



Healthcare Students' Perceptions of Digital Resources for Patient Education

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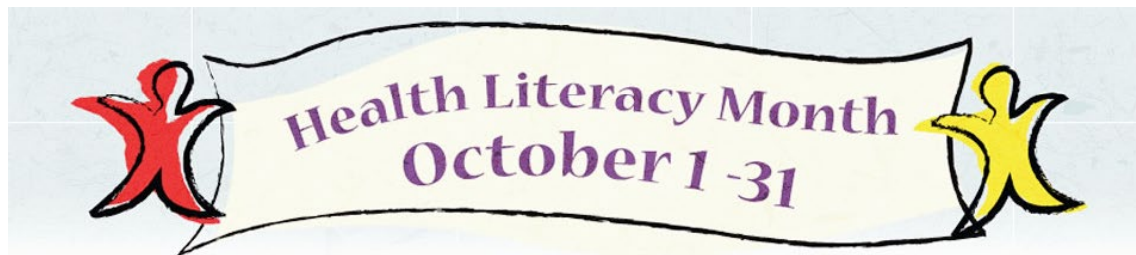
Objectives



- Define health literacy.
- Discuss “digital” health literacy (eHealth).
- Describe the incorporation of digital health literacy into the curriculum for a healthcare program through a learning activity focused on analysis of healthcare websites.
- Discuss the survey results.

What is Health Literacy?

- Health literacy is defined as the “degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others” (Centers for Disease Control and Prevention, 2022, para 1).
- People use health literacy skills to realize their potential in health situations.
- These skills are applied to make sense of health information and services or provide health information and services to others.

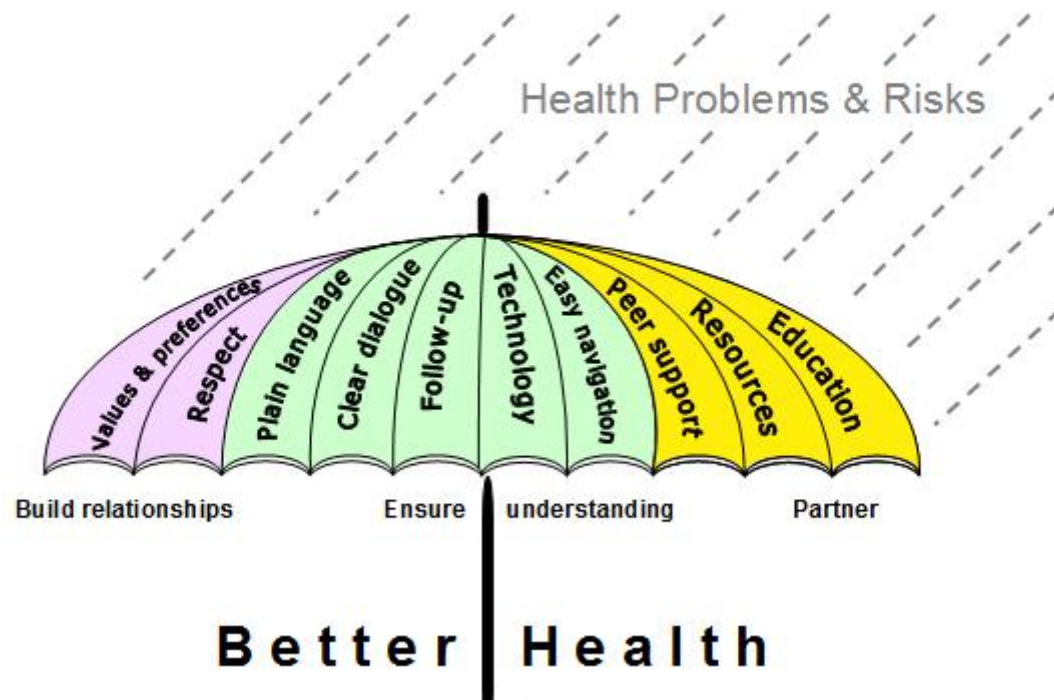


Health Literacy Month is October 1-31 (Institute for Healthcare Advancement, 2019).

Issue: Low Health Literacy

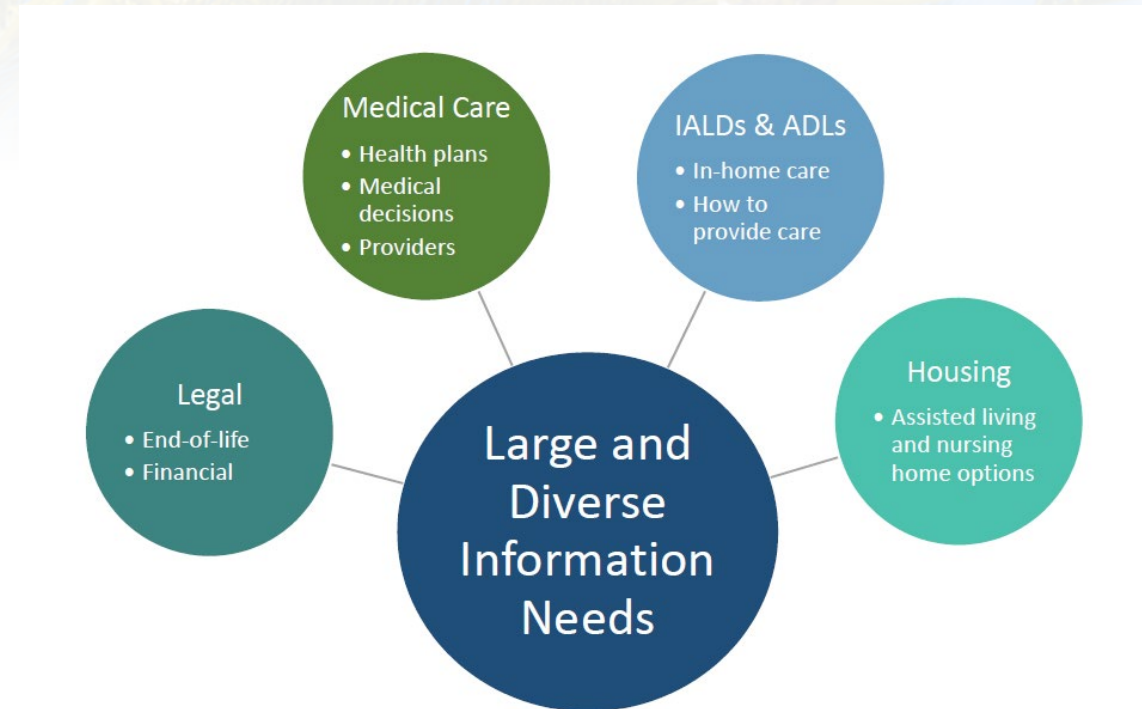
Nearly 50% of Americans have issues with low health literacy, which can lead to negative health outcomes (Institute of Medicine, 2004).

The Health Literacy Umbrella



Older Adults and Health Literacy Needs

- Older adults have large and diverse information needs, & are the sickest, most expensive, and fastest growing segment of the US population are seniors 65 years and older (Levine et al., 2016).
- Includes the needs of caregivers for both immediate and long-term healthcare planning.
- Can potentially reduce elder abuse, as most instances arise from economic need, lack of education, or other societal need (National Academies of Science, Engineering, & Medicine, 2018).



Healthcare Professionals and Health Literacy

- Patient engagement and partnership are important for patients to manage their own healthcare.
- Healthcare professionals (HCPs) support optimal outcomes and partnered decision-making by providing education to patients, staff, and support individuals regarding health information.
 - Wide variety of HCPs include: doctors, nurses, dentists, pharmacists, public health workers and allied professions (e.g., counselors, social workers).

Patient Education Components:

- Find and interpret health information to support decision-making and align decisions with patient preferences.
- Find available health services.

What is “Digital” Health Literacy (eHealth)?

- Digital Health Literacy is the “ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem” (World Health Organization, 2017, slide 8).
- Digital health literacy is increasingly important due to the use of websites, apps, social media sites, and online videos for patient education (Walker, 2020).

Implications for Educators

- Health Information Technology (HIT) includes the use of electronic devices and systems
- These are now integral to healthcare globally.
- Including health literacy content may increase healthcare students' awareness, knowledge, and skills about health literacy so that they can provide appropriate care to patients with low health literacy (McCleary-Jones, 2016; O'Connor et al., 2017).

Internet Use by Patients

- Approximately eight million American use the internet daily to research health-related topics (Eltorai et al., 2014).
- Patients with chronic disease are more likely to obtain information from websites (Rew et al., 2018).
- One concern is that unreliable websites may provide incorrect information to patients.
- Another concern is that the average readability of some consumer patient education websites is at 10.9, which exceeds the recommended sixth grade reading level (Bedaiwi et al., 2018).

The “Digital Divide” and Healthcare Curricula

- There is often a digital divide.
- Levy and researchers (2015) found that only 9.7% of older adult patients with low health literacy used the Internet to obtain health information.
- Previously, the digital divide was mostly a disparity in access – now, the issue tends to be related to needed skills in searching for and using health information (Manganello, et al., 2017).
- Strategies to incorporate eHealth learning into healthcare curricula include toolkits and suggested learning activities for different disciplines and levels (Vottero, 2017).

Teaching Digital Health Literacy

- Healthcare students routinely use the internet to search for healthcare information (Wang et al., 2017), a shift from a decade ago when most used books and colleagues for daily information.
- Competency in using technology (e.g., internet searches, word processing) is not **information literacy** (able to access & determine the information needed, apply critical analysis to the information and its sources) (Foster & Sethares, 2017).
- Student education about digital resources can also support **patient education** on digital health literacy:
 - Using internet search engines, patient portals, self check-in kiosks
 - Recognizing the value of such resources
 - Agreeing to text and email reminders
 - Using healthcare mobile applications (apps) and devices

Curriculum Integration for Healthcare Students

- To meet the goals of Healthy People 2030, digital health literacy needs to be part of the curriculum for healthcare programs (U.S. Department of Health and Human Services, 2023).
- There is a need to create student learning activities that promote awareness and competence in digital health literacy.

Suggested goals of curricular initiatives:

- *Support patient education proficiency:* Supports a patient's ability to read, understand, and apply health-related information.
- *Find and evaluate resources:* Includes traditional and digital resources.

Purpose

- Educators need to create learning activities that promote awareness and competence in digital health literacy.
- To address this issue, students in a graduate nursing patient education and advocacy course analyzed health care websites for readability, design, layout, cultural sensitivity, and appropriateness.
- The purpose of this project was to assess graduate nursing students' perceptions of the role of digital resources in patient education.



Study Design

- The students were family nurse practitioner students enrolled in a patient education and advocacy course.
- Demographic information and survey data were obtained to assess digital health literacy and students' perceptions of the role of digital resources in patient education before and after they analyzed health care websites for digital health literacy.
- Permission was obtained from the survey authors to use and modify the eHEALS survey as needed for our study (Norman & Skinner, 2006). 5 qualitative questions were included in the survey.
- IRB approval was obtained.

Learning Activity (1 of 5): Evaluate Web Resources for Readability

- Patient education information should be no higher than the 6th to 7th grade reading level.
- Research shows that web-based educational materials often are at the 10th grade reading level or higher (Hutchinson, Baird & Garg, 2016).
- Locally, many residents in our rural area read at the 4th to 6th grade level – a demonstrated need for additional support regarding digital literacy.



Learning Activity (2 of 5): Evaluate Web Resources for Readability

- Students in a graduate Patient Education and Advocacy course analyzed national healthcare websites for readability, design, layout, cultural sensitivity, and appropriateness for a rural, low-health literacy population.
- The students used a validated scoring tool to determine readability: the Flesch-Kincaid Score (Readability Formulas, 2020).

Flesch Reading Ease

$$206.835 - 1.015 \left(\frac{\text{total words}}{\text{total sentences}} \right) - 84.6 \left(\frac{\text{total syllables}}{\text{total words}} \right)$$

Flesch-Kincaid Grade Level

$$0.39 \left(\frac{\text{total words}}{\text{total sentences}} \right) + 11.8 \left(\frac{\text{total syllables}}{\text{total words}} \right) - 15.59$$

Learning Activity (3 of 5): Evaluate Web Resources for Readability

- Flesch Grade Level Readability Formula is based upon the Flesch Reading Ease Readability Formula.
- Developed by the US Navy and used by US Department of Defense
- A score of 9.3 means that a ninth grader would be able to read the document.
- Word can display information about the reading level of the document using this formula (Readability Formulas, 2020).

Learning Activity (4 of 5): Evaluate Web Resources for Readability

Flesch Grade Level Readability Formula:

Step 1: Calculate the average number of words used per sentence.

Step 2: Calculate the average number of syllables per word.

Step 3: Multiply the average number of words by 0.39 and add it to the average number of syllables per word multiplied by 11.8.

Step 4: Subtract 15.59 from the result.

The specific mathematical formula is:

$$\text{FKRA} = (0.39 \times \text{ASL}) + (11.8 \times \text{ASW}) - 15.59$$

FKRA = Flesch-Kincaid Reading Age

ASL = Average Sentence Length (i.e., the number of words divided by the number of sentences)

ASW = Average number of Syllable per Word (i.e., the number of syllables divided by the number of words) (Readability Formulas, 2020).

Learning Activity (5 of 5): Evaluate Web Resources for Readability

- Students self-selected one website for analysis from a list approved by the instructor.
- The webpages that the students analyzed were focused on patient education:
 - Wikipedia
 - Mayo Clinic
 - WebMD
 - Medicinenet
 - National Institutes of Health (NIH) Health Topics.

Grading Rubric Components (1 of 2)

- For what reasons did you choose your webpage for analysis?
- Discuss the content of the webpage. Does it exhibit cultural/ethnic sensitivity in images &/or wording?
- Discuss the layout and use of white space/images. If your webpage just includes words and no images, please describe this.
- Using the 2003 National Assessment of Adult Literacy, what percentage of people lack basic prose literacy skills in Dillon County, SC, State of South Carolina, & United States?
- Discuss the meaning of the term: "lacking basic prose literacy" and provide at least 2 specific examples from your selected website (if none found on your website, provide examples from other sources & cite). Please use the information & resources on this website to support your discussion:
 - https://nces.ed.gov/naal/perf_levels.asp

Grading Rubric Components (2 of 2)

- What is the readability of the webpage based on the Flesch-Kincaid formula? Does its readability meet the goal of 5th grade or less? If not, how could it be modified to achieve this goal?
- What was your personal/professional reaction to the readability of the webpage you analyzed? Would this reading level be a barrier for low literacy patients?
- What is your perspective on the importance of educating patients to identify and use reliable & accurate internet sites for use in patient education?
- Include two reference sources from within the past 5 years (one must be peer reviewed).
- Appropriate APA format (layout, citations, references) & grammar.
 - Paraphrasing/summarizing of sources, rather than use of direct quotations.

Learning Activity Student Results (1 of 2)

Level of agreement as indicated by "agree" or "strongly agree" for each statement.					
	Pre-Test		Post-Test		Percent Change
	n	%	n	%	%
I know what health resources are available on the Internet	19	86%	13	93%	8%
I know where to find helpful health resources on the Internet	19	86%	14	100%	16%
I know how to find helpful health resources on the Internet	20	91%	14	100%	10%
I know how to use the Internet to answer my patient's questions about health	19	86%	14	100%	16%
I know how to use the health information I find on the Internet to help patients	20	91%	14	100%	10%
I have the skills I need to evaluate the health resources I find on the Internet	17	77%	13	93%	20%
I can tell high quality health resources from low quality health resources on the Internet	17	77%	13	93%	20%
I feel confident in using information from the Internet to guide patients to make health decisions	17	77%	13	93%	22 20%

Learning Activity Student Results (2 of 2)

How do you feel about recommending internet sites to patients?	Pre-Test		Post-Test	
	n	%	n	%
No concerns about recommending internet sites	1	5%	0	0%
Only a few concerns about recommending internet sites	5	23%	6	43%
Neutral	4	18%	3	21%
Some concerns about recommending internet sites	12	55%	4	29%
Many concerns about recommending internet sites	0	0%	1	7%
Do not recommend internet sites to patients	0	0%	0	0%
Total	22	100%	14	100%
How do you modify your approach to patient education for patients who have already researched their health issue online prior to their appointment?	Pre-Test		Post-Test	
	n	%	n	%
Assess level of knowledge first (review material used in patient education)	6	55%	9	90%
Provide patient with credible sites and evidence-based guidelines	5	45%	1	10%

Low- Literacy Brochures

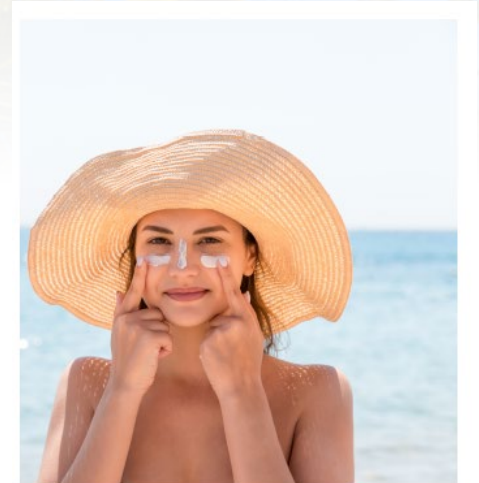
Facts

On

Breast

Cancer

- Students in the Patient Education and Advocacy course also created low-literacy brochures.
- They were written at the 5th grade reading level on a variety health topics.
- These were distributed to community partners.



**Skin Cancer:
What to
Know to Be
Safe in the
Sun**

Brochure Learning Activity Student Results (1 of 2):

AVERAGE LEVEL OF AGREEMENT USING THE LIKERT SCALE: 1=STRONGLY DISAGREE...4=STRONGLY AGREE.	MEAN SCORE
I know why health literacy is a problem in health care.	3.79
I can define health literacy.	3.71
I can evaluate the reading level of written materials.	3.71
I know how to help a patient who has low health literacy.	3.71
I use pictures or visual aids when explaining complex health concepts.	3.71
Low health literacy can lead to poorer health outcomes.	3.64
I understand the health outcomes that result from low health literacy.	3.64
I simplify complicated medical terminology.	3.64
People commonly hide their difficulty when reading or understanding.	3.57
When writing educational materials, I try to keep the reading level at a 5th grade level or lower.	3.57
I know the signs that indicate a low health literacy patient.	3.50
I avoid using medical jargon when helping my patients.	3.50
A majority of adults in the United States have difficulty using print materials to accomplish everyday tasks.	3.36
Most health information is written at a patients' reading level.	2.00
Patients remember most of what health care providers tell them.	1.93

- Student participants were mostly female (93%), white or Caucasian (79%) and between the ages of 26-35 (64%).
- Students reported the highest average level of agreement with the statement **“I know why health literacy is a problem in health care”** (3.79) corresponding with “strongly agree”.
- Students reported the lowest level average level of agreement with the statement **“Patients remember most of what health care providers tell them”** (1.93) corresponding with “disagree”.
- The average level of agreement among all of the statements was 3.40 corresponding with “agree”.

Brochure Learning Activity Student Feedback (2 of 2):

What did you learn from developing a low-literacy brochure ?

“I learned how important it is to make sure that the information given to patients is written so they can understand and follow through with the information.”

“It is more difficult to develop low-literacy information for patients than I realized.”

“I learned how important the WHY & HOW of devoting educational materials for our patients really is!”

What specific information was most difficult to write at a 5th grade reading level?

“How to describe medical terminology and making sure not to leave out important information was a challenge for me.”

“The definitions of medical diseases was difficult to write on a 5th grade level.”

“Certain health conditions were hard to write at a fifth grade level especially when explaining the harm it can do to your body.”

How will the information you learned about health literacy impact you as you are caring for patients?

“It is something I will carry with me throughout my future practice as I will be able to provide health education at lower literacy levels.”

“It will allow me to better serve the vast patient load I will experience.”

“I would help me remember that not everyone understands the medical terminology we are so use to. I will help me slow down and make sure my patients understand.”

Conclusion



- The impact of low health literacy on patient outcomes is huge.
- Patient education is a key part of health literacy and healthcare students must have the necessary tools to assess and support health literacy in patients.
- Digital resources are becoming the standard primary source of information, thus digital health literacy is crucial.
- Curricular initiatives should support knowledge and skills in digital health literacy in order to improve communication, facilitate safe patient care, and support quality outcomes and efficiency.

Thank you!

Questions?

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