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Medical Student Health Literacy Perspectives and Experiences

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Abstract

Objectives: To evaluate medical student perceptions of patient health literacy and provider abilities to assess patients' health literacy and understand themes of student reports.

Methods: Data was collected through a random selection process from 324 third year medical student descriptions of health provider interactions with patients. Students completed a one month required family medicine clerkship. A total of 130 (65 students) narratives were selected from 648 stories (approximately 20%) on student perspectives of effective and ineffective encounters experienced in their training. The Common Ground core communication components (information management, active listening, addressing feelings, and reaching common ground) were used to categorize major themes. Recurrent themes described frequently in narratives were also collected.

Results: Medical students described a variety of scenarios they experienced in their first two or three years of medical school and 17 quotes from the narratives were selected from 130 stories. There were four dominant themes identified from student narratives that were related to communication. These categories included information management, active listening, addressing feelings and reaching common ground. Results suggest that medical students can identify effective and ineffective communication and health literacy skills and can describe how these experiences influence health care outcomes. Patient-perceived barriers, medications and diabetes were mentioned in about half of the narratives.

Conclusions: Patients' ability to read, comprehend and act on health information from providers is an essential part of health care delivery. Understanding the perspectives of medical students can reveal areas of communication related to health literacy that impact quality of care and outcomes.

Keywords: Health literacy, Medical education, Patient-centered communication

Introduction

Medical student teaching and exposure to health literacy skills assessment is essential for effective patient communication. A web-based survey of U.S. Medical Schools revealed that 72.1% (n = 133) teach about health literacy in required curriculum averaging about 3 hours (range 0 to 8 hours) [1]. Health literacy is a multi-faceted concept, defined as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" [2]. While written patient information readability has been used in health student teaching, there is minimal literature focusing on health literacy understanding and experiences among medical students [3]. A pilot project was undertaken at Harvard Medical School to evaluate health literacy and cross-cultural care integrated into didactic and experiential methods [4]. Medical students indicated by survey that this elective course was beneficial in teaching the students to use basic words, body language, handouts, and pictures. A report regarding geriatric health literacy workshops for medical students found an increased awareness of approaches to address communication with older adults with low health literacy [5].

Communication training is important to understand patient and learning interactions. The "Common Ground Communication Model" and validated assessment tool was developed to train health care providers to use effective communication skills and reliably evaluate health professions learners [6]. Six criteria-based, patient-centered communication skills comprise the Common Ground Model. These are rapport building, agenda setting, information management, active listening (for the patient's perspective of illness), addressing feelings, and reaching Common Ground (meeting patients where they are to ensure effective disease management).

For patients, health literacy is a set of skills that are necessary to navigate the health care system and make appropriate health decisions. Inadequate health literacy has been linked to increased health disparities, unsuccessful self-care, poor health outcomes, poor use of health care services, and among elderly persons, poor overall health status and high mortality rates [7]. As one activity in a training grant entitled "Implementing a Culturally Sensitive Health Literacy Curriculum," medical students were asked to report their experiences of provider's effective and ineffective communication as it relates to patient health literacy using core communication skills from the Common Ground framework. This manuscript provides a qualitative report of third year medical students completing a family and community medicine rotation and their views of health literacy skills between providers and patients. The intent of this research is to explore medical student perspectives of effective and ineffective communication between providers and patients with an appreciation of how health literacy impacts health outcomes.

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Methods

Data collection

Student narratives of clinical interactions between providers and patients were collected from four medical school classes. In the third year of medical school, students were provided with an assignment in a communications orientation on the first day of their Family and Community Medicine Clerkship, one activity of a health literacy curriculum. Students were asked to write a paragraph about an effective and ineffective provider-patient encounter and to comment on how these interactions influenced patient outcomes. They did this prior to receiving a 32-hour health literacy curriculum (case-based seminars, mindfulness training, interpreter training, team-based teaching clinics and reading assignments). The student narratives were shared in the health literacy seminar that occurred later in the first week of the clerkship to stimulate discussion and student views. Data collection was completed on classes from 2012 to 2016. All procedures were approved by the Wake Forest School of Medicine Institutional Review Board.

Data analysis

Data analysis was based on a systematic, computer-assisted approach (ATLAS.ti 7.5.6 Scientific Software Development, Berlin, Germany) for qualitative data management, systematic coding and analysis [8]. Using the Common Ground framework of communication assessment, several themes were identified among the medical student stories [5]. These included information management (open-ended questions versus the use of yes/no questions, organizing directives, using summaries), active listening (checking for understanding, identifying or glossing over clues, concerns and expectations, including or excluding both patients and caregivers) and addressing feelings (empathetic statements, acknowledgement of feelings, normalizing feelings). Reaching common ground (use of teach back to check for understanding, plain talk, jargon, checking for feasibility, agreement, motivation and encouragement) as well as less effective strategies (i.e. use of scare tactics and morbidity data) were also included. We did not use rapport or agenda setting from the Common Ground as the student narratives did not specifically address these categories. Typically, if these skills occur they happen within the first three minutes of the provider and patient visit. Stories were compiled and assigned student numbers. Due to the randomized selection of narratives, each category is not equally represented and does not always contain both effective and ineffective examples.

Student stories were first evaluated to assure that they identified an ineffective and effective patient-provider encounter. Two investigators read every story and independently categorized each thematic quote, with agreement before acceptance. A coding dictionary was developed from the initial review of narratives and construction of themes that was assembled by the project team. Meetings between team members were conducted to identify a set of additional codes and broad themes in the stories. Team members reviewed the coded narratives and suggested revisions to the coding. Qualitative analysis also consisted of extraction of specific disease states or topic areas. Text segments related to barriers, communication and understanding were reviewed and discussed. Word searches were also completed to capture relevant information related to health literacy.

Results

A total of 130 stories (62 from male students and 68 from female students) were randomly chosen out of 648. The average age was comparable between each group ranging between 24 to 26 years old from the classes of 2012 to 2016 with females slightly older than males. There were a total of 7 students who did not correctly identify an effective and ineffective patient-provider encounter example and reported general information about what they thought about health literacy in each scenario. These stories (approximately 10% of the sample) were not used or evaluated as the students misunderstood the assignment.

Quotes supporting the interpretation of the narrative are presented with student identification number. A total of 208 quotes were extracted from student stories (more than one quote could come from a story). Seventeen quotes were chosen for this paper that represented common themes read in the majority of the student stories. Several topics were frequently mentioned in the narratives including barriers to care, medication issues and struggles with chronic diseases (diabetes, asthma, stroke complications). How providers spoke to patients was a frequent theme with the use of medical jargon versus understandable communication.

Student quotes were organized into Common Ground categories that the investigators agreed qualified as appropriate student identification of effective and ineffective patient-provider encounters. The Common Ground categories included "Information Management" where the use of yes/no questions, open-ended questions or summarized information were reported. "Active Listening" was another primary category that captured caregiver inclusion, checking for patient understanding, and identifying clues or concerns from the patient. The category of "Addressing Feelings" incorporates providers acknowledging patient feelings, offering empathetic statements or providers ignoring feelings. "Reaching Common Ground" identifies if there was provider-patient understanding, "teach back" of information shared in the encounter to the patient, agreement or disagreement in the interaction and if there was motivation or encouragement used. The lack of "Reaching Common Ground" was recognized when a provider assumed patient understanding of information without any confirmation and when there was lack of patient comprehension due to providers using medical jargon.

Information management

An ineffective example from the student's perspective describes how a physician mismanaged a patient interaction without specific information.

Instead of communicating her concern to the patient, the health care provider began berating the patient about the importance of bringing a complete list of medications to every doctor visit. As an observer, I could sense that the patient and her husband were made to feel incompetent. (Student 33, Class of 2015)

Students recognized that information management is an important component to effective communication, especially when asking questions. Below is an example of how information was successfully asked of the patient to elicit their views.

He asked several times "What concerns do you have?" I noticed that this was a much better strategy than saying "Do you have any concerns?" By that simple change in the phrase, it increases the patient's willingness to express their concerns. (Student 22, Class of 2014)

The use of open-ended questions was further identified in a narrative to investigate what a patient described using a colloquial expression. Overall, this was an effective scenario a medical student experienced in their own encounter with a patient.

I was asking all the questions they teach us to ask ("What did it feel like?", "Did you experience any other symptoms?") and to one of these inquiries the patient stated that he felt "swimmy-headed" right before one of his syncope episodes. I had never heard this phrase before and I had no idea what this patient was referring to. The only thing I could think he meant was that feeling after you spend one too many hours in the pool and come out with water-filled ears that may throw off your balance. I decided to investigate further and asked the patient, "what do you mean by swimmy-headed?" (Student 18, Class of 2014)

Active listening

Student responses frequently reflected active listening skills. An ineffective clinical interaction included concern for glossing over patient clues and concerns.

Looking at the patient's face I could tell that there was very little that the patient comprehended. This was most evident at the end of the

physician's explanation when the patient asked, "so, is it cancer? And can you get it out?" The physician looked surprised at the question, I believe thinking he just answered both of those questions. (Student 7, class of 2013)

Patient comprehension was an issue identified among students. In the following situation, there was a lack of effective communication to resolve confusion.

The doctor further discovered that our patient did not understand what ANY of her medications were actually for (often confusing her hypertensive medications for the asthma medications, which she thought were for her GERD). However, he did not provide a solution for the patient. (Student 29, class of 2014)

An effective encounter that described active listening between the patient and provider that also included caregivers was described.

He made it a point to address and engage both the patient and caregivers while tackling the sensitive entity of appropriate and healthy weight, rather than turn only to the caregivers and educate/lecture them on the importance of feeding their loved ones an appropriate diet. (Student 58, Class of 2016)

One student discussed an interaction between a physician and provider where active listening led to checking for patient understanding and the use of written – material to reinforce the plan of care.

The physician encouraged the patient to ask questions throughout the visit and clarified any areas of uncertainty. Because we discussed so many things during the visit, the physician wrote out instructions for the patient on a piece of paper. She also printed out a patient information document regarding one of her issues. (Student 5, Class of 2013)

Addressing feelings

The narratives from the medical students included a scenario in which a provider ignored patient cues and feelings.

Throughout the interview, he became increasingly irritated as the medical team would either repeat questions multiples times or just quickly move on to other questions. The questions asked felt as though they were being read from a standardized list. (Student 64, Class of 2016)

Another scenario described providers addressing a patient's feelings and concerns during the delivery of a diagnosis.

I thought the team did a good job of giving the patient space to associate personal meaning/significance to this diagnosis without ever feeling like the line of communications, options to discuss questions and lines to question further treatment were ever cut-off or discontinued. I saw this as "caring silence" without being so quiet the patient didn't feel we weren't there for him. (Student 30, class of 2014)

Reaching common ground

The narratives described multiple examples of effective and ineffective care planning using the Common Ground communication model [5]. One student reported a lack of understanding between providers and patients in the following way:

The patient was instructed to drink a lot of water to ensure that she didn't become dehydrated and experience delirium again. The patient then proceeded to drink such an excessive amount of water over the following week that she became hyponatremic. (Student 11, Class of 2013)

An effective example of reaching common ground was described where a student identified agreement between the patient and provider.

She calmly listened without interrupting the patient. She then apologized that nobody had explained the plan of care to him, and validated his feelings by saying she understood why he was upset. She then explained that although normally the drug was a good thing for his kidneys, in his current circumstances the medical team was worried he had kidney failure and did not want to make it worse by continuing to give him the medication. The patient was much happier after this, and agreed to stay in the hospital to finish treatment instead of leaving against medical advice. (Student 38, Class of 2014)

The use of jargon during a patient and provider encounter was highlighted by the student as contributing to an ineffective interaction.

The attending rushed into the room, dumped a great deal of medical jargon on the patient, and left without asking if there were questions or checking for comprehension. (Student 25, Class of 2014)

Nontechnical, plain language was exemplified in the following example from a student narrative.

Personally having medical knowledge about the diagnoses made it even more impressive to watch him interact with patients. I knew he was conveying all of the important aspects about the diagnoses, but only with the use of very simple language. (Student 7, Class of 2013)

A student (who had also worked as an interpreter before starting medical school) was also able to identify when there were awkward situations and that there was not a confirmation by the provider of patient understanding.

As the translator, I exited last, but as I prepared to step out, the patient grabbed my arm and asked me a simple question that I will always remember – "What is a carbohydrate?" To a health literate individual, the dietary guidance given to the patient would have been perfect, but the last 15 minutes had completely gone over the patient's head. (Student 59, Class of 2016)

Using reassurance and encouragement was acknowledged by a student in the following example of an effective encounter.

The physician calmly, succinctly, and clearly explained the mechanism of action of the new drug, its economic drawbacks, and its advantages and disadvantages compared to her current medication regimen. Afterwards, the physician said that while he was happy to do whatever the patient decided, he believed that the patient was already on the superior medication regimen. When she seemed a little unsure, he commented that he always recommended what he thought was best for her to keep her healthy. His statement of compassion and support convinced her to stay on her current medication despite the television advertisement. (Student 65, Class of 2016)

The lack of patient understanding was recognized in a complex patient interaction where mental health issues were experienced firsthand.

Every day on morning rounds we would talk to this patient about her mood, suicidal ideations and plan. She would nod her head in agreement with everything we said, but after rounds she would approach me with multiple questions about her treatment plan. Although she appeared to understand the plan in its entirety during morning rounds, she clearly did not comprehend anything we presented to her. As a result, her hospital stay was extended. We cannot only rely on nonverbal cues to confirm a patient's comprehension. In this situation, it would have been useful to use the "teach back" method to show us how well this patient understands her disease and treatment plan. (Student 1, Class of 2013)

Finally, there was an example of understanding by family members to assure treatments were explained that was deemed an effective interaction.

Every visit he would critique and correct the patients' technique and discuss the purpose of each medication and asthma action plans with the family to make sure that both the parents and the children were on the same page with their treatments. (Student 59, Class of 2016)

Table 1 indicates that active listening was frequently described with 57 quotes that were categorized and descriptions that included patient feelings were cited in 33 quotes. Reaching common ground was the most frequent category represented by 106 quotes in student

Table 1: Themes related to Common Ground*

Information Management	Percent Total
Yes/No Questions	0.5%
Open-ended questions	4.7%
Summarized information	1.0%
Active Listening	
Caregiver not included	1.0%
Checking for understanding	6.2%
Glossing over clues or concerns	5.3%
Identifying clues or concerns	9.6%
Patient and caregiver included	5.3%
Addressing Feelings	
Acknowledging feelings	8.1%
Empathetic statement	1.4%
Ignoring feelings	9.6%
Reaching Common Ground	
Assuming understanding	12.0%
Use of Teach Back (checked for understanding)	7.7%
Checked for feasibility	5.3%
Agreement	8.1%
Disagreement	1.9%
Use of jargon	3.8%
Ineffective strategies	3.8%
Motivation and encouragement	4.3%
Plain language	3.8%

*Student stories may represent more than one theme

stories while information management was only cited in 13 reports.

Discussion

As part of a teaching grant focused around "Implementing a Culturally Sensitive Health Literacy Curriculum," medical students were able to communicate their experiences of provider interactions with patients regarding health literacy. We report the initial experiences of medical students prior to receiving a health literacy curriculum (case-based seminars, mindfulness training, interpreter training, team-based teaching clinics and reading assignments). Previous literature shows that medical students can recognize health literacy in a single embedded curricular activity [9]. While it is important to identify provider and patient health literacy issues our goal was to foster a teaching environment with discussion of the students' experiences. They openly discussed their stories, as well as their views of how the interactions between patients and providers influenced patient outcomes, and how ineffective examples could have been managed to result in improved outcomes. The authors found that the identification of effective and ineffective patient scenarios were perceptively accurate among the majority of the stories submitted. Medical students also gained an enhanced awareness of provider cultural biases that often influence patient care. Table 1 reveals that students could frequently identify multiple aspects of the Common Ground model. The ability for student to identify clues and concerns was the most identified category of active listening. Reaching common ground was the most frequent category described. Students reported 25 occurrences of assuming understanding that they recognized as ineffective interactions (checking for patient understanding did not occur).

A systematic review of low health literacy and health outcomes shows personal characteristics of those having inadequate literacy skills overlap with those identified at highest risk for health problems, poor health outcomes, and increased use of health care services [10]. Effective clinicians must have the skills to assess patients' health literacy level and to implement tailored educational interventions to care for patients. The most commonly reported disease state was diabetes (Table 2) occurring in 86% of the stories randomly selected. This was also a frequent theme in the 648 narratives. Low health literacy has been recently reported to predict misperceptions of diabetes control in patients with persistently elevated glucose values [11]. The authors note that the case-based seminars and Common Ground training in

Table 2: Common Topics Reported in Student Narratives.

Topic	Frequency
Barriers	28.5%
Medications	26.2%
Diabetes	20.0%
Inpatient	10.0%
Interpreter	9.2%
Plain Talk	8.5%
Stroke	4.6%
Asthma	3.8%

the health literacy curriculum encompassed diabetes scenarios as we predicted this disease state would have a high yield of what students would most likely encounter.

Student-identified, patient-perceived barriers was also a common identified topic related to health literacy in the narratives and this was not surprising since language, economic issues, access to provider, and medication issues were identified in both effective and ineffective encounters described in the stories (Table 2). The other topic that was commonly mentioned was medication. The understanding of medication has many potential opportunities for effective patient communication to assure individuals can effectively understand how to use and avoid drug interactions and side effects. Multiple student stories incorporated drug scenarios that led to poor health outcomes in the student's opinion.

The strengths of learning about the medical students' perspectives are that their views can be examined in detail and can provide perspectives about health literacy understanding. The abilities of the health care providers to address health literacy and the experiences of medical students in their first two years of medical school from this research could be studied in depth. The information learned through the narratives can help guide future curriculum modifications and confirm what we have designed for health literacy teaching. We will additionally be able to provide information about what we learn to our providers so that they can appreciate the perspectives of learners and how individual skills can potentially be further developed.

One limitation of this study is that the potential for research bias as the researcher's skills and experience in the area of health literacy and curriculum teaching are embedded in the curriculum taught. The investigators took steps to assure the stories of medical student's experiences were reported prior to receiving the major components of the health literacy curriculum. Another limitation was capturing and organizing all of the student data as the volume of information and interpretation was most effectively organized using the Common Ground model. While every story was read by three of the investigators, analyzing all 648 stories was not practical so a 20% random representation was utilized. A general comparison to all of the stories suggests that the themes reflected the vast majority of the stories.

These stories about the students experience around health literacy skills that are shared the day before they begin the family medicine clerkship strongly suggest that the majority of students recognize the impact of health literacy provider ability to share information clearly and check for understanding on patient outcomes. We build on this understanding while they are on this clerkship where they receive 8 hours of didactic and 15-20 hours of clinical experience focused on patient-centered communication and health literacy related skills. They participate in a problem-focused standardized patient assessment early in week two of the clerkship and a second one in the last week of the clerkship. Independent raters review and score videos of the students' patient-centered communication skills and health literacy skills that are under review and will be reported in the future.

Effective health communication strategies that inform and influence patients can result in positive outcomes. Patient-centeredness is critical to enhance communication with patients. The medical students we studied have the ability to recognize effective and ineffective communication between providers and patients and

are able to appreciate how health literacy impacts health outcomes. While we only explored their initial views prior to any curriculum, students were provided opportunities to expand their health literacy knowledge to improve patient care and develop assessment skills and care plans tailored to patients' health literacy levels in the clerkship. Future evaluation should include interventions that address feasible medical student curriculums to disseminate health literacy assessment of patients and health outcomes.

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