Investigating Health Information Literacy Assessments and Efforts for Students taking Health Care, Nursing and Medical Courses: An Abbreviated Review of the Extant Literature

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Abstract

Health information literacy is a skill set that is being formally evaluated and included in the curriculum of health care, nursing and medical students. While health information literacy is referenced in many different types of articles, the assessments and interventions related to it vary greatly when considering the academic or public landscape. The aim of this paper is to review and summarize the existing literature related to health information literacy measurement tools and efforts to valuate and or improve the skill sets of students in the institutional environment. The review will also consider how health information literacy is defined and evaluated in the academic environment in comparison to how it is defined and measured when considering the general public.

Keywords: *Information Literacy, Health Information Literacy, Health Care Training, Nursing Training, Medical Training.*

Introduction

Health information literacy is described by the Medical Library Association as: "the set of abilities needed to: recognize a health information need; identify likely information sources and use them to retrieve relevant information; assess the quality of the information and its applicability to a specific situation; analyze, understand and use the information to make good health decisions"[1]. Health information literacy is an important concept with ramifications for health providers, health educators and the general public, which should have certain skill sets that make them health information literate, particularly since many individuals (over 55%) use internet searching as their main source for health information[2]. Internet search results can lead to sources that are lacking in credibility which could put the information seeker at risk[2]. Health information literacy is at times used interchangeably with "health literacy". When considering the benefits of health information literacy the aims are not always entirely the same:

"[i]n concrete terms, health literacy [for the public] maybe involve, e.g., understanding reasons for medical examinations or surgery or grasping the meaning of information about consent, prevention, diagnosis and treatment. It also includes reading and understanding the text on medicine labels, appointment slips, medical instructions, insurance forms and other kinds of health related information"[3].

Whereas assessment tools in the institutional landscape generally evaluate the following: "t]hese competencies include evaluation of the quality of health information resources, obtaining health information

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documents on narrow topics by conducting advanced searches, judging the trustworthiness of health information sources, and understanding the advantages and disadvantages of different media"[2]. In the literature, the primary group, "the public", has a greater focus on literacy and computer skills, practical applications and internet searches, while the secondary group, "students", seems to have a greater emphasis on advanced literature searches using databases. It is worth mentioning that students may at times be part of the "general public" population as it is considered; however, we refer to these groups separately here. This article will primarily consider health information literacy as it relates to the student population, though, it will reference the general public, since the goal for students extends further than their educational success and also relates to their ability to help the public as practitioners.

Methodology

The literature review section of this paper started with a Google Scholar search for the key word terms:"health information literacy" which returned 2,270 results, and a keyword search for "health information literacy" using the University of Wisconsin-Milwaukee (UWM) Library database which returned 673 results; these databases were chosen due to accessibility. The first search returned a large amount of materials and after briefly scanning, it was clear that not all of the materials related directly to the subject matter. A new search was completed in Google Scholar using: allintitle: "*health information literacy*", to attempt to locate materials that were substantively related the subject matter; this returned 248 results. In the UWM library catalog, the advanced search feature was used to limit the results to: title>contains words> "health information literacy"; this returned 61 results. The author reviewed each article from the second-string attempts to determine if they met the inclusion criteria, in this case, if they were related to health information literacy assessments and modules in the institutional environment; for the Google Scholar articles n=44 met the inclusion criteria, and for the UWM libraries n=15, met the inclusion criteria, however, n=11 were duplications from Google Scholar. Also, articles that were not available in English n=2 were not be included in the review. Ultimately n=46 records were used for the analysis process. The author also read and included data from studies related to health information literacy assessment of the general public, though, not systematically, for the purpose of comparison and evaluating what future health care providers should be expected to understand to help patients. Additional materials might have been discovered and reviewed with greater access to different databases or might have been discovered using different search terms and inclusion/ exclusion criteria.

Results

In the literature, the majority of the articles included a statement that emphasized the importance of information literacy skills in today's information environment, noting a deluge of information, a diversity of formats, and different skill sets needed to navigate the information landscape[4]. The majority of the studies also defined "information literacy", "health information literacy", and or "health literacy". Many studies insisted that health information literacy skills were needed by health care professionals due to a phrase such as the following: "[h]ealth care professionals today must incorporate scientific evidence into clinical decision making and for good quality of care. Strong information literacy skills are essential to attain this best practice"[5]. Another article indicated that health care and medical professionals are encouraged to use research evidence, or evidence-based practice, when making clinical decisions and helping patients and their families, a skill set largely associated as an aim of health information literacy training[6]. Health care professionals help by providing information and materials that may lead to decision making regarding care and therapies by patients[6]. This support at times requires bridging the gap between medical materials not written for the general public, and also helping patients navigate the information environment to find reliable materials[6]. While there is a growing amount of health information literacy related literature and assessments demonstrating that these skill sets are being measured and integrated into the curriculum at many educational sites, many studies still report low levels of health information literacy among students[7,8,2]. These studies also indicate that students have inflated views of their knowledge and skill sets related to health information literacy[7,8,2]. Also, discussed is that the self-report data from students is not very useful, since students largely report their skills as very good, or excellent, which in several studies has not translated to their actual health information literacy assessment data[9,2,10,11]. An article that described a tool for assessing health information literacy also noted that: "[g]enerally, subjective or "perception-based" assessments of abilities often do not corre-late with "objective" or "performance-based" indicators of the respective abilities, i.e. with the results

of achievement or knowledge tests"[12]. Studies indicate that given the limited nature of the skill sets of many students, and the simultaneous importance of students understanding how to use reliable health information materials for coursework and in practice, the skillsets of the students should be characterized, and interventions made based on that data in an effort to improve the relevance of the health information literacy instruction[13]. An investigation using an assessment tool to measure scores among several groups of students showed student limitations in the ability to discriminate between reliable and unreliable materials, limitations in the areas of understanding if websites were reputable, in narrowing searches by using multiple search categories,and lack of skill in knowing how to use Boolean operators[2]. While many studies included health information literacy assessments, few included a summative testing instrument, helping demonstrate the knowledge gained after health information literacy instruction and modules[5]. Ultimately, the literature suggests that the importance of health information literacy training has been demonstrated by multiple investigations, however, there is still a gap in the research related to what type of instruction is best for assessing and addressing health information literacy limitations[40]. Health information literacy is further considered an important area of investigation because health literacy is a factor impacting the general public's well-being[15], and since low health information literacy levels are associated with both poor health and increasing health care expenditures[16]. The literature suggested that health information literacy training should be integrated throughout the curriculum and called upon all stakeholders contributing to health-related information, to work together to make sure all (including students and future health care professionals and the public) have the ability to access and understand health related materials[17,18]. The literature showed a marked difference between the health information literacy assessments used among the "student" population and the general public. This work suggests that an area of additional investigation may be, how, and if, the institutional information literacy modules and training prepare students to work with the general public, or if they are more related to the academic landscape, while the general health information literacy assessments and potential support needed by persons with low health information literacy in particular, are more related to areas such as basic reading, literacy skills, and numeracy[19,12]. In short, more research is required to understand the big picture results that seem to be hinted at throughout the literature, which is qualified here as whether the health information literacy training of future health professionals translates into improving the health care results for patients, and also whether the skillsets are relevant to clinical practice[20]. This gap between health information literacy in the institutional environment, and among the public, is thus a crucial point to investigate because besides student achievement in courses, the general aim of these efforts is directly related to real world patient-care.

Discussion

While health information literacyis described in different ways in the general scientific literature, there are definite areas of intersectionality and similarity[3]. However, there are very striking differences in the types of measurements used to evaluate health information literacy as a skillset amongst different populations, such as the "general public" and the "student". Having the skills needed for the identification, understanding and utilization of information to make health care decisions is a common part of the definition seen in the general literature related to health information literacy among different target audiences. However, going further when referring to the public: "[t]he skills mentioned provide the basis for identifying persons' health literacy, and persons and population groups with low health literacy are identified by assessing the computation and reading comprehension needed to understand health concepts or terms as they appear in patient information, medicine labels, and prescriptions, informed consent forms et cetera"[3]. In addition to this, studies focusing on functional skills, like reading, writing and numerical knowledge found that: "[o]n the grounds of this polarized approach and this form of assessment, it is claimed that immigrants, older people, prisoners or persons with few years of school are more likely to have low health literacy"[3]. Whereas in health information literacy assessments in the institutional environment: "[s]tudents demonstrate their navigation skills by setting up basic and advanced searches,"[2] and "[i]n addition, students evaluate the quality of research publications, make judgements about website trustworthiness, and detect plagiarism"[2]. The literature summary suggests that a gap exists between the two landscapes, as patients may require help that is not necessarily related to the advanced searching techniques, use of peer-reviewed materials for assignments and other coursework, largely emphasized and required in the institutional environmentas described and documented in the research. The nexus between

these two spheres may need to be further considered in relationship to training that will give students in these fields the proficiencies needed to deal with materials from the perspective of the health care professional using evidence-based care and the patient.

Conclusion

Health information literacy can at times be a relative term in the scientific literature, with assessments evaluating slightly or largely different competencies depending on the target population. While health care, nursing and medical students may be required to have greater knowledge of how to query databases for assignments, and demonstrate information literacy with regard to source materials, it seems largely assumed that basic literacy (reading and comprehension) skills and basic computer skills are already mastered. It also seems largely assumed that students taking these assessments will have the ability to guide the general public in the areas relevant to them: including information, prescriptions, diagnosis, and care related to medical visits and conditions.It is important that distinctions are made regarding the types of assessments used to evaluate the skill sets, and to note that in many cases the measured skills are somewhat different depending on the target audience. Further investigations are encouraged to determine whether the information literacy skills of the institutional environment correlate to the skills needed in the clinical environment where the types of information provided to patients and the supports needed may shed light on an intermediary space between the two.

Ethical Clearance: Hereby, I, Kimberly N. Howard consciously verify that for this manuscript "Investigating the Health Information Literacy Knowledge of Health Care Students as an Essential Next Step in Medical and Health Professional Training" the following is fulfilled: 1) This material is the authors' own original work; it has not been previously published elsewhere. 2) The paper is not currently being considered for publication elsewhere. 3) The paper reflects the authors' own research and analysis in a truthful and complete manner. 4) The paper properly credits the meaningful contributions of co-authors and co-researchers. 5) The results are appropriately placed in the context of prior and existing research. 6) All sources used are properly disclosed (correct citation). Literally copying of text must be indicated as such by using quotation marks and giving proper reference. 7) All authors have been personally and actively involved in substantial work leading to the paper, and will take public responsibility for its content.

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