

Review Article

Health Literacy and Patient Preparation in Radiology

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ABSTRACT

Health literacy is the capacity of an individual to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Unfortunately, more than half of Canadians cannot adequately navigate the health care system because they have limited health literacy. Patients with low health literacy may have limited reading abilities and poorer comprehension of written preparation documents. An important consideration in the radiation sciences for these patients is the ability to follow preparation requirements for diagnostic imaging procedures. It has been suggested that patients with limited health literacy are often less prepared for diagnostic examinations, and as a result, tend to have examinations of poorer diagnostic quality. Medical radiation technologists play an important role in educating patients regarding medical imaging examinations and helping them to properly prepare for these procedures. The purpose of this article is to define health literacy, provide some practical strategies to help medical radiation technologists identify patients with limited health literacy, and how to address limited health literacy issues to improve the quality of diagnostic imaging examinations.

Keywords: Health literacy; literacy; preparation; radiology; radiography; nuclear medicine

Introduction

Health literacy refers to an individual's ability to obtain, process, and understand health information, and use it to make appropriate health decisions [1]. The Canadian Literacy and Learning Network estimates that more than half of Canadian adults have health literacy skills that will limit their ability to successfully navigate the health care system [2]. Those with limited health literacy have more difficulty understanding

RÉSUMÉ

La littératie en matière de santé la capacité pour un individu d'obtenir, de traiter et de comprendre l'information de base sur la santé et les services requis afin d'être en mesure de prendre des décisions éclairées en matière de santé. Malheureusement, plus de la moitié des Canadiens ne sont pas en mesure de naviguer adéquatement dans le système de santé parce qu'ils ont une littératie limitée en matière de santé. Les patients avec une faible littératie peuvent avoir des difficultés de lecture, et une faible compréhension des documents de préparations écrits. Dans le domaine des sciences de la radiation, une considération importante pour ces patients est la capacité de suivre les exigences de préparation en prévision des procédures d'imagerie diagnostique. Il a été suggéré que les patients ayant un faible niveau de littératie en matière de santé sont souvent moins bien préparés pour les examens diagnostiques et qu'en conséquence ils tendent à avoir des examens de qualité diagnostique plus faible. Les techniciens en radiation médicale (TRM) jouent un rôle important dans l'éducation des patients en ce qui a trait aux examens d'imagerie médicale et en les aidant à se préparer adéquatement pour ces examens. Le but de cet article est de définir la littératie en matière de santé, de fournir des stratégies pour aider les TRM à reconnaître les patients qui ont une littératie limitée et à traiter les problèmes de littératie limitée afin d'améliorer la qualité des examens d'imagerie diagnostiques.

and adhering to medical instructions, struggle to comprehend medication labels, and use preventive services such as mammography and vaccination less frequently [3, 4]. As a result, those with limited health literacy have higher rates of mortality, morbidity, and disease [4].

Consequences of Limited Health Literacy in Radiology

Patients with limited health literacy skills experience difficulty navigating medical documents and may struggle with even simple tasks such as identifying how many days a particular medication should be taken for [5]. For radiology patients with limited health literacy, correctly following written preparation instructions can be a challenge. Indeed, patients with limited

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health literacy have been shown to have poorer comprehension and adherence to preparation instructions for other diagnostic procedures [6, 7]. This is an important consideration for medical radiation technologists (MRTs) since poor patient preparation in radiology may lead to delays in treatment as a result of rescheduling, poorer diagnostic quality of the examination, and repeated radiation exposure [8].

Low Awareness of Health Literacy Issues in Health Professionals

Unfortunately, the term health literacy is not commonly used, even among health care providers. Very few organizations have policies in place to accommodate low health literacy patients, and many health professionals are unaware of health literacy issues or the impact on health outcomes [9]. Due to the high number of patients affected, it is important for MRTs to be aware of health literacy, and how it can impact the quality of radiology examinations. The purpose of this article is to promote awareness of health literacy-related issues in the radiology community, to provide MRTs with strategies that can be used to identify patients with limited health literacy, and address how limited health literacy can impact the quality of diagnostic images due to poor patient preparation.

Importance of Health Literacy Awareness in Radiology

Health Literacy and Health Outcomes

Currently, there are limited data on the impact of health literacy in radiology. A recent article highlights an overall lack of publications regarding health literacy in the radiation sciences [10]. However, a study by Smith et al states that the comprehension of bowel preparation instructions for colonoscopy examinations was significantly lower in patients with limited health literacy [7]. Nguyen and Wieland also report that patients with indicators of lower health literacy were more likely to present themselves for colonoscopy procedures without having followed the given preparation instructions [6]. Thus, it is likely that patients with limited health literacy would have similar difficulties following radiology-related preparation instructions.

Unprepared patients identified during diagnostic imaging may experience delays in treatment or be subjected to repeated radiation exposure [8]. For some procedures, the quality of the patient's preparation may have a significant impact on the findings and thus clinical management of the patient. For example, the ingestion of caffeine may reduce the sensitivity of nuclear myocardial perfusion imaging for ischemia [11], poor bowel preparation can reduce the sensitivity of computed tomography colonoscopy [12], and proper adherence to a low-iodine diet before iodine imaging in thyroid cancer patients has been shown to affect detection of postoperative remnant thyroid tissue [13].

Addressing Health Literacy Issues in Radiology

The above examples demonstrate the potential causal relationship between limited health literacy and poorer health

outcomes in radiology patients. By focusing on the prevention of health literacy-related errors, it may be possible to improve the quality of medical imaging procedures for patients with limited health literacy. Much of the evidence surrounding improving outcomes for those with limited health literacy highlights the importance of improving methods of communication. For example, it has been shown that using simpler printed materials can improve medication and diet adherence in diabetic patients with limited health literacy [14]. Similarly, better glycemic control has been observed in patients whose physician verbally assessed their comprehension of new information during patient visits [15]. The results of these trials indicate that adherence to medical directions can successfully be improved when health care providers communicate in a way that is appropriate for the health literacy of their patients. In a medical imaging setting, this includes developing patient-directed reading materials that will be easily understood for even those with low reading abilities and the use of verbal communication strategies by MRTs that have been shown to improve patient comprehension of instructions.

Written Communication

Patients frequently receive written preparation instructions before radiological examinations. Studies have, however, consistently found that these materials are written at a level that is too advanced for most readers [16–20]. A study by Spiegel et al [21] showed that patients were almost four times more likely to have good quality colonoscopy examinations after receiving educational pamphlets designed to be easy to understand. Therefore, radiology departments may benefit by reviewing patient-directed reading materials to ensure that they are written at an appropriate reading level.

Health-related materials should be written at a level no greater than that of the sixth or seventh grade [22, 23]. Complex medical terms or abbreviations should be replaced with simpler words if possible and, if not, a definition should be provided. It is also recommended that instructions be provided in clear concise bullets, using a font size no smaller than 12 point. A complete guide to creating easy-to-read health materials is beyond the scope of this paper and is freely available online at the US National Library of Medicine [23].

Patient Interviews

Health care providers are often unaware of the importance of assessing the health literacy of their patients. A study of nearly 700 health professionals in Canada found that relatively few were aware of how health literacy can affect health outcomes or strategies to accommodate patients with limited health literacy [9]. The same study identifies the lack of health literacy knowledge of health care providers as a significant barrier to patients overcoming their health literacy inadequacies.

When MRTs interview patients before an examination, it provides an opportunity to assess the health literacy skills of

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