# Development and Validation of a Tool for Measuring Health-Related Media Literacy (HRML) Among Adolescents and Adults

## ABSTRACT

Background and Objectives: With the proliferation of media platforms as primary sources of health information, evaluating individuals' ability to effectively use these resources is crucial. This study aimed to develop and validate a reliable and valid assessment tool for measuring HRML.

Materials and Methods: The study was conducted in 2023, which involved two phases: tool development and validation. An initial draft of the HRML assessment tool was created, encompassing items assessing four key skill domains: Search and Acquire, Understanding, Appraisal, and Applying. Face and content validity were assessed through expert review by 13 health professionals familiar with health and media literacy. Exploratory factor analysis (EFA) was used to examine the interrelationships among the four dimensions and establish item-domain relationships. Confirmatory factor analysis (CFA) evaluated model fit. Reliability was assessed by administering the questionnaire to 203 healthcare service users in Boyer-Ahmad County, and internal consistency was determined using Cronbach's alpha.

Results: The final questionnaire comprised 28 items across four domains of skills: searching and acquiring, understanding, appraising, and applying. The average content validity ratio (CVR) was 0.889, and the average content validity index (CVI) was 0.991. All four HRML dimensions showed significant positive correlations ($p < 0.01$). CFA indicated acceptable model fit (CMIN/DF = 1.43, AGFI = 0.830, RMSEA = 0.040, CFI = 0.903, IFI = 0.905). Cronbach's alpha for the overall scale was 0.820.

Conclusion: Effective health communication is crucial for the success of health interventions. This validated HRML assessment tool can identify areas for improvement in individuals' media literacy skills and determine preferred media sources. This information can inform the development of targeted interventions to promote informed health decision-making in individuals and communities. The tool is suitable for use in various settings, including educational institutions, workplaces, service centers, and community spaces.

**Paper Type:** Research Article

Keywords: Development and Validation, Health Literacy, Media Literacy, Questionnaire.

**Kimiya Izady**
M.Sc. in Health Education and Promotion, School of Health, Yasuj University of Medical Sciences, Yasuj, Iran.

**Narges Roustaei**
Associate Professor, Ph.D. in Biostatistics, Social Determinants of Health Research Center, Yasuj University of Medical Sciences, Yasuj, Iran.

**Mohsen Shams**
* Professor, Ph.D. in Health Education, Social Determinants of Health Research Center, Yasuj University of Medical Sciences, Yasuj, Iran.
Professor, Ph.D. in Health Education, Department of Health Education and Promotion, School of Health, Yasuj University of Medical Sciences, Yasuj, Iran
(Corresponding Author: moshaisf@yahoo.com

**Saadat Parhizkar**
Associate Professor, Ph.D. in Reproductive Health, School of Health, Yasuj University of Medical Sciences, Yasuj, Iran.

**Mostafa Maleki**
Assistant Professor, Ph.D. in Health Education and promotion, Department of Public Health, School of Health, Shahrekord University of Medical Sciences, Shahrekord, Iran.

Received: 17 August 2025
Accepted: 13 December 2025
Doi: 10.22038/jhl.2025.91300.1863

**Citation:** Izady K, Roustaei N, Shams M, Parhizkar S, Maleki M. Development and Validation of a Tool for Measuring Health-Related Media Literacy (HRML) Among Adolescents and Adults. *Journal of Health Literacy*. Autumn 2026; 11(4): 21-31.

## Introduction

Media literacy has been recognized as an important indicator for identifying the overall health status of a community and evaluating the perspectives of stakeholders (1). Nowadays, with the rapid advancement of technology and the widespread presence of media in people's lives, the media has become the primary source of health-related information, impacting public health significantly (2). Although the use of social media in the health domain has various benefits, obtaining health information from media platforms often poses challenges and limitations, such as concerns about the quality and accuracy of information, privacy breaches, and uncertainty about the credibility of content sources. Moreover, individuals may lack the knowledge of how to effectively utilize the acquired information or may be exposed to incorrect and excessive health information, putting their well-being at risk. Additionally, social media platforms may act as barriers for individuals to seek professional healthcare services (3). To mitigate the potential adverse effects of media on health, it may not be feasible to focus on changing media content due to existing barriers. However, instead of altering media content, promoting media literacy through education strategies can bring about changes in media consumers (4).

Media literacy can be defined as the "ability and power to access, analyze, evaluate, and transmit media messages and information to an audience" (1). It is a fundamental skill that can modify the impact of mass media and empower individuals with comprehensive knowledge in processing media messages (5). Media literacy is an intervention strategy that empowers the audience to understand how media works, interpret their meanings, discern the nature and objectives of media production, and recognize the various effects and techniques employed by media outlets. By changing the types of media they consume or reducing media consumption, individuals can protect themselves. Consequently, media users are not passive receivers but active participants who can also critically engage with media content. The role of media literacy in health-related topics is undeniable and crucial (6).

In today's media-rich world, the most threatened aspect is health. With the increasing digitization of information and communication, the way people, especially young individuals, access and interpret health information has been influenced (7). The growing trend of using media for seeking health information necessitates health-related media literacy (8). This type of literacy is defined as "the set of abilities and skills to access credible resources, understand, evaluate, and apply health information available in the media for communication, transmission, and reception of essential health messages" (9).

Studies indicate that over 80% of internet users seek health-related information through social media, highlighting the significant importance of health-related media literacy (10). It is important to note that while the internet may be the best source for accessing health information, it may not necessarily be the best learning source (11). International health organizations, including the World Health Organization (WHO), have introduced the promotion of health-related media literacy as

an effective strategy for health promotion. Accordingly, health professionals should utilize various strategies, such as media content production and social marketing, to influence the media. Enhancing health-related media literacy has been utilized as a valuable approach for preventing risky behaviors such as tobacco use, alcohol consumption, violence, and eating disorders (12). In recent years, the importance of media literacy and its role in health has received considerable attention, although there have been limited studies, and most research has separately focused on health literacy and media literacy (13).

Despite the availability of several tools designed to measure either media literacy or health literacy, there remains a lack of comprehensive instruments that specifically capture the intersection of these domains in the contemporary media environment. Existing instruments often focus on narrow aspects—such as smoking-related media literacy or general health message appraisal—without addressing the broader, multidimensional skills required to navigate today's complex health information landscape (8, 14). Guided by Nutbeam's health literacy model (15) and the multidimensional frameworks of media literacy (16, 17), this study adopts a skills-based theoretical perspective that emphasizes four critical domains: searching and acquiring information, understanding, appraising, and applying health information obtained from media sources.

Much of the existing research has focused on adolescents and young adults, since they are among the most active consumers of digital media and often more vulnerable to misinformation (18, 19). Studies s how that younger audiences sometimes struggle to judge the credibility of online health content, which can leave them exposed to misleading or even harmful messages (20).

At the same time, media literacy is not only a concern for youth. Adults also rely heavily on media for health information, and their ability to interpret and apply this information has direct consequences for personal and public health. Scholars have argued that critical health literacy should be viewed as a lifelong competency, relevant well beyond adolescence (21, 22). Despite this, relatively few tools have been designed or validated for use across a broad age range.

Although several tools have been developed to assess media literacy, none have been designed to comprehensively capture health-related media literacy in today's rapidly evolving media environment. The ways individuals and communities encounter health information have changed dramatically, with new platforms, formats, and sources shaping how people interpret and act on what they see. To address this gap, our study developed and validated a Health-Related Media Literacy (HRML) tool with participants aged 12 to 67 years. By including adolescents, young adults, and middle-aged adults, we sought to reflect the diverse ways people engage with health information across different stages of life. This broad age coverage makes the tool more versatile and better aligned with the realities of health communication across the lifespan, offering a reliable and valid measure that responds to contemporary challenges in health literacy.

## Materials and Methods

### Study design and Sample Size

In the present instrument development and cross-sectional validation study, a sample size of 203 individuals was chosen for exploratory factor analysis, with seven subjects per item. Different opinions exist regarding the appropriate sample size for factor analysis, ranging from 3 to 10 respondents per item. The adequacy of the sample was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and intercorrelations between domains were evaluated using Bartlett's test of Sphericity.

In exploratory factor analysis, the underlying factors of the questionnaire were extracted using maximum likelihood estimation and varimax rotation. A minimum factor loading of 0.3 was considered for an item to be included. Confirmatory factor analysis was conducted to confirm the factor structure, and various fit indices were used to evaluate the goodness of fit. Cronbach's alpha coefficient was calculated to assess internal consistency and reliability using the completed questionnaires.

### Sampling Method

This study recruited its sample from the population covered by health service centers in Boyer-Ahmad County in 2023 using a two-stage method. First, health service centers were selected as clusters, with sample sizes allocated proportionally. Subsequently, within each center, eligible visiting individuals (aged 12 years and older, able to read and understand Persian, and willing to participate) were consecutively enrolled until the sample quota was met. Data were collected via interviewer-administered questionnaires.

### Tool Development

The initial items for the HRML assessment tool were obtained from scientific sources and reputable databases. These items were categorized into four domains: searching and acquiring skills, understanding, appraisal, and applying. The initial draft of the HRML assessment tool consisted of 29 items focusing on the four domains of skills. To qualitatively evaluate face validity, we convened an expert panel of 13 specialists in the fields of health literacy and media literacy.

Subsequently, the instrument's quantitative content validity was assessed by the same panel of experts. The necessity of each item was evaluated using the Content Validity Ratio (CVR), with scores compared against Lawshe's critical values. Following this, the Content Validity Index (CVI) was calculated to assess each item's simplicity, clarity, and relevance. Only items achieving a CVI score above 0.7 were retained. Based on these criteria, all 29 items were confirmed for the next validation.

### Questionnaire Scoring

The instrument employed a criterion-referenced scoring system tailored to its item formats. For multiple-choice questions (with one correct option, several incorrect options, and an "I don't know" option), scores were assigned as follows: 2 points for a correct answer, 1 point for "I don't know," and 0 points for an incorrect answer. One open-ended question required respondents to list specific items; a point was awarded for each correctly named item, yielding a maximum possible score of 12 for that question.

The final validated HRML assessment tool comprised 28 questions. The total possible

score ranged from 0 to 66. A cut-off score of 44 (representing two-thirds of the maximum score) was established to differentiate levels of health-related media literacy. Participants with a score of 44 or higher were classified as having "adequate health-related media literacy," while those scoring below 44 were classified as having "inadequate" literacy. Data analysis was performed using SPSS version 21 and AMOS version 24, with the statistical significance level set at $p<0.05$.

## Results

### Descriptive Statistics

A total of 203 individuals participated in the study, with a mean age of 28.57 and a standard deviation of 9.82. The participants' age range varied from 12 to 67 years old. Further demographic information can be found in Table 1.

### Tool Development

Content Validity: The CVR and CVI for the questionnaire were found to be 0.889 and 0.991, respectively. The 29 items were categorized into four domains: Information Search and Acquire Skills (13 items), Information Perception Skills (5 items), Information Appraisal Skills (6 items), and Information Applying Skills (5 items). There was a significant positive correlation (p-value<0.01) between the pairwise domains of the questionnaire, as shown in Table 2.

**Table 1. Distribution of Frequency for Demographic Variables**

| Variables | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 85 | 41.9 |
| | Female | 118 | 58.1 |
| Marital Status | Single | 114 | 56.2 |
| | Married | 89 | 43.8 |
| Employment Status | Employee | 33 | 16.3 |
| | Worker | 7 | 3.4 |
| | Business Owner | 20 | 9.9 |
| | Housewife | 47 | 23.2 |
| | Student | 80 | 39.4 |
| | Unemployed | 8 | 3.9 |
| | Other | 8 | 3.9 |
| Education Level | Under High School | 37 | 18.2 |
| | High School | 62 | 30.5 |
| | University Education | 104 | 51.2 |
| Place of Residence | Urban Area | 163 | 80.3 |
| | Rural Area | 40 | 19.7 |

**Table 2. Correlation results between domains of the questionnaire**

| Variables | Search and Acquire | Perception | Appraisal | Applying |
|---|---|---|---|---|
| Search and Acquire | 1 | | | |
| Perception | 0.438 | 1 | | |
| Appraisal | 0/245 | 0.420 | 1 | |
| Applying | 0.307 | 0.406 | 0.330 | 1 |

## Exploratory Factor Analysis

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.782, indicating sample adequacy. Bartlett's test of sphericity yielded a significant result (p-value<0.001), suggesting correlations among the items suitable for factor analysis. One item (item 35) was removed from the questionnaire as its factor loading was consistently below 0.3 across all domains. The HRML (28 items) were categorized into four domains: Information Search and Acquire Skills (12 items), Information Perception Skills (5 items), Information Appraisal Skills (6 items), and Information Applying Skills (5 items). In addition to the items of the 4 dimensions of HRML, the following questions were added to the final questionnaire: demographic information (6 items), media literacy requirements (12 items), and media usage status (4 items).

## Confirmatory Factor Analysis (CFA)

In confirmatory factor analysis, the factor loadings of the questionnaire were initially assessed using software across four domains, with item 35 being excluded (Figure 1). However, the goodness-of-fit index did not reach the desired threshold. Consequently, software-suggested modifications were incrementally implemented in four stages, with expert validation, until the goodness-of-fit index reached the desired level (Table 3). Based on the model's initial recommendations, the error covariance between items 48 and 49 was considered; the model was then fitted, and the goodness-of-fit index was calculated, but the results did not meet the desired standards. In the second stage, in addition to the adjustments made in the previous stage, the effect of item 47 on item 46 was also considered. Again, the model was fitted, but the goodness-of-fit index did not reach the standard level. In the subsequent stage, based on the software's suggestion, in addition to the previous modifications, the error covariance between items 38 and 48 was also applied; however, the model still did not fit in this stage. In the fourth (final) stage, in addition to the adjustments from the previous stages, the error covariance between items 40 and 32 was also considered. Ultimately, in this stage, the goodness-of-fit indices reached the desired level, and the questionnaire with such a structure was accepted by the researcher. Consequently, the HRML consisted of 28 items with good fit.

## Reliability

The internal consistency reliability of the questionnaire was assessed using Cronbach's alpha coefficient. The obtained coefficients, presented in Table 4, indicate good internal consistency for the items in each dimension, with values greater than 0.70.

## Discussion

In today’s media-saturated world, the ability to find, understand, and critically evaluate health information has become essential. People are exposed to a constant flow of messages from traditional media, social networks, and digital platforms, making it increasingly important to separate trustworthy information from misinformation. This study developed and validated a comprehensive tool to measure HRML - a concept that brings together the principles of both health literacy and media literacy.

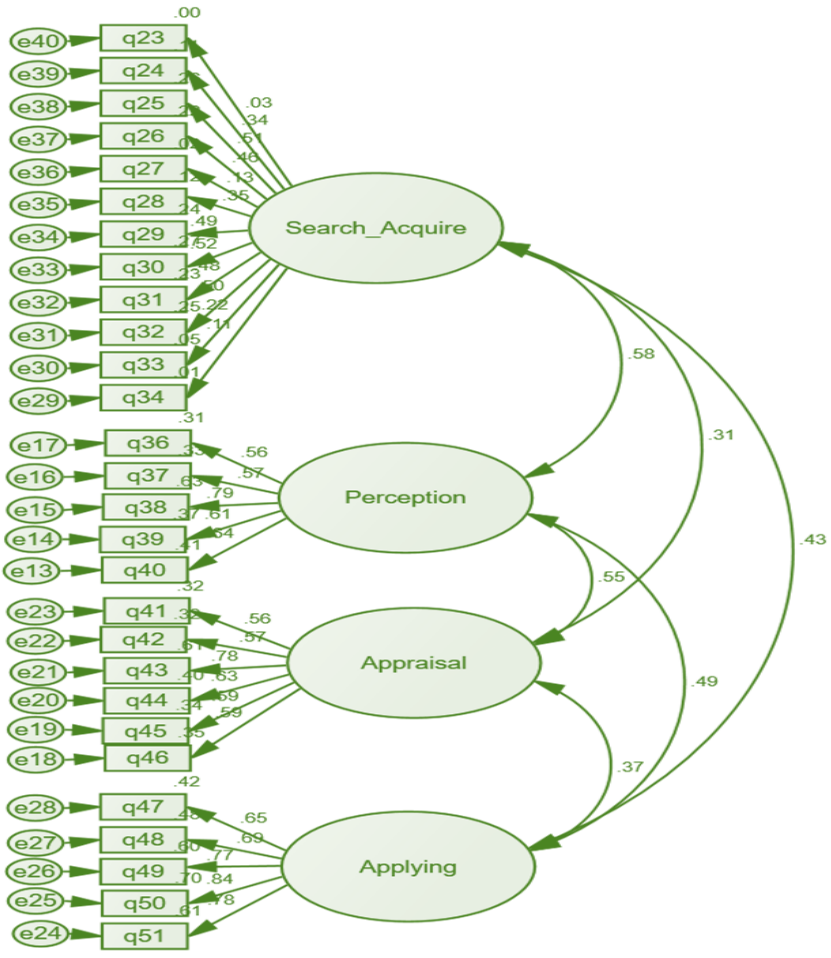


**Figure 1. Model Structure**

**Table 3. Goodness-of-Fit Indices for Confirmatory Factor Analysis**

| Default Model | CMIN/DF | RMR | GFI | AGFI | IFI | TLI | CFI | RMSEA |
|---|---|---|---|---|---|---|---|---|
| Acceptable Values | 3> | 0.05> | >0.9 | >0.8 | >0.9 | >0.9 | >0.9 | 0.05> |
| Initial Model | 1.783 | 0.059 | 0.828 | 0.797 | 0.824 | 0.802 | 0.820 | 0.062 |
| Stage One | | | | | | | | |
| Error Correlation between Items 48 and 49 | 1.562 | 0.059 | 0.848 | 0.820 | 0.874 | 0.858 | 0.871 | 0.053 |
| Stage Two | | | | | | | | |
| Error Correlation between Items 48 and 49<br>Effect of Item 47 on Item 46 | 1.495 | 0.056 | 0.854 | 0.827 | 0.889 | 0.875 | 0.886 | 0.050 |
| Stage Three | | | | | | | | |
| Error Correlation between Items 48 and 49<br>Effect of Item 47 on Item 46<br>Error Correlation between Items 38 and 48 | 1.458 | 0.056 | 0.858 | 0.830 | 0.898 | 0.884 | 0.895 | 0.048 |
| Stage Four | | | | | | | | |
| Error Correlation between Items 48 and 49<br>Effect of Item 47 on Item 46<br>Error Correlation between Items 38 and 48<br>Error Correlation between Items 40 and 32 | 1.426 | 0.056 | 0.861 | 0.834 | 0.905 | 0.892 | 0.903 | 0.046 |

**Table 4. Internal correlation with Cronbach's alpha report**

| Dimension | Cronbach's alpha |
|---|---|
| Search and acquire | 0.60 |
| Perception | 0.77 |
| Appraisal | 0.78 |
| Applying | 0.86 |
| Health-related Media Literacy | 0.82 |

The goal was to provide researchers and practitioners with a reliable way to assess how well individuals can navigate the complex landscape of health information.

The framework for this tool was grounded in Nutbeam's model of health literacy, which highlights functional, interactive, and critical literacy (15). By combining this with theories of media literacy, the study aimed to capture not just the ability to read or understand health messages, but also the deeper skills needed to interpret, question, and apply this information in meaningful ways. In doing so, the tool goes beyond earlier measures that often focused narrowly on specific topics like smoking or physical activity. Instead, it reflects how people interact with a variety of media to make informed health choices.

HRML is more than a set of cognitive skills. It represents a form of empowerment—helping individuals become active, discerning participants in the digital health information environment. As misinformation and health disinformation spread rapidly online, strengthening HRML can help people critically assess the credibility of health messages and make decisions that support their well-being.

The content validity analysis showed that the questionnaire items were highly relevant and representative of the HRML construct. Expert reviewers agreed strongly on the necessity and clarity of each item, as reflected in high CVR and CVI scores. The four domains—Information Search and Acquire, Information Perception, Information Appraisal, and Information Applying Skills—together provide a well-rounded picture of what it means to be health media literate. These domains span a wide range of skills, from searching for credible information to evaluating its reliability and finally applying it in everyday decision-making.

The instrument's psychometric performance was strong. The EFA confirmed the four-domain model, showing that the domains are closely related yet distinct aspects of HRML. One item was removed for having a low factor loading, which improved the overall clarity of the scale. The CFA supported this structure after minor adjustments, resulting in a well-fitting model that aligns with the theoretical framework. Internal consistency was also high across all domains, with Cronbach's alpha coefficients exceeding accepted thresholds ($\alpha$ = 0.82 overall). These findings indicate that the tool is both theoretically grounded and statistically sound.

Compared with previous tools—such as the Smoking Media Literacy Scale (23) and the Health Literacy Scale (8)—the present questionnaire captures a broader and more contemporary range of media and health literacy skills. Earlier instruments tended to focus on specific health issues or traditional media formats (8, 24, 25), while the present

tool reflects how people engage with multiple, interconnected media platforms. Importantly, it incorporates the evaluation of online and social media content—an area of increasing importance in modern health communication.

The tool's validation process also stands out in its methodological rigor. Unlike many earlier measures that relied solely on expert judgment for face or content validity, this study combined qualitative expert review with quantitative validation metrics, supported by EFA and CFA. This dual approach enhances the scientific robustness of the results. Moreover, the reliability indices achieved here are comparable to or higher than those of established scales, such as the Critical Health Media Literacy Instrument (25, 26) and the Media Literacy Test (27).

The findings of this study have important theoretical and practical implications. Theoretically, they affirm that HRML is a multifaceted construct that bridges the gap between how people access information and how they critically engage with it. This integrated perspective aligns with global health promotion goals that emphasize informed decision-making and critical engagement with media.

Practically, the validated HRML questionnaire can serve as a diagnostic and educational tool for researchers, educators, and policymakers. It can be used to assess community strengths and weaknesses in media literacy, guide the design of tailored health education programs, and evaluate the effectiveness of interventions aimed at reducing misinformation. The tool's adaptability makes it suitable for use in schools, workplaces, and community health centers, supporting initiatives that aim to build healthier, more media-savvy populations.

Despite the study's strong psychometric results, the self-reported format could introduce bias, as participants may overestimate their media literacy skills. Future research should explore cross-cultural validation to ensure that the tool performs consistently across different languages, cultures, and levels of media exposure. Longitudinal and predictive studies are also needed to determine whether higher HRML scores translate into better health decisions or behaviors. Testing the tool among diverse groups, such as adolescents, older adults, and marginalized populations, would help assess its versatility and sensitivity to demographic differences.

## Conclusion

This study developed and validated a comprehensive, reliable, and theoretically grounded tool for measuring HRML. The instrument effectively integrates the domains of health literacy and media literacy into a single framework, providing a nuanced understanding of how people interact with health information in today's media-rich environment. The strong evidence for validity and reliability suggests that this tool can be confidently used to assess HRML in both research and practical settings. By identifying individuals' strengths and weaknesses in media-based health literacy, it offers a foundation for designing interventions that promote critical thinking, informed decision-making, and health empowerment.

Although further validation is recommended across different cultural and

demographic contexts, the tool represents a significant step forward in measuring and enhancing the public's capacity to engage critically with health information. As media continues to shape health perceptions and behaviors, advancing HRML will be essential for improving population health and building resilience against misinformation in the digital age.

**Acknowledgements:** The authors acknowledge the generous financial support of Yasuj University of Medical Sciences, Yasuj, Iran.

**Availability of Data and Materials:** The data set used in this study will be available based on a reasoned request

**Conflicts of interest:** None declared.

**Consent for publication:** Not applicable.

**Ethical Approval and consent to participate:** This research adhered to the ethical principles outlined in the Declaration of Helsinki for studies involving human subjects. The study involved analysis of social experiences through participant interviews, with no procedures conducted on human tissues. Informed consent was obtained from all participants prior to data collection. This study received ethical approval from the Ethics Committee of Yasuj University of Medical Sciences (ethical code: IR.YUMS.REC.1400.202).

**Funding:** Financial support was provided by Yasuj University of Medical Sciences, Yasuj, Iran.

**Author Contributions:** Performance of data gathering: M, Sh, and K, E; Planning and supervision of the work: M, Sh; K, E; Performance of the analysis: S, P, and N, R; Manuscript draft: K, E, and M, M; and comment on the final manuscript: all authors. All authors have reviewed the final manuscript. All authors have read and accepted the published version of the manuscript.

## References

1. Solhi M, Jormand H, Gohari MR. Media literacy and attitudes towards weight loss supplements in students of Iran University of Medical Sciences, Iran. Military Caring Sciences. 2015; 2(4):221-8. https://doi.org/10.18869/acadpub.mcs.2.4.221
2. Zokaei MS, Vedadhir A, Khashei R. Factors Influencing the Health Lifestyles in Tehran, with a Focus on the Media Consumption. Global Media Journal-Persian Edition. 2016; 11(1):47-65.
3. Moorhead SA, Hazlett DE, Harrison L, Carroll JK, Irwin A, Hoving C. A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. Journal of medical Internet research. 2013; 15(4):e1933. https://doi.org/10.2196/jmir.1933 PMid: 23615206 PMCid: PMC3636326.
4. Brown JD. Media literacy has potential to improve adolescents' health. Journal of Adolescent Health. 2006; 39(4):459-60. https://doi.org/10.1016/j.jadohealth.2006.07.014 PMid: 16982377.
5. Ashrafi-Rizi H, Khorasgani ZG, Zarmehr F, Kazempour Z. A survey on rate of media literacy among Isfahan University of Medical Sciences' students using Iranian media literacy questionnaire. Journal of education and health promotion. 2014; 3(1). https://doi.org/10.4103/2277-9531.131939.
6. Tehrani H. Media health literacy. Journal of Health Literacy. 2016; 1(3):141-6.
7. Bergsma LJ, Carney ME. Effectiveness of health-promoting media literacy education: a systematic review. Health education research. 2008; 23(3):522-42. https://doi.org/10.1093/her/cym084 PMid: 18203680.
8. Levin-Zamir D, Lemish D, Gofin R. Media Health Literacy (MHL): development and measurement of the concept among adolescents. Health education research. 2011; 26(2):323-35. https://doi.org/10.1093/her/cyr007 PMid: 21422003.
9. Hindmarsh CS, Jones SC, Kervin L. Effectiveness of alcohol media literacy programmes: a systematic literature review. Health education research. 2015; 30(3):449-65. https://doi.org/10.1093/her/cyv015 PMid: 25840435.
10. Riesmeyer C, Hauswald J, Mergen M. (UN) healthy behavior? The relationship between media literacy, nutritional behavior, and self-representation on Instagram. Media and Communication. 2019; 7(2):160-8. https://doi.org/10.17645/mac.v7i2.1871.
11. Paek H-J, Reber BH, Lariscy RW. Roles of interpersonal and media socialization agents in adolescent self-reported health literacy: a health socialization perspective. Health education research. 2011;

26(1):131-49. https://doi.org/10.1093/her/cyq082 PMid: 21248025.
12. Truman E, Bischoff M, Elliott C. Which literacy for health promotion: health, food, nutrition or media? Health promotion international. 2020; 35(2):432-44. https://doi.org/10.1093/heapro/daz007 PMid: 30793740.
13. Akbarinejad F, Soleymani MR, Shahrzadi L. The relationship between media literacy and health literacy among pregnant women in health centers of Isfahan. Journal of education and health promotion. 2017; 6(1):17. https://doi.org/10.4103/2277-9531.204749 PMid: 28546982 PMCid: PMC 5433646.
14. Primack BA, Gold MA, Land SR, Fine MJ. Association of cigarette smoking and media literacy about smoking among adolescents. Journal of Adolescent Health. 2006; 39(4):465-72. https://doi.org/10.1016/j.jadohealth.2006.05.011 PMid: 16982379 PMCid: PMC3008629.
15. Nutbeam D. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. Health promotion international. 2000; 15(3):259-67. https://doi.org/10.1093/heapro/15.3.259.
16. Potter WJ. Theory of media literacy: A cognitive approach: Sage Publications; 2004. https://doi.org/10.4135/9781483328881.
17. Aufderheide P. Media literacy: From a report of the national leadership conference on media literacy. Media literacy around the world: Routledge; 2018. p. 79-86. https://doi.org/10.4324/9781351292924-4.
18. Suárez-Perdomo A, Garcés-Delgado Y, Arvelo-Rosales CN. Systematic review on adolescents' construction of media literacy in educational settings. Review of Education. 2025; 13(1):e70048. https://doi.org/10.1002/rev3.70048.
19. Scull TM, Kupersmidt JB, Parker AE, Elmore KC, Benson JW. Adolescents' media-related cognitions and substance use in the context of parental and peer influences. Journal of youth and adolescence. 2010; 39(9):981-98. https://doi.org/10.1007/s10964-009-9455-3 PMid: 19795197 PMCid: PMC3678372.
20. Levin-Zamir D, Bertschi I. Media health literacy, eHealth literacy and health behaviour across the lifespan: Current progress and future challenges. International handbook of health literacy. 2019:275-90. https://doi.org/10.56687/9781447344520-021.
21. Chinn D. Critical health literacy: A review and critical analysis. Social science & medicine. 2011; 73(1):60-7. https://doi.org/10.1016/j.socscimed.2011.04.004 PMid: 21640456.
22. Levin-Zamir D, Bertschi I. Media health literacy, eHealth literacy, and the role of the social environment in context. International journal of environmental research and public health. 2018; 15(8):1643. https://doi.org/10.3390/ijerph15081643 PMid: 30081465 PMCid: PMC6121358.
23. Primack BA, Gold MA, Switzer GE, Hobbs R, Land SR, Fine MJ. Development and validation of a smoking media literacy scale for adolescents. Archives of pediatrics & adolescent medicine. 2006; 160(4):369-74. https://doi.org/10.1001/archpedi.160.4.369 PMid: 16585481 PMCid: PMC3001232.
24. Austin EW, Pinkleton BE, Austin BW, Van de Vord R. The relationships of information efficacy and media literacy skills to knowledge and self-efficacy for health-related decision making. Journal of American college health. 2012; 60(8):548-54. https://doi.org/10.1080/07448481.2012.726302 PMid: 23157196.
25. Zhou M, Ramírez AS, Ha S, Chittamuru D, Yan Y. Development and validation of a critical health literacy scale: Exploring media literacy, social determinants, and empowerment. Critical Public Health. 2025; 35(1):2498034. https://doi.org/10.1080/09581596.2025.2498034.
26. Higgins JW, Begoray D. Exploring the Borderlands between Media and Health: Conceptualizing" Critical Media Health Literacy". Journal of Media Literacy Education. 2012; 4(2):136-48. https://doi.org/10.23860/jmle-4-2-4.
27. Cheung C, Yin W. Assessing network media literacy in China: The development and validation of a comprehensive assessment instrument. International Journal of Media and Information Literacy. 2018; 3(2):53-65. https://doi.org/10.13187/ijmil.2018.2.53.