that there is a very clear and important relationship between HL and RDU when it is viewed at the level of practice as well as theoretical and conceptual. It is clearly seen that HL is “shaped by the cultural structure of the society, the health system, and the educational system of the individuals in the society of which they are member; affects the delivery of health services and health outcomes” (17). A low HL is associated with high rates of hospitalization, morbidity, and mortality due to the insufficient knowledge of patient that negatively affect medical adherence and treatment and disease management. Rational Drug Use is also accepted as a concept that is related to the decision-making and application preferences of patients and that directly affects their treatment processes (18). Patients are going to benefit to the extent that they use their drugs in accordance with the basic elements of the RDU. Therefore, it is of great importance that patients know acquisition of drugs; preservation of the drug; how to use it in the right amount, at the right time, and all similar issues. At just this point, the issues inside HL come to the fore. Rational Drug Use and HL

are two important areas that “have an impact on health promotion” and “complement each other with an organic bond between them”. Indeed, “they need to have HL regarding RDU, such as using and keeping the right drug at the right time and in the right amount and way” (19).

This study aims to determine quantitatively and qualitatively the levels of HL and RDU of individuals over the age of 18 who reside in the central districts of Konya Province, Türkiye. Konya is Türkiye’s largest provincial area and the sixth most populous city (with its province and district centers) (20). The primary aim is to quantitatively determine the knowledge level of individuals residing in this city about the phenomenon of HL (access to information, understanding information, evaluation, and application) and RDU. In the study, it is assumed that the quantitative findings obtained in the case of HL and RDU will be supported by qualitative findings obtained from the opinions of participants who have experience in these cases.

Materials and Method

The study is under the form of mixed research design. The design of the study is the descriptive type. The qualitative design is the phenomenological design type.

Research questions: 1- What is the Region’s Health Literacy Level (HL)? 2- What is the Rational Drug Use (RDU) level of the region?

Universe and Sample

The universe of the research consists of 1.059.746 individuals who reside in the central districts of Konya Province (Selçuklu, Meram, and Karatay), Türkiye (20). It is aimed to reach at least 384 people as a result of the sample calculation that is made at the significance level of 0.95 over the populational size (21). The study reaches 465 individuals and uses the random sampling method for the selection of the participants. The criteria for inclusion of participants in the

study is to be over the age of 18, volunteer, literate, and reside in one of the central districts of Konya province.

This study used an unstructured interview form for qualitative data collection and non-proportional quota sampling method. By this method, the desired number of quotas was determined and the samples were taken (22). The sample was terminated when the data saturation point was reached. Individual interviews were conducted with 8 experts who had experience in HL and RDU cases. A conversational interview is conducted with the unit official of Konya Provincial Health Directorate, three family physicians who serve in Konya's central districts (Meram, Selcuklu, and Karatay), and four pharmacists. The sample selection is made by the snowball sampling method. In the inclusion of the participants in the study, it was noted that the participants served in different districts, had experience in HL and RDU cases, and were volunteers.

Data Collection Tools and Collection of Data

A data collection form has been prepared within the quantitative method. Data collection form consists of questions that specify the participants's demographic characteristics (such as gender, age, educational status, marital status, and illness), HL, and RDU skills. The HL was estimated via form of HLS-E.U (HL Survey in Europe) which has 47 items and was developed by Sorensen et al. (23), was later simplified by Toci, Bruzari, and Sorenson (24). It was also validated in Turkish by Aras and Bayik Temel (25). This tool consists of 25 items and 4 sub-dimensions. The sub-dimensions are accessing information, understanding information, valuing/evaluating, and applying/using it. Low scores obtained by the evaluation of scale indicate that the level of health literacy is insufficient, problematic, and weak, while high scores indicate that it is

sufficient. The maximum score obtained from the scale is 125 and the minimum score is 25 points. the Cronbach Alpha value of the HL scale was 0.93, and it was 0.86, 0.83, 0.85, and 0.75 for dimensions of accessing information, understanding information, evaluation, and the dimension of application. Rational Drug Use Scale is a scale developed, validated, and made reliable by Demirtas et al. (26). The scale consists of 21 questions. A score of 35 or more from the scale is considered to have RDU information. The Cronbach Alpha value of the RDU Scale was 0.82. The data has been collected using face-to-face and online methods.

In the qualitative method, it was used an unstructured interview form. In the interview form, the participants' opinions about the HL and RDU were asked (e.g., what is the Meram region's HL level?). The data were collected face-to-face with the participants who agreed to attend in this study. Other participants were interviewed by using online methods. It was used note-taking technique and voice recording (permissive) in the interviews. In order to increase the credibility of the study in qualitative design, the same citations are included in the study. For consistency, the notes taken by the researchers during the interview are compared. With the transferability, the method part of the study is explained in detail.

Analysis of the Data

The SPSS program was used for the data analysis of based on the tests of reliability, percentage, descriptive statistics, t, and ANOVA, and used the descriptive analysis for the qualitative design.

Ethic

The ethical approval, numbered 2019/2016 from Meram Faculty of Medicine Non-Pharmaceutical and Medical Device Research Ethics Committee of Necmettin Erbakan University, and the written permission from Konya Provincial

Health Directorate were obtained for the study. Additionally, the informed consent was also obtained from the participants.

Results

The findings obtained from the research are given below.

The Findings Regarding Descriptive Characteristics of the Participants: The data on the descriptive characteristics of the participants are given in Table 1. According to Table 1, 68.2% of the participants are female, 31.8% are male; 54.4% of them are married, and 45.6% are single people.

Table 1. Percentages Regarding Descriptive Characteristics of the Participants

Socio-Demographic Characteristics	Groups	Number	Percentage
Gender	Female	317	68.2
	Male	148	31.8
Age	18-28	195	41.9
	29-39	110	23.7
	40-50	106	22.8
	51 and above	54	11.6
Educational Level	Primary-High School	101	21.7
	Associate Degree	117	25.2
	Bachelor's Degree	181	38.9
	Graduate	66	14.2
Marital Status	Married	253	54.4
	Single	212	45.6
District they live	Selcuklu	179	38.5
	Meram	163	35.1
	Karatay	123	26.5
Occupation	Public Sector	104	22.4
	Private Sector	148	31.8
	Student	108	23.2
	Retired	20	4.3
	Unemployed	76	16.3
	Others	9	1.9
Continuous Medication	Yes	118	25.4
	No	347	74.6
Total		465	100

According to age ranges, 41.9% of the participants are between the ages of 18-28 years and 11.6% of them in the age range of 51 years and over. When we look at the educational status of the participants, 38.9% complete bachelor's degree and 14.2% graduate education. 38.5% of the participants reside in Selcuklu, 35.1% in Meram, and 26.5% in Karatay. In terms of occupational groups, 31.8% of the participants work in the private sector. Finally, while 74.6% of the participants state that they are not constantly using drugs, 25.4% of them state that they are constantly using drugs.

Analysis of Quantitative and Qualitative Findings Related To Participants' HL Level:

The mean and standard deviations of the HL scale and its sub-dimensions are as follows: The total HL is 98.75 ± 12.77 , the access dimension to information is 19.27 ± 3.56 , the dimension of understanding information is 27.65 ± 4.37 , the dimension of evaluation is 31.78 ± 4.59 , and the dimension of application is 20.05 ± 2.85 .

There is a significant difference between the groups according to the results of the t test performed between the HL levels of the participants according to gender ($p < 0.05$). The HL level of women (100.25 ± 12.40) is higher than men (95.55 ± 13.01). There is a significant difference between the groups as to the results of the t test performed between the HL levels of the participants according to their marital status ($p < 0.05$). The HL level of singles (101.97 ± 11.94) is higher than that of married people (96.06 ± 12.84).

According to the central districts where the participants reside; the results of the ANOVA test performed between the levels of HL, understanding, evaluation and application of information indicate that there is a significant difference between the groups ($p < 0.05$). There is no significant difference between the sub-dimensions of access to information and

Table 2. Comparison of the HL Scale and Sub-Dimensions of the Participants by District, Age, Educational Status

HL		Number	Median	Standard deviation	F	p*	
Central District	Total HL	Selcuklu	179	97.09	12.36	4.49	0.01
		Meram	163	101.09	11.75		
		Karatay	123	98.07	14.22		
	Access to Information	Selcuklu	179	18.94	3.49	1.63	0.20
		Meram	163	19.63	3.44		
		Karatay	123	19.28	3.78		
	Understanding Information	Selcuklu	179	27.31	4.32	6.34	0.00
		Meram	163	28.59	3.90		
		Karatay	123	26.89	4.81		
	Evaluation	Selcuklu	179	31.03	4.63	5.10	0.01
		Meram	163	32.60	4.50		
		Karatay	123	31.79	4.50		
Application	Selcuklu	179	19.82	2.85	1.12	0.33	
	Meram	163	20.27	2.68			
	Karatay	123	20.11	3.08			
Age	Total HL	18-28	195	101.92	12,3	9.14	0.00
		29-39	110	98.07	11.57		
		40-50	106	96.47	12.28		
		51 and above	54	93.17	13.08		
	Access to Information	18-28	195	19.71	3.34	1.95	0.12
		29-39	110	19.07	3.86		
		40-50	106	19.04	3.39		
		51 and above	54	18.57	3.89		
	Understanding Information	18-28	195	28.72	4.24	9.59	0.00
		29-39	110	27.38	4.11		
		40-50	106	27.02	4.07		
		51 and above	54	25.52	4.88		
	Evaluation	18-28	195	33.01	4.65	11.18	0.00
		29-39	110	31.67	3.98		
		40-50	106	30.73	4.70		
		51 and above	54	29.63	4.05		
Application	18-28	195	20.48	2.96	2.95	0.03	
	29-39	110	19.95	2.68			
	40-50	106	19.69	2.76			
	51 and above	54	19.44	2.86			

Educational Level	Total HL	Primary-High School	101	90.73	14.36	21.35	0.00
		Associate Degree	117	101.93	11.90		
		Bachelor's Degree	181	101.60	11.29		
		Graduate	66	97.59	9.98		
	Access to Information	Primary-High School	101	17.90	4.03	7.73	0.00
		Associate Degree	117	19.84	3.27		
		Bachelor's Degree	181	19.78	3.44		
		Graduate	66	18.97	3.02		
	Understanding Information	Primary-High School	101	24.97	4.70	18.64	0.00
		Associate Degree	117	28.75	3.84		
		Bachelor's Degree	181	28.34	4.07		
		Graduate	66	27.86	3.91		
	Evaluation	Primary-High School	101	29.02	4.90	20.25	0.00
		Associate Degree	117	32.97	4.19		
		Bachelor's Degree	181	32.78	4.22		
		Graduate	66	31.17	3.94		
Application	Primary-High School	101	18.84	3.09	10.79	0.00	
	Associate Degree	117	20.38	2.91			
	Bachelor's Degree	181	20.69	2.65			
	Graduate	66	19.59	2.25			

* Significant at the $p < 0.05$ level¹

application ($p > 0.05$). The mean HL level in Meram, Karatay, and Selcuklu were 101.09 ± 11.75 , 98.07 ± 14.22 , and 97.09 ± 12.36 , respectively (Table 2).

The participants said that the HL levels of the individuals who reside in the central districts of Konya (Meram, Selcuklu and Karatay) were sufficient.

"I think the health literacy level of Meram region is good" (Pharmacist Meram2). "Although I cannot give a clear numerical value in the unit where I live in the Selcuklu region, I think that the level of health literacy is quite high. I don't think they have any difficulties in accessing and understanding information" (Family Physician, Selcuklu). "Two years ago, the literacy level was quite low, but with the new apartments built by the urban transformation process, both

the population and the literacy rate increased considerably" (Pharmacist, Selcuklu1). "I have been working in the health sector for over 20 years in the Karatay region. When I look back -unfortunately- the literacy rate was very low in the first years. As a result, they were very insufficient to access health-related information, understand and apply the information. The literacy level has increased considerably with the urban transformation recently and in the people from different backgrounds that move to apartment life. However, a society who is more conscious, researcher, judgmental, and able to find the right thing has emerged in the field of health" (Pharmacist Karatay).

Regarding the studies on HL in Konya;

"Public health units are working on health literacy and mostly on specific issues such as obesity,

DM, chronic diseases, hand-foot hygiene, active daily-life, sports, and healthy life walks” (Official).

According to the age groups of the participants; the results of the ANOVA test performed between the levels of HL, understanding, evaluation and application of information indicate that there is a significant difference between the groups ($p < 0.05$). There is no significant difference between access to information sub-dimension ($p > 0.05$). The highest mean HL was 101.92 ± 12.83 , 98.07 ± 11.57 , 96.47 ± 12.28 , and 93.17 ± 13.08 in age groups 18-28 years, 29-39 years, 40-50 years, and above 51 years, respectively.

The participants expressed their opinion that HL level may differ according to the variables of motherhood status and age.

“The people who we are in contact with are mostly mothers and the elderly. We have a really hard times communicating with these two groups. There is a group that follows the agenda with TV programs, does not read the information from its basic source, and continues to do scientifically invalid practices (such as starting formula or supplementary food from newborns, not believing that breast milk is sufficient, or giving enemas with (grape) molasses to babies in case of constipation...) (Family Physician, Meram). “In terms of literacy, Meram district is with a substantial literacy rate. However, patients are not very conscious about the use of drugs. That’s why, it’s so important for us to describe how to use the medicine while they are in the pharmacy. We can rate it as 3 out of 5 in terms of reading comprehension (literacy). We can think that access to information is higher for young people, namely 4 out of 5, and 2 out of 5 for the elderly. Although we explain how to use the drug in the pharmacy, 30 percent of the population who understands it at once, the remaining 40% understand it the second time, and 30% understand it after conveying

the same information a few times. Sometimes they even go home and call and ask again about the information we have told 3-4 times in the pharmacy. Young people are usually in the 30% who understand it the first time, but sometimes we need to repeat it 2 or 3 times because they talk on phone or send messages when they are at the pharmacy. In other words, there is a lack of concentration” (Pharmacist, Meram1). “The literacy rate in the region where I live in the Konya Province is at a medium level. This situation is directly proportional to the density of the elderly population that is my patient portfolio” (Pharmacist, Selcuklu2).

According to the educational groups; there is a significant difference between the different education groups ($p < 0.05$). The mean of HL level in primary school-high school group, associate degree group, undergraduate group, and graduate group was 90.73 ± 14.36 , 101.93 ± 11.90 , 101.60 ± 11.29 , and 97.59 ± 9.98 , respectively. (Table 2).

“As long as the educational level increases, we come across more conscious patients” (Pharmacist, Karatay).

Analysis of Quantitative and Qualitative Findings Related to Participants’ RDU Level

The mean and standard deviation of the RDU Scale is determined as 36.94 ± 4.47 . There is a significant difference between the different groups of RDU in terms of their gender ($p < 0.05$). RDU level of women (37.51 ± 4.18) is higher than men (35.74 ± 4.84). There is a significant difference between the groups in terms of their marital status ($p < 0.05$). The RDU level of singles (37.43 ± 3.66) is higher than that of married (36.53 ± 5.02).

According to the results of the ANOVA test performed between the RDU levels in the central districts, there is a significant difference between the groups ($p < 0.05$). The mean RDU level is followed by Meram (37.89 ± 3.41), Karatay

Table 3. Comparison of the RDU Scale of the Participants by District, Age, Educational Status

RDU		Number	Median	Standart Deviation	F	p	
Central District	RDU	Selcuklu	179	36.30	4.84	5.95	0.00
		Meram	163	37.89	3.41		
		Karatay	123	36.63	4.95		
Age	RDU	18-28	195	37.54	3.78	2.21	0.09
		29-39	110	36.48	5.23		
		40-50	106	36.35	4.48		
		51 and above	54	36.89	4.90		
Educational Level	RDU	Primary-High School	101	34.90	6.07	10.26	0.00
		Associate Degree	117	38.00	3.56		
		Bachelor's Degree	181	37.25	3.82		
		Graduate	66	37.36	3.75		

* Significant at the $p < 0.05$ level

(36.63±4.95), and Selcuklu (36.30±4.84) (Table 3).

The participants state that the RDU levels of individuals residing in Meram, Selcuklu, and Karatay regions (the central districts of Konya) are not at a sufficient level. It is said that TV, social media, neighbors, and non-physician health workers have negatively affect RDU condition.

"I should state that my patients are lacking in the issue of rational drug use in the region I live in and that the effects of television and social media have an impact on this situation, no matter how hard I try to close this lacking" (Pharmacist, Selcuklu2). "In general, citizens have a use that is not based on knowledge. Health personnel also encourages its use. Citizens are not conscious. They use information received from neighbor or health worker. He uses same medicine for every sore throat" (Official). "We have a lot of shortcomings in rational drug use. I think that there is a lack of trust in physicians. It is not possible to talk about rational drug use because they go to 2-3 physicians and make each of them prescribe different drugs, and leave the drug unfinished before completing the treatment" (Pharmacist, Meram1).

The results of the ANOVA test performed between the RDU levels of the participants according to age groups show that there is no significant difference between the groups ($p > 0.05$). RDU levels were 37.54±3.78, 36.48±5.23, 36.35±4.48, and 36.89±4.90 in age groups of 18-28 years, 29-39 years, 40-50 years, and above 51 years.

The results of the ANOVA test between the RDU levels of the participants according to the teaching groups indicate there is a significant difference between the groups ($p < 0.05$).

"The educational status of individuals in the region where I serve is generally at the level of secondary/high school graduates; it is not at a sufficient level in terms of RDU" (Pharmacist, Karatay).

In RDU, it may occur some negative situations for the communication between physician and patient, depending on education and age.

"There is still an unconscious segment of society about rational medicine. I do not want to generalize, but people over a certain age group use too many drugs. Of course; there are also people who use rational drugs, evaluating

and comparing the benefits and side effects of drugs with more conscious people” (Pharmacist, Karatay). “Especially in elderly patients, there are some stereotypes of drug use, so if the physician prescribes a different drug, there is a tendency to refuse the drug and stop it without finishing” (Pharmacist, Meram1). “Even though I think that patients are more conscious about the rational use of drugs compared to the past, that is, due to the increase in the level of education, I do not think that it is fully implemented” (Pharmacist, Selcuklu1). “Since I exceeded the antibiotic usage rate, I wanted to attend the meeting on the subject. At the meeting, it was given information on the harms and side effects of overuse of antibiotics. He prescribed medicine in suitable for the disease. The antibiotic prescription was dropped because I did not write it because of some information on public advertisements and posters on health center, TVs, and prescriptions given by dentists to citizens. I prevented the wrong drug use. The physician didn’t write! He wants a throat medicine! (with strip) antibiotics were not prescribed! The pharmacist did not give!... There are complaints like this” (Family Physician, Karatay).

It is determined that there are conflicts between physicians and patients related to RDU from time to time, and there are patients who complain about the physician.

“I am of the opinion that rational drug use should be considered from both sides as the patient and the physician who is consulted. More successful results can be obtained in rational drug use in a patient who applies for the solution of health problem by the physician. However, there may be difficulties in rational drug use in patients who come to the physician to write a prescription orally recommended by another physician, a neighbor, friend, or pharmacist. Therefore, it may be correct to

think that the problems in this area are mostly caused by the patient. I think that studies such as educational meetings on rational drug use or maybe, some sanctions to be held by officials in charge of public and community health and education will be very beneficial” (Family Physician, Selcuklu1). “As a family physician who requests three different analgesic drugs to be prescribed in the same prescription when we are told that we can decide on the drugs that can be prescribed after the examination is not accepted or when the patient does not prescribe the inappropriate drug and a different drug is prescribed, and that the pharmacy treats him as an agreement with the drug companies, we can be exposed to violence. The segment of society that we address seems to perceive the family medicine system as a center that prescribes the drugs they want and that obtains (health) reports. Every day in our family health center, we have problems with people who want to have their own medicine or treatment applied. For example; being complained by a family who thinks that their child’s illness will not go away without antibiotics...” (Family Physician, Meram).

It is reported that studies on the use of “correct antibiotics” are mostly carried out in RDU and that success is achieved in this regard. It is seen that primary health care institutions are more effective in studies of correct antibiotic use.

“Especially in the use of antibiotics, success was achieved” (Family Physician, Karatay). “There was a focus on correct antibiotic use rather than rational drug use. Then it will be time for the different drug groups. Antidepressants, stomach medications, etc... the turn will come” (Official). “Antibiotic restriction is done in health centers” (Family Physician, Karatay). “We are below the Türkiye average in terms of usage (as Konya Province). Family physicians are also

better at using rational drugs (antibiotics). The use is slightly higher in other physician groups” (Official).

It is said that there is a development in the direction of RDU during the pandemic period.

“The rate has decreased considerably especially during the pandemic period” (Pharmacist, Selcuklu). “I don’t think that rational drug use is very good until this time, but I think that unnecessary drug prescription and use has decreased since people do not want to go to hospitals and FHCs during the Covid-19 period” (Pharmacist, Meram2). “There was a regression in education vs. RDU during the pandemic period” (Official).

It is reported that there are intensive studies on RDU in the Konya region and that they will continue.

“We built a good team on RDU. We set targets with health personnel, pharmaceutical industry, and citizens (3 stakeholders). We organized trainings for healthcare professionals (including family physicians, student instructors at universities, and even veterinarians). The staff is not alone. If there is a need for unnecessary purchases, it will not happen anyway. “No less, no more” ... was explained to healthcare workers. Stands were set up; billboards were hung. It should be supported with visual materials. Antibiotics are explained in terms of their training, how to use, and in what order to use. WHO gave importance to it. The harms of irrational use of antibiotics are very high. Millions of people are at risk of dying without antibiotics in the coming decades. To avoid unnecessary use. Irrational use decreased in cumulative. Of course; it is not at the desired level. We haven’t reached the target yet. 15% of 30 prescriptions; 6-10 received without a prescription? 15% in the world is below and we are above this” (Official).

Discussion

Increasing the HL levels of individuals and raising awareness about RDU are of great importance in the effective functioning and development of the health system. Because the HL level of people affects the rational use of the drug according to the course and condition of the disease. This study aims to quantitatively and qualitatively determine the level of HL and RDU in individuals over the age of 18 years, and presents suggestions for the relevant institutions and individuals.

In the study, the total HL level of the individuals is sufficient and found as 3.95 out of 5 (98.75 ± 12.77). The sub-dimension with the highest mean score of 4.01 out of 5 points (20.05 ± 2.85), and access to information sub-dimension (19.27 ± 3.56) has the lowest score as 3.85 out of 5 points. In a study conducted throughout Türkiye, the HL index was 30.4%; 24.5% of the individuals had an insufficient level of HL and 40% had a problematic HL level (27). In another study conducted throughout Türkiye, it was determined that the HL level was quite low and approximately 7 out of 10, as well as 30.9% and 38% people had insufficient or problematic-limited in the HL level (28). In the study of Yesildal and Kaya (29), the mean HL score in Konya was found to be 4.23. Bukecik and Adana (30), in their study in Konya Province, expressed that they found that 19.9% of the participants had insufficient health literacy, 41.8% had a problematic/limited level of health literacy, 23.1% had adequate health literacy, and 15.2% had an excellent level of health literacy. In the study of Kaya and Uludağ (31), the health literacy general index score of the county of Icel/Mut was found to be 35.99. In the categorical evaluation of general health literacy, 10% of the district was found to be “inadequate”, 27% problematic, 40% adequate, and 23% excellent. The mean RDU was 36.94 ± 4.47 , and the individuals had RDU knowledge. It is reported that there is a positive

effect on RDU since individuals do not want to go to health institutions during the pandemic period. On the other hand, Aslan et al. (17), in the study on Health Vocational School students, found the average of RDU as 24.19. Additionally, it has been reported that studies have been carried out on RDU, especially on the correct use of antibiotics, targets have been set together with the stakeholders, and success has been achieved in this regard. It has been said that citizens and health personnel are trained and supported with visual materials. However, it has been stated that the work has been suspended due to the effect of the pandemic throughout the country and the province and yet the desired target has not been reached.

According to the results of the analysis made between the HL and RDU levels according to the central districts of the participants, there is a significant difference between the groups. The district with the highest average is found to be Meram. Its reason can be thought that the population living in Meram District of Konya differs in terms of education, income, etc., compared to other districts, due to its demographic and socio-cultural characteristics. As the qualitative findings are examined, the participants evaluate the HL level as sufficient compared to previous years in all three regions of Konya. However, they state that RDU levels are not sufficient and there are deficiencies. It is stated that such tools as TV and social media have a negative effect on individuals.

In the study, when HL and RDU levels are compared according to gender, there is a significant difference between the groups. HL level of women (100.25 ± 12.40) is higher than men (95.55 ± 13.01). While Aslan et al. (17), Guner et al. (32), and Yesildal and Kaya (29) found the results supporting this finding in their studies, Tanriover et al. (27) reached the

opposite conclusion. Also, Namazi A. did not find a significant difference between the gender and HL (33). Moreover, in some studies, no significant difference was found in HL value in terms of gender (34, 35). In the study, it was found that women had higher RDU levels than men. Yagiz (36), Guner et al. (32), and Lee et al. (37) also found in their studies that women have higher RDU scores than men. However, Aslan et al. (17) and Ozyigit and Arikan (38), on the other hand, found that men's RDU scores were higher. It can be said that the reason for the different results in different studies is the application of the studies in different sample groups, the difference in their demographic characteristics, the educational level of participants in the related groups, and their position inside the social structure.

In the comparison made between the HL and RDU levels of the participants according to their marital status, there is a significant difference between the groups. The HL level of singles (101.97 ± 11.94) is higher than that of married people (96.06 ± 12.84). Similarly, Guner et al. (32) conclude that singles have higher HL scores than married people in their study. Otherway, Isaaapre O. et al. find no significant difference in the relationship between marital status and health literacy levels in their study (39). The RDU levels of singles are found to be higher than those of married people in the study in a similar way. These two findings support each other. However, in the research conducted by Guner et al. (32), it is observed that the RDU scale scores of married people are higher than those of singles. In the qualitative findings, the participants state that the patient population with which they are contacted the most is mothers and the elderly. Although women's HL and RDU levels are high, it is seen that they experience conflicts in communication with healthcare professionals due to their status

of being married and mother. It is stated that health-related information is accessed usually through such ways as TV shows, social media, and neighborhood etc. and that mothers give more place to traditional practices.

While there is a significant difference in their HL level (except for 'access to information sub-dimension') according to the age groups of the participants under the study, there is no difference between the RDU level. The group with the highest HL average is the 18-28 age group. When looked at the other studies, it is seen that HL scores decrease with increasing age (27, 28, 29, 31, 40, 41, 42). Qualitative findings support this fact. It can be said that the reasons of it is use of technology and inadequacy in access to information in old ages, loss of sensory functions, a person's dependency on his family or surroundings and the need for support, etc. (36, 43, 44). The RDU score of the young group (18-28 years) is higher than the other groups. The mean RDU scores of the participants according to age groups are close to each other in the groups over 29 years old and are higher than the estimation points -34-. The reason for this may be due to the sufficient level of drug use knowledge of the old age groups with chronic disease. However, the qualitative findings determine that there are conflicts in the physician and pharmacist groups from time to time depending on education and age and that they are exposed to verbal violence, and that complaints are made by the desired drugs not to be prescribed. The research conducted by Demirtas et al. (26) shows that the level of RDU decreases if age increases.

The results of the analysis made between the HL and RDU levels according to the education level of the participants indicate that there is a significant difference between the groups. As the level of education increases, the HL scores

of the individuals increase. It is expected that the perception, awareness, and knowledge levels of participants about HL increase as the increase in the education level of them (41, 42). The findings of study also support the literature (26, 28, 29, 30, 31, 32, 45, 46). The study shows that the RDU scores of associate degree and higher education groups are higher than the other groups. In this meanwhile, as the education level increases, the RDU scores of individuals also increase (26, 32). Qualitative findings support quantitative findings. The participants state that they encounter more conscious patients, when the level of education increases.

Limitation: It is a limitation of the study conducted during the Covid 19 pandemic period, only covers Konya province and the accessibility of the study group was chosen from volunteers.

Conclusion and Recommendations: The study concludes that the HL and RDU levels of Konya are sufficient. HL and RDU scores of women and singles are higher than other groups. HL and RDU scores of Meram district are higher than other central districts. The higher the education level, the higher the HL score. As the age increases, the HL score decreases. The RDU score of the young group is higher than the other groups. Qualitative findings support quantitative findings.

It is thought that one of the factors that influence rational drug use is the HL level of individuals. HL and RDU are concepts that affect each other. It is important for individuals to have a high HL level in order to follow a rational way in prescribing, distributing, selling, and using drugs. Because it is thought that providing the use and safety of drugs and following an effective treatment method will increase the success of health services.

- Authorities are recommended to make plans for studies on HL and RDU, by considering regional socio-economic differences.

- Since it is thought that increasing the HL levels of individuals reduce the conflicts between physicians and patients regarding the correct drug use, it is recommended to increase the necessary trainings and studies on the subject.
- It is suggested to conduct trainings and studies also on drugs other than the correct use of antibiotics.
- It is recommended to conduct joint trainings and projects involving RDU stakeholders (health administrators, society, drug manufacturers, pharmacies, and professionals of healthcare).
- It is offered to increase mobile health applications (on HL and RDU issues) for elderly individuals and to teach the use of these applications.

References

1. Gözlü K. Sağlıkın sosyal bir belirleyicisi: sağlık okuryazarlığı. Süleyman Demirel Üniversitesi Tıp Fakültesi Dergisi. 2020; 27 (1): 137-144. <https://doi.org/10.17343/sdu.tfd.569301>
2. UNESCO. Literacy. 2021. <https://en.unesco.org/themes/literacy>. Access Date: 18.01.2021
3. Eslami V., Tavakoly Sany SB., Ghavami V., Peyman N. The relationship of health literacy with preventive behaviors of urinary tract infection in pregnant women. Journal of Health Literacy. Winter 2022; 6 (4): 22-31.
4. Yılmaz M, Tiraki Z. Sağlık okuryazarlığı nedir? Nasıl ölçülür?. Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi, 2016; 9 (4): 142-147.
5. Ratzan SC. Health literacy: communication for the public good. Health Promotion International, 2001; 16 (2): 207-214. <https://doi.org/10.1093/heapro/16.2.207> PMID:11356759
6. Değer MS, Zoroğlu G. Birinci basamak sağlık kuruluşuna başvuranlarda sağlık okuryazarlığı ile kanser bilgi yükü ilişkisi. Anadolu Kliniği Tıp Bilimleri Dergisi, 2021; 26 (1): 108-117.
7. WHO. Health promotion glossary. Geneva: Division Of Health Promotion, Education And Communications Health Education And Health Promotion Unit, World Health Organization, 1998. <https://www.who.int/publications/i/item/WHO-HPR-HEP-98.1>, Access Date: 12.09.2020
8. AMA. Health literacy: report of the council on scientific affairs, Journal of American Medical Association, 1999; 281 (6): 552-557. <https://doi.org/10.1001/jama.281.6.552>
9. IoM. Health literacy: a prescription to end confusion. Washington, DC: The National Academies Press, 2004.
10. Barrett SE, Puryear JS. Health literacy: improving quality of care in primary care settings. Journal Of Health Care For The Poor And Underserved, 2006; 17 (4): 690-697. <https://doi.org/10.1353/hpu.2006.0117> PMID:17242524
11. Ertem AA, Güzel A. Sağlık okuryazarlığı ve sosyal medya bağımlılığı arasındaki ilişki. Uluslararası Sağlık Yönetimi ve Stratejileri Araştırma Dergisi, 2021; 7 (1): 245-260.
12. WHO. Rational use of medicines: progress in implementing the who medicines strategy. EB118/6.2006. https://apps.who.int/gb/ebwha/pdf_files/EB118/B118_6-en.pdf. Access Date: 05.02.2021.
13. Ekenler Ş, Koçoğlu D. Bireylerin akılcı ilaç kullanımıyla ilgili bilgi ve uygulamaları. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi, 2016; 3 (3): 44-55.
14. İlhan MN, Aydemir Ö, Çakır M, Ayçan S. Akılcı olmayan ilaç kullanım davranışları: Ankara'da üç ilçe örneği. Turk J Public Health, 2014; 12 (3): 188-200. <https://doi.org/10.20518/thsd.91650>
15. Ambwani S, Mathur AK. Rational drug use. Health Administrator, 2006; 19 (1): 5-7.
16. Şantaş F, Demirgil B. Akılcı ilaç kullanımına ilişkin bir araştırma. İşletme Bilimi Dergisi (JOBS), 2017; 5 (1): 35-48. <https://doi.org/10.22139/jobs.286671>
17. Aslan R, İlman E, Arslan A. Sağlık hizmetleri meslek yüksekokulu öğrencilerinin sağlık okuryazarlığı ve akılcı ilaç kullanım düzeylerinin belirlenmesi. International Social Mentality and Researcher Thinkers Journal, 2019; 5 (21): 1107-1134. <https://doi.org/10.31576/smryj.323>
18. Abacıgil F, Turan SG, Adana F, Okyay P ve Demirci B. Rational use of drugs among inpatients and its association with health literacy. Meandros Med Dent J, 2019; 20: 64-73. <https://doi.org/10.4274/meandros.galenos.2018.35119>
19. İncesu E. Akılcı ilaç kullanımında sağlık okuryazarlığı: bir kamu hastanesinde yatan hastalar üzerine bir araştırma. Sağlık Akademisyenleri Dergisi, 2017, 4 (1): 28-38.
20. TÜİK, <https://www.tuik.gov.tr/>, Access Date: 05.02.2021
21. Altunışık R, Coşkun R, Bayraktaroğlu S, Yıldırım, E. Sosyal Bilimlerde Araştırma Yöntemleri: SPSS Uygulamalı, Adapazarı, Sakarya Yayıncılık, 2012.
22. Erdoğan İ. Pozitivist Metodoloji, Ankara, Pozitif Maatbacılık, 2007.
23. Sorensen K, Van den Broucke S, Pelikan JM, Fullam J, Doyle G, Slonska Z, Kondilis B, Stoffels V, Osborne RH, Brand H. Measuring Health literacy in populations: illuminating the design and development process of the european health literacy survey questionnaire (HLS-EU-Q). BMC Public Health, 2013; 13: 948. <https://doi.org/10.1186/1471-2458-13-948> PMID:24112855 PMCid:PMC4016258
24. Toçi E, Burazeri G, Sorensen K, Jerliu N, Ramadani N, Roshi E, Brand H. Health literacy and socioeconomic characteristics among older people in transitional Kosovo. British Journal of Medicine & Medical Research, 2013; 3 (4): 1646-1658. <https://doi.org/10.9734/BJMMR/2013/3972>
25. Aras Z, Bayık Temel A. Sağlık okuryazarlığı ölçeğinin türkçe formunun geçerlilik ve güvenilirliğinin değerlendirilmesi.

- Florence Nightingale Hemşirelik Dergisi, 2017, 25 (2), 85-94. <https://doi.org/10.17672/fnhd.94626>
26. Demirtaş Z, Dağtekin G, Sağlan R, Alaiye M, Önsüz MF, Işıklı B, Kılıç FS, Metintaş S. Akılcı ilaç kullanımı ölçeği geçerlilik ve güvenilirliği. Eskişehir Türk Dünyası Uygulama ve Araştırma Merkezi Halk Sağlığı Dergisi, 2018; 3 (3): 37-46.
27. Tanrıöver M, Yıldırım H, Ready FND, Çakır B, Akalın, E. Türkiye sağlık okuryazarlığı araştırması, Sağlık-Sen Yayınları- 25, 2014.
28. T.C. Sağlık Bakanlığı Sağlık Geliştirilmesi Genel Müdürlüğü Sağlık Teşviki Daire Başkanlığı. Türkiye sağlık okuryazarlığı ölçekleri güvenilirlik ve geçerlilik çalışması: Avrupa sağlık okuryazarlığı ölçeği türkçe uyarlaması (ASOY-TR). Edt. Okyay P, Abacıgil F. 2016, Sağlık Bakanlığı Yayın No. 1025, 2016.
29. Yeşildal M, Kaya ŞD. Yetişkin bireylerde dijital okuryazarlık ve sağlık okuryazarlığı arasındaki ilişki: Konya Örneği. Sağlık Bilimleri Dergisi, 2021; 30 (2): 174-181. <https://doi.org/10.34108/eujhs.774808>
30. Bükceci N, Adana F. Hastane çalışanlarının sağlık okuryazarlık düzeyleri ve ilişkili faktörler: Konya ili örneği. Caucasian Journal of Science, 2021; 8 (1): 1-13. <https://doi.org/10.48138/cjo.759578>
31. Kaya ŞD, Uludağ A. The relationship between the health and media literacy: a field study. Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 2017; 9 (22): 194-206.
32. Güner TA, Kuzu A, Bayraktaroğlu T. Diyabetli bireylerde sağlık okuryazarlığı ve akılcı ilaç kullanımı arasındaki ilişki. Türkiye Diyabet ve Obezite Dergisi, 2020; 4 (3): 214-223. <https://doi.org/10.25048/tudod.775075>
33. Namazi A. Social Health Status and Health Literacy in Non-Medical Students of Islamic Azad University. Journal of Health Literacy. Summer 2020; 2 (5): 54-63.
34. Jeong SH, Kim HK. Health literacy and barriers to health information seeking: a nationwide survey in south Korea. Patient Education and Counseling, 2016; 99: 1880-1887. <https://doi.org/10.1016/j.pec.2016.06.015> PMID:27373962
35. Protheroe J, Whittle R, Bartlam B, Estacio EV, Clark L, Kurth J. Health literacy, associated lifestyle and demographic factors in adult population of an English city: a cross-sectional survey. Health Expectations, 2016; 20: 112-119. <https://doi.org/10.1111/hex.12440> PMID:26774107 PMCID:PMC5217902
36. Yağız, E. Kocaeli üniversitesi öğrencilerinin sağlık okuryazarlığı düzeyleri ve bu durumun akılcı ilaç kullanımıyla olan ilişkisinin incelenmesi. Uzmanlık Tezi, Kocaeli: Kocaeli Üniversitesi Tıp Fakültesi, Aile Hekimliği Anabilim Dalı, 2020.
37. Lee CH, Chang FC, Hsu SD, Chi HY, Huang LJ, Yeh MK. Inappropriate self-medication among adolescents and its association with lower medication literacy and substance use. Plos one, 2017; 12(12): 1-14. <https://doi.org/10.1371/journal.pone.0189199> PMID:29240799 PMCID:PMC5730183
38. Özyiğit F, Arıkan İ. Kütahya ilinde üniversite öğrencilerinin akılcı ilaç kullanımı hakkında bilgi, tutum ve davranışları. Bozok Tıp Dergisi, 2015; 5 (1): 47-52.
39. Isaaqare O., Ehsanbakhsh H., Kassani A., Najafi Fard SH., Poraiein R., Gholami M. Evaluation of Health Literacy and Some of Its Associated Factors among 18-65 Years Old. Journal of Health Literacy. Winter 2020; 4(4):30-37.
40. Schaeffer D, Berens EM, Vogt D. Health literacy in the German population: results of a representative survey. Deutsches Ärzteblatt International, 2017; 114(4), 53. <https://doi.org/10.3238/arztebl.2017.0053>
41. Vandebosch J, Van den Broucke S, Vancorenland S, Avalosse H, Verniest R, Callens M. Health literacy and the use of healthcare services in Belgium. J Epidemiol Community Health, 2016; 70 (10):1032-1038. <https://doi.org/10.1136/jech-2015-206910> PMID:27116951
42. Palumbo R, Annarumma C, Adinolfi P, Musella M, Piscopo G. The Italian health literacy project: insights from the assessment of health literacy skills in Italy. Health Policy, 2016; 120 (9): 1087-94. <https://doi.org/10.1016/j.healthpol.2016.08.007> PMID:27593949
43. Berens EM, Ganahl K, Vogt D, Schaeffer D. Health literacy in the domain of healthcare among older migrants in Germany (North Rhine-Westphalia). Findings from a cross-sectional survey. International Journal of Migration, Health & Social Care, 2021; 17 (1): 62-74. <https://doi.org/10.1108/IJMHC-09-2019-0078>
44. İşler AO. 18-65 yaş arası kişilerin sağlık okuryazarlığı düzeylerinin ve sağlık okuryazarlığı düzeylerinin akılcı ilaç kullanımı üzerine etkisinin değerlendirilmesi. Uzmanlık tezi, İzmir: İzmir Kâtip Çelebi Üniversitesi Tıp Fakültesi, Aile Hekimliği Anabilim Dalı, 2019.
45. Tavakoly Sany SB., Behzad F., Ferns G., Peyman N. Communication skills training for physicians improves health literacy and medical outcomes among patients with hypertension: a randomized controlled trial. BMC Health Services Research, 2020; 20(60): 1-10. <https://doi.org/10.1186/s12913-020-4901-8> PMID:31973765 PMCID:PMC6979365
46. Rahaei Z., Mehrjoan N., Barzegr F., Anbari-Nogyni Z. Is Higher Health Literacy Associated with Better Self-Care in the Elderly?. Journal of Health Literacy. Autumn 2020; 5 (3): 26-35.