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Prevalence and Determiners of Health Literacy in Turkey

Türkıye'de Sağlık Okuryazarlığı Düzeyi ve Belirleyicileri

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Öz

Amaç: Sağlık okuryazarlığının (SOY) sınırlı düzeyde olması, Türkiye'deki önemli konulardan biridir. Avrupa SOY Ölçeği (HLS-EU) anketinin geçerliliği 2012 yılında Türkiye'de test edilmiş, ancak SOY düzeyini belirlemek için uygulanmamıştır. Sağlığın idamesi için toplumun SOY düzeyini belirlemek ve problemleri tanımlamak gerekmektedir.SOY için, halkla yakın ilişki içinde olan birinci basamak sağlık çalışanlarına büyük bir görev düşmektedir. Çalışmanın amacı, Türkiye'nin başkentinde birinci basamak sağlık merkezlerine başvuran 18 yaş üstü bireylerin SOY düzeyini değerlendirmektir. Bu, Türkiye'de geçerliliğinin test edildiği bir ölçek ile SOY düzeyini belirlemek için yapılan ilk çalışmadır ve ülke genelinde HLS-EU kullanılarak SOY düzeyinin belirlenmesi ile ilgili araştırmanın ön çalışmasıdır.

Yöntem; Kesitsel tip araştırmada 2139 kişiye ulaşılmıştır. Anket dört düzeyde SOY düzeyini ölçmektedir.: yetersiz, sorunlu, yeterli ve mükemmel.

Bulgular: Araştırmaya katılanların dörtte üçünde (% 73,5) 3'ünde sınırlı (yetersiz / problemli) SOY düzeyi vardı. İki değişkenli korelasyonlar ve çok değişkenli doğrusal regresyon modeline göre, Sınırlı SOY düzeyi, ileri yaş, düşük eğitim seviyesi ve ekonomik düzey ile anlamlı olarak ilişkili bulunmuştur.

Sonuç: Toplumumuzda SOY düzeyi düşüktür ve sağlığın geliştirilmesi için bu düzeyi arttırma çalışmaları gerekmektedir.

Anahtar Kelimeler: Sağlık okuryazarlığı, Türkiye, Halk sağlığı.

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Abstract

Aims: The limited level of health literacy (HL) is one of the important issues in Turkey. The validity of HLS-EU questionnaire was tested in Turkey in 2012, but it was not applied to identify the HL level. It is necessary to identify our society's level and eliminate the negativities of insufficient HL. For HL, a great duty falls to the primary healthcare workers which are in close relationship with the public. It was aimed in the study to evaluate the HL level of individuals above 18 years old who applied to primary healthcare centres in the capital city of Turkey. This is the first study for determining the HL level with a scale of which validity had been tested in Turkey and purports to be the pilot of the research concerning the determination of HL level by using the HLS-EU all over the country

Methods; In the cross-sectional-type research, 2139 individuals were accessed. The questionnaire constructed four levels of HL: insufficient, problematic, sufficient and excellent.

Results: Almost 3 in 4 (73,5%) have limited (insufficient/problematic) HL level. According to bivariate correlations and multivariate linear regression model, Limited HL scores were significantly associated with older age, low educational and economic level.

Conclusion: The fact that limited health literacy is more widespread in health promotion than in the therapeutic services reveals the importance of initiatives in the field of health promotion.

Keywords: Health Literacy, Turkey, Public Health.

Introduction

Health literacy (HL) is defined as the capacity to acquire, interpret and understand basic health information and services to improve an individual's health (1). Health literacy includes complex readings, listening and comprehension, analytical and decision-making skills and applying such skills to related cases of health (2). WHO establishes the close relationship between health literacy and general literacy as follows: "health literacy is related to general literacy and can be used to describe people's desire and capacity throughout their lives to develop convictions and make decisions about health care issues, to protect, maintain and improve their health, to access information resources related to health to improve their quality of life and to perceive and understand health-related information and messages accurately" (3).

A low HL level is associated with negative health outcomes. (4) It is also known that -with low HL- unnecessary hospital expenses increase, hospital stay times prolongs, unnecessary tests and unnecessary emergency service uses increase. All of these causes lead to unnecessary workforce losses and, in turn, increased health spending (5,6).

According to the UNESCO 2009 report, 776 million adults in the world do not have basic health literacy. According to a study in the United States, on the other hand, 50% of adult individuals do not have basic health literacy (7).

In a study on health literacy in 8 European countries, it was found that 12% of the respondents have inadequate information and skills while 35% have at problematic level. It was found that groups with low general education and income levels, minority groups,

recently migrated ones, those with lower general health status, those with prolonged health problems and older people have a lower level of health literacy. (8) HL level is influenced by sociodemographic, psychosocial and sociocultural indicators, general literacy level, individual characteristics and health care system (9).

When the reflections of HL level to the society are reviewed, we see such topics as the number of people affected, adverse health outcomes, increases in chronic illness rates, increase in health care costs, demands for health information and equality. Development of health literacy is an important tool in reducing inequalities in health. (10)

Health literacy is a fairly new topic that has begun to be dwelled upon in our country. The level of health literacy has not been identified with a valid scale in our country. This is the first study in Turkey after the validity of the HLS-EU scale. Identification of risk groups for limited health literacy is very important to develop plans and programs that take these groups into consideration in planning the health services. When it is considered that disadvantaged individuals are more likely to benefit from primary health care services, it can be thought that the level of health literacy in primary health care service users corresponds to a specific situation / problem in terms of factors affecting health literacy.

Health literacy, which is thought to be inadequate in Turkey, is one of the important issues that must be studied in order to increase the individuals' responsibility for their health. It is necessary to determine the level of health literacy in our society and to eliminate the negative effects of the existing limited health literacy (inadequate + problematic) on the individual and the society.

This study aims to evaluate the health literacy level of people aged 18 years or older who applied to some family health centers in Ankara, the capital of Turkey, and the factors determining their health literacy level.

Materıals and Methods

The sample universe of the research is composed of individuals over the age of 18 who applied to 16 primary health care institutions for any reason in the four different Education Research Areas of G… University Faculty of Medicine between 25-29 June 2017. It was determined that a total of 16.170 adults applied to the health care institutions on a weekly basis. As the expected frequency of inadequate health literacy was 25% (11), it was aimed to reach 1620 individuals in the result of a calculation with deviation value of 2% and 95% confidence interval. But we got inadequate health literacy 50% because our frequency is unknown in our region. It was aimed to reach 2091 individuals in the result of a calculation with deviation value of 2% and 95% confidence interval. A total of 2091 people were reached.

Systematic sampling was used as the sampling method. Dividing the size of the universe by the sample size (16170/2091 = 7.7), every seventh person who applied to the health institution was included in the research. If any of such persons did not want to participate in the survey, the research continued by taking the next eleventh person. Study permission was obtained from the ethics committee of our university (No: 07.03.217 / 03)

The research was a cross-sectional study, and a T-HL 32 questionnaire was used as the data source and face-to-face interview method was applied. The scale is based on the conceptual framework developed by the European Health Literacy Survey Consortium (HLS-EU CONSORTIUM, 2012). However, unlike the original scale, THL-32 is structured based on a 2X4 matrix taking two basic dimensions instead of three. Accordingly, the matrix consists of a total of eight components: two dimensions (Treatment and Service and Protection against disease / improving health) and four processes (Access to health-related information, understanding health-related information, evaluating health-related information, using/applying health-related information). There are 4 questions for each component in the scale.

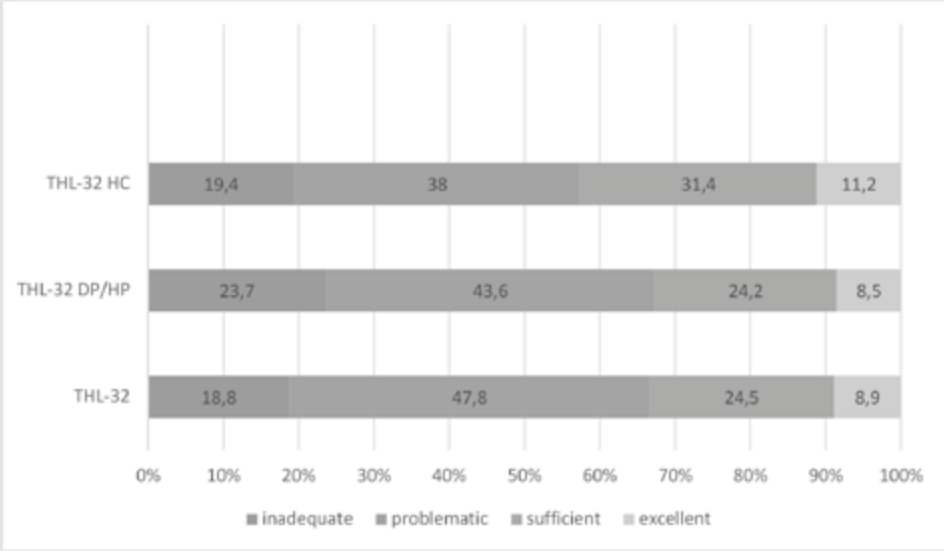
The reliability of the scale in Turkish was assessed by internal consistency (Cronbach Alpha). The general internal consistency coefficient of the scale was 0.927. The Cronbach's alpha coefficient for the first dimension, "Treatment and Service Sub-Dimension" is 0.880. The Cronbach's alpha coefficient of the second dimension "Disease Prevention and Health Promotion Dimension" is 0.863 (12).

Statistical Analysis

The research data were evaluated by SPSS 21.0 statistical package program. Chi-square test and linear regression analysis were used as statistical methods. Statistical significance value was accepted as $p < 0.05$.

Results

Figure 1. Percentage change in health literacy level (THL-32, THL-32 DP/HP (THL-32 disease prevention/health promotion), THL-32 HC (THL-32 health care))



It was found that 18.8% of the respondents had inadequate health literacy levels, 47.8% of them had problematic, 24.5% had sufficient and 8.9% had excellent levels. The frequency of those with inadequate or problematic health literacy is 57.4% in the field of treatment services, while it is 67.3% in the field of prevention from diseases and health promotion (Figure 1).

Table 1. The variation of health literacy levels according to some demographic and socioeconomic characteristics.

	n (%)*	THL-32 Health literacy level (%) **				p
		Inadequate	Problematic	Sufficient	Excellent	
Gender						> 0.05
Female	1034 (51.7)	19,0	49.2	23.3	8.5	
Male	967 (48.3)	18.6	46.2	25.9	9.3	
Education level.						<0.001
No school graduation	37 (1.9)	64.9	35.1			
Primary school	279 (14.0)	39.4	42.7	15.8	2.2	
Primary school, secondary school or vocational secondary school	244 (12.2)	25.0	52.9	16.4	5.7	
High school and equivalent school	675 (33.8)	16.6	49.5	24.4	9.5	
Higher education	762 (38.2)	8,9	47.0	31.8	12.3	
Income group						<0.001
<1300 TL	236 (12.0)	30.9	41.5	23.3	4.2	
1300-2600 TL	733 (37.2)	23.2	47.6	21.6	7.6	
2600-3900 TL	437 (22.2)	15.6	50.8	24.3	9.4	
3900-5200TL	330 (16.8)	13.3	48.5	28.8	9.4	
> 5200 TL	233 (11.8)	6.9	48.5	30.0	14.6	

: percentage of column: percentage of rows*

Table 1 shows the variation of health literacy levels according to some demographic and socioeconomic characteristics. The frequency of those with inadequate or problematic health literacy is generally decreasing with the level of education and there is a statistically significant difference between the levels of education (p <0.001). Similarly, the frequency of those with inadequate or problematic health literacy level is decreasing as income groups increase and there is a significant difference in the level of health literacy among the income groups (p <0.001).

Table 2. Linear regression model of demographic and socio-economic features that affect health literacy.

	THL-32		THL-32 Disease prevention/health promotion		THL-32 Treatment services	
	β	Standardized β	β	Standardized β	β	Standardized β
Constant	27.700 ***		27.461 ***		27.445 ***	
Age	-0,106***	-0,207	-0,099***	-0,186	-0,110***	-0,197
Gender	0.55	0,04	0.126	0.08	0.145	0.009
Education level.	1.597 ***	0.236	1.363 ***	0.193	1.875 ***	0.254
Income group	0..415**	0.067	0.428	0.066	0,400*	0.059

**: p < 0.05 **: p < 0.01, ***: p < 0.001*

Table 2 **shows** the linear regression model of demographic and socioeconomic characteristics that affect health literacy (p <0.001). THL-32 score and domain score decrease with age. Gender effect is not significant in any of the models. In all models, the score increases as the level of education and the income groups increase. On the other hand, it is observed that the education level has the highest standardized β value among the variables with significant effect on the model.

Table 3. THL-32 the linear regression model demographic and socio-economic features that affect dimension scores

	Access		Comprehension		Evaluation		Implementation	
	β	Standardized β	β	Standardized β	β	Standardized β	β	Standardized β
Constant	27.553 ***		28.591 ***		26.117 ***		28.272 ***	
Age	-0,138***	-0,236	-0,106***	-0,188	-0.095 ***	-0,167	-0.085 * **	-0.156
Gender	-0.100	-0.006	-0.262	-0.016	0.382	0.023	0.351	0.022
Education level.	1.934 ***	0.251	1.623 ***	0.218	1.351 ***	0.179	1.372 ***	0.191
Income group	0.784***	0.111	0.558***	0.081	0.333	0.048	0.045	0.007

**: p < 0.05 **: p < 0.01, ***: p < 0.001*

Table 3 shows the linear regression model of demographic and socioeconomic characteristics that affect THL-32 dimension scores (p <0.001). With age, the score decreases in all dimensions. While the effect of the gender on the model is not significant in any of the dimensions, the effect of the level of education on the model is significant in all dimensions. It is seen that the effect of income group on the model is significant in dimensions outside the application. When we look at the standardized β values, education level and age are seen as variables having the biggest effect on the model in all of the models established for dimensions.

Table 4. The change of certain health characteristics according to health literacy level.

	n (%)*	THL-32 Health literacy level (%) **				p
		Inadequate	Problematic	Sufficient	Excellent	
Perceived health						<0.001
Excellent	296 (14.8)	6,4	12.3	19.3	33.1	
Good	1048 (52.4)	40.4	54.9	56.4	52.8	
Medium	539 (26.9)	38.3	28.1	21.4	11.8	
Poor	110 (5.5)	13.8	4.4	2.4	2.2	
Very Poor	8 (0.4)	1.1	0.2	0.4	-	
Chronic Disease						<0.001
Yes	553 (27.6)	44.1	27.4	19.6	16.3	
No	1448 (72.4)	55.9	72.6	80.4	83.7	
Regular follow-up by a health care provider for chronic illness						
No	112 (20.3)	22.9	20.6	11.5	31.0	
Yes	441 (79.7)	77.1	79.4	88.5	69.0	
Regular use of medication prescribed by a physician for chronic illness						<0.01
No	68 (14.0)	19.6	14.6	4.9	4.2	
Yes	419 (86.0)	80.4	85.4	95.1	95.8	

**: the percentage of column*

Table 4 shows the change of certain health characteristics according to health literacy level. The frequency of those with poor or very poor perceived health falls from 14.9% in the lowest health literacy group to 2.2% in the excellent health literacy group as it decreases with the increase of health literacy levels. There seems a statistically significant difference in perceived health between health literacy levels ($p < 0.001$). The frequency of chronic disease decreases from 44.1% in the lowest health literacy group to 16.3% in the highest health literacy group ($p < 0.001$). While there is no difference between the health literacy groups in terms of follow-up in a health facility for chronic illness, there is a difference in the regular use of the drug ($p < 0.01$).

Discussion

Health literacy (HL) is conceptualized in different frameworks and can be measured by different measurement tools (13,14,15,16). It is stated that health literacy measurement should not only focus on evaluating the skills of the persons, but also health service provision and person interaction should also be taken into account (13). As the THLS (Turkish Health Literacy Scale) used in this study is an adaptation of the scale used in HLS-EU (European Health Literacy Survey) taking into account the characteristics of health care delivery and health-related social perceptions in the country, it is believed to meet the stated requirement (12,17).

Health literacy, with few number of studies in this field, is still a new topic for Turkey (11). It can be said that this study is a pioneering work for Turkey with the use of a culture-specific health literacy scale developed taking into account the country conditions and its application to those who apply to primary health care institutions.

Health literacy level

In our study, 18.8% of the respondents have inadequate and 47.8% have problematic HL level. In Turkey, 24.5% inadequate and 40.1% problematic HL were found in a population-based study using a scale created by exact translation of the HLS-EU scale (11). HLS-EU resulted 12% inadeqaute and 35% problematic HL (18).

Although the use of different scales that define different categories of health literacy in studies can be considered as a limiting factor for comparison, it may give an idea as to observe the change of inadequate health literacy levels relative to societies. 43.8% inadequate and 36.8% marginal HL were found in a study of primary care users in Kosovo with TOFHLA scores (TOFHLA scores were categorized into marginal, inadequate and adequate HL) (19). In the primary care users' study with TOFHLA in Belgrade, 32% inadequate and 14.4% marginal HL were found (20).The results of "The Health Literacy of America's Adults" shows 14% below basic HL, 22% basic HL, 53% intermediate HL, 12% proficient HL, (21). In Taiwan, inadequate HL was found 13.7% while marginal HL was 16.5% and adequate HL was 69.7% (22). In Iran, HL levels were found to be 5.5% poor, 49.8% average, 40.5% good, and 4.2% excellent (23). The frequency results of our study point to a more wide-spread limited health literacy in Turkey than other outcomes except for Kosovo study.

The frequency of inadequate and problematic HL in our study is higher for the prevention and promotion dimension (23.7% and 43.6%) than for health care (19.4% and 38%), respectively. According to the HLS-EU results, the proportion of inadequate HL is 12.1% for health care-HL, respectively, 13.7% for disease prevention-HL, 20.1% for health promotion-HL. Moreover variations by country follow similar patterns to the categorized as general HL index (18). This result may be related to the fact that services and interventions in the field of health promotion are relatively new, and it may also be related to the relatively complex nature of information resources in this area. The fact that limited health literacy in the area of health promotion is a more serious problem gives rise to the idea that intervention points should be directed primarily towards the health promotion.

Age

The HL score decreases with age in all of the models established in our study. According to some studies including HLS-EU and NAAL, age is a risk factor for HL (21,24,25,26). On the other hand, as in the two studies conducted in primary health care institutions, there are studies that do not identify age as a risk factor for some dimensions of HL (19,20). While some components of the HL work together with different associations, age is seen as a risk factor for HL in the studies. It can be said that the countries including Turkey, where the demographic transition can be said to be at the beginning stage of the increase of the elderly population, face an important risk group which is growing in the long term.

Gender

None of the models established in our study reveal that gender has significant effects on the model. In one of the studies conducted in primary institutions men were found to be advantageous in Kosovo but it was found that gender has no effect on the model in Belgrade study (19,20). There are studies that say that women are more advantageous (21,24,25). There are also studies that say men are more advantageous (26,27).

Education

In our study, it is seen that the group with the lowest level of education is at the level of limited HL which is used as the title which includes inadequate or problematic. Limited HL decreases to 82.1% in primary school graduates and continues to decrease in increasing education groups until it decreases to 55.9% in the highest education group. The frequency of inadequate or marginal HL in the low education group is 98.2% in the study in Kosovo and 74% in the study in Belgrade (19.20). When compared with HLS-EU, it is striking that the limited HL frequency in the highest education group our study (55.9%) is higher than the limited HL frequency in HLS-EU (47%) (24). It is also striking that the frequency of limited HL in our study (66.6%) is close to the frequency (68%) of the group with the two lowest education groups in HLS-EU (no school education or primary education) (24).

It can be said that all studies on the determinants of health literacy agree that “the level of education” is the key determinant. (21, 22, 25, 26, 27, 28, 29). The effect of the level of education on the model is significant in all the models established in our work and

education is the variable with the highest standardized β value for all of the models. The effect of education was found significant in the model for HLS-EU as well (24). In the study conducted in Germany with the HLS-EU questionnaire, the low educational level was found to be a risk factor for accessing, understanding and applying in health care domain, for accessing and understanding in disease prevention domain and for understanding in health promotion domain (30). The studies agree on the effect of the level of education on HL, but it can be said that there are clues for differentiation on the extent of such effect on different HL components.

Income

In our study, the limited HL frequency decreases from 72.4% in the lowest income group to 55.4% in the highest income group. In the case of Kosovo, inadequate or marginal HL income group is 93% for poor and 71% for good, while in Belgrade the inadequate or marginal HL for the lowest socioeconomic status is 58.5% and 39.0% for the highest (19,20). In HLS-EU, limited HL frequency was 73.9% for very low social status and 60% for low (24). It is striking that the lowest income group (72.4%) in our study and the limited HL frequency for the lowest socioeconomic level (73.9%) in HLS-EU were found to be similar. The comparison between our study and the HLS-EU for income shows a pattern that is different from the one for education.

Various studies have also found that HL increases as the income group increases (22,25,26,28). In our work, in the models other than the one created for the application division, the effect of income on the model is significant. Studies investigated the effects of the income group or other welfare variables on the multivariate model. While the impact of the income group is not significant in the Kosovo study, the effect of socioeconomic status is not significant but the effect of being employed is significant in the Belgrade study (19,20). In HLS-EU, the effect of social status and financial deprivation is significant (24). In the study conducted in Germany with the HLS-EU questionnaire, low-income groups were found to be risk factors in the accessing and understanding divisions of health care (30). In the same study, perceived social status was found to be insignificant for certain divisions of all three domains but also significant for certain other divisions (30). As mentioned in this study, it can be said that the evaluations to be made with different parameters for the socio-economic status will be more functional in displaying different dimensions of the relationship (30).

HL health effects

In addition to the relationship between HL-related determinants, our study investigates the relationship between HL and some health variables that HL might affect. The frequency of those whose perceived health is poor or very poor reduces from 14.9% in inadequate HL to 2.2% in excellent HL. The frequency of perceived poor health in the Belgrade study was 9.5% in adequate HL and 22.7% in inadequate HL (20). Perceived health and HL were found to be interrelated in a study in Japan while health literacy was found to be a variable mediating the effects of education on perceived health in a study in Germany (31, 32).

The frequency of chronic illness in our study is reduced from 44.1% in those with inadequate health literacy to 16.3% in those with excellent health literacy. In Belgrade study, the frequency of chronic illness is 69.8% in adequate HL and 88.3% in inadequate HL (20). In a first-line study using NVS in Canada, literacy and multimorbidity were associated in bivariate analyses, but not in multivariate analyses (33). The role of health literacy on the perceived health and chronic disease or multimorbidity and its relation to other determinants can be demonstrated in more detailed studies.

While there was no difference in our study among the levels of health literacy in terms of regular follow-up for chronic illness, a significant difference was found for regular medication use. Two studies in Germany and Taiwan have shown that limited health literacy is associated with more health care use and, in a study conducted in Iran, no relation was found between HL and application to primary care physician and specialist physician (12-13-19). Determining the relationship between the different characteristics of health care use and the different components of health literacy may provide conclusions that can be used in the planning of health services. The effect on regular drug use is striking in that it shows the function of health literacy in compliance with treatment.

Limitations of the Study

Measuring the level of health literacy with a scale is an advantage that allows standard outcomes to be achieved. On the other hand, the fact that questions in the scale are based on respondents' statements and the questioning of health literacy only limited to the conceptual framework that constitutes the backdrop of the scale can create disadvantage points. Measuring health literacy in different forms and categorizing the results in different forms in various studies and categorizing and examining the effects of determining variables such as education/income/welfare levels in different forms constitute an obstacle to comparing research results. However, it can also be stated that these situations can be seen as a structural problem that may apply to all studies related to the subject.

The study was designed with the aim of determining the level of healthcare literacy specifically for primary health care users. In the sections where the frequencies in our study are compared with the results of collective research, this should be kept in mind as a limitation.

Conclusion

The fact that limited health literacy is more widespread in health promotion than in the therapeutic services reveals the importance of initiatives in the field of health promotion.

In our study, similar patterns are shown in the models created separately for HL's different domains and different divisions except that the effect of income group on the model created for application is not significant. This conclusion suggests that the interventions to improve the determinants of influence for Turkey may be functional in the broad spectrum of health literacy.

As pointed out by differences in perceived health, chronic illness and regular drug use among different levels of health literacy, taking HL into account in studies on the factors that determine health and health-care use may produce results that will help elucidate the complex relationship of health literacy to other variables.

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No

Conflicts of interest

There are no conflicts of interest.

References

- Peerson A. and Saunders M. (2009) Health Literacy Revisited: What Do We Mean And Why Does İt Matter? Health Promot. Int., April 16, 2009; Dap014v1.
- Healty People 2010: Understanding And Improving Health. US Department Of Health And Human Services. 2nd Ed. Washington, DC: US Government Printing Office, November 2000.
- WHO. Health Literacy. In: Kickbusch I, Pelikan LM, Apfel F, Tsouros AD, 2013. Editors. World Health Organization, Regional Office For Europe,
- Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Crotty K. 2011 Low Health Literacy And Health Outcomes: An Updated Systematic Review. Ann Intern Med.;155:97-107
- Sağlık Okuryazarlığı Nedir, Nasıl Değerlendirilir, Neden Önemli. "What is Health Literacy? How to Measure It? Why is It Important?." 2016 The Turkish Journal of Family Medicine and Primary Care (TJFMPC),;10(1):42-47. DOI: 10.5455/tjfmpc.1937965.
- Dewalt DA, berkman ND, Sheridan S, Lohr Kn, Pignone Mp. 2004 Literacy And Health Outcomes. J Gen Intern Med; 19: 1228–1239.
- Sorensen K, Van Den Broucke , Fullam J, Et Al. 2012 Health Literacy And Public Health:A Systematic Review And İntegration Of Definitions And Models. BMC Public Health; 12(80): 1-13.
- BİLİR N. , 2014 Hacettepe Üniversitesi Halk Sağlığı Enstitüsü, Ankara, Turk J Public Health;12(1)
- Balçık, Pınar Yalçın, S. Taşkaya, and B. Şahin. 2014 Sağlık okur-yazarlığı. TAF Preventive Medicine Bulletin 13.4: 321-326.
- Yılmazel, Gülay, and Fevziye Çetinkaya. 2016 "Sağlık Okuryazarlığının Toplum Sağlığı Açısından Önemi.» TAF Prev Med Bull 15.1: 69
- Durusu-Tanrıöver M, Yıldırım HH, Demiray-Ready FN, Çakır B ve Akalın HE 2014. Türkiye Sağlık Okuryazarlığı Araştırması, Birinci Baskı, Sağlık-Sen Yayınları, Ankara
- T.C. Sağlık Bakanlığı, Türkiye Sağlık Okuryazarlığı Ölçekleri Güvenilirlik ve Geçerlilik Çalışması, yayın no: 1025. Ankara Mayıs 2016. https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/Sa%C4%9Fl%C4%B1k%20Okur%20Yazarl%C4%B1%C4%9F%C4%B1.pdf
- IOM (Institute of Medicine). 2009. *Measures of Health Literacy: Workshop Summary.* Washington, DC: The National Academies Press. https://www.nap.edu/catalog/12690/measures-of-health-literacy-workshop-summary
- R. M. Parker et al., "The Test of Functional Health Literacy in Adults: A New Instrument for Measuring Patients' Literacy Skills," *Journal of General Internal Medicine* 10, no. 10 (October 1995): 537–41.
- T. C. Davis et al., "Rapid Assessment of Literacy Levels of Adult Primary Care Patients," *Family Medicine* 23, no. 6 (August 1991): 433–35.
- Barry D. Weiss et al., "Quick Assessment of Literacy in Primary Care: The Newest Vital Sign," *Annals of Family Medicine* 3, no. 6 (December 2005): 514–22, doi:10.1370/afm.405.

- P Okyay, F Abacigil, H Harlak, ED Evci Kiraz, K Karakaya, H Tuzun, E Baran Deniz, G Saruhan, S Gursoy Turan, A new Health Literacy Scale: Turkish Health Literacy Scale and its psychometric properties European Journal of Public Health, Vol. 25, Supplement 3, 2015 8th European Public Health Conference: Poster Walks
- HLS-EU Consortıum (2012): Comparatıve Report Of Health Lıteracy In Eıght Eu Member States. The European Health Lıteracy Survey Hls-Eu , Onlıne Publıcatıon: Http://Www.Health-Lıteracy.Eu
- Toçi E, Burazeri G, Kamberi H, Jerliu N, Sørensen K, Brand H. Socio-economic correlates of functional health literacy among patients of primary health care in Kosovo. Public Health. 2014 Sep;128(9):842-8. doi: 10.1016/j.puhe.2014.06.009. Epub 2014 Aug 13.
- Jovic-Vranes A[1], Bjegovic-Mikanovic V, Marinkovic J, Kocev N. Health literacy in a population of primary health-care patients in Belgrade, Serbia. Int J Public Health. 2011 Apr;56(2):201-7. doi: 10.1007/s00038-010-0181-0. Epub 2010 Aug 14.
- Kutner, M., Greenberg, E., Jin,Y., and Paulsen, C. (2006). *The Health Literacy of America's Adults: Results From the 2003 National Assessment of Adult Literacy* (NCES 2006–483).U.S.Department of Education. Washington, DC: National Center for Education Statistics.
- Lee SY, Tsai TI, Tsai YW, Kuo KN Shoou-Yih D. Lee et al., "Health Literacy, Health Status, and Healthcare Utilization of Taiwanese Adults: Results from a National Survey," *BMC Public Health* 10 (October 16, 2010): 614, doi:10.1186/1471-2458-10-614.
- Karimi S, Keyvanara M, Hosseini M, Jazi MJ, Khorasani E "The Relationship between Health Literacy with Health Status and Healthcare Utilization in 18-64 Years Old People in Isfahan," *Journal of Education and Health Promotion* 3 (2014): 75, doi:10.4103/2277-9531.134910.
- Sørensen K, Pelikan JM, Röthlin F, Ganahl K, Slonska Z, Doyle G, Fullam J, Kondilis B, Agrafiotis D, Uiters E, Falcon M, Mensing M, Tchamov K, van den Broucke S, Brand H; HLS-EU Consortium. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). Eur J Public Health. 2015 Dec;25(6):1053-8. doi: 10.1093/eurpub/ckv043. Epub 2015 Apr 5.
- Gazmararian JA, Baker DW, Williams MV, Parker RM, Scott TL, Green DC, Fehrenbach SN, Ren J, Koplan JP. "Health Literacy among Medicare Enrollees in a Managed Care Organization," *JAMA* 281, no. 6 (February 10, 1999): 545–51.
- Liu YB, Liu L, Li YF, Chen YL. Yong-Bing Liu et al., "Relationship between Health Literacy, Health-Related Behaviors and Health Status: A Survey of Elderly Chinese," *International Journal of Environmental Research and Public Health* 12, no. 8 (August 18, 2015): 9714–25, doi:10.3390/ijerph120809714.
- Beauchamp A, Buchbinder R, Dodson S, Batterham RW, Elsworth GR, McPhee C, Sparkes L, Hawkins M Osborne RH. "Distribution of Health Literacy Strengths and Weaknesses across Socio-Demographic Groups: A Cross-Sectional Survey Using the Health Literacy Questionnaire (HLQ)," *BMC Public Health* 15 (July 21, 2015): 678, doi:10.1186/s12889-015-2056-z
- Bo A, Friis K, Osborne RH, Maindal HT "National Indicators of Health Literacy: Ability to Understand Health Information and to Engage Actively with Healthcare Providers - a Population-Based Survey among Danish Adults," *BMC Public Health* 14 (October 22, 2014): 1095, doi:10.1186/1471-2458-14-1095.
- Tiller D, Herzog B, Kluttig A, Haerting J. Daniel Tiller et al., "Health Literacy in an Urban Elderly East-German Population - Results from the Population-Based CARLA Study," *BMC Public Health* 15 (September 10, 2015): 883, doi:10.1186/s12889-015-2210-7.
- Iris van der Heide et al., "Health Literacy of Dutch Adults: A Cross Sectional Survey," *BMC Public Health* 13 (February 27, 2013): 179, doi:10.1186/1471-2458-13-179.
- Furuya Y Kondo N, Yamagata Z, Hashimoto H. Health literacy, socioeconomic status and self-rated health in Japan. Health Promot Int. 2015 Sep;30(3):505-13. doi: 10.1093/heapro/dat071. Epub 2013 Oct 16.
- van der Heide I, Wang J, Droomers M, Spreeuwenberg P, Rademakers J, Uiters E. "The Relationship between Health, Education, and Health Literacy: Results from the Dutch Adult Literacy and Life Skills Survey," *Journal of Health Communication* 18 Suppl 1 (2013): 172–84, doi:10.1080/10810730.2013.825668.
- Hudon C, Fortin M, Poitras ME, Almirall J. The relationship between literacy and multimorbidity in a primary care setting. BMC Fam Pract. 2012 Jul 3;13:33. doi: 10.1186/1471-2296-13-33.