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Factors Related to Health Literacy Among the Iranian Population: A Scoping Review

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Abstract

Background: The identification of the determinants of health literacy is an essential prerequisite for developing health literacy promotion programs. While these factors have been reported in previous studies, there is a lack of a comprehensive review specifically focused on the Iranian population. Therefore, this review aimed to identify the factors related to health literacy in Iran.

Methods: This scoping review used the Arksey and O'Malley methodological framework and the Joanna Briggs Institute framework. A search was performed in English-language databases—Web of Science, Scopus, and PubMed—using the MeSH keyword of "health literacy," and in Persian-language databases—Magirean and SID—using the related keywords. A narrative synthesis was conducted to describe all included studies' characteristics and explore factors associated with health literacy.

Results: A total of 76 studies were included. Based on the results of the study, related factors included personal factors—including sex, age, education level, field of study, parents' education level, marital status, occupation, work experience, employment status, ethnicity, income, socioeconomic status, medical history, duration of disease, addiction, number of children, media literacy, information literacy, computer literacy, and self-efficacy—situational factors—including use of the internet, use of social networks, social support, source of information, and participation in health education classes—and societal and environmental factors—including place of residence and type of insurance.

Conclusion: Modifiable factors identified in this study were self-efficacy, social support, information sources, media literacy, information literacy, computer literacy, internet or social networks, and participation in health education classes. Planners can consider these factors when developing interventions to promote health literacy.

Keywords: Health Literacy, Related Factors, Determinants, Iran

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Introduction

Health literacy is one type of literacy that people should possess (1). The World Health Organization (WHO) defines health literacy as cognitive and social skills that determine an individual's capacity and ability to acquire, process, understand, and use health information (2).

The prevalence of health literacy ranges from 6.1% to 94.2% across countries, indicating differences between studies (3). Health literacy is a critical and specific tool for societal health and is regarded as the top priority in improving the quality of health care (4). As a result, the WHO emphasizes that all societies should strive to achieve optimal health literacy and include health literacy improvement programs and strategies in their agenda to attain sustainable development goals (5). Recognizing influential and determining factors of health literacy is one of the most important steps in implementing effective

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↑What is "already known" in this topic:
Recognizing influential and determining factors of health literacy is one of the most critical steps in implementing effective health strategies and programs to promote public health.

→What this article adds:
Three categories of factors were associated with health literacy: personal; situational; and societal and environmental factors. Education level was the most definitive health literacy factor.

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health strategies and programs to promote public health (6).

Based on the Paasche-Orlow and Wolf's theory, health literacy is influenced by social and demographic features, social support, and individuals' cognitive and physical abilities (7). McCormack argues that demographic features, resources, prior knowledge, capabilities, and mediators affect health literacy (8). However, these theoretical explanations must be examined and proven in more accurate studies.

Accordingly, health literacy is a global issue that is considered one of the most fundamental health promotion tools because of its crucial role in health decision-making. However, a low level of health literacy has been reported in studies conducted on different groups in Iranian society, highlighting the need to address this issue. In this regard, the determinants of health literacy must be identified.

While several primary studies have reported factors associated with health literacy, review articles published in Iran have primarily focused on determining the levels of health literacy in the general population and various subgroups. Although each of these studies has focused on some of the factors associated with health literacy (4), there is a need for more comprehensive reviews that synthesize the available evidence on the different factors that affect health literacy. Such reviews can help identify gaps in knowledge and inform the development of interventions to improve health literacy and health outcomes by considering the relevant factors. To the best of our knowledge, no scoping review has been conducted to provide a comprehensive summary of the elements related to health literacy, specifically in the Iranian population. Therefore, this scoping review aimed to precisely identify the factors related to health literacy in Iranians.

Methods

Scoping reviews are a valuable research method that can identify and examine the various characteristics or factors associated with a particular concept (9). This scoping review was conducted based on the Arksey and O'Malley methodological framework (10), and the Joanna Briggs Institute's (JBI) updated guidance on scoping reviews (11). Additionally, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) were used as a checklist to report this scoping review (12).

Stage 1. Identifying the Research Question

The following research question was formulated based on the population, concept, and context strategy: which factors are associated with health literacy among Iranians aged 18 to 65 years?

Stage 2. Identifying Relevant Studies

The Persian-language databases of Magiran and SID were searched using the Persian equivalents for health literacy to obtain the research data. Similarly, using the keyword health literacy, a search was conducted in English-language databases such as PubMed, Web of Science, and Scopus, without any time limitation from April 1, 2021, to April 5, 2021. The article search process was performed independently by 2 researchers. If an article's full text was unavailable, its corresponding author was contacted. The search strategy in the PubMed database was as follows: ((“Health literacy”[mh] OR “Health literacy”[tiab] OR (health[tiab] AND literacy[tiab]) OR “literacy”[mh] OR literacy[tiab] OR “Information Literacy”[mh] OR Information Literacy[tiab] OR Health literate[tiab] OR Functional health literacy[tiab]) AND (iran*[tiab] OR iran[pl] OR iran[ad]).

Stage 3. Selecting Studies

The study selection process was such that the studies obtained from the Persian and English databases were first entered into Endnote software Version 6, and then duplicate studies were removed. In the next step, the titles and abstracts of the articles were reviewed, and articles unrelated to the aim of our research were deleted. Then, the full texts of the related articles were examined according to the inclusion and exclusion criteria and, finally, the eligible studies were included in the study. Two independent researchers performed the study selection to increase its validity. Table 1 shows the inclusion and exclusion criteria of the studies.

Stage 4. Charting the Data

Two independent researchers extracted the data using a researcher-made checklist. This checklist consisted of 3 parts as follows:

- Article information: name of authors, year of publication, place of research, type of research, sample size, sampling methods
- Participants characteristics: Population age range, participation class, number of participants by sex, and sex

Table 1. Study Inclusion and Exclusion Criteria

Study Characteristics	Inclusion Criteria	Exclusion Criteria
Population	Studies focusing on individuals aged 18 to 65, including both males and females	Studies targeting the population below 18 years and above 65 years.
Concept: Factors	Studies that had identified one or more variables as factors associated with health literacy and had utilized standardized tools to determine health literacy.	Studies that did not analyze factors associated with health literacy and studies that utilized researcher-made tools
Context	Observational studies conducted in Iran.	Nonobservational studies. Studies that were not conducted in Iran.
Others	Written in Persian and English Without any time limitation	lack of access to the full text of the article. Duplicate studies.

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- Investigated outcome: health literacy-related factors

Stage 5. Collating, Summarizing, and Reporting the Results

To summarize and report the results, a template with maps of tables and charts was developed. In addition, for reporting findings, factors related to health literacy among Iranian people were divided into 3 categories based on the integrated model of health literacy: societal and environmental factors; personal factors; and situational factors (13).

Results

Search and General Characteristics of Included Studies

Figure 1 shows the selection process of the studies. In the initial investigation, 2655 articles were found. Then, after removing duplicate reports, the abstracts and titles of the studies were reviewed. Finally, after evaluating the full text of the remaining articles, 76 articles were included in the study, considering the inclusion and exclusion criteria.

Detailed characteristics of the individual studies are summarized in Table 2. Among these articles, 21 studies were conducted on women and 55 others on both men and women. The papers were published from 2014 to 2022. The total sample size was 53,094 participants (31,360 female and 21,564 male participants; in 1 study, the sample size was not mentioned by sex). The sample size of the studies was between 60 and 20,571 people. Of the selected studies, 40 were published in Farsi, and 36 were published in English. Moreover, all analyses were cross-sectional.

The participants of the studies were the general population of men and women in 4 studies, adults (women or men) covered by health centers in 13 studies, pregnant women in 6 studies, mothers with infants and children in 3 studies, addict women in 1 study, women covered by the Welfare Organization in 1 study, workers in 1 study, employees in 13 studies, library users in 2 studies, university students in 16 studies, health volunteers in 1 study, and patients in 15 studies. The questionnaires of Health Literacy for Iranian Adults (54 studies), Test of Functional Health Literacy Adult (13 studies), Iranian Health Literacy Questionnaire (3 studies), Short Test of Functional Health Literacy Adult (3 studies), Newest Vital Sign (2 studies) and Functional, Communicative, and Critical Health Literacy Scale (1 study) were used in these studies.

Factors Affecting Health Literacy

Factors related to health literacy among Iranian people were divided into 3 categories based on the integrated model of health literacy. Accordingly, the most decisive factor related to health literacy is education. Appendix 1 provides a detailed list of factors associated with health literacy identified in each study included in this scoping review.

Personal Factors

Sex: Eighteen studies were significant, and 26 studies were not significant. In 12 studies (14, 16, 18, 20, 23, 51, 60, 62, 65, 67, 69, 71), the health literacy score was was significantly higher in women, and in 3 studies, this score was significantly higher in men (21, 77, 82). Three studies referred only to the significance of sex (48, 68, 75).

Age: A total of 29 studies were significant, and 22 studies were not significant. One study reported a positive and statistically significant relationship between age and health literacy based on the correlation coefficient (57). Based on the correlation coefficient, 6 studies reported a statistically significant negative relationship between age and health literacy (34, 77, 80, 83, 88, 89). In 1 study, the

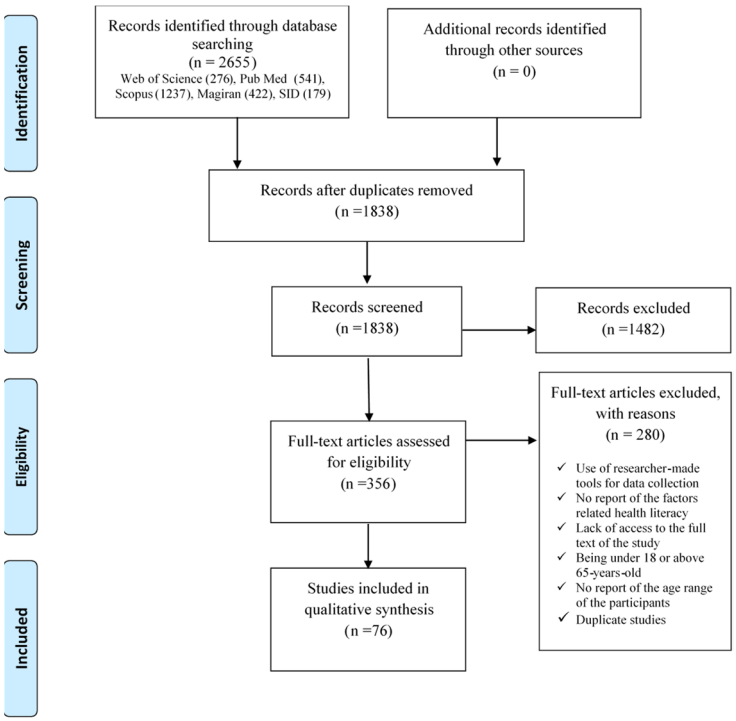

Figure 1. The PRISMA-ScR diagram depicts the process of study selection

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Table 2. Characteristics of studies included in the scoping review

First author & year	Setting	Participant	Sample size
Tavousi, 2016 (14)	All provinces of the country*	General adult population	20571
Naghibi, 2017 (15)	Ten areas of Shahriar city	General adult population	299
Haghdoost, 2019 (16)	Sistan and Baluchestan, Kerman, Markazi, Mazandaran, Qom, Booshehr, Yazd, Isfahan, and Qazvin	General adult population	8404
Ravati, 2018 (17)	Alborz province	People living in Alborz province	465
Jahani, 2019 (18)	Health centers of Neishabour City	Adults covered by comprehensive health service centers	385
Ansari, 2018 (19)	Health network of Shemiranat City	Adults covered by health centers	170
Baraie, 2020 (20)	Health centers of Bijar City	Adults covered by comprehensive health service centers	600
Fouladi, 2017 (21)	Health centers of Ardabil City	Middle-aged people covered by comprehensive health service centers	1049
Joveini, 2019 (22)	Health centers of Bardsakan City	Adults covered by health centers	700
Nadi, 2020 (23)	Health centers of Arak City	Adults covered by health centers	750
Shahavandi, 2021 (24)	Health centers of Tehran City	Adults covered by health centers	261
Isaapare, 2020 (25)	Health centers of Dezfol City	Adults covered by health centers	1575
Abedini, 2021 (26)	Health centers of Hormozgan province	Adults covered by health centers	812
Askarian, 2018 (27)	Health centers of Bardsakan City	Adults covered by comprehensive health service centers	428
Zareban, 2016 (28)	Health centers of Iranshahr, Bampur, and Sarbaz cities in the Baluchistan region	Women covered by health centers	247
Sajadi, 2016 (29)	Health centers of Izadeh City	Women covered by health centers	240
Enjezab, 2021 (30)	Health centers of Yazd City	Women covered by health centers	280
Baghaei, 2017 (31)	Health centers of Orumieh City	Pregnant women	400
Zaree, 2017 (32)	Health centers of Minab City	Pregnant women	361
Moshki, 2018 (33)	Health centers of Gonabad City	Pregnant women	400
Akbarinejad, 2017 (34)	Health centers of Esfahan City	Pregnant women	351
Izadirad, 2019 (35)	Health centers of Balochistan	Pregnant women	430
Eslami, 2022 (36)	Health centers of Mashhad City	Pregnant women	238
Alinejad-Naeini, 2019 (37)	Educational hospitals affiliated with the Tehran University of Medical Sciences	Mothers with preterm infant	200
Morteza-Nejad, 2019 (38)	Health centers affiliated with Guilan University of Medical Sciences	Mothers with infants	253
Peyman, 2016 (39)	Health centers of Mashhad City	Mothers with children less than three months	120
Karimi, 2018 (40)	Addiction treatment centers in Tehran city	Women referring to the addiction treatment centers of Tehran	141
Rostami, 2018 (41)	Welfare Organization of Nourabad City	Women covered by the Welfare Organization	149
Afshari, 2017 (42)	Mehrkam Pars Automotive Company, Karaj city	Workers	157
Amini, 2017 (43)	Libraries of the UMS Tehran and the University of Tehran	Librarians	79
Moghadaszadeh, 2018 (44)	Regional Science and Technology Information Center of Shiraz city	Librarians	80
Mousavi, 2018 (45)	Province Public Libraries of Mazandaran City	Librarians	147

literacy score decreased significantly for each year of age increase (61). In 3 studies, the literacy score increased significantly for each year of age increase (16, 50, 56). Based on the results of other studies, the health literacy score is lower at much younger and much older ages (15, 18-20, 22, 25-30, 42, 46, 53, 67, 74, 79, 82).

Education Level: A total of 43 studies were significant, and 8 were insignificant. In 41 studies, the level of health literacy was significantly higher in people with higher education levels (15-20, 22-31, 33-35, 38, 39, 41, 42, 45, 46, 49, 50, 52-54, 59, 71, 74, 77, 79, 80, 82-84, 88, 89). Conversely, in 2 studies, the level of health literacy was significantly lower in people with higher education levels (40, 75).

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Table 2. Continued

First author & year	Setting	Participant	Sample size
Ansari, 2017 (46)	Libraries Foundation of Kerman City	Library users	375
Rahimi, 2019 (47)	Libraries of Public of Ilam City	Library users	300
Pashaeypoor, 2018 (48)	Schools of the University of Medical Sciences Tehran	Employees	150
Ghanbari, 2017 (49)	Schools of the University of Medical Sciences Guilan	Employees	186
Khoshravesh, 2018 (50)	Hamadan University of Medical Sciences	Employees	188
Baji, 2019 (51)	Education Culture & Research in Khuzestan	Employees	209
Zarezadeh, 2020 (52)	Kurdistan University of Medical Sciences	Employees	202
Solhi, 2017 (53)	Municipality Offices of Shemiranat city	Employees	360
Kahouei, 2015 (54)	Hospitals affiliated with the Semnan University of Medical Sciences	Employees	389
Mahdifar, 2021 (55)	Medical centers of Binalood city	Employees	170
Rahimi, 2019 (56)	Primary schools of Shahrekord city	Teachers	60
Yusefi, 2019 (57)	Educational hospitals affiliated with the Shiraz University of Medical Sciences	Nurses	171
Ramezankhani, 2015 (58)	Shahid Beheshti and Shahid Beheshti University of Medical Sciences, Tehran	Students	370
Barati, 2019 (59)	Schools of Hamadan University of Medical Sciences	Students	382
Moghaddam, 2019 (60)	Schools of Guilan University of Medical Sciences	Students	583
Mahdizadeh, 2019 (61)	Schools of Torbat Heydariyeh University of Medical Sciences	Students	201
Panahi, 2016 (62)	Shahid Beheshti University of Medical Sciences in Tehran	Students	337
Sajadi, 2020 (63)	Faculty of Isfahan University	Students	376
Ziaee, 2018 (64)	Islamic Azad University of Kazerun	Students	200
Khaleghi, 2019 (65)	Islamic Azad University, Shahreri Branch	Students	278
Dehghankar, 2019 (66)	Imam Khomeini International University of Qazvin	Students	357
Ahmadi, 2018 (67)	Campuses of Farhangian University	Students	932
Shekari, 2019 (68)	University Yazd	Students	400
Namazi, 2020 (69)	Islamic Azad University of Rasht	Students	250
Mahdizadeh, 2021 (70)	Torbat Heydariyeh University of Medical Sciences	Students	201
Mahmoudi, 2015 (71)	Postgraduate education Ferdowsi University of Mashhad	Students	368
Shirzad, 2019 (72)	Dormitory of Tarbiat Modares University of Tehran	Students	183
Taheri, 2020 (73)	Schools of Iran University of Medical Sciences	Students	167
Jahanieftekhari, 2018 (74)	Neishabour Health Centers	Health Volunteers	250
Seyedoshohadaee, 2016 (75)	Diabetes Research Center affiliated with the Tehran University of Medical Sciences	Patients	200
Shafiei, 2020 (76)	Diabetes Clinic of Imam Sadegh Hospital in Delijan	Patients	150
Fadaiyan Arani, 2018 (77)	Health Centers of Kaghzi and Hosseinabad in Aran and Bidgol cities	Patients	120
Taghi Sohrabi, 2020 (78)	Kazeroon Health Centers	Patients	60
Noroozi, 2019 (79)	Clinic affiliated to Golestan Hospital in Ahvaz	Patients	362
Izadkhah, 2020 (80)	Qom health centers	Patients	300
Saba Seif, 2018 (81)	Khorramabad teaching hospitals	Patients	161
Marzangi, 2018 (82)	Hospitals located in the southern cities of West Azerbaijan province	Patients	374
Imanian, 2017 (83)	Hospitals affiliated with the Shahid Beheshti University of Medical Sciences	Patients	299
Qobadi, 2015 (84)	Dialysis Center affiliated with the Tehran University of Medical Sciences	Patients	204
Yadollahi, 2018 (85)	A public center with breast cancer counseling and treatment in Shiraz	Patients	196
Roohi, 2020 (86)	Cancer Clinic of Imam Khomeini Hospital in Tehran	Patients	265
Sedghi, 2019 (87)	Iranian MS Association	Patients	382
Kazemi, 2019 (88)	Clinics of Shahid Sadoughi University of Medical Sciences in Yazd	Patients	300
Mollakhalili, 2014 (89)	Hospitals affiliated with Isfahan University of Medical Sciences	Patients	384

Field of Study: Two studies were significant, and 6 were insignificant. One study found that nonmedical students had significantly lower health literacy than medical students (58). Another study found that health literacy significantly differed in various medical disciplines (59). In other studies, health literacy was not very different in multiple nonmedical disciplines (43, 45, 65, 66, 69, 71).

Parents Education Level: Two studies were significant, and 2 studies were not significant. In 2 studies, a statistically significant relationship was observed between health literacy and father's education (60, 68).

Marital status: Twelve studies were significant, and 19 were insignificant. Inadequate health literacy was reported in 4 studies in singles (50, 65, 67, 80), in 3 studies in married (82, 88, 89), and in 3 studies in widowed or divorced participants (22, 27, 79). Two studies referred only to the significance of marital status (68, 83).

Occupation: A total of 23 studies were significant, and 11 studies were not significant. The lowest level of health literacy was observed in 6 studies on housewives (23, 25, 28, 31, 46, 80), 6 studies on retirees (15, 22, 27, 40, 88, 89), 4 studies on workless people (16, 18, 38, 79), and 1 study on students (26). It was reported in 1 study that the health literacy of unemployed students was lower than that of employed students (66). Another study indicated that the health literacy of nonmedical staff was lower than that of medical staff (54). Two studies referred only to the significance of occupation (35, 68). Conversely, the highest level of health literacy was reported in 1 study on unemployed people (17). Accordingly, it can be concluded that occupation is one of the most important factors affecting health literacy and that unemployed people (unemployed students, homemakers, and workless people) and retirees have lower health literacy.

Work experience: One study was significant, and 3 were insignificant. One study found a significantly posi-

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tive relationship between health literacy and work experience (57).

Employment status: In 1 study, there was a significantly positive correlation between employment status and health literacy (57).

Ethnicity: It was revealed in 1 study that Fars ethnicity had higher health literacy than non-Fars ethnic groups (17).

Income: Eight studies were significant, and 8 studies were not significant. It was indicated in 8 studies that health literacy was significantly lower in people with lower incomes (20, 28, 31, 32, 60, 62, 74, 83).

Socioeconomic Status: Five studies were significant, and 3 were insignificant. Five studies reported a statistically significant relationship between health literacy and socioeconomic status (23, 26, 51, 75, 82). People with better economic and social status had higher health literacy.

Self-efficacy: Four studies were significant, and 1 study was not. Four studies reported a positive correlation between health literacy and self-efficacy. People with higher self-efficacy had more health literacy (37, 76, 81, 86).

Addiction: In 1 study, a statistically significant relationship was found between health literacy and addiction (40).

Number of Children: In 2 studies, there was a statistically significant relationship between health literacy and the number of children (32, 67). In the Ahmadi et al study, the lowest mean health literacy score was reported in families without children (67). Two studies were not significant (38, 55).

Medical History: Three studies were significant, and 1 study was not. In 3 studies, a lower level of health literacy was observed among people with a history of underlying disease (22, 27, 82).

Duration of Disease: One study was significant, and 1 was not. In 1 study, there was a statistically significant relationship between health literacy and the time since the diagnosis of heart disease. The health literacy level was lower in patients who had been diagnosed with the disease for a longer period (82).

Media Literacy: In 2 studies, a significantly positive correlation was observed between health literacy and media literacy. People with higher levels of media literacy appeared to have higher levels of health literacy (34, 72).

Computer Literacy: A study on university students revealed a statistically significant relationship between health literacy and computer literacy. Based on the results of multivariate linear regression in this study, dimensions of computer literacy could predict up to 63% of changes in the health literacy score of the students (70).

Information Literacy: The results of 2 studies on students (71, 73) and 1 study on IT staff (44) indicated a statistically significant relationship between health literacy and information literacy. Thus, people with higher information literacy had better health literacy.

Situational Factors

Source of Information: Ten studies were significant, and 3 were not. Based on the results of 10 studies, there was a statistically significant relationship between health literacy and the source of information. The highest level of literacy belonged to books and brochures in 4 studies (23, 28, 54, 60), friends and physicians in 2 studies (19, 30), radio and television in 1 study (23), and the internet in 1 study (53). The lowest level of literacy was observed in 3 studies in people who used books and brochures (19, 30, 53), in 2 studies in those who used friends (23, 52), and in 1 study in those who gained information from their colleagues (45).

Participation in Health Education Classes: According to the results of 1 study, there was a statistically significant relationship between health literacy and health education classes (45).

Use of the Internet: A significantly positive correlation was reported between health literacy and internet use in 1 study. Health literacy was higher in people who used more internet (60)

Use of Social Networks: The results of 2 studies on library users revealed a statistically significant relationship between health literacy and the use of social networks; thus, the greater the use of social networks was, the higher the level of health literacy of users (47, 48).

Social Support: In 3 studies, a significantly positive correlation was found between health literacy and social support. People with more social support had better health literacy (37, 64, 86).

Societal and Environmental Factors

Place of Residence: Three studies were significant, and 4 were not. Health literacy in 1 study was significantly lower in rural areas than in urban areas (79), whereas it was significantly higher in 2 studies (16, 32).

Type of Insurance: One study was significant, and 4 were not. A statistically significant relationship was reported between health literacy and kind of insurance, as moderate health literacy in people with regular insurance was higher than in those with supplemental insurance (49).

Discussion

This study aimed to determine the factors related to health literacy in the Iranian population. Based on the results of the study, related factors include personal factors (sex, age, education level, field of study, education of parent, marital status, occupation, work experience, employment status, ethnicity, income, socioeconomic status, medical history, duration of disease, addiction, number of children, media literacy, information literacy, computer literacy, self-efficacy), situational factors (use of internet, use of social network, social support, source of information, participation in health education classes), and societal and environmental factors (place of residence, type of insurance).

Based on the study's results, education level is the most decisive factor related to health literacy; thus, the higher the education level is, the higher one's health literacy (15-20, 22-31, 33-35, 38-42, 45, 46, 49, 50, 52-54, 59, 71, 74, 75, 77, 79, 80, 82-84, 88-90). According to a systematic review, education strongly predicts health literacy. Low

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education level, difficulty in written communication, and limited familiarity with medical terms probably impair one's ability to interact with the health care system (91) successfully. These findings are consistent with the results of the present study. Furthermore, the results of this study indicated that health literacy is higher in medical disciplines than in nonmedical fields (58). There was no statistically significant difference in health literacy among different nonmedical disciplines (43, 45, 65, 66, 69, 71).

In the present scoping review, 18 studies revealed a relationship between health literacy and sex (14, 16, 18, 20, 21, 23, 48, 51, 60, 62, 65, 67-69, 71, 75, 77, 82). It was found in most of these studies that the health literacy of women was significantly higher than that of men (14, 16, 18, 20, 23, 48, 51, 60, 62, 65, 67-69, 71, 75). The need to care for sick family members gives them a better chance to gain health-related knowledge and, consequently, women have a higher level of literacy in this regard (92). This study's results align with the study conducted by Lee et al (93).

According to the results of 29 studies, there was a statistically significant relationship between health literacy and age (15, 16, 18, 19, 22, 25-30, 34, 42, 46, 50, 53, 56, 57, 59, 61, 67, 74, 75, 77, 79, 80, 82, 83, 88, 89).

Inadequate health literacy seems more prevalent at much younger and much older ages. With increasing age, deficiencies occur in one's literacy, caused by reduced cognitive function, distance from formal school years, and decreased sensory ability. Age was determined to be a health literacy-related factor in the systematic review conducted by Paasche-Orlow et al (94).

As shown in our study, marital status was considered one of the factors related to health literacy in 12 studies (22, 27, 50, 65, 67, 68, 79, 80, 82, 83, 88, 89). Eight studies reported inadequate and low health literacy among unmarried people (4 studies in single people [50, 65, 67, 80], 3 studies in widowed or divorced people [22, 27, 79]) and 3 studies in married people (82, 88, 89). These contradictions can be due to different types of tools, places and times of the study, types of participants, and other characteristics. Generally, it can be claimed that people who have the support of their spouse during their life are more likely to have a higher level of health literacy. Marriage enhances social interactions, the development of social networks, and economic support, thereby improving health literacy skills (50, 95). These results align with the study conducted by Rikard et al (95).

Based on the results of 23 studies, there was a statistically significant relationship between job and health literacy (15-18, 22, 23, 25-28, 30, 31, 35, 38, 40, 46, 54, 66, 68, 79, 80, 88, 89). Generally, in most of these studies, inadequate health literacy was more prevalent among unemployed and retired people (15-18, 22, 23, 25, 27, 28, 31, 38, 40, 46, 66, 79, 80, 88, 89, 96).

In the present scoping review, the results of 5 studies indicated a relationship between health literacy and socioeconomic status (23, 26, 51, 75, 82); this result aligns with the study of Coraline Stormacq et al. In their systematic review, these researchers argued that, as one of the most critical factors, unfavorable socioeconomic conditions are associated with low levels of health literacy (97).

In our review, 8 studies revealed a statistically significant relationship between health literacy and income level to the extent that people with higher income had a higher literacy level (20, 28, 31, 32, 60, 62, 83). The results of these studies are in line with the results of 2 other systematic reviews. Optimal socioeconomic conditions and a reasonable income level can promote health literacy by providing better access to information resources (3, 97).

In the present study, Zaree et al's results showed that health literacy was higher in the urban population (32). In contrast, Haghdoost et al (16) and Noroozi et al (79) indicated that the rural population had higher health literacy. Haghdoost et al attributed the higher health literacy of the rural population to more and easier access of villagers to doctors and health care workers, as well as the implementation of the family doctor program (at the time of the study, this program was implemented only in rural areas)(16). Being rural alone does not explain the difference between rural and urban health literacy, and demographic and social factors also play an important role (98). This has also been confirmed by Shayakhmetov et al (99).

According to the results of our study, people with a history of disease had lower health literacy (22, 27, 82). These results align with the study conducted by Charoghchian Khorasani et al (100). People with low health literacy are less likely to adhere to health guidelines because they have limited access to and difficulty comprehending oral and written health information (22).

As revealed in the present study, having skills and abilities such as using the internet (60), using social networks(47, 48), media literacy (34, 72), information literacy (44, 71, 73), and computer literacy (70), can help people to search for information and understand it better; thus, these factors are associated with higher health lit

eracy (47).

In the present review, the results of 4 studies introduced self-efficacy as one of the factors related to health literacy (37, 76, 81, 86). These results align with the findings of a systematic review conducted by Xu XY et al. One possible reason could be that people with higher self-efficacy value their ability to understand and interpret health information; therefore, they may mentally overestimate their health literacy (101).

In the present study, the results of 3 studies indicated a relationship between health literacy and social support (37, 64, 86). These results are in line with the study of Lee et al. The researchers found that supporting people's social networks could improve their ability to receive and understand health information (102).

Conclusions about other factors, including number of children (32, 67), addiction (40), type of insurance (49), work experience (57), employment status (57), duration of illness (82), and education of the parents (60, 68), were not adequate due to the small number of studies.

Limitations

All included studies were cross-sectional studies (descriptive-analytical or correlational). These studies have inherent potential limitations, such as weak identification

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of causal relationships between variables and the effect of confounding variables on the primary outcomes, limiting the possibility of more accurate conclusions and identifying the related factors.

Conclusion

Based on the results of this study, education level was the most decisive factor affecting health literacy. This study's strength lies in identifying the relevant modifiable factors. These factors were not mentioned in previous systematic reviews conducted in Iran. Thus, by considering initiatives such as boosting self-efficacy, social support, media literacy, information literacy, computer literacy, and easy access to health information via the internet or social networks, this study helps researchers and health policymakers create interventions for promoting health literacy.

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Ethical Approval

The study was approved by the ethics committee of Shahid Beheshti University of Medical Sciences (IR.SBMU.PHARMACY.REC.1400.194).

Conflict of Interests

The authors declare that they have no competing interests.

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Appendix 1. Health literacy related factors in included studies

	First author & year	Gender	Age	Education	Field of study	Education of parent	Marital status	Occupation	Work experience	Employment status	Ethnicity	Income	Socioeconomic status	Place of residence	Medical history	Duration of disease	Type of insurance	Media literacy	Computer literacy	Information literacy	Source of information	Education classes	Use of Internet	Use of social network	Social support	Self-efficacy	Addiction	Number of children
1.	Tavousi, 2016(12)																											
2.	Naghibi, 2017(13)																											
3.	Haghdoost, 2019 (14)																											
4.	Ravati, 2018(15)																											
5.	Jahani, 2019 (16)																											
6.	Ansari, 2018 (17)																											
7.	Baraie, 2020 (18)																											
8.	Fouladi, 2017 (19)																											
9.	Joveini, 2019 (20)																											
10.	Nadi , 2020 (21)																											
11.	Shahavandi, 2021 (22)																											
12.	Isaapare, 2020 (23)																											
13.	Abedini, 2021 (24)																											
14.	Askarian, 2018 (25)																											
15.	Zareban, 2016 (26)																											
16.	Sajadi, 2016 (27)																											
17.	Enjezab, 2021 (28)																											
18.	Baghaei, 2017 (29)																											
19.	Zaree, 2017(30)																											
20.	Moshki, 2018 (31)																											
21.	Akbarinejad, 2017 (32)																											
22.	Izadirad, 2019 (33)																											
23.	Eslami, 2022 (34)																											

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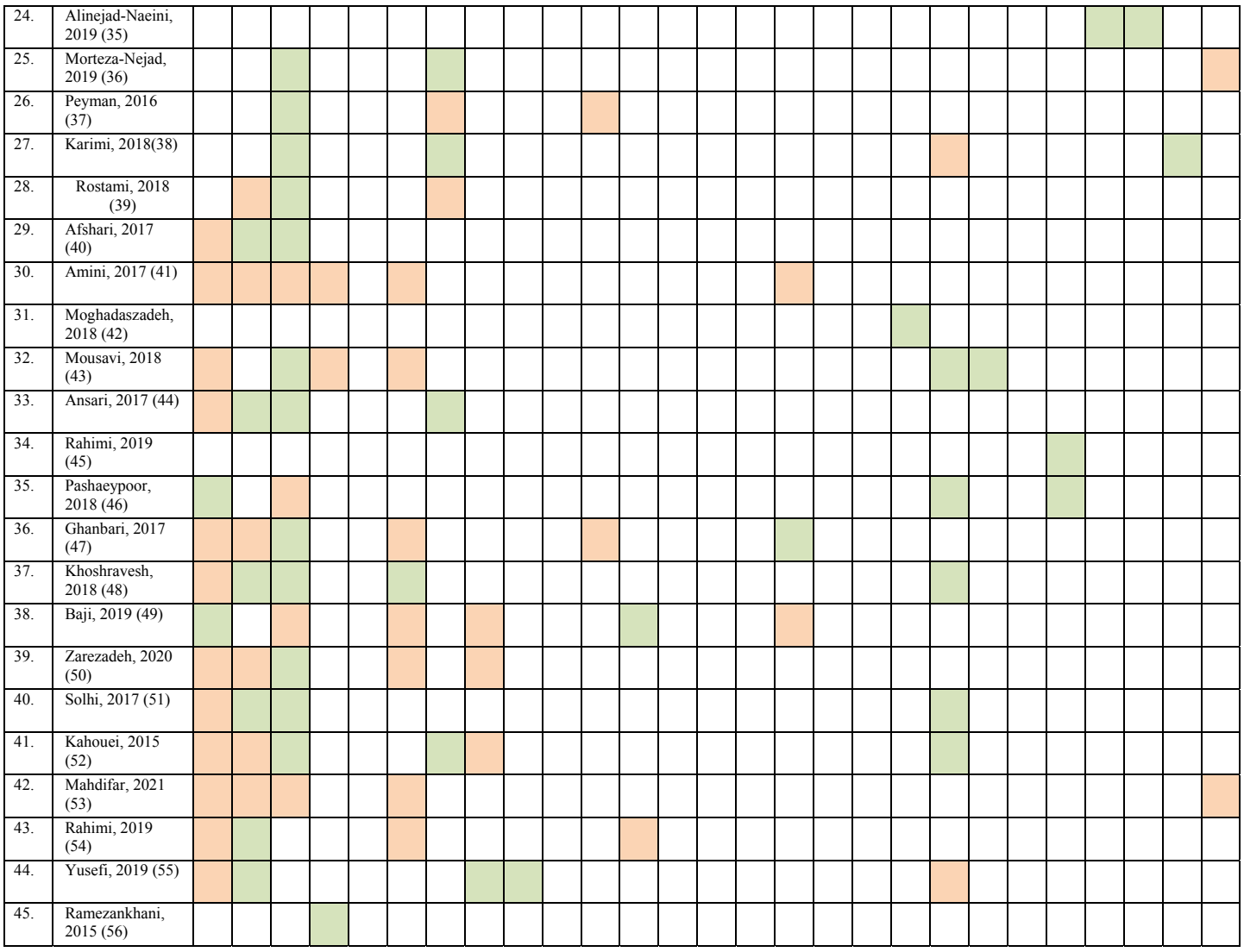

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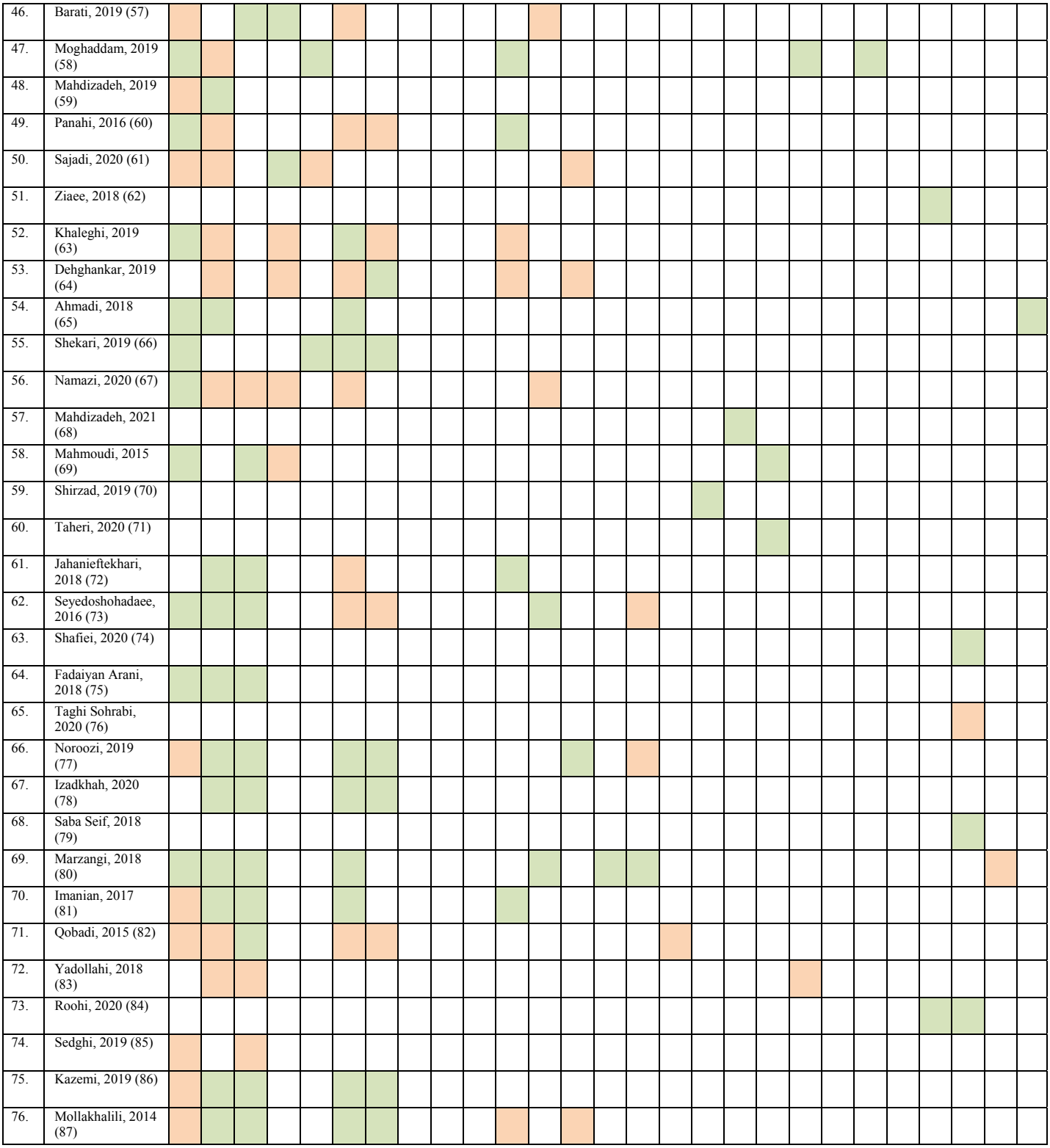

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