

Health Literacy: An Educationally Sensitive Patient Outcome

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We have previously proposed that by identifying a set of Educationally Sensitive Patient Outcomes (ESPOs), medical education outcomes research becomes more feasible and likely to provide meaningful guidance for medical education policy and practice. ESPOs are proximal outcomes that are sensitive to provider education, measurable, and linked to more distal health outcomes. Our previous model included Patient Activation and Clinical Microsystem Activation as ESPOs. In this paper, we discuss how Health Literacy, 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,” is another important ESPO. Between one-third and one-half of all US adults have limited health literacy skills. Providers can be trained to adopt a “universal precautions approach” to addressing patient health literacy, through the acquisition of specific skills (e.g., teachback, “chunking” information, use of plain language written materials) and by learning how to take action to improve the “health literacy environment.” While there are several ways to measure health literacy, identifying which measurement tools are most sensitive to provider education is important, but challenging and complex. Further research is needed to test this model and identify additional ESPOs.

KEY WORDS: medical education; health literacy; patient engagement; patient activation.

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INTRODUCTION

The quality of medical education influences patient outcomes, but this relationship is difficult to study.¹ We have proposed that by identifying a set of Educationally Sensitive Patient Outcomes (ESPOs), medical education outcomes research becomes more feasible and likely to provide meaningful guidance for medical education policy and practice.²

ESPOs are patient outcomes that are sensitive to provider education, can be measured, and are in the pathway linking medical education interventions to patient outcomes. As others have pointed out, conducting a series of studies which

demonstrate these links can overcome many of the methodological complexities associated with attempting to directly link provider education to patient outcomes in a single study.³ ESPOs then become the most proximate patient outcome of provider education, but not the only one. Identifying a set of ESPOs will allow the medical education community to demonstrate return on investment in health professional education, and will provide more compelling guidance for critically important educational reform efforts.^{4,5}

We have previously proposed Patient Activation and Clinical Microsystem Activation as ESPOs. Patient Activation is linked to health outcomes.⁶ Physician skills such as participatory decision making can lead to improved patient activation and better outcomes.⁷ Hibbard’s Patient Activation Measure (PAM) has been shown to be a reliable measure, relatively easy to administer, and has been proposed as a health care quality measure.^{8–10} While more definitive study is needed, we have shown that measures of patient activating skills of residents in an Objective Structured Clinical Examination (OSCE) can identify residents more likely to promote actual weight loss in obese patients.¹¹ Similarly, we have been able to demonstrate that trainees’ lack of clinical microsystem awareness as assessed by unannounced standardized patients in actual clinical settings can threaten patient safety.¹² Thus, the ESPO framework allows us to identify curricular interventions likely to lead to improvement in patient capacities directly related to important health outcomes. A number of ESPOs likely exist; health literacy is a good candidate. It can be measured, is associated with a range of health outcomes, and providers can be trained to improve a patient’s measured health literacy.

HEALTH LITERACY DEFINITION

Health literacy is 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.”^{13,14} Health literacy encompasses the skills involved in all aspects of an individual’s ability to address health-related issues, including their ability to read and understand written health information (print literacy), comprehend mathematical concepts such as risks/benefits of treatment choices (numeracy), listen to and understand spoken health

information (oral literacy), and navigate the health care system (e.g., apply for insurance).^{15,16} Between one-third and one-half of US adults have limited health literacy skills;^{14,17,18} racial/ethnic minorities, immigrants, the elderly, and low income groups are disproportionately affected.¹⁹

The link between health literacy and health outcomes is well established. Outcomes linked to limited health literacy include greater mortality and poorer global health status, increased hospitalizations, and emergency care use.^{20–24} Low health literacy is associated with worse asthma severity, poorer diabetic control, and obesity,^{22,23,25} and has been found to be a stronger predictor of outcomes than race/ethnicity, income, and education.^{25–27} Over the past decade, health literacy has come to be considered a critical quality and safety issue by the Institute of Medicine,¹⁴ Joint Commission,²⁸ and the World Health Organization.²⁹ In 2010, a National Action Plan was issued to tackle health literacy across sectors, including in education and research.³⁰

HEALTH LITERACY AS PART OF THE CLINICAL ENCOUNTER

Professional organizations, including the American Medical Association,^{22,31} recognize that for patients to have improved outcomes, health literacy must be addressed as part of each clinical encounter. A “universal precautions” approach to the use of health literacy-informed provider–patient communication strategies is recommended,³² and includes use of plain language and avoidance of medical jargon, limiting counseling to 2–3 main concepts, and “chunking” of information into small digestible components.^{31,33–35} Advanced strategies include use of teachback/showback, drawings/pictures and supplementing verbal counseling with plain language written information.^{31,33,34} Teachback, which refers to having patients say in their own words what they understand, is a critical health literacy strategy.^{32,35,36} Showback may be especially effective when a patient is expected to undertake a specific task. For example, having a patient count out the number of daily pills,³⁷ or demonstrate with oral syringe how much liquid medication will be given,³⁸ can be helpful to ensure patient understanding.

Provider-centered health literacy-informed interventions have been associated with improved outcomes. We demonstrated that supplementing provider verbal counseling with low literacy, pictogram-based medication instruction sheets, along with demonstration, teachback/showback, and dosing tool provision, led to reduced parent dosing errors.³⁸ Rothman et al. demonstrated that a disease management intervention involving plain language, teachback, and picture-based materials as part of 1:1 counseling sessions was associated with greater odds of achieving goal HbA1c levels.³⁹ These studies support the use of provider-based approaches to tackling the problem of low health literacy.

TEACHING HEALTH LITERACY SKILLS TO PHYSICIANS

Unfortunately, providers do not regularly use health literacy-informed strategies in communicating with patients and their families.^{33,34} There is a clear need for health literacy training for both trainees and practicing providers;^{40–43} a recent study found that less than 50 % of internal medicine residency programs included any formal teaching on health literacy.⁴⁴ Over the past decade, there has been growing interest in incorporating health literacy concepts into the educational curriculum of trainees, including medical, nursing, pharmacy, and dietetic students.^{45–50}

Numerous studies have demonstrated that health literacy-informed strategies can be taught and acquisition of skills can be measured. A range of teaching approaches have been used, including video tape review, small group discussions, and standardized patients.^{47,51–54} Trainees and providers attending workshops on health literacy-informed strategies report improved confidence in their abilities to assess and counsel patients.^{55,56} Provider participation in health literacy skill-building workshops improves provider skills and has a positive impact on patients, including greater patient confidence in medication management⁵⁷ and ability to lose weight,⁵⁸ increased preventive screening,⁵⁹ and decreased healthcare utilization.⁵⁷ Interprofessional educational interventions, including those that involve nursing^{60,61} and pharmacy^{39,50,62} groups, improve patient outcomes. Behaviorally anchored checklists used by observers of clinical and standardized patient encounters, are among the tools used to measure provider acquisition of health literacy skills.^{47,51,53}

MEASUREMENT OF HEALTH LITERACY IN PATIENTS

For health literacy to be considered an ESPO, we must demonstrate improvements in patient health literacy measures. While some consider health literacy to be a “relatively fixed” stable trait,⁶³ others consider it to be a more dynamic capacity that evolves with experience and context^{63–65} and is influenced by a multitude of factors, including their environment, physical/mental state, and their unique experience with a disease/condition.

Determining how to best measure patient health literacy is complex. Currently, “proxy” measures focused largely on patient understanding of written information are used. Commonly used assessments include the Test of Functional Health Literacy in Adults (TOFHLA)⁶⁶ and the Rapid Estimate of Adult Literacy in Medicine (REALM),^{67,68} which have served as the foundation for the vast number of studies linking low health literacy to poor health knowledge, behaviors, and outcomes. It is well-recognized, however, that these tests do not capture the full spectrum of an individual’s health literacy, which extends beyond understanding of written information to include an individual’s oral literacy and navigational skills. The limited scope of existing assessment tools may explain why few studies have been able to demonstrate measurable

improvements in scores.^{61,69} Improvements in disease-specific health knowledge or health behavior are more likely to show demonstrable change after intervention;^{62,70,71} changes in knowledge alone may not necessarily lead to behavior change due to social and environmental barriers faced by patients. Ultimately, understanding which aspects of health literacy are sensitive to provider education will be crucial to determining the utility of health literacy as an ESPO in medical education research. It has been challenging to examine, within a single study, how provider training in health communication skills links to improved patient outcomes. An alternative approach is to use an ESPO framework to explore measures in relevant steps, as shown in Fig. 1. Significant research has already demonstrated links between individual steps toward patient outcomes.^{25,33,34,38,39,47,56,58,62,72–75}

HEALTH LITERACY, PATIENT ACTIVATION, AND THE CLINICAL ENVIRONMENT

The construct of health literacy is very much intertwined with patient activation, which we previously proposed as an ESPO. Patients with low health literacy are known to be more reluctant to ask questions in the clinical setting,⁷⁶ and low health literacy has been associated with worse patient activation scores.⁷⁷ There is debate about whether health literacy is solely a skills-based construct for health self-management, or if it more broadly encompasses “activation” or motivation to manage one’s health.⁷⁸ Notably, the framework used to design health literacy-informed interventions targets learning stimulation and motivation (in concert with issues of literacy demand, graphics, and layout/typography),⁷⁹ recognizing that patient engagement in the learning process is likely to be a key contributor to the ability to

understand as well as act on health recommendations. While closely related, studies suggest that patient activation and health literacy are likely to be distinct constructs that influence health outcomes in different ways and that addressing both constructs will yield better long-term results.⁷⁸ While the domain of patient activation centers primarily on motivation, the focus of the field of health literacy has been on presenting health information and designing health care systems in a way that facilitates the acquisition of knowledge and skills, as a means to activate and engage patients and their families. Consideration of health literacy as an ESPO would define an evidence base for a provider–patient health literacy communication skills curriculum and delineate specific assessment measures.

The relationship between health literacy and the health literacy environment parallels the relationship between patient activation and our other previously proposed ESPO, clinical microsystem activation. The concept of the health literacy environment acknowledges the commonly accepted broad view of health literacy, in which patients’ understanding and actions are influenced by the clinical setting and the attitudes and actions of everyone involved in patient care.^{80,81} While there has been limited evidence to date establishing a causal link between measures of “health literacy environment” and poor health outcomes, research is underway. Tools to measure adequacy of the “health literacy environment” can be found in the AHRQ’s Health Literacy Universal Precautions Toolkit,³² as well as Rudd’s Health Literacy Environment Review.⁸⁰

THE CONCEPTUAL MODEL

As a result of the above, we have added Health Literacy to a framework aimed at guiding medical educators and

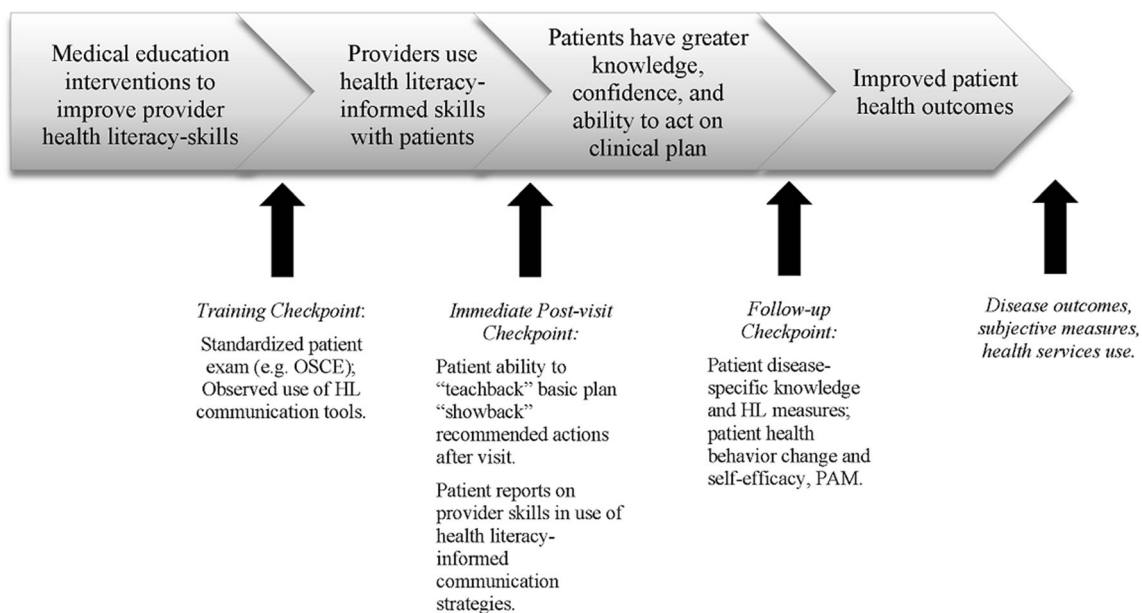


Figure 1. Proposed measurable health literacy-related outcomes: from medical education intervention to improved patient health.

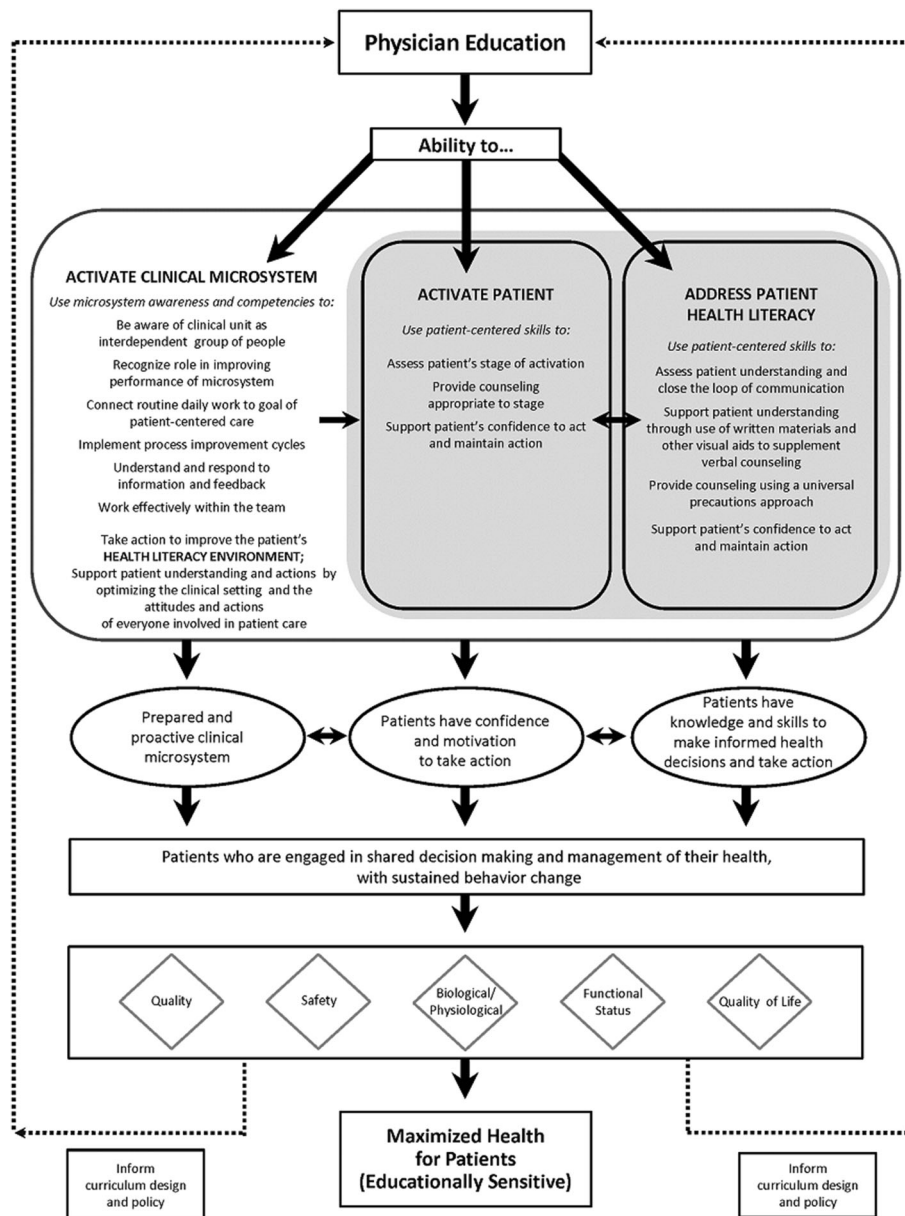


Figure 2. Educationally sensitive patient outcomes (ESPOs). Physician education leads to improved patient outcomes via the provider's use of strategies to activate the patient in their own self-care and ensure adequate health literacy. This education also ensures the clinician can activate the clinical microsystem to be a supportive health literacy environment.

researchers in the design and study of health professions education (Fig. 2). We fully acknowledge that the potential impact individual providers can have on an individual patient's health is limited and that a range of other important factors play a role (e.g., genetics, environmental, educational, socioeconomic, health system). We assert in this model, however, that there are a set of meaningful, temporally immediate patient outcomes that are sensitive to provider education and strongly linked to important health outcomes—in particular for those chronic diseases where sustained health promoting patient behavior is critical. We note that this framework is inextricably embedded in models of provider competence, health behavior change, chronic disease management, and health care quality and safety.

CONCLUSION

Health Literacy is an important potential ESPO. Research that leverages the rapidly amassing set of medical education and clinical data and incorporates the use of informatics based strategies⁸² is needed to explore the nature of the links between educational interventions, provider skill acquisition, and the influence on patient capacities such as health literacy that are most strongly connected to improved health outcomes. With the help of a medical ontologist and a computational biologist, we are doing foundational work to map the links among data sets of measures of physician competence, patient care processes, and contexts to test our proposed ESPOs model.

To build a rich and valuable evidence base to guide society's investment in health professions education, we must identify and explore the links between medical education and the population's health. In this paper, we make the case that health literacy is worth considering as an important ESPO.

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