



Adaptation of the health literacy survey₁₉-Europe-Q12 into Turkish culture: A psychometric study

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Abstract

Rationale: Misinformation can lead to adverse outcomes on the health beliefs and behaviors of individuals. Therefore, health literacy skills are needed as a central competency to recognize the trustfulness of health-related knowledge in any resources. To ensure this, a time-efficient, skill-oriented psychometric tools are needed to measure the comprehensive general health literacy level of communities.

Aims and Objectives: This research was conducted to evaluate the psychometric properties of the 12-item Health Literacy Survey-Europe (HLS₁₉-Q12) regarding Turkish culture.

Method: A methodological design was adopted. The population consisted of adult individuals registered to two family health centers in Ankara. The sample was determined based on 5–10 times the number of scale items rule ($n_{\text{total}} = 192$). A questionnaire and Health Literacy Survey-Europe-Q12 were used to collect data. Language, content and construct validities and internal consistency reliability tests were performed through IBM-SPSS 25.0 and AMOS 24.0 programs. The content validity was determined via the Davis technique. The construct validity was examined by exploratory (EFA) ($n_1 = 120$) and confirmatory factor analysis (CFA) ($n_2 = 72$). Internal consistency was evaluated using Cronbach's alpha coefficient. Time invariance was evaluated by test-retest method ($n_{\text{retest}} = 32$) 4 weeks later.

Results: The mean age was 30.17 ± 10.37 (min. 18-max. 61). The Kaiser-Meyer Olkin test result was 0.898, and the Bartlett's Test of Sphericity result was 604.889 ($p < 0.001$). The model-fit indices showed good fit. The difference between the first and the second measurements was statistically insignificant ($t = -1.659$, $p = 0.107$). The Cronbach's alpha was 0.88.

Conclusions: The HLS₁₉-Q12-TR was a valid and reliable measurement tool in determining the health literacy level of the Turkish adult population. As one of the social determinants of health, easy measurement and generating a general health literacy map of the population is considered a necessity.

KEYWORDS

health literacy, research methodology, scale, validity analysis

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1 | INTRODUCTION

Individuals are confronted with the excessive health-related information flow from various sources such as family members, peers, media, and other printed materials in today's world. Moreover, the internet becomes one of the widely used resources to access health-related information with the help of developed technology.^{1,2} While access to health information becomes simpler, distinguishing the trustful ones is vital in developing healthy behaviors.³ Misinformation can lead to adverse outcomes on the health beliefs and behaviors of individuals.^{4,5} A wide range of causes, including the complexity of healthcare systems, lack of control systems on various information sources, less awareness regarding health-related issues, and uncontrolled diffusion of health information on the internet settings, can compel individuals to make proper healthcare decisions.⁶ Therefore, health literacy skills are needed as a central competency to recognize the trustfulness of health-related knowledge in any resources.⁷

Health literacy is the capacity of individuals to obtain, understand, interpret, and use health-related information to make appropriate health decisions for disease prevention and health promotion.⁸ Health literacy is asserted as a navigator enabling individuals to easily make self-health decisions and take control of their health to get optimal health outcomes.^{5,7} Moreover, health literacy is accepted as the primary ability to build a healthy community regarding encompassing individual competency, and social, economic and environmental determinants of health.² Nevertheless, health literacy among the general adult population in many communities is reported to be inadequate. In the U.S.A., only 12% of adult individuals were reported to have adequate health literacy levels.⁶ In a comprehensive European study, 47.6% of the individuals were found to have problematic/limited health literacy levels.⁹ In Türkiye, 68.9% of the general adult population was reported to have problematic/limited health literacy level.¹⁰ Therefore, improving health literacy is one of the most central, economical, and effective measures to optimize the health of the entire population.¹¹

Lower health literacy, considered a global public health problem, is a modifiable risk factor.^{5,12} Lower health literacy affects all individuals in any age group and negatively impacts on community and system levels.^{5,13} Lower health literacy level would cause problems, including maladaptation to health behaviors, increase in appointments to emergency departments, incompliance with medical treatment, difficulty in understanding health-related knowledge, increase in risky health behavior adoption, less participation in health-related decision-making process.^{6,13-16} Therefore, improving health literacy is of individual and social importance in increasing health conditions and quality of life, reducing health inequalities, healthcare service use, and healthcare costs.^{5,7}

When the global importance of health literacy is considered, comparable and reliable tools are necessary to measure the health literacy level among the general adult population comprehensively and objectively.¹¹ There has been developed several measurement

tools with the emergence of the health literacy concept.^{17,18} However, this variety is reported to cause difficulties in interpreting the obtained data to prevent the health literacy level framework being globally drawn. Moreover, most of those comprehensive health literacy measurement tools have higher numbers of items, which also negatively impact the data quality and complicate the representativity of the obtained evidence.

Future developed health literacy measurement tools are recommended to be more practical, less time-consuming, clear, conscious, and to reflect the general comprehensive health literacy level, as well as include all the aspects of health literacy concepts among the adult population.^{17,19,20} When the lower health literacy levels among adult individuals across the globe and the limited number of studies about this issue are considered, the development of an objective-focused and easy-to-implement instrument is thought to encourage researchers to produce nationally and internationally representative evidence regarding adult health literacy levels.

Although there are valid and reliable instruments that measure health literacy among the Turkish adult population,²¹⁻²⁴ these tools are neither time-efficient, skill-oriented nor measure the comprehensive general health literacy level. It is emphasized that a universally standardized health literacy measurement tool should reflect not only individuals' responsiveness to healthcare services, but also prevention and promotion of community health with regard to the terminological definition of health literacy.⁸ In this context, the Health Literacy Survey-Europe Q12 Instrument (HLS₁₉-Q12) has been constructed on the basis of public health promotion model.²⁰ Therefore, the HLS₁₉-Q12 is thought to address the multi-dimensional health literacy level measurement as time-efficient among the Turkish general adult population.

This study was performed to assess the Turkish validity and reliability of the 12-item Health Literacy Survey-Europe-19 Instrument (HLS₁₉-Q12). Answers to the following questions were sought within the scope of the present study:

- Is the HLS₁₉-Q12 a valid tool for the Turkish community-dwelling adult population?
- Is the HLS₁₉-Q12 a reliable tool for the Turkish community-dwelling adult population?

2 | METHODS

2.1 | Study design and participants

This study was a methodological study. The GRRAS checklists was used to present the manuscript. The population was combined with community-dwelling adult individuals who registered at two different family health centers in Ankara, Türkiye. In psychometric studies, the sample size is recommended to be at least 5-10 times higher than the total number of items on the scale to perform factor analysis.²⁵ As the HLS₁₉-Q12 has 12 items, the total sample size for the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis



(CFA) were determined to be at least 120 adults (60 adults each). There were 265 adult individuals who registered to the selected family health centers were invited in the study. Of the invited adult individuals, 42 denied participation, 14 had no smartphone or internet connection, and 17 inappropriately filled the data collection tools. The data of the 192 adult individuals were included in the final analysis ($n_{\text{total}} = 192$). The data of 120 volunteered adults were included for the EFA ($n_1 = 120$) and 72 adults for the CFA ($n_2 = 72$) via convenience sampling. The test-retest reliability analysis is recommended to be run to 10–20% of the total sample size.²⁶ The retest was applied to 32 adults in the fourth week following the first application of the scale in this study ($n_{\text{retest}} = 32$).

Adult individuals who (a) are 18 and above years old, (b) have the technical occasion and ability to fill out the online questionnaire, (c) are WhatsApp users, and (d) speak Turkish as the mother language were included in the study. Adults who (a) have a neuro-psychiatric problem and (b) have audiovisual disability were excluded from the study. Because of their complex care needs, adults older than 65+ were also excluded.

2.2 | Data collection tools

The data were collected via a self-prepared questionnaire and the Turkish version of the Health Literacy Survey-Europe-Q12 Instrument (HLS₁₉-Q12-TR).

The questionnaire was included nine close-ended questions, including age, gender, education level, marital status, income level, having any chronic disease, regular medication use, resources, and health professionals applied to reach health-related information to determine the sociodemographic characteristics of the participants.^{15,20}

The Health Literacy Survey-Europe-Q12 Instrument (HLS₁₉-Q12), derived from the 47-item Health Literacy Survey-Europe (HLS-EU-Q47), was developed by Pelikan et al. to measure health literacy level among the general adult population.²⁰ It is a one-dimensional and four-point Likert-type scale with 1 = very difficult, 2 = difficult, 3 = easy, 4 = very easy, and 999 = I don't know/refusal. The items are accepted as valid answers: 1 = very difficult, 2 = difficult, 3 = easy, 4 = very easy to calculate scale score. The total score of the scale is calculated as a percentage by dividing the number of items answered as 'easy' or 'very easy' by the number of valid answers and multiplying by 100. The valid answers should be at least 80% to calculate the score of the scale. Below this rate is considered 'missing.' The total score of the scale is also calculated as considering the numeric values of the Likert. Either way, the valid answers should be at least 80% to calculate the total score of the scale. Higher scores indicate a high level of general health literacy.

The general health literacy level is categorized into four groups: *excellent*, *sufficient*, *problematic*, and *inadequate*, according to the following cut-off rules. At least half ($\geq 50\%$) of the total answers given to the scale items are 'very easy,' AND the total number of items answered as 'very difficult + difficult' is not greater than one

(<83.34%), indicating an *excellent* health literacy level. At least 10 items are responded as 'very easy + easy' (>83.33%), AND a maximum of 2 items are answered as 'very difficult + difficult', indicating the *adequate* health literacy level. At least half ($\geq 50\%$) of the total answers given to the scale items are 'very difficult + difficult' AND the total number of items answered as 'very easy' is not greater than one (<8.334%) indicate the *inadequate* health literacy level. Scores that do not fall into these three categories indicate *problematic* health literacy levels. The merger of *problematic* and *inadequate* health literacy levels is described as *limited health literacy*. The validity and reliability of the scale was performed in 17 European countries. The Cronbach's alpha coefficients is reported to be 0.67–0.87 (median 0.78) in the original study.²⁰

2.3 | Data collection

The data were collected between May and July 2023. The data collection tools were prepared using Google Forms. The online form was assigned to the voluntary adults through WhatsApp and the responsible persons of the chosen family health centers.

2.4 | Cultural adaptation process of the scale

Language validity, content validity, and pilot testing techniques were used to culturally adapt the scale.²⁶

For language validity, forward translation-back translation methods were used. Three researchers, experts in community health nursing and health literacy issues, as well as qualified in both Turkish and English languages, translated the scale. The research team reconciled and synthesized the translations and built the initial Turkish version of the scale. This version was re-translated into English by an expert who is a fluent speaker of both languages. The differences were discussed and agreed by the research team. Accordingly, the Turkish draft version of the scale was created.

The draft Turkish form along with the original version of the scale were sent to peer review for content validity. The content validity of the scale was assessed according to the Davis method.²⁷ The draft version was sent to five public health nursing experts interested in adult health promotion and methodological research design. The experts were invited to assess the clarification of the meaning of the Turkish version of the scale items according to a four-point scoring table (1 = strongly unacceptable–4 = strongly acceptable). The content validity ratio was accepted as ≥ 0.80 for the sufficiency of each item.²⁷ The final Turkish form of the scale was built as per the experts' recommendations (The Health Literacy Survey-Europe-Q12 Instrument-Turkish [HLS₁₉-Q12-TR]).

The scale was pretested by 12 adults to assess its understandability and readability. The participants of the pilot testing should have given additional feedback to the scale items. Those adult individuals in the pilot test were not included in the study sample.

2.5 | Assessment of the psychometric features of the HLS₁₉-Q12-TR

The total mean score and the floor-ceiling effect (<20%) were calculated for the evaluation of the psychometric features of the HLS₁₉-Q12-TR.²⁶ Following, the validity and reliability analysis were conducted.

2.5.1 | Validity analysis

Explanatory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were used to assess the construct validity. The appropriateness of the data set to the EFA was decided through the Kaiser-Meyer-Olkin coefficient (KMO ≥ 0.60) and Bartlett's Test of Sphericity ($p < 0.05$).²⁵ Factor loads were determined via the principal component analysis, and the below significance limit was accepted to be >0.32 .²⁵

To determine whether the theoretical configuration of the scale was ensured in the study sample, Confirmatory Factor Analysis (CFA) with Maximum likelihood estimation method was applied. Fit indices, which are The Chi-Square Goodness (CMIN/df), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Incremental Fit Index (IFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) were calculated.²⁸

2.5.2 | Reliability analysis

The Cronbach's alpha coefficient, the item-total correlation coefficients, and the correlation between the scale items were used to test the internal consistency. The Cronbach's alpha value was ≥ 0.70 , item-total correlation coefficients as positive, and >0.20 were agreed as acceptable.²⁶

Time invariance of the HLS₁₉-Q12-TR was assessed according to test-retest method. Test-retest reliability was performed four weeks after the initial application of the scale through the Pearson correlation coefficient, Intraclass Correlation Coefficient (ICC), and paired samples t-test ($p > 0.05$). Pearson correlation coefficient was interpreted as *little or no agreement* (<0.30), *fair agreement* (0.30–0.40), *moderate agreement* (0.41–0.60), *good agreement* (0.61–0.70), *very good agreement* (0.71–0.75), and *excellent agreement* (>0.75).²⁹ ICC was evaluated as having *little* reliability (<0.50), *moderate* reliability (0.50–0.75), *good* reliability (0.76–0.90), and *excellent* reliability (>0.90).³⁰

2.6 | Data analysis

The IBM SPSS 25.0 and IBM AMOS 24.0 package programs were used to analyze the data. Shapiro–Wilk test was used to assess the normality of the datasets. The content validity index of the total scale and content validity ratio per item were calculated according to

TABLE 1 Sociodemographic features of the adult individuals ($n = 192$).

Features	n	%
Sex		
Women	140	72.9
Men	52	27.1
Marital status		
Single	111	57.8
Married	81	42.2
Education level		
Primary school graduate	5	2.6
High school graduate	33	17.2
University and above graduate	154	80.2
Employment		
Yes	86	44.8
No	106	55.2
Income level		
Less than expense	58	30.1
Equal to expense	92	47.9
More than expense	42	21.9
Having any chronic disease		
Yes	31	16.1
No	161	83.9
Regular medication usage		
Yes	41	21.4
No	151	78.6
Frequently consultant health professional for health-related knowledge		
Physician	161	83.8
Nurse	23	12.0
Pharmacist	8	4.2
Source of health-related knowledge search		
The internet	160	83.3
Social media	12	6.3
Healthcare facility	12	6.3
Printed material (brochure, guideline etc.)	8	4.1

the Davis technique regarding the scorings of the experts. The EFA and CFA were used to test the construct validity. The additivity of the scale was evaluated via Tukey's Test for Non-Additivity.³¹ The Hotelling T² test was run to assess if the responses of participants to the items were alike. Statistical significance level was accepted to be $p < 0.05$.

**TABLE 2** Appropriateness results to factor analysis of the HLS19-Q12-TR.

Items	Extraction values	Factor loads	r	Explained variance %	KMO	X ²	p
Item 1	0.599	0.774	0.687	46.869	0.898	604.889	<0.001
Item 2	0.508	0.713	0.602				
Item 3	0.495	0.704	0.628				
Item 4	0.324	0.569	0.539				
Item 5	0.530	0.728	0.598				
Item 6	0.556	0.745	0.643				
Item 7	0.407	0.638	0.531				
Item 8	0.342	0.585	0.417				
Item 9	0.626	0.791	0.656				
Item 10	0.400	0.633	0.546				
Item 11	0.413	0.642	0.621				
Item 12	0.425	0.652	0.566				

Abbreviations: KMO, Kaiser–Meyer Olkin; r, item-total correlation; X², Bartlett's Test of Sphericity.

2.7 | Ethical considerations

A written permission from Christa Straßmayr (on behalf of the HLS₁₉ Consortium of the WHO Action Network M-POHL team) was obtained through e-mail. Ethical approval was obtained from the university's ethical board (Approval date/number: 09.03.2023/04) before the data collection. Online informed consent was collected from the voluntary adult individuals. The online form, which included the study purpose, information on the study procedure, and the data collection tools, Turkish legal data protection regulations, was designed as participants could reach the questions after their consent was gathered.

3 | RESULTS

Table 1 shows the sociodemographic features of the adult individuals. The mean age was 30.17 ± 10.37. Of the adult individuals, 72.9% were women, 57.8% were single, and 80.2% were university and above graduates.

Total mean score of the HLS₁₉-Q12-TR was 36.37 ± 5.90. Of the participants, 20.8% had excellent, 37.0% had sufficient, and 42.2% had a limited health literacy levels.

3.1 | Findings regarding the validity of the HLS₁₉-Q12-TR

The content validity index of the total scale was found to be 0.96, and the content validity ratio per item was calculated between 0.80 and 1.00.

Appropriateness results to factor analysis of the HLS₁₉-Q12-TR are presented in Table 2. KMO coefficient and the Bartlett Test of Sphericity results showed that the sample size was adequate to perform the EFA (df = 66, $p < 0.001$). Extraction values of the scale items, and the item-total correlation coefficients were found as >0.30. The factor loads of the scale items were found to be between 0.569 and 0.791. The one-dimensional structure of the scale was approved in the EFA. It was determined to explain 46.869% of the total variance.

The path diagram shows the standardized coefficients of the HLS₁₉-Q12-TR (Figure 1). The model fit indices, calculated in the first level CFA ran with maximum likelihood method and performed two modifications to one-dimensional and 12-items scale structure acquired through the EFA, were found as CMIN = 66.732, CMIN/df = 1.283, GFI = 0.87, CFI = 0.949, TLI = 0.935, IFI = 0.951, RMSA = 0.063, and SRMR = 0.073 (Table 3).

3.2 | Findings regarding the reliability of the HLS₁₉-Q12-TR

Table 4 shows the reliability test results of the HLS₁₉-Q12-TR. The Cronbach's alpha coefficient of the total scale was found to be 0.88. Regarding the test-retest reliability, the difference between the first and second measurements was statistically insignificant ($t = -1.659$, $p = 0.107$). The correlation between the scale items in the first and the second measurements was ranged between 0.287 and 0.774 and statistically significant ($p < 0.05$). The intra-class correlation coefficient (ICC) of the scale was 0.882 and statistically significant ($p < 0.001$).

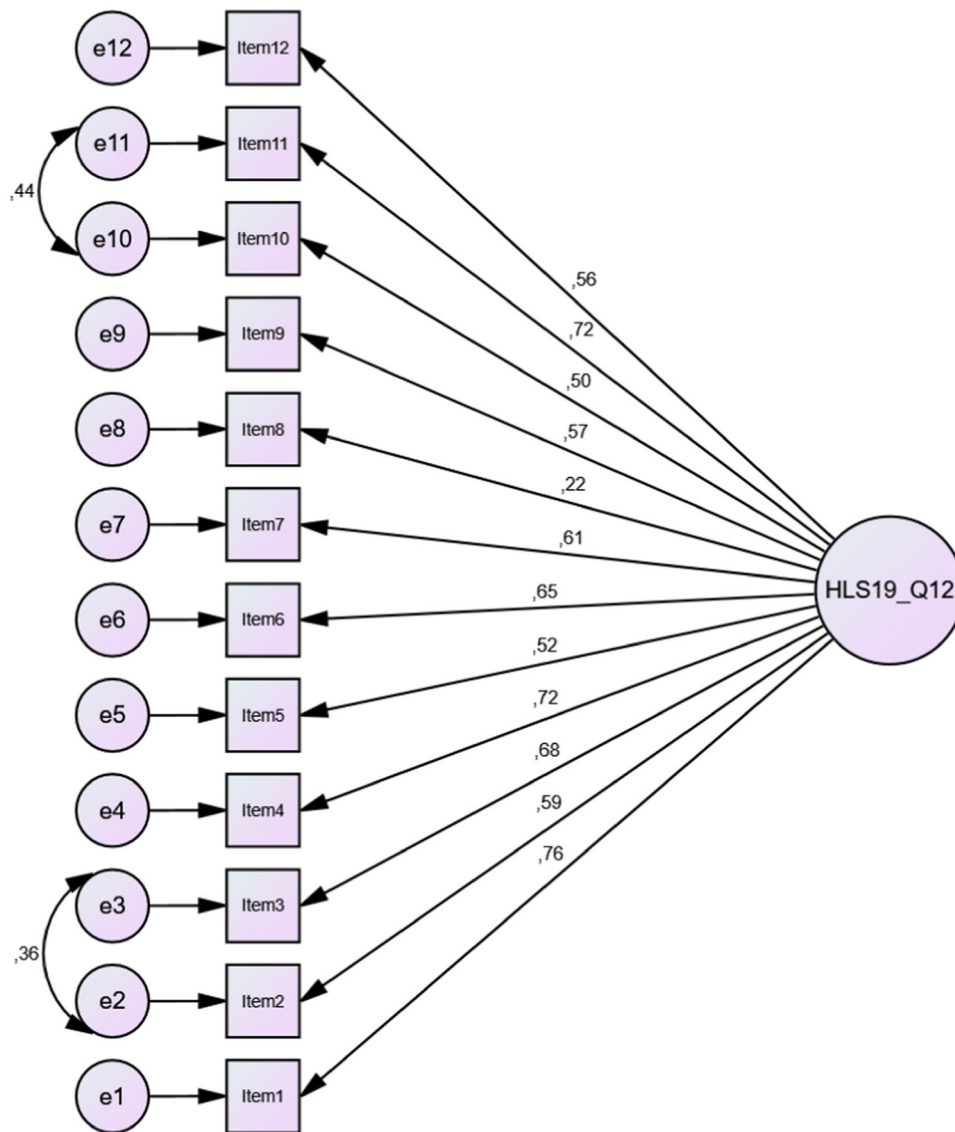


FIGURE 1 Path diagram.

TABLE 3 Fit indices of the HLS₁₉-Q12-TR.

Fit indices	Good fit	Acceptable fit	Calculated values for HLS ₁₉ -Q12-TR
CMIN/df	<3	3 < CMIN/df < 5	1.283
Goodness of fit index [GFI]	≥0.90	≥0.85	0.867
Comparative fit index [CFI]	≥0.95	≥0.90	0.949
Tucker–Lewis index [TLI]	≥0.95	≥0.90	0.935
Incremental fit index [IFI]	≥0.95	≥0.90	0.951
Root mean square error of approximation [RMSEA]	<0.05	<0.08	0.063
Standardized root mean square residual [SRMR]	<0.05	<0.08	0.073

**TABLE 4** Reliability test results of the HLS₁₉-Q12.

Items	Item-total correlation	Cronbach's alpha if item deleted				Cronbach's alpha of the total scale	
Item 1	0.687	0.867				0.88	
Item 2	0.602	0.872					
Item 3	0.628	0.870					
Item 4	0.539	0.875					
Item 5	0.598	0.872					
Item 6	0.643	0.869					
Item 7	0.531	0.875					
Item 8	0.417	0.884					
Item 9	0.656	0.869					
Item 10	0.546	0.874					
Item 11	0.621	0.870					
Item 12	0.566	0.874					
Total score of the HLS ₁₉ -Q12	Mean (SD)	t	p	r	p	ICC	p
First measurement	34.88 (7.42)	-1.659	0.107	0.740	<0.001	0.882	<0.001
Second measurement	36.34 (5.92)						

Abbreviations: ICC, intraclass correlation coefficient; r, Pearson correlation coefficient; t, paired-samples test.

The Tukey's Test for Non-additivity results showed that the scale was additive ($F = 10.036$; $p = 0.002$), and there was no response bias in the scale (Hotelling $T^2 = 231.378$; $F = 19.933$; $p < 0.001$).

4 | DISCUSSION

Psycholinguistic and psychometric features of The Health Literacy Survey-Europe-Q12 Instrument (HLS₁₉-Q12) for Turkish community-dwelling adult population were evaluated in the current study. The HLS₁₉-Q12-TR was found to ensure the validity and reliability criteria in the associated literature.²⁵⁻³¹ The items of the HLS₁₉-Q12 contain health-related tasks and measure the general health literacy level by determining the perceived difficulty level of each task on a self-reported scale.²⁰ In this context, the feature of high adaptability to Turkish culture of the scale will facilitate the objective and timely measurement of the general health literacy level of the adult population and lead to population-based studies.

The content validity ratio is suggested as ≥ 0.80 for every item in the scale.²⁷ The content validity ratio for every item in the HLS₁₉-Q12-TR was calculated to be between 0.80 and 1.00 in the present study. Therefore, the 12-itemed one-dimensional structure of the scale was kept in this study. The KMO coefficient is recommended to be ≥ 0.60 and the Bartlett's Test of Sphericity is to be statistically significant to test the sufficiency of the sample size in terms of factor analysis.²⁵ The KMO coefficient was found to be higher than the recommended value, and Bartlett's Test of Sphericity was statistically

significant, which showed the suitability of the data set to the factor analysis in the present study. In one-dimensional scales, the explained total variance is suggested to be at least 30% in the literature.²⁶ As being a one-dimensional scale, the HLS₁₉-Q12-TR was found to meet this criterion. Confirmatory Factor Analysis is run when the construction of the scale is consistent and correlated with its items and factors.²⁸ The findings of the model fit indices extracted from CFA were found as mostly in good fit in the present study. Likewise, the model fit indices were stated to be in suitable interval in the original study, validated in 17 European countries²⁰ and in the Chinese version of the HLS₁₉-Q12.¹⁹

The Cronbach's alpha coefficient is one of the widely used methods to test the internal consistency in psychometric studies.²⁶ In the present study, Cronbach's alpha coefficient was determined to be highly sufficient (0.88) compared to the original version (median 0.78).²⁰ The scale was found to show excellent internal consistency (0.93) in the Chinese version.¹⁹ Additionally, item-total correlations coefficients of the HLS₁₉-Q12-TR ranged from positively moderate and good agreement. Therefore, the Turkish version of the HLS₁₉-Q12 is considered an internally reliable measurement tool.

The time invariance of an instrument is assessed via the test-retest method.³⁰ In the present study, the total mean scores of the two measurements were found to be statistically insignificant, and the Pearson correlation coefficient between the first and second measurements of the HLS₁₉-Q12-TR was calculated to be in excellent agreement. Furthermore, the Intraclass correlation

coefficient was found to be of good reliability in the present study. The test-retest method and Intraclass correlation coefficient calculation were not applied in the original version of the scale.²⁰ Similar to the Chinese version of the scale,¹⁹ measurement through the HLS₁₉-Q12-TR was considered reliable and consistent over time.

4.1 | Strengths and limitations

The Turkish version of HLS₁₉-Q12 is thought to ease the measurement of the general health literacy level among the adult population in the country, which will enable researchers to compare the general health literacy level globally. Its timely administration characteristic will shape the future experimental studies which will show the effectiveness of the planned interventions in increasing the health literacy level of the Turkish adult population. Moreover, the assessment of both the additive characteristic and the response bias of the scale in the present study can be counted within the strengths. Nevertheless, there could not find any specific measurement tool to determine the concurrent validity of the scale can be considered as a limitation of the present study. Moreover, the results regarding the health literacy levels cannot be generalized to the whole Turkish adult population since it's the picture of a certain period with a non-representative sample.

5 | CONCLUSION

The psychometric evaluation and adaptation of the HLS₁₉-Q12 into Turkish culture showed that it was a substantially structurally valid and internally reliable tool for community-dwelling adult individuals. The findings obtained via the two-staged factor analysis put parallel psychometric features to the original version in the present study. Being increasingly a popular and a remarkable issue among the global health uncertainties, easy measurement and generating a general map regarding the health literacy level of the population is considered a necessity, as one of the social determinants of health. Therefore, the psychometric structure of the HLS₁₉-Q12 is recommended to be re-assessed with the older individuals, mothers who have children under the age of five, and among the adolescent groups.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data can be obtained from the corresponding author upon a reasonable request.

ETHICS STATEMENT

It was gathered an ethical approval from the Gazi University Ethical Committee (09.03.2023/04) before conducting the research. The online informed consent was obtained from the participants. A written permission from Christa Strassmayr (on behalf of the HLS19 Consortium of the WHO Action Network M-POHL team) was obtained through e-mail.

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