

# Registered Nurses' Knowledge of and Experience with Health Literacy

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## ABSTRACT

**Background:** Limited skill in health literacy is a global issue. Variation in health literacy skills within societies is a source of health inequality unless health care providers apply health literacy practices to effectively communicate with all clients. **Objective:** This study examined Iranian registered nurses' knowledge of and experience with health literacy practices. **Methods:** This cross-sectional study provides a quantitative description of knowledge of and experience with health literacy practices. Using a rigorous process, we adapted the Health Literacy Knowledge and Experience Survey to collect data from the participants, who were 190 registered nurses working in Tehran, Iran. **Key Results:** Findings identify gaps in participants' knowledge and experience with health literacy practices. Knowledge deficits are most noticeable in standards to create written materials, screening tools to identify limited health literacy, and the Teach-Back strategies to determine people's understanding. Limited experience is prominent in using health literacy screening tools, evaluating written health information, and applying technologies to provide health information. Our multivariate analysis suggests participants who reported more interaction with health care professionals for personal reasons scored higher in knowledge of health literacy practices. **Conclusions:** This study indicated that registered nurses in Iran do not have adequate knowledge and experience regarding health literacy practices. Addressing this issue is fundamental to promoting health equity. Future investigations should identify both barriers and facilitators for nurses to apply health literacy practices. [*HLRP: Health Literacy Research and Practice*. 2019;3(4):e268-e279.]

**Plain Language Summary:** Health literacy practices enable health care professionals to offer understandable health information to all people and contribute to health equity. We surveyed 190 registered nurses in Iran to assess their knowledge of and experience with health literacy practices. The findings will be a guide to create interventions to improve registered nurses' knowledge of these practices and to use them to communicate clearly with clients.

Providing quality care for all people regardless of their personal characteristics, such as gender, age, social status, geographic location, and socioeconomic status, is a fundamental objective for health care systems (Marmot, 2013). Health literacy, which is defined as the ability to access, understand, and apply health information, is one of the determinants of health (Pelikan, Ganahl, & Roethlin, 2018). Limited health literacy is prevalent in vulnerable populations such as older adults, racial and ethnic minorities, people living with

chronic illnesses, and those with less education (Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005; Schaeffer, Berens, & Vogt, 2017). People with limited health literacy usually have poor health outcomes and an increased risk of hospitalization and mortality (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Brach et al., 2012; Parnell, 2015). Enhancing people's understanding of health information or, from a broader perspective, their health literacy, provides an equal opportunity for all to ac-

cess and use health care services. Accordingly, the U.S. government prioritized improving health literacy by initiating Healthy People 2010 (National Center for Health Statistics, 2012). Similarly, the Institution of Public Equity is working on ameliorating limited health literacy in the United Kingdom (Roberts, 2015).

Health care professionals play a critical role in providing understandable health information to the public, which can reduce health literacy demands on health care consumers (Chang, Chen, Wu, & Liao, 2017; Coleman, Hudson, & Pederson, 2017; Johnson, 2015). Overlooking this responsibility aggravates limited health literacy among vulnerable populations and magnifies health inequalities in societies (Logan et al., 2015). Behaviors related to health literacy (e.g., understanding and applying health information to navigate health care systems, making informed decisions, and being an active agent in shaping a health plan) are influenced not only by people's cognitive capacities but also the complexity of the health care settings and the quality of health communications (Baker, 2006; Nutbeam, 2008; Paasche-Orlow & Wolf, 2007; Pleasant et al., 2016). When interacting with health care professionals who do not offer understandable written and oral communications, people with limited health literacy face debilitating challenges that limit their ability to use health care services, leading to poor health outcomes.

To ensure high-quality health communications, health care professionals need to apply health literacy practices in their daily conversations with clients (e.g., avoiding medical jargon, using simplified information with visual illustrations, using Teach-Back methods, and providing opportunities for patients to ask questions) (Coleman et al., 2017; Parnell, 2015;

Toronto, 2016; Toronto & Weatherford, 2015). Among health care professionals, nurses are the largest group and the group that spends the most time with clients. As such, they are well positioned to contribute to improving health literacy through delivering understandable health communications. Nevertheless, recent studies from the U.S. indicate that nursing students (Cormier & Kotrlík, 2009; Scheckel, Emery, & Nosek, 2010; Torres & Nichols, 2014) and practicing nurses (Cafiero, 2013; Knight, 2011) have inadequate knowledge of health literacy practices and limited experience with health literacy activities.

Limited health literacy is a global issue. Only 12% of American adults have proficient health literacy skills (Kutner, Greenberg, Jin, & Paulson, 2006). In Canada, 60% of adults have limited health literacy skills (Canadian Council on Learning, 2008). Limited health literacy is more prevalent in developing countries (Nutbeam, 2008). Iran, located in the Middle East, has performed no nationwide assessment of health literacy, but one regional study reported that 56.5% and 15.3% of citizens older than age 18 years in five Iranian provinces have inadequate and borderline health literacy levels, respectively (Tehrani Banihashemi et al., 2007). A positive association was also noted between health literacy skills and socioeconomic status (Tehrani Banihashemi et al., 2007). In Isfahan, one of the most populated Iranian provinces, 79.6% of people older than age 65 years had limited health literacy; those with inadequate health literacy were mainly women with less education and a lower income (Javadzade et al., 2012). To the best of our knowledge, there is no study that has examined registered nurses' knowledge of and experience with health literacy practices in Iran. This article reports on a study that exam-

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ined Iranian registered nurses' knowledge of and experience with health literacy practices.

## METHODS

### Study Design and Population

This cross-sectional study provides a quantitative description of knowledge of and experience with health literacy practices among registered nurses in Iran. We recruited registered nurses practicing in university hospitals and community health centers affiliated with the Tehran University of Medical Science (TUMS). Tehran is the capital of Iran and has a diverse population that includes seven ethnic groups from all parts of the country. Although each ethnic group has a distinct language, people in health care systems in Tehran are expected to speak Farsi, Iran's official language.

### Instrument

We collected data using the Health Literacy Knowledge Experience Survey (HL-KES). This self-administered survey was developed by Cormier (2006) in the United States and has been used in a variety of nursing contexts (Cafiero, 2013; Cormier & Kotrlik, 2009; Knight, 2011; Torres & Nichols, 2014). We adapted the HL-KES to the Iranian context by applying guidelines on cross-cultural adaptation in health research (Sousa & Rojjanasrirat, 2011). Accordingly, the following six steps were completed: (1) two translators independently translated the survey to Farsi; (2) the two translations were synthesized; (3) the product of step 2 was back-translated to English; (4) the back translation was compared to the original HL-KES by an expert committee consisting of the study investigators and the tool developer Dr. Cormier, and necessary changes were incorporated to create a draft survey; (5) a pilot study was conducted to test the draft survey with 20 participants selected purposefully from the target population; and (6) final changes were incorporated into the survey based on the pilot study results.

The adapted version of the HL-KES is comprised of three sections: Section 1: Demographics (seven items); Section 2: Health Literacy Knowledge (26 multiple-choice questions to assess nurses' knowledge of health literacy in the following five content areas defined by Cormier (2006): (1) basic facts on health literacy, (2) consequences associated with low health literacy, (3) health literacy screening, (4) guidelines for written health care materials, and (5) evaluation of health literacy interventions); and Section 3: Health Literacy Experience (an eight-item scale to measure nurses' participation in activities related to health literacy using a Likert scale: 1 = *never*, 2 = *sometimes*, 3 = *frequently*, and 4 = *always*). The survey took approximately 15 minutes to complete.

### Validity and Reliability

The HL-KES was validated by the developer (Cormier & Kotrlik, 2009). Throughout the tool adaptation process, we modified the instrument for the Iranian context while maintaining equivalency to the original instrument in terms of psychometric properties. For the reliability measure, Cormier and Kotrlik (2009) reported a Cronbach's alpha coefficient (0.82) for the scale portion of the HL-KES (Section 3). In the current study, the Cronbach's alpha coefficient was evaluated to be 0.85, indicating good internal consistency.

### Recruitment

Upon our request from the Nursing Office at TUMS, we were notified that at the time of our study there were 3,413 registered nurses practicing at the hospitals and community health centers affiliated with the university. After ethical approval from the University of Alberta Health Research Ethics Board and the TUMS Research Ethics Committee, we emailed a survey package to 300 potential participants. The survey package contained (1) an information letter explaining the study and (2) a link to an online version of the HL-KES using Survey Monkey (a free online survey tool) as a platform. The initial email was followed by two reminder emails at 1-week intervals. Due to the low response rate to the online HL-KES (less than 5%), we approached the potential participants in person and explained how the study would work. Participants attended a brief presentation about the study delivered by two research assistants in each target hospital and community health center. At the end of the presentation, a hard copy of the survey package was distributed to attendees who chose to participate.

### Statistical Analysis

Descriptive statistics were used for the demographic data. For the data related to knowledge of health literacy obtained by Section 2 of the HL-KES, we calculated (1) means, standard deviations (*SD*), and the range of scores for each of the five content areas, as well as the total section; and (2) proportions for all of the alternative answers within each question. For the data related to experience with health literacy obtained by Section 3 of the HL-KES, we computed proportions for the response options within each item. A multiple linear regression model was run to determine whether the potential exploratory variables predicted scores of the Iranian registered nurses' knowledge of health literacy.

## RESULTS

Data collection for the study took place between November 2015 and January 2016. Data from 190 registered nurses in Iran were included in the final analysis.

## Demographics

The participants' age ranged from 21 to 52 years (mean of  $31.6 \pm 6.9$  years). Participants reported having 1 to 26 years of nursing experience (mean of  $8.3 \pm 6.5$  years). Demographic data are summarized in **Table 1**.

## Health Literacy Knowledge

Mean scores for each content area of health literacy within Section 2 and the total section are presented in **Table 2**. Proportions for all alternative answers within each question in Section 2 (**Table A** and **Table B**) are summarized in the following paragraphs.

**Basic health literacy facts.** The percentage of correct responses to the five questions included in this area varied between 18.4% and 40.2%. Although 74 (38.9%) participants knew the definition of functional health literacy and the fact that limited health literacy is most prevalent in those older than age 65 years, only 40 (21.1%) participants were aware that health literacy is a better indicator of health status than education level.

**Consequences related to limited health literacy.** The percentage of the participants who chose a correct response for the four questions in this area varied (12.6% to 55.3%); notably, 6.8% to 7.9% of those who did not indicate the correct response reported they had never heard about the topics in the questions. Although 105 (55.3%) participants knew about some of the ramifications of limited health literacy, such as a delay in being diagnosed and having fewer treatment options, 125 (65.8%) of them were unaware that people with limited health literacy might not be interested in taking part in preventive health care measures. Notably, 166 (87.4%) participants did not know about the common behaviors that people demonstrate to avoid stigma associated with being known as a person with limited health literacy. For instance, people pretend to read written health care materials in the presence of health care providers even if they are unable to understand the written document.

**Health literacy screening tools.** Most participants did not respond correctly to questions related to health literacy screening tools the Test of Functional Health Literacy (TOFHLA) and the Rapid Estimate of Adult Literacy in Medicine (REALM) (92.6% and 81.6%, respectively). However, 56 (29.5%) participants reported they knew about alternative strategies to identify people with limited health literacy, and 78 (41.1%) of them had the knowledge regarding how to initiate health literacy screening in their clients.

**Evaluating the effectiveness of health literacy interventions.** Most participants (65.3%) did not respond correctly to the question on Teach Back, which is the most effective strategy to determine a patient's understanding after education.

Also, only 77 (40.5%) participants were aware that patients may refuse to read written health care materials in the presence of health care providers because they have difficulties understanding written health information.

### **Guidelines for developing written health care materials.**

The majority of participants did not correctly answer questions related to the following areas: the points that need to be considered to provide culturally acceptable pamphlets on sensitive health issues (66%); the importance of using pictures to increase patient understanding of written health care materials (75.8%); the number of points to be incorporated in pamphlets on specific diseases (72.1%); the wording strategy when writing health care information (80.5%); and the strategy to provide opportunities for patients to act as an active learner when preparing written health care information (82.1%).

## Health Literacy Experience

Proportions for response options within each of the eight items in Section 3 of the HL-KES are presented in **Table 3**.

## Multivariate Analysis

The results of the multiple linear regressions demonstrate that 9.4% of the variance in the Iranian registered nurses' knowledge of health literacy is explained by the nurses' sex (0.3%), years of experience (0.3%), and the frequency of their interaction with health care professionals for personal reasons. Participants who reported *usually* or *very often* interacting with health care professionals for personal reasons had statistically significant higher scores on knowledge of health literacy compared to those who reported *rarely* interacting.

## DISCUSSION

Registered nurses practicing in the university hospitals and community health centers affiliated with TUMS exhibited inadequate knowledge in all five content areas of health literacy tested in this study. Knowledge deficiency is most noticeable regarding standards to create written materials, screening tools to identify limited health literacy, and the Teach-Back strategy to determine people's understanding. Also, registered nurses in Iran have limited experience with applying health literacy practices on a daily basis. This was obvious in using health literacy screening tools, evaluating written health care information for reading level and cultural sensitivity, and using audio and video tapes for delivering health care information. The results showed limited knowledge and experience with health literacy, although most of the participants reported previous exposure to the concept. Interestingly, our multivariate

**TABLE 1**  
**Demographic Characteristics of the Registered Nurses in Iran (N = 190)**

Variable	Number	Percentage
Age		
≤25 years	43	22.6
26-35 years	93	48.9
36-45 years	49	25.8
≥46 years	2	1.1
Nursing experience		
≤10 years	129	67.9
11-20 years	52	27.4
21 years or more	6	3.2
Gender		
Female	158	83.2
Male	30	15.9
Highest nursing degree		
Bachelor's	175	92
Master's	12	6.3
Prior experience in health care area		
Yes	154	81.1
No	29	15.3
Primary area of practice		
Acute care	186	97.9
Community health center	2	1.1
Interaction with health care professionals for personal reasons		
Yes	146	76.8
No	44	23.2
If "yes" to the previous question, how often is the frequency of the interaction?		
Very often	38	20
Usually	73	38.4
Rarely	29	15.3

Note. Numbers do not always total to 190 or 100% because of missing data.

analysis suggests that nurses who had more interaction with health care professionals for personal reasons scored higher in terms of their knowledge of health literacy strategies.

Our results are similar to the findings of investigations completed in other contexts. In the U.S., McCarthy, Cameron, Courtney, & Vozenilek (2012) reported that most health care professionals did not use the communication strategies despite their beliefs about the positive effects of these strategies on patients' understanding. In California, more than one-

half of nurses did not have formal training on health literacy (Macabasco-O'Connell & Fry-Bowers, 2011). Limited knowledge of health literacy screening tools, such as REALM and TOFHLA, was also noted in studies that examined nursing students' (Cormier and Kotrlik, 2009; Torres & Nichols, 2014) and practicing nurses' (Cafiero, 2013; Knight, 2011) knowledge of health literacy. Knight (2011) and Cafiero (2013) report limited experience of practicing nurses with health literacy practices such as using audio and video tapes to deliver health care information and applying health literacy screening tools. The similarity among findings regarding screening tools across different contexts may be related to the fact that these tools are most commonly used in research projects but not necessarily in practice settings (Al Sayah, Williams, & Johnson, 2013).

### IMPLICATIONS

This study revealed a gap in knowledge and experience with health literacy practices in registered nurses in Iran working in hospitals and community health centers affiliated with TUMS. This has some implications for the Iranian population.

Health literacy practices facilitate effective communication between health care professionals and people. This results in improving people's health literacy-related behaviors such as understanding health information and applying the information to navigate in health care systems and making informed decisions. According to our findings, communication between registered nurses and patients in Iranian health care settings are unlikely to be effective with respect to conveying necessary health information. This can negatively influence Iranian people's health literacy-related behaviors (Nutbeam, 2008; Paasche-Orlow & Wolf, 2007).

Given the diversity of the population in Tehran, ineffective interactions between health care professionals and their clients can lead to health inequities. Most of the high-tech centers providing a wide range of health care services in Iran are run by the public sector and located in large cities, particularly Tehran. This attracts people from all over the country to Tehran. Most of these people have a low socioeconomic status and cannot afford health services provided by the private sector. Moreover, those seeking health care services come from a variety of ethnic groups with different languages, and may perceive the health care system as complex depending on their ability to communicate in Farsi. Those with less language proficiency experience debilitating challenges when being cared for by health care providers who are unable to offer understandable oral and written health information. Variation in health literacy





TABLE 2

### Scores Obtained from the Knowledge Section of the Health Literacy Knowledge Experience Survey by Registered Nurses in Iran

Knowledge of Health Literacy in Five Content Areas	Minimum	Maximum	M (SD)
Basic facts (5 items, scores range from 0 to 5)	0	4	1.56 (1.04)
Health literacy screening (6 items, scores range from 0 to 6)	0	4	1.63 (10.9)
Evaluation of the effectiveness of written health care information (2 items, scores range from 0 to 2)	0	2	0.76 (0.7)
Guidelines for written health care information (9 items, scores range from 0 to 9)	0	7	2.35 (1.5)
Consequences of limited health literacy (4 items, scores range from 0 to 4)	0	4	1.52 (1.04)
Health literacy total knowledge (26 items, scores range from 0 to 26)	1	17	7.83 (3)

TABLE 3

### Responses to the Experience Section of the Health Literacy Knowledge Experience Survey by Registered Nurses in Iran (N = 190)

Experience with Health Literacy	Never	Sometimes	Frequently	Always	Not Applicable
	<i>n</i> (%)				
How frequently was health literacy emphasized in your nursing curriculum?	22 (11.6)	69 (36.3)	48 (25)	42 (21)	9 (4.7)
How often did you use a health literacy screening?	62 (32)	58 (30.5)	41 (21.6)	15 (7.9)	13 (6.8)
How often did you evaluate the reading level of written health care materials?	17 (8.9)	69 (36.3)	41 (21.6)	43 (22)	16 (8.4)
How often did you evaluate the cultural appropriateness of health care materials?	52 (27)	59 (31)	40 (21)	28 (14)	10 (5.3)
How often did you use written materials to provide health care information?	11 (5.8)	59 (31.1)	49 (25.8)	60 (31)	7 (3.7)
How often did you evaluate the written health care materials?	52 (27)	59 (31.1)	40 (21)	28 (14)	10 (5.3)
How often did you provide audiotapes to provide health care information?	90 (47)	60 (31)	9 (4.7)	15 (7.9)	15 (7.9)
How often did you use videotapes to provide health care information?	93 (48)	65 (34)	8 (4.2)	11 (5.8)	12 (6.3)

Note. Numbers do not always total to 190 or 100% because of missing data.

competency defines a significant proportion of inequality in using healthcare services in societies (Greenhalgh, 2015; Starfield, 2007).

#### RECOMMENDATIONS

We have identified significant gaps in knowledge and experience relating to health literacy for registered nurses



in Iran. As all 184 nursing schools in Iran offer an identical curriculum, developed by the Iranian Ministry of Health and Medical Education, implementing a health literacy curriculum represents a tremendous opportunity to improve nursing care. Also, to create context-wise interventions to address the gaps, we recommend the following studies: (1) a similar study with a target population of senior nursing students; (2) larger scale and multisite studies, which provide the opportunity to determine the effect of environmental variables such as nurse workload on their knowledge of and experience with health literacy practices; and (3) qualitative studies to explore registered nurses' perceived barriers and facilitators to providing high-quality oral and written information in their daily interactions.

In the meantime, taking immediate actions to enhance practicing nurses' knowledge of health literacy through continuing education is pivotal (Coleman, Peterson-Perry, & Bumsted, 2016). Also, raising awareness about limited health literacy as a public health issue and contributory factor to health inequality could maximize the effect of health literacy courses. These efforts leverage changing the prevailing view of health literacy as an individual quality to viewing health literacy as a shared responsibility among all who provide and seek health care.

Similar to other developing countries, health literacy is a new area in Iran, so few established policies guide practice in terms of applying health literacy practices. The following recommendations include targeted changes at administrative levels.

First, multimedia health education increases patient motivation and the effectiveness of the education (Agarwal, Hansberry, Sabourin, Tomei, & Prestigiacomo, 2013; Volandes & Paasche-Orlow, 2007); thus, health care systems must provide and support the use of technologies such as computer software and audio and video tapes in providing health information.

Secondly, health care systems must promote applying health literacy universal precautions, which is an inclusive and ethical approach to ensuring that all clients, regardless of literacy level, understand health care information (Coleman et al., 2017; Volandes & Paasche-Orlow, 2007). Adopting universal precautions can help health care providers surmount the limitations of screening tools for estimating patient health literacy skills. Best practices related to health literacy universal precautions include creating a shame-free environment, speaking slowly, limiting concepts in each sentence, using clear language, avoiding medical jargon, checking for understanding using the Teach-Back method, and ongoing teaching until clients verify comprehension (Paasche-Orlow, Riekert, et al., 2005).

## STUDY STRENGTHS AND LIMITATIONS

This study is the first of its kind in Iran. For data collection, we used a validated tool and we adapted the tool to the Iranian culture and language through a rigorous process. We selected hospitals and community health centers affiliated with TUMS as they serve a diverse population of health care patients who come from all over the country and can represent health care settings across Iran. One limitation was the low response rate to the online survey, which may indicate registered nurses in Iran were reluctant to complete the survey because they were not confident about their knowledge of and expertise in health literacy. The second method for recruitment yielded a sufficient sample to complete the study. However, as participation in the study was contingent on attending a presentation delivered by the research assistants, we assume that high workload may have restricted participation for some nurses.

## CONCLUSIONS

Our results indicated that registered nurses in Iran have limited knowledge of and experience with health literacy practices, which aim to provide understandable health information. This suggests communication between registered nurses and patients in Iranian health care settings is less likely to convey necessary health information. This can negatively affect Iranian people's health literacy behaviors. The magnitude of the effects will vary depending on a person's communication abilities. Less effective nurse-client communication may have more adverse impacts on people with limited health literacy skills and may contribute to health inequalities in the Iranian population. This can happen in other contexts around the world in which a diverse population is served by health care professionals who are not fully aware of health literacy practices. However, registered nurses' limited knowledge of and experience with health literacy practices should not be viewed as an individual weakness without considering the capacity of Iran's health care system to support health care professionals with health literacy practices. We suggest recommendations mostly at an administrative level to close the identified gaps. More investigations should be completed to shed light on the barriers and facilitators for registered nurses in Iran with respect to improving their knowledge of health literacy practices and applying them in practice.

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TABLE A

**Responses to Health Literacy Knowledge Section of the HL-KES by  
Registered Nurses in Tehran, Iran, 2015 to 2016 (N = 190)**

Health Literacy Knowledge Items	A	B	C	D	E	F	Total
	n (%)						
Low health literacy levels are most prevalent among which of the following groups? (BF)	19 (10)	14 (7.4)	13 (6.8)	44 (23)	<b>74</b> <b>(38)</b>	18 (8)	182 (95.8)
The research on health literacy indicates that: (BF)	66 (34.7)	<b>35</b> <b>(18.4)</b>	22 (11.6)	9 (4.7)	11 (5.8)	46 (24.2)	189 (99.5)
What is the likelihood that a nurse working in a public health clinic primarily serving low-income minority will encounter a patient with low health literacy? (BF)	8 (4.2)	24 (12.6)	70 (36.8)	<b>73</b> <b>(38.4)</b>	6 (3.2)	9 (4.7)	190 (100)
The best predictor of health care status is: (BF)	80 (42.1)	<b>40</b> <b>(21.1)</b>	3 (1.6)	57 (30)	4 (2.1)	6 (3.2)	190 (100)
An individual with functional health literacy will be able to: (BF)	18 (9.5)	28 (14.7)	49 (25)	<b>74</b> <b>(38.9)</b>	7 (3.7)	12 (6.3)	188 (98.9)
The Rapid Estimate of Adult Literacy in Medicine is an instrument utilized to: (SC)	28 (14.7)	19 (10)	53 (27.9)	14 (7.4)	<b>18</b> <b>(9.5)</b>	56 (29)	188 (100)
When working with individuals who have low health literacy the nurse should keep in mind that these people: (SC)	<b>50</b> <b>(26.3)</b>	16 (8.4)	79 (41)	28 (14.7)	4 (2.1)	13 (6.8)	190 (100)
Which of the following questions should provide the nurse with the best estimate of reading skills of the patient? (SC)	41 (21.6)	51 (26.8)	<b>56</b> <b>(29.5)</b>	21 (11.1)	10 (5.3)	11 (5.8)	190 (100)
Which statement best describes the Test of Functional Health literacy? This instrument is: (SC)	<b>35</b> <b>(18.4)</b>	15 (7.9)	25 (13.2)	38 (20)	20 (10.5)	57 (30)	190 (100)
What is the strongest advantage of conducting health literacy screenings? Health literacy screenings: (SC)	15 (7.9)	<b>77</b> <b>(40.5)</b>	44 (23.2)	22 (11.6)	7 (3.7)	25 (13.2)	190 (100)
Which of the following statements, made by the nurse, would be the best approach to initiating a health literacy screening with a patient? (SC)	40 (21.1)	27 (14.2)	<b>78</b> <b>(41.1)</b>	16 (8.4)	4 (2.1)	25 (13.2)	190 (100)
After providing written health care information to a patient he states, "Let me take this information home to read." This may be a clue to the nurse that the patient: (EV)	28 (14.7)	33 (17.4)	29 (15.3)	<b>77</b> <b>(40.5)</b>	8 (4.2)	15 (7.9)	190 (100)
The most effective way for a nurse to determine how well a patient with low health literacy understands health care information is to: (EV)	32 (16.8)	28 (14.7)	<b>66</b> <b>(34.7)</b>	47 (24.7)	6 (3.2)	7 (3.7)	190 (100)
Which of the following is true with regard to written health care information? (GL)	36 (18.9)	<b>46</b> <b>(24.2)</b>	44 (23.2)	40 (21.1)	9 (4.7)	14 (7.4)	189 (99.5)
The first step in developing written health care information is to: (GL)	21 (11.1)	55 (28.9)	<b>67</b> <b>(35.3)</b>	18 (9.5)	11 (5.8)	18 (9.5)	190 (100)
Recommendations for developing written health care materials include: (GL)	22 (11.2)	<b>67</b> <b>(35.3)</b>	33 (17.4)	27 (14.2)	10 (5.3)	30 (15.8)	189 (99.5)

TABLE A (continued)

**Responses to Health Literacy Knowledge Section of the HL-KES by  
Registered Nurses in Tehran, Iran, 2015 to 2016 (N = 190)**

Health Literacy Knowledge Items	A	B	C	D	E	F	Total
	n (%)						
When listing side effects for a handout on chemotherapy the oncology nurse should limit the list to: (GL)	31 (16.3)	<b>53</b> (27.9)	19 (10)	12 (6.3)	14 (7.4)	58 (30.5)	187 (98.4)
Written healthcare information provided to a patient related to a specific disease should include: (GL)	<b>1</b> (0.5)	60 (31.6)	20 (10.5)	12 (6.3)	10 (5.3)	33 (17.4)	189 (99.5)
Which of the following would be the most effective wording for a heading in a brochure on hypertension ? (GL)	1 (0.5)	75 (39.5)	<b>40</b> (21.1)	37 (19.5)	18 (9.5)	8 (4.2)	189 (99.5)
The best way to ensure that a breast cancer prevention brochure is culturally appropriate is to: (GL)	53 (27.9)	37 (19.5)	30 (15.8)	<b>46</b> (24.2)	10 (5.3)	13 (6.8)	189 (99.5)
Which of the following instruction on the management of diabetes would be least understood by an individual with low health literacy skills? (GL)	<b>34</b> (17.9)	84 (44.2)	16 (8.4)	33 (17.4)	8 (4.2)	12 (6.3)	188 (98.9)
Which of the following approaches to patient education provides minimal opportunity for the patient to actually engage in learning? (GL)	34 (17.9)	<b>39</b> (20.5)	65 (34.2)	32 (16.8)	5 (2.6)	14 (7.4)	188 (98.9)
Patients with low health literacy skills: (CQ)	20 (10.5)	29 (15.3)	10 (5.3)	<b>105</b> (55.3)	11 (5.8)	15 (7.9)	190 (100)
Health behaviors common among patients with low health literacy skills include: (CQ)	<b>64</b> (33.7)	18 (9.5)	42 (22.1)	44 (23.2)	7 (3.7)	14 (7.4)	189 (99.5)
Patients cope with low health literacy by: (CQ) 25	107 (56.3)	25 (13.2)	15 (7.9)	24 (12.6)	<b>6</b> (3.2)	13 (6.8)	190 (100)
The nurse should keep in mind that individuals with low health literacy skills: (CQ) 26	32 (16.8)	31 (16.3)	12 (6.3)	94 (49.4)	<b>7</b> (3.7)	14 (7.4)	190 (100)

Note. Numbers in bold represent correct answers. Numbers do not always total to 190 or 100% because of missing data. BF = basic facts on health literacy; CQ = consequences associated with low health literacy; EV = evaluation of health literacy interventions; GL = guidelines for written health materials; HL-KES = Health Literacy Knowledge Experience Survey; SC = screening limited health literacy.

TABLE B

**Correct/Incorrect Responses to Health Literacy Knowledge Section of the HL-KES by Registered Nurses in Tehran, Iran, 2015 to 2016 (N = 190)**

Health Literacy Knowledge Items	Correct Response n (%)	Incorrect Response n (%)
Low health literacy levels are most prevalent among which of the following groups? (BF)	74 (38)	116 (62)
The research on health literacy indicates that: (BF)	35 (18.4)	155 (81.6)
What is the likelihood that a nurse working in a public health clinic primarily serving low-income minority will encounter a patient with low health literacy? (BF)	73 (38.4)	117 (61.6)
The best predictor of health care status is: (BF)	40 (21)	150 (79)
An individual with functional health literacy will be able to: (BF)	74 (38)	116 (62)
The Rapid Estimate of Adult Literacy in Medicine is an instrument utilized to: (SC)	14 (7.4)	176 (92.6)
When working with individuals who have low health literacy skills the nurse should keep in mind that these individuals: (SC)	79 (41)	111 (59)
Which of the following questions should provide the nurse with the best estimate of reading skills of the patient? (SC)	56 (29.5)	134 (70.5)
Which statement best describes the Test of Functional Health Literacy? This instrument is: (SC)	35 (18.4)	155 (81.6)
What is the strongest advantage of conducting health literacy screenings? (SC)	77 (40.5)	113 (59.5)
Which of the following statements, made by the nurse, would be the best approach to initiating a health literacy screening with a patient? (SC)	78 (41.1)	112 (58.9)
After providing written health care information to a patient, he or she states "Let me take this information home to read." This may be a clue to the nurse that the patient: (EV)	77 (40.5)	113 (59.5)
The most effective way for a nurse to determine how well a patient with low health literacy understands healthcare information is to: (EV)	66 (34.7)	124 (65.3)
Which of the following is true with regards to written health care information? (GL)	46 (24.2)	144 (75.8)
The first step in developing written health care information is to: (GL)	67 (35.3%)	123 (64.7)
Recommendations for developing written health care materials include: (GL)	67 (35.3%)	123 (64.7)
When listing side effects for a handout on chemotherapy the oncology nurse should limit the list to: (GL)	53 (27.9)	137 (72.1)
Written health care information provided to a patient related to a specific disease should include: (GL)	1 (0.5)	189 (99.5)
Which of the following would be the most effective wording for a heading in a brochure on hypertension? (GL)	40 (21.05)	150 (78.95)
The best way to ensure that a breast cancer prevention brochure is culturally appropriate is to: (GL)	46 (24.2)	144 (75.8)
Which of the following instructions on the management of diabetes would be least understood by an individual with low health literacy skills?(GL)	34 (17.9)	156 (82.1)
Which of the following approaches to patient education provides minimal opportunity for the patient to actually engage in learning? (GL)	39 (20.5)	151 (79.5)
Patients with low health literacy skills: (CQ)	105 (55.3)	85 (44.7)
Health behaviors common among patients with low health literacy skills include: (CQ)	64 (33.7)	126 (66.3)
Patients cope with low health literacy by: (CQ)	24 (12.6)	166 (87.4)
The nurse should keep in mind that individuals with low health literacy skills: (CQ)	94 (49.4)	96 (50.6)

Note. Numbers do not always total to 190 or 100% because of missing data. BF = basic facts on health literacy; CQ = consequences associated with low health literacy; EV = evaluation of health literacy interventions; GL = guidelines for written health materials; HL-KES = Health Literacy Knowledge Experience Survey; SC = screening limited health literacy.