Istanbul J Pharm 50 (1): 64-70
DOI: 10.26650/IstanbulJPharm.2019.0055
Original Article

Understanding of Turkish pharmacists health literacy knowledge, attitudes, and behavior

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Cite this article as: Ilbars, H., & Ozkan, S. (2020). Understanding of Turkish pharmacists health literacy knowledge, attitudes, and behavior. *İstanbul Journal of Pharmacy, 50* (1), 64-70.

ABSTRACT

Background and Aims: Health literacy is a set of cognitive-social skills and motivation to access, understand, and utilize information to protect and improve the health of individuals. Pharmacists, as public health advisors, need to play an active and effective role in preventing the negative consequences of inadequate health literacy. In this study, we determined the knowledge, attitudes, behaviours, and educational needs related to pharmacists' health literacy.
Methods: This cross-sectional study was conducted in cities across Turkey. According to the '2016 Turkish Pharmacists Association Database', in 2015 and 2016, there were 25,453 and 24,928 private pharmacists, respectively. To calculate the sample size, we used a population of 24,928, a 50% expected prevalence (unknown frequency), a 5% deviation value, a 95% confidence interval, and a 1.0 design effect. The necessary sample size was determined to be 379. Using a random number table, we recruited 398 participants for this study.
Results: Our results revealed that the pharmacists who participated in this study stated high awareness of health literacy.
Conclusion: In healthcare facilities, pharmacists should play an active role in promoting and delivering health literacy.

Keywords: Pharmacist, health literacy, knowledge, attitude, behaviour

INTRODUCTION

According to the World Health Organization (WHO), health literacy is a set of cognitive-social skills which determine the motivation and ability of individuals to gain access to, understand, and utilize information to protect and improve their own health (Kickbusch & Nutbeam, 1998); and includes understanding complex readings, gaining analytical and decision-making skills, and using them in health-related situations (U.S. Department of Health and Human Services, 2010). WHO explains the close relationship between health literacy and general literacy as follows:

Health literacy is associated with general literacy and it is the will and capability of people in developing and deciding on issues related to health services throughout their lives, maintaining and improving their health, reaching health-related information sources to improve their quality of life, accurately perceiving and understanding health-related information and messages (Kickbusch, Pelikan, Apfel, & Tsouros, 2013).

Studies in the United States and within the European Union have shown that nearly 50% of the population in developed countries have poor health literacy, and this rate reached up to 70% in some studies performed in Turkey (U.S. Department of Health and Human Services 2010, Kickbush et al., 2013). A study conducted in eight European countries (Germany, Austria, Bulgaria, the Netherlands, Spain, Ireland, Poland, and Greece) that examined health literacy found that 12% of the participants had an insuf-

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Submitted: 08.09.2019
Revision Requested: 19.11.2019
Last Revision Received: 25.11.2019
Accepted: 03.12.2019
Published Online: 02.03.2020

ficient health literacy level and an additional 23% had problematic health literacy levels. Compared to their counterparts, health literacy levels are also lower in groups with low general education and income levels, in minority groups, in recently migrated groups, in groups with low general health levels, in patients with long-term health problems, and among the elderly (Kickbush et al., 2013).

Thus, health literacy, which has been on the agenda in Turkey for the last five years (Tanrıover, Yıldırım, Ready, Cakır & Akalın, 2014), is a critical issue that requires study to increase individuals' responsibility for their own health, and must be considered when developing health services. Key components of the Ministry of Health's strategic plan (2013-2017) were "to develop health literacy to increase the responsibility of individuals for their own health," "to protect individuals and society from health risks and to promote a healthy lifestyle," and "to prepare programs for health literacy educators and trainers to improve their capacity" (T.C. Sağlık Bakanlığı, 2012).

Regarding this aim to increase health literacy levels in society, there are many stakeholders, but the main ones are patients (society) and health professionals because the health services outputs pass between them. Additionally, pharmacists are the health professionals in close contact with the patients, so they are required to develop relevant knowledge, attitudes and behaviors – skills that can be learned either before and/or after graduation - to deal with the responsibility of improving health literacy levels in society. So, in order to contribute to graduate and postgraduate educational programs, to determine which intervention practices require analysis, and to contribute to the increase in health literacy levels, we believe it is of utmost importance to learn how pharmacists understand the concept of health literacy, to determine their level of skills related to this concept and the possible existent gaps in these skills.

Aim of the study

In this study, we aimed to gather and analyze data regarding Turkish pharmacists' understanding of health literacy related to the general population, to determine the level of their knowledge, attitudes, and behaviors concerning health literacy and the gaps that may exist in these skills.

METHODS

This study was characterized as a cross-sectional research. According to data from the 2016 Turkish Pharmacists' Association Database, there were 24,928 private pharmacists in 2016. To calculate the sample size, we used a population of 24,928, a 50% "positive approach to pharmacists' health literacy" expected prevalence (unknown frequency), a 5% deviation value, a 95% confidence interval, and a 1.0 design effect. The necessary sample size was determined to be 379. Using a random number table, we interviewed 398 participants for this study.

In Turkey, all private pharmacists are members of the union, so the Association has a list of e-mail addresses and telephone numbers, which was utilized for this study. Then, we sent informed consent forms to all participants by e-mail and collected the signed pdf version. The survey was conducted by telephone.

The questionnaire used to collect data was entitled "The study on the determination of knowledge, attitude, behavior, and educational needs of pharmacists about health literacy." It was developed by the researchers based on the literature (Okyay & Abacıgil, 2016), containing three sections:

1. A section with 20 sociodemographic questions;

2. A section containing 25 suggestions (Table 1) used to determine the knowledge, attitudes, and behaviors of pharmacists on health literacy, measured using a five-point Likert-type scale (strongly disagree=1, disagree=2, neutral=3, agree=4, and definitely agree=5). In total, 5 knowledge, 5 attitudes, and 15 behavior suggestions were used.

3. A section containing eight suggestions related to the difficulties that prevent healthy communication among patients with inadequate health literacy, and they were measured using a 5-point Likert-type scale (strongly ineffective=1, ineffective=2, neutral=3, effective=4, and strongly effective=5).

The data were analyzed using SPSS Statistics for Windows, Version 18.0 (SPSS Inc., Chicago, IL, USA). The normality of the distribution of variables was analyzed using visual (histogram and probability graphs) and analytic methods (Kolmogorov-Smirnov/Shapiro-Wilk tests). Descriptive statistics are expressed as means (±) standard deviations, frequencies, and percentages. Statistical methods included Student's t-test, analysis of variance, Kruskal–Wallis analysis of variance, chi-square test, Mann–Whitney U Test, and logistic regression. The five points from the Likert scale were collapsed into three points by combining strongly agree/agree and strongly disagree/disagree. Statistical significance was set at $p < .05$.

RESULTS

The mean age of the 398 pharmacists in the study were 43.4±8.7 years (median = 46 years; range= 26–67 years). Among the participants, 9% were aged 18–29 years, 22.6% were aged 30–39 years, 48.2% were aged 40–49 years, 19.1% were aged 50–64 years, and 1.1% were aged ≥ 65 years. Moreover, 58.8% were women and 41.2% were men. Concerning location, pharmacists from 17 different cities participated: Majority being from Ankara (34.7%), 10.1% from Istanbul, and 9% from Çanakkale.

Pharmacists' knowledge, attitude, and behavior scores concerning health literacy according to age and sex are shown in Table 2. Attitude scores were higher when participants were younger. There was a significant increase in behavior scores after the age of 40 years before stabilizing. There were significant differences between the age groups in all three components of health literacy. There were no significant sex differences; however, behavior health literacy scores were higher in female pharmacists as compared to male pharmacists ($p < .05$).

Table 1. Questions used to determine the knowledge, attitude, and behavior of pharmacists about health literacy.

Knowledge	• I know what low health literacy means for patients • I know the frequency of low health literacy • I know what groups are prone to low health literacy • I know the relationship between health literacy and health • I know how to treat patients with poor health literacy
Attitude	• Inadequate health literacy is an important public health problem • As a health worker, I have responsibilities arising from the levels of my patients' health literacy • Studies to improve health literacy should be conducted and programs should be developed • Studies aimed at improving health literacy will affect the quality of health services • Studies aimed at improving health literacy will affect the occupational satisfaction of health workers
Behavior (skill)	• I create an environment that respects the privacy of the individual during drug counseling • I make sure that the patient is seated in a suitable place if necessary • I address patients with their names • I know individuals with low health literacy • I know what information I have told my patients that can be understood by the patients • I speak slowly • I am careful not to use medical terms • I repeat the information that I provide • I want my patients to repeat or show me what I say or suggest • I highlight a maximum number of key points (1 to 3) during a conversation • When giving information to my patients, I show/draw with pictures/writing when necessary • I create patient-specific training material • I use improved training and information materials (brochures, booklets, etc.) • I highlight key points in the information materials that I use • I direct patients to health information sources that I think are appropriate

Table 2. Pharmacists' knowledge, attitude, and behavior scores concerning health literacy according to age and sex (N=398).

Age group and gender		Knowledge score Median (min-max)	Attitude score Median (min-max)	Behavior score Median (min-max)
Age group	18–29 years	19.0 (14.0–24.0)	24.0 (20.0–25.0)	64.0 (52.0–69.0)
	30–39 years	21.0 (18.0–25.0)	22.0 (17.0–25.0)	62.0 (46.0–72.0)
	40–49 years	21.0 (10.0–25.0)	23.0 (14.0–25.0)	65.5 (53.0–73.0)
	50–64 years	21.0 (19.0–23.0)	22.0 (20.0–25.0)	65.0 (47.0–72.0)
	≥65 years	20.0 (20.0–20.0)	21.0 (21.0–21.0)	65.0 (65.0–65.0)
		p=0.0001[a]	**p=0.016[a]**	**p=0.0001[a]**
Sex	Male	21.0 (14.0–25.0)	22.5 (17.0–25.0)	64.0 (46.0–73.0)
	Female	21.0 (10.0–25.0)	22.0 (14.0–25.0)	65.0 (53.0–73.0)
		p=0.063[b]	**p=0.063[b]**	**p=0.341[b]**

[a]Kruskal–Wallis analysis of variance; [b]Mann–Whitney U Test; N: Number of respondents

Overall, 17.6% of the pharmacists spent less than 10 years in the profession, 24.1% had worked 10–19 years, and 58.3% had worked more than 20 years. Almost 72.9% had worked in the same place for 5 years or more and 27.1% had worked there for less than 5 years. Only four had an assistant pharmacist. The number of daily patients was < 20 among 1.5% of the pharmacists, 20–29 among 2%, 30–39 among 8.1%, 40–49 among 37.2%, 50–59 among 25.6%, and ≥ 60 among 25.6% of the pharmacists. Pharmacists' knowledge, attitude, and behavior scores concerning health literacy according to years spent in the occupation, years spent at the current workplace, and number of patients seen daily are shown in Table 3. Significant differences were seen for all factors, except for participants' attitude scores and the number of patients seen daily.

The satisfaction levels of pharmacists were as follows: 1% were dissatisfied, 8.5% were partially satisfied, 1.5% were neutral, 49.2% were satisfied, and 39.8% were very satisfied.

Table 3. Pharmacists'knowledge, attitude, and behavior scores concerning health literacy according to years spent in the occupation, years spent at the current workplace, and number of patients seen daily (N=398).

Working time and number of patients		Knowledge score Median (min-max)	Attitude score Median (min-max)	Behavior Median (min-max)
Time spent in the occupation	<10 years	19.0 (14.0–25.0)	22.0 (17.0–25.0)	64.0 (50.0–71.0)
	10–19 years	21.0 (18.0–25.0)	22.0 (19.0–25.0)	65.0 (46.0–73.0)
	≥20 years	21.0 (10.0–25.0)	22.5 (14.0–25.0)	65.0 (47.0–73.0)
		p=0.0001[a]	**p=0.0001[a]**	**p=0.024[a]**
Time spent in the current workplace	≤5 years	20.5 (14.0–25.0)	21.0 (17.0–25.0)	64.0 (50.0–72.0)
	>5 years	21.0 (10.0–25.0)	23.0 (14.0–25.0)	65.0 (46.0–73.0)
		p=0.004[b]	**p=0.004[b]**	**p=0.001[b]**
Number of patients seen daily	<40	21.0 (14.0–25.0)	64.0 (55.0–71.0)	21.0 (17.0–25.0)
	≥40	21.0 (10.0–25.0)	65.0 (46.0–73.0)	22.0 (14.0–25.0)
		p=0.037[a]	**p=0.245[a]**	**p=0.005[a]**

[a]Kruskal–Wallis analysis of variance; [b]Mann–Whitney U Test; N: Nnumber of respondents

Table 4. Pharmacists' knowledge, attitude, and behavior scores concerning health literacy according to in-service training and occupational satisfaction (N=398).

Training before or after graduation and occupational satisfaction		Knowledge score Median (min-max)	Attitude score Median (min-max)	Behavior score Median (min-max)
Receiving communication skills training before or after graduation	Yes	21.0 (17.0–25.0)	24.0 (18.0–25.0)	62.0 (50.0–73.0)
		21.0 (10.0–25.0)	22.0 (14.0–25.0)	65.0 (46.0–72.0)
		p=0.0001[b]	**p=0.0001[b]**	**p=0.016[b]**
Health literacy training before or after graduation	Yes	22.6 (20.0–25.0)	22.0 (19.0–25.0)	62.0 (55.0–70.0)
	No	21.0 (10.0–25.0)	22.0 (14.0–25.0)	65.0 (46.0–73.0)
		p=0.0001[b]	**p=0.0001[b]**	**p=0.063[b]**
Occupational satisfaction	Dissatisfied	20.0 (10.0–25.0)	62.0 (53.0–72.0)	21.0 (14.0–25.0)
	Neutral	21.0 (20.0–25.0)	65.0 (61.0–72.0)	23.0 (19.0–25.0)
	Satisfied	21.0 (17.0–25.0)	65.0 (46.0–73.0)	22.0 (17.0–25.0)
		p=0.008[a]	**p=0.102[a]**	**p=0.041[a]**

[a]Kruskal–Wallis analysis of variance; [b]Mann–Whitney U Test; N: Number of respondents

Pharmacists' knowledge, attitude, and behavior scores concerning health literacy according to in-service training and occupational satisfaction are shown in Table 4. Significant differences were seen for all factors, except for participants' behavior scores, attitude scores, health literacy training before or after graduation, and occupational satisfaction.

Of the pharmacists who participated in this study, 87.4% stated that they had not received education related to health literacy, 78.4% had received communication skills training before or after graduation, 86.9% thought that they knew the rights of patients while offering healthcare, and 84.9% agreed that they knew what low health literacy meant for patients. The pharmacists' opinions regarding attitudes about health literacy and behaviors related to health literacy are shown in Tables 5 and 6, respectively.

Pharmacists' opinions concerning the difficulties that prevent healthy communication among patients with inadequate health literacy are shown in Table 7.

When pharmacists were asked what subjects should be included in training, the critical issues were media literacy, special education programs for chronic diseases, educational programs for preventive health services, programs for multi-drug use, respect for the pharmacist profession, informing the public about practices resulting from health practice communications, and informing pharmacists about local terms for certain medical conditions.

Table 5. Pharmacists' opinions regarding attitudes about health literacy (N=398).

Opinions	n (%)
Inadequate health literacy is a key public health problem	
Disagree	4 (1.0)
Neutral	32 (8.0)
Agree	362 (91.0)
As a health worker, I have responsibilities arising from my patients' health literacy	
Disagree	8 (2.0)
Neutral	56 (14.1)
Agree	334 (83.9)
Studies to improve health literacy should be conducted and programs should be developed	
Disagree	4 (1.0)
Neutral	20 (5.0)
Agree	374 (94.0)
Studies to improve health literacy will affect the quality of health services	
Disagree	-
Neutral	12 (3.0)
Agree	386 (97.0)
Studies aimed at improving health literacy will affect the occupational satisfaction of health workers	
Disagree	-
Neutral	32 (8.0)
Agree	366 (92.0)

N: Number of participants, n: Number of respondents, %: Percentage of column

DISCUSSION

When analyzing these study findings, we noted that most pharmacists were satisfied with their profession, and most had never received any education related to health literacy; however, most had received communication skills training before or after graduation.

A significant proportion of the pharmacists involved in this study had a high awareness of health literacy. More than half stated that they understood what low health literacy meant for patients, they knew the frequency of low health literacy, knew what groups were prone to low health literacy, understood the relationship between low health literacy and health, and knew how to treat patients with low health literacy. In addition, most thought that inadequate health literacy was a key public health problem; that, as healthcare workers, they had responsibilities arising from their patients' health literacy; thought that studies should be performed to improve health literacy; and thought that these studies would affect healthcare quality and professional satisfaction. The 49.2% pharmacists were satisfied with their jobs.

Almost all pharmacists agreed that "inadequate health literacy is a major public health problem," that "studies to improve health literacy should be conducted and programs should be developed," that "studies to improve health literacy would affect the quality of health services," and that "studies aimed at improving health literacy will affect the occupational satisfaction of health workers." In summary, we revealed an association between increased health literacy, health service satisfaction, and occupational satisfaction.

In practical terms, we found data that would corroborate the idea that health care could be enhanced by improving the health literacy level of both pharmacists and patients, which could lead to an improvement in the rationality and cost-effectiveness of drug use. Thus, we can infer that, if the level of health literacy were adequate in Turkey, this could positively affect the health care system costs. Further, health professionals with good health literacy could improve their patients' health literacy level and thereby help the latter to obtain more efficient and effective health care. With that in mind, we believe that efforts to improve health literacy need to be multifaceted. The Ministry of Health, media outlets, health professional organizations, universities, and health vocational schools should participate actively and effectively in these studies.

Also, when measuring health literacy, it is essential to use a scale that considers respondents' sociocultural and economic characteristics. In Turkey, patients can easily reach pharmacies, and pharmacists act as health consultants in many health problems. Therefore, the knowledge, attitude, and behavior of pharmacists concerning health literacy are critical in the dis-

Table 6. Pharmacists' opinions regarding behaviors related to health literacy (N=398).

Opinions	n (%)
During drug counseling, I create an environment that respects the privacy of the individual	
Disagree	-
Neutral	8 (2.0)
Agree	390 (98.0)
I know individuals with low health literacy	
Disagree	64 (16.1)
Neutral	60 (15.1)
Agree	274 (68.8)
I am careful not to use medical terms	
Disagree	4 (1.0)
Neutral	36 (9.0)
Agree	358 (90.0)
I repeat the information that I provide	
Disagree	-
Neutral	16 (4.0)
Agree	382 (96.0)
I want patients to repeat or show me what I say or suggest	
Disagree	12 (3.0)
Neutral	36 (9.0)
Agree	350 (88.0)
I show or draw with pictures or writing when I need to give information to patients	
Disagree	20 (5.0)
Neutral	28 (7.0)
Agree	358 (88.0)
I use developed training and information materials (brochures, booklets, etc.)	
Disagree	40 (10.0)
Neutral	40 (10.1)
Agree	318 (79.9)
I direct patients to health information sources that I think are appropriate	
Disagree	32 (8.0)
Neutral	40 (10.1)
Agree	326 (81.9)

N: Number of participants, n: Number of respondents, %: Percentage of column

Table 7. Pharmacists' opinions concerning the difficulties that prevent healthy communication among patients with inadequate health literacy (N=398).

Opinions	n (%)
Limited time per patient (N=398)	
Partially/slightly effective	12 (3.0)
Neutral	24 (6.0)
Effective	362 (91.0)
Health-related information is complicated (N=398)	
Partially/slightly effective	40 (10.1)
Neutral	16 (4.0)
Effective	342 (85.9)
Lots of information to be transferred (N=398)	
Partially/slightly effective	36 (9.0)
Neutral	28 (7.0)
Effective	334 (84.0)
Low knowledge or general education levels of patients (N=398)	
Partially/slightly effective	8 (2.0)
Neutral	16 (4.0)
Effective	374 (94.0)
Lack of prepared educational materials (N=398)	
Partially/slightly effective	8 (2.0)
Neutral	72 (18.1)
Effective	318 (79.9)
Insufficient efforts to improve health literacy (N=398)	
Partially/slightly effective	18 (4.5)
Neutral	28 (7.0)
Effective	352 (88.5)
Lack of available and appropriate public health information resources (N=398)	
Partially/slightly effective	16 (4.0)
Neutral	10 (5.0)
Effective	362 (91.0)
Health information in the media is misleading to patients (N=398)	
Partially/slightly effective	-
Neutral	16 (4.0)
Effective	382 (96.0)

N: Number of participants, n: Number of respondents, %: Percentage of column

semination of health services. To raise public health literacy to an adequate level, priority should be given to health professionals' ability to educate patients. Special informative materials should be prepared, training programs for health professionals should be developed, and these should be conducted on a platform common to all stakeholders.

The high frequency of agreement to the suggestions "showing information to patients with pictures or writing when necessary," "creating patient-specific written education materials," and "using improved information materials" also demonstrated the necessity to use and develop visual materials for postgraduate education to improve health literacy.

CONCLUSION

The main outcome of this study was to gather and analyze data to assess Turkish pharmacists' awareness in the health literacy topic related to the general population; to determine the level of their skills related to this concept; and to find possible gaps in the pharmacists' skills regarding health literacy that would require further training. In total, 398 Turkish pharmacists participated in this study, and we included male and female pharmacists from diverse age groups, and with a wide range of work experience.

Throughout this study, we found that communicating with patients and using visual materials increases the effectiveness of the message when communicating with patients regarding health literacy, and pharmacists indicated that these materials would be useful when presenting their opinions.

This study configures the first attempt to study this topic in Turkey regarding pharmacists, and we recognize this as its main strength. Now, in terms of limitations, we find that the opinions of the pharmacists were based on our suggestions, and there is a need for future studies to be conducted using scales and observers that may measure Turkish pharmacists' approach to health literacy. And also as the survey was conducted by telephone, it was unable to get information regarding behaviors. The majority of pharmacists that participated in this study were from the Ankara province though we planned to get information throughout Turkey.

Ethics Committee Approval: Our study protocol was approved by the Gazi University's Institutional Review Board on 11.04.2017, and all participants provided informed consent in the format required by the relevant board.

Informed Consent: Written consent was obtained from the participants.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception/Design of Study- H.İ., S.Ö.; Data Acquisition- H.İ.; Data Analysis/Interpretation- H.İ., S.Ö.; Drafting Manuscript- H.İ.; Critical Revision of Manuscript- H.İ., S.Ö.; Final Approval and Accountability- H.İ., S.Ö.; Technical or Material Support- H.İ.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: Authors declared no financial support.

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