

# Medical students' recognition of health literacy in a single embedded curricular activity

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## Abstract

**Objectives:** To explore medical students' recognition of health literacy as a barrier to care and social determinant of health within a single embedded curricular activity.

**Methods:** Data was collected from 262 second-year medical students' responses to the following questions: what are some potential barriers to patient adherence and preventative health screening? What aspects of a social history would you include in your patient interview to ensure emphasis on the social determinants of health? All narrative responses were analyzed using both frequency analysis and qualitative content analysis methods.

**Results:** Students' responses revealed three themes: the impact of low health literacy on health, the correlation between health literacy and literacy, and health care provider strategies for addressing health literacy. The majority of

students 61.5% (n=161) recognized health literacy as a barrier to optimal health outcomes; however, an equal number of students 66.8% (n=175) failed to identify the manner in which health literacy serves as a social determinant of health.

**Conclusion:** While students may recognize health literacy as a barrier to care, they may need more formalized instruction and evaluation on understanding the ways in which it is a social determinant of health. It is therefore essential for medical educators to incorporate this topic more intentionally into medical school curricula to ensure the understanding of health literacy within the clinical context to facilitate meaningful adaptations that can potentially decrease health disparities.

**Keywords:** Health literacy, medical education

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## Introduction

The Liaison Committee on Medical Education (LCME) of the American Association of Medical Colleges (AAMC) and American Medical Association (AMA), and the Institute of Medicine (IOM) emphasize the need to address health literacy in medical education. The World Health Organization defines health literacy as the "capacity to obtain, process, and understand health information and services needed to make appropriate health decisions".<sup>1,2</sup> Therefore the absence of this ability is perhaps a key contributor to on-going health problems due to its widespread prevalence and negative impact on health outcomes.<sup>1</sup>

Following the guidelines set forth by these prominent organizations and the Institute of Medicine (IOM) report, "Health Literacy: A Prescription to End Confusion," many

academic institutions incorporated health literacy within core courses to improve health professionals ability to assess health literacy, suggest alternative methods for presenting information to patients, and determine competence in this area.<sup>1,3-7</sup> While the LCME mandates that health literacy be incorporated into the formal curriculum, health literacy has remained an orphan topic in many undergraduate medical curricula despite the emerging knowledge regarding its negative impact on health outcomes. In a 2010 report of 61 allopathic medical schools inquiring on specific teaching of topic of health literacy 44 schools indicated it was a required component of their curriculum.<sup>7</sup> These same schools indicated spending a median of three hours spent on this topic.<sup>7</sup> Specifically, the report also showed that various

pedagogical methods are used across these schools to introduce health literacy, including lectures, standardized patient encounters, assigned readings and workshops and online training, videos, and experiences with low literacy patients.<sup>7</sup> At the University of Michigan Medical School, the topic of health literacy is embedded within the context of a single activity as part of a longitudinal sociocultural curriculum.<sup>8,9</sup> While the case described below is implicitly designed to address health literacy, this intention is not explicit. Therefore, the purpose of this study was to assess students' ability to recognize health literacy as a barrier to care literacy within our existing curriculum using self-directed methods.

## Methods

### Data collection

In 2007 and 2008, during the Clinical Foundations of Medicine course, second-year participated in an activity related to social history and medical interviewing. Students were provided a written case of a 37-year-old native Romanian woman who presented with a history of abnormal papanicolaou smears, with no evidence of follow-up. The patient needed further evaluation, including referral to the specialty Gynecology Colposcopy Clinic.<sup>10</sup> In addition, her literacy skills were potentially complicated by language barriers - it is unclear if she is fluent in English from the history provided. As part of the case, students were also assigned a set of required readings<sup>11-13</sup> and participated in a facilitated small group discussion. Before the small group discussion, each student was asked to prepare written responses to the following questions: 1) what are some potential barriers to patient adherence and preventative health screening? 2) What aspects of her social history would you include in your patient interview to ensure emphasis on the social determinants of health? Students' responses to these two questions served as the data for this study. These responses were compiled anonymously and each was assigned a random code. Each response was typed for ease of referencing among the authors. A total of 262 students provided narrative responses to these questions during two academic years: 256 students responded to Question 1 (Q1), and 229 students responded to Question 2 (Q2).

### Data analysis

A secondary data analysis was conducted on students' responses to the assignment described above. Data were analyzed using a quantitative coding analysis method to detect whether the student referenced health literacy in Q1 and Q2. A dichotomous scoring method was used in which students received a score of "1" if health literacy was present or a score of "0" if absent. In cases in which no answer was provided, a score of "2" was assigned. These data were imported into SPSS 19 (IBM Corporation, Armonk, NY) to perform frequency analysis. The criteria used for determin-

ing the presence of health literacy was the specific mentioning of "health literacy" or its definition (e.g. capacity to comprehend verbal or written medical information). Responses referencing level of education, low reading level or having cognitive barriers did not warrant receiving credit for acknowledging health literacy.

To complement the quantitative method and provide contextual meaning, the narrative responses were also analyzed using a thematic content analysis method which allows researchers to study printed material (e.g., newspapers, letters, books, interviews, etc.) in order to establish how the originators of the documents view a particular phenomenon.<sup>14,15</sup> Two of the authors (PTR and MLL) read each response and developed individual sets of themes. These authors then met to discuss their findings and consolidated these individual themes into exclusive themes. New themes were added until theoretical saturation was achieved, (that is, no new themes emerged from the review of the data). Authors revisited the student responses to verify that all themes were represented and upon verification, categorized students' responses into the final themes. As a qualitative validation method, one of the authors (UA) independently read student responses and through comparison confirmed the originally determined themes. This study received exemption status from the University of Michigan Medical School's Institutional Review Board (IRBMED).

## Results

The results of our quantitative analysis indicate that 61.5% (n=161) of students recognized health literacy as a potential barrier to patient adherence and preventative health screening in response to Question 1, while 36.3% (n=95) failed to do so (Figure 1).

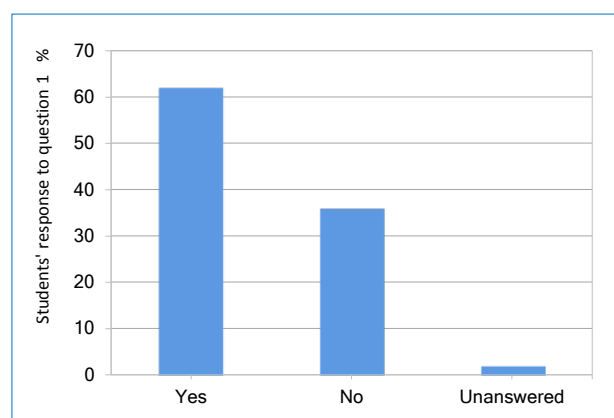


Figure 1. Numerical responses to question 1. Did students' response identify health literacy as a barrier to patient adherence/screening?

In response to Question 2 the majority of students 66.8% (n=175) did not include health literacy as an aspect of social history that would ensure emphasis on the social determinant of health (Figure 2). Only 20.6% (n=54) included health literacy in response to this question. Of note, while

students provided various responses to these questions, for the purposes of this paper we are only included responses that referenced health literacy. Our qualitative thematic content analysis of the 262 narrative responses revealed three emergent themes: the impact of low health literacy on patient outcomes, the correlation between health literacy and literacy, and strategies for providers' addressing health literacy (See Table 1).

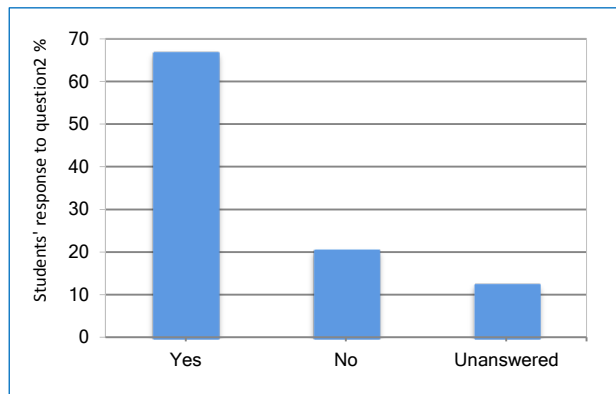


Figure 2. Numerical responses to question 2. Did students' response identify health literacy as an aspect of a social history to include in their patient interview to ensure an emphasis on the social determinates of health?

### Impact of low health literacy on health

Students' narrative responses highlighted their recognition of the impact of low health literacy on patients' ability to understand medical directives (including prescriptions), advice, and explanations that facilitate adhering to providers' recommendations. Many stressed the myriad of potential complications that can result from patients' inability to accurately complete medical forms, understand prescription drug instructions, or read patient education material.

*"Patient health literacy appears to greatly affect how well they are able to not only navigate the health care system but adhere to treatment regimens. A patient's health is clearly at risk if he is unable to fill out medical forms accurately, to understand prescription drug instructions."* (2007, student #42)

*"Inadequate health literacy can keep patients from accessing health care, following physician instructions, and taking medication properly, what next test he or she needs to get, or even how to seek preventative health care."* (2008, student #239)

Students' responses also reflected an awareness of the social groups most vulnerable to matters of health literacy and recounted the ways in which social categories intersect to further place individuals at risk for poor health outcomes.

*"Low health literacy is especially prevalent in communities with a lower socioeconomic status, whether this is measured by education, income or the geographic neighborhood in which the patients reside. These variables tend to cluster, and are associated with cognitive barriers to screening for conditions such as cervical cancer"*. (2007, student #1)

Another student highlighted,

*"Individuals in this low health literacy group include the elderly, who experience declines in cognitive function in general, those of lower educational levels, and recent immigrants with limited English language skills or healthcare knowledge."* (2008, student #213)

Table 1. Theme frequencies

Theme	N (%)
Impact of low health literacy on health	117 (54)
Correlation between health literacy and literacy	182 (85)
Provider strategies for addressing health literacy	63 (30)

\*Responses are not mutually exclusive

### Correlation between health literacy and literacy

Students' responses also illustrated a keen understanding that low literacy is correlated to health literacy in that it often constrains patients' ability to comply with prescribed treatments and navigate the health care system.

*"[Illiterate] patients are unable to understand information about illnesses and preventative programs given to them by their physician. These patients have a limited understanding of healthcare terminology. They don't have the information put to them in terms they can understand, and end up not understanding their illnesses or the purposes of preventative tests."* (2007, student #21)

*"Health care materials are written for a 10th grade level or above, most Americans read at an 8th grade level or below. [This] results in difficulty accessing health care, following instructions from a physician and taking medication properly."* (2007, student #30)

Not only did students identify the capacity to understand and process health information as a fundamental barrier to accessing care, but they also considered patients' unwillingness to admit this barrier due to the associated stigma.

*"Illiterate patients are not able to read the directions given to them and may be too ashamed to ask for assistance ...and thus would just dismiss the recommendations."* (2007, student #38)

*"The patient may not be able to read at a high enough reading level to comprehend the material. The patient may not be literate at all and may be too self-conscious to tell the clinician."* (2008, student #278)

*"Another barrier is patient shame in their low literacy level. This shame prevents patients from seeking help such as asking the doctor to repeat orders, talk slower, or bring someone with them to help [them] read."* (2007, student #55)

### Provider strategies for addressing health literacy

Students' responses contained comments addressing providers' role in assessing health literacy as a strategy to

aid patients' navigation of their health care. One student identified communication and adherence as two important factors within the medical encounter.

*"These patients are less likely to partake in prevention programs. This problem [health literacy] is exacerbated by physician overestimation of patient literacy. It is important to gain a perspective on your patient's level of understanding of complicated medical terminology so that the physician can tailor his/her approach to screening and facilitate proper communication regarding risks, concerns, expectations, etc."* (2007, student #39)

Other students identified additional useful strategies within the medical encounter to reduce the provider's contribution to poor outcomes as a result of low health literacy. These strategies elicit the patient's involvement and ensure they have a clear understanding of the recommendations or information provided as well as help identify potential literacy problems.

*"Ask the patient to explain back how their illness is affecting the. Ask the patient to explain back how our treatment will help them. Ask the patient to explain back how they will comply with treatment requests."* (2008, student #254)

*"[Telling the patient], I'm in a constant state of self-improvement, and it's important to me that I've explained your disease and our treatment plan clearly to you. Do you have any questions about anything I may not have explained clearly enough?"* (2008, student #202)

## Discussion

In this study, the recognition of health literacy as a barrier to care within this curricular structure was explored through analysis of discrete responses. Although the majority of our second-year students recognized health literacy as a barrier to patient adherence to medical regimens, an equal number failed to include health literacy as a topic to ensure emphasis on the social determinate of health.

Our findings may have identified an important and unexpected gap in our curriculum. We used a combination of written and self-directed resources to promote an understanding of prevention, screening, and social determinants of health. It is possible that given the nuances and complexities of these topics that our pedagogical approach was not sufficient to assist our students in developing competence in this area. Perhaps a better approach would be to include this topic in clinical skills teaching and exercises to allow students to make the connection between theory and practice. Our data suggests that the preclinical teaching of health literacy as a social determinant of health must be both intentional and explicit to more effectively translate this information into clinical contexts to further solidify its applicability in patient care and outcomes. The direct method of teaching about health literacy is supported by Roberts and colleagues who argue that medical students

need to have more effective education regarding health literacy and provided a blueprint for a third-year health literacy clerkship curriculum that incorporates a variety of pedagogical approaches (e.g., standardized patient, didactic, and experiential learning).<sup>16</sup>

In addition, health literacy also raises issues of social justice, particularly within managed care health care systems.<sup>17</sup> Within the patient-provider encounter issues of literacy are not limited to understanding medication regimens, but also arise regarding informed consent,<sup>18</sup> patient rights, and privacy rights and participatory decision-making.<sup>19</sup> Students in our study provided evidence that they recognized the important role healthcare providers play in circumventing the ability to comprehend health information to improve health outcomes.

There were several limitations to the study. First, no data exists explaining why students failed to identify health literacy within the context presented. Second, our study assumes that students' recognition of this concept would have been reflected in their responses. It is possible that students' omission of this concept within their responses does not equate with their lack of awareness. Finally, we assumed that students who submitted responses completed the required reading. It is possible that students did not complete the required reading prior to their small group sessions and therefore did not possess the content knowledge to more be more clearly able to identify social determinants of health.

## Summary

Despite the on-going interest in educating and exposing students to various socioeconomic factors that affect health outcomes, students in this sample remained unable to recognize health literacy as an important social determinant of health. It is therefore essential for medical educators to incorporate this topic more intentionally into medical school curricula to ensure the understanding of health literacy within the clinical context to facilitate meaningful adaptations that can potentially decrease health disparities.

## Conflict of Interest

The authors declare that they have no conflict of interest.

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