Development of a Novel Health Literacy Tool for a Free Student-Run Orthopaedic Clinic for Underserved Patients

Hackett N[1], Hatcher L[1], Ross D[1], Guo L[1], Willacy R[2]* and Richardson JA[1]

[1]Howard University College of Medicine, USA

[2]University of California Irvine, USA

*Corresponding author: Rolanda Willacy, University of California Irvine, Department of Orthopaedics, USA, Email: rkingst00@gmail.com

Abstract

Introduction: Health literacy is crucial for patient care in underserved populations, influencing their ability to navigate the healthcare system and make informed decisions. Effective communication from practitioners enhances outcomes and reduces health disparities. We are aiming to improve health literacy for equitable access to care. Research indicates that 33% of patients at an urban spine center have limited health literacy, particularly among socioeconomically disadvantaged groups, highlighting the need for targeted initiatives like a Health Literacy Tool for vulnerable communities.

Methods: In this study, health literacy is defined as the ability to find, understand, and use health-related information and services. Medically underserved populations often face limited access to primary care. A scoping review of the NIH's PubMed database was conducted for literature published since January 2015, using search terms such as "health literacy" and "underserved populations," yielding 695 results. Inclusion criteria mandated manuscripts in English that focused on health literacy in medically underserved populations, as defined by the U.S. Centers for Disease Control & Prevention and the U.S. Department of Health & Human Services. Exclusion criteria included non-English manuscripts and those published before January 2015.

Results: Our literature search identified several health literacy tools, including REALM (Rapid Estimate of Adult Literacy in Medicine), TOFHLA (Test of Functional Health Literacy in Adults), and NVS (Newest Vital Sign), which assess patient health literacy. Additionally, the Literacy in Musculoskeletal Problems (LiMP) tool evaluates literacy in musculoskeletal conditions. We plan to adapt these tools to assess patient literacy and create patient-centered care. Our approach involves a questionnaire with musculoskeletal terms relevant to patients' conditions. Patients will define or explain these terms, with scores graded as follows: 2 points for a full answer, 1 point for a partial answer, and 0 points for incorrect or unknown responses. Scores categorize literacy as 10-12 points (proficient), 6-9 points (moderate), and <6 points points (low), guiding tailored educational support.

Conclusion: Health literacy is essential for effective care in underserved populations, influencing patients' understanding of diagnoses, treatment options, and post-operative care. In orthopaedic surgery, complex terminology can hinder comprehension, leading to poor treatment adherence. Bridging the gap between medical jargon and patient understanding is vital for enhancing engagement and empowering individuals in recovery. Improved health literacy tools can enhance communication, reduce misunderstandings, and boost patient satisfaction. Future studies should explore the impact of these tools on long-term outcomes, optimizing care and better serving the community.

Keywords: Health Literacy; Orthopaedic Clinic; Patients

Introduction

Health literacy is important as it pertains to patient care in underserved populations. It can directly impact individuals' ability to navigate the healthcare system and make informed decisions regarding their care. Effective communication and education by practitioners is essential for improving patient outcomes and reducing health disparities. With the Free Orthopaedic Clinic, established in April 2023 at Howard University Hospital in Washington, DC, our goal is to enhance health literacy to ensure equitable access to care. Research shows that 33% of patients in an urban outpatient spine center exhibited limited health literacy, particularly amongst those who were socioeconomically disadvantaged [1]. Likewise, a study of 200 hand surgery patients revealed that 43% had limited health literacy, with a higher prevalence amongst the underprivileged, highlighting the need for improved strategies to adequately assist vulnerable communities [2]. By simplifying health information and implementing targeted initiatives, such as creating a Health Literacy tool, we aim to address these challenges better support health management amongst patients.

Methods

For this study, health literacy is defined as the ability to find, understand, and use information and services for health-related decisions and actions [3]. Medically underserved communities face barriers and limited access to primary care "services" [4]. A scoping review of NIH's PubMed database was queried for a broad range of study designs and literature published between 2015 to 2024. Search terms included "health literacy," "underserved populations," "low-income" and "Medicaid-eligible." The literature search yielded 695 results. Inclusion criteria for this study were manuscripts written in the English language that presented information on health literacy as defined by the U.S. Centers for Disease Control & Prevention, and medically-underserved population defined by the U.S. Department of Health & Human Services. Exclusion criteria for this study were manuscripts that were written in a language other than English and were written before January 2015.

Results

Our literature search yielded the following health literacy tools including Rapid Estimate of Adult Literacy in Medicine (REALM), Test of Functional Health Literacy in Adults (TOFHLA), and Newest Vital Sign (NVS). These tools are used in the literature to assess a patient's health literacy (Table 2). The tool Literacy in Musculoskeletal Problems (LiMP) is also tailored to evaluate patients' literacy in musculoskeletal conditions [5]. We plan to utilize these tools and tailor them to the specific needs of our patient population in the clinic to determine the literacy of patients and utilize the results to tailor education materials dispersed to meet their literacy needs [6,7]. Our proposed plan is to create a brief and simple questionnaire with 8 questions assessing a patient's general knowledge, application of knowledge and ability to critically think in regards to musculoskeletal topics (Table 1). Patients would be asked to answer a mix of true and false, multiple choice, and open ended questions. The scores would be graded on accuracy and completeness.

Free Orthopaedic Clinic Health Literacy Questionnaire			
Questions	Points		
1. What is the role of an Orthopaedic Surgeon? a. A doctor that takes care of the lungs b. A doctor that takes care of the eyes c. A doctor that takes care of the heart d. A doctor that takes care of the bones	0	1	
2. What is NOT part of the musculoskeletal system? a. Muscles b. Bones c. Kidneys d. Tendons	0	1	
3. The femur is the longest bone in the human body. a. True b. False	0	1	
4. Cartilage is harder than bone a. True b. False	0	1	
5. A patient has osteoporosis. What can they do to make their bones stronger?	0	1	2

6. A basketball player goes up for a lay-up and feels a pop in his ankle. What could be wrong and what needs to be ordered to find out the diagnosis?	0	1	2
7. What is the main cause of knee pain in older patients (Age 50 and above)?	0	1	2
8. How does exercising regularly help the musculoskeletal system?	0	1	2
Total Points			

Table 1: Proposed Free Orthopedic Clinic Questionnaire.

For each multiple choice and true and false question, a score would be assigned based on the accuracy of the response for a total of one point. For each open ended question a patient can score up to 2 points if the patient fully answers the question and gives a complete response. If the patient gives a partially correct answer but lacks a complete understanding they would receive 1 point. If the patient gives an incorrect answer or does not know the answer they would receive 0 points. Patients would be graded and fall under the categories of either proficient literacy (10-12), Moderate literacy (6-9 points), and low literacy (<6 points) (Table 2).

Tool	Purpose	Components	Time	Strengths	Limitations
Rapid Estimate of Adult Literacy in Medicine (REALM)	Assess the ability to read and pronounce medical terms	66-word medical list	~1-2 minutes	Quick and easy to administer	Limited to assessing word recognition
Test of Functional Health Literacy in Adults (TOFHLA)	Measures reading comprehension	Medical documents and numerical tasks	~12 minutes	Comprehensive, extensively validated	Time consuming and resource intensive
Newest Vital Sign (NVS)	Evaluates literacy and numeracy	Nutrition label	~3 minutes	Efficient; dual assessment of literacy and numeracy	Narrow focus
Literacy in Musculoskeletal Problems (LiMP) Score	Assess literacy specifically related to musculoskeletal health	Knowledge of MSK conditions, functional understanding	~5-10 minutes	Specific focus on MSK	Limited validation in specific populations

Table 2: Comparative Summary of tools used to assess health literacy.

Score Range	Literacy Level	Description
10-12 points	Proficient	Good understanding of complex musculoskeletal conditions
6-9 points	Moderate	General understanding of musculoskeletal conditions but may benefit from education on more complex conditions and treatments
>6 points	Low	Patients who will benefit from additional tools that further explain musculoskeletal conditions in a simplified educational manner

Table 3: Score Range Description.

Proficient literacy refers to patients with a good understanding of complex musculoskeletal conditions. Moderate literacy refers to patients with a general understanding of musculoskeletal conditions but may benefit from education on more complex conditions and treatments. Low literacy refers to patients who will benefit from additional tools that further explain musculoskeletal conditions in a simplified educational manner. Utilizing the score, we can best determine what additional education support a patient requires.

Discussion/Conclusion

Health literacy plays a critical role in ensuring effective care in underserved populations which directly impacts patients' understanding of their diagnoses, treatment options, and post-operative care. Oftentimes, navigating the US healthcare system goes beyond the health literacy abilities of many patients [8]. In orthopaedic surgery, where complex medical jargon and procedures are common, patients with limited health literacy may struggle to grasp the nuances of their conditions. This may, in turn, lead to low compliance and poor outcomes due to lack of effective communication [7]. A key challenge for providers is to bridge the gap between medical jargon and patient comprehension by ensuring that clear, simplified communication is utilized. This fosters better patient engagement and empowers individuals to take an active role in their treatment and recovery plan [9]. For the Free Orthopaedic Clinic, improved health literacy tools can significantly enhance the quality of care by enabling more effective communication, creating collaborative relationships, and improving patient satisfaction. In the future, studies should explore the impact of these tools in the prediction of long-term patient outcomes and complications, particularly in post-operative settings, in order to optimize patient care and serve the community more effectively [10].

Specifically, the development of health literacy assessment tools specifically tailored towards musculoskeletal conditions, such as LiMP, could be pivotal in identifying patients at risk of poor outcomes [5]. For example, incorporating interactive educational methods like visual aids, videos, and simplified take-home materials could further enhance comprehension amongst patients with limited literacy [2]. Additionally, studies could investigate the role of community-based interventions, including partnerships with local organizations, to deliver culturally sensitive education and address systemic barriers faced by underserved populations.3 Research is also needed to evaluate the integration of new means of technology, such as telemedicine and mobile apps, to deliver personalized education and support for post-operative care in these populations [10]. These measures would have the potential to translate into decreased readmissions and reduced healthcare costs, thereby ensuring equitable and effective care for vulnerable communities [7].

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