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Accepted Manuscript Version

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Publisher: Cogent OA

Journal: *Cogent Medicine*

DOI: <http://doi.org/10.1080/2331205X.2017.1364887>



Working Together to Understand Community Health Literacy

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Abstract

Health literacy is an important predictor of overall health outcomes. The lack of knowledge, skills, and ability to safely navigate and act on health information impacts a person's understanding of their health status. Although health care professionals readily acknowledge the impact of low health literacy, many providers (e.g. nurses) continue to struggle in methods of assessment and improvement. First year baccalaureate nursing students worked in collaboration with a local community healthcare center to understand the current level of health literacy of the provider's service region. The students used a modified version of the Rapid Estimate of Adult Literacy in Medicine (REALM) with a convenience sample of community members (N=401) and patients seeking health care treatment at a Midwestern facility (N=210) to evaluate understanding of basic health care terminology. Participants also offered insight into their preferred methods of learning (visual, auditory, read/write, kinesthetic). Results suggest the community and patient population of the facility were significantly impacted by low health literacy and the preferred methods of learning were potentially misaligned with the current approaches for delivering health care support. This paper will present the community-based collaborative process for assessment and offer recommendations for improved continued delivery of care.

Keywords: Health literacy, Nursing students, Nurses, Health collaboration

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Introduction

In 2004, the Institute of Medicine (IOM) acknowledged that nearly 90 million Americans (half of the census) have difficulty understanding basic health care information. The groundbreaking report recognized a need for renewed interest in health literacy by all health care providers. Health literacy (HL) is defined as the ability and capacity to obtain, comprehend, and act upon basic health care information (Kindig, Panzer & Nielsen-Bohlman, 2004). Health care providers (e.g. physicians and nurses) were encouraged to develop and deliver health related information to not only meet the needs and educational levels of the general public but to empower them to respond and act upon continued needed support.

The nursing profession remains one of the primary supporters and promoters of community health education but the profession may require an expansion of their understanding of and support for HL promotion (US Department of Health and Human Services, 2010). The challenges of patient care delivery continue to be significantly impacted by high rates of morbidity and mortality in multiple areas. The role of nurses to address these issues cannot be understated. In fact, recent studies acknowledge nurses rarely engage in fully understanding the HL levels of their patients (Cornett, 2009). Therefore, placing them at greater risk for negative health outcomes (e.g. medical errors, disease complications, and re-hospitalizations). This paper will highlight some challenges facing health care providers when addressing health literacy in the clinical setting and the effort of a community-university collaboration for population assessment and potential recommendations for continued delivery of care.

Background

Although the expression health literacy is readily recognizable, the full definition of the term may not be fully understood. Health literacy broadly refers to the competence of a person to enact change on their health care outcomes. This concept is significantly impacted by multiple individual and systemic factors which include: communication skills, limited knowledge, culture, demands of the healthcare setting, demands of the patient care situation (Kindig, Panzer & Nielsen-Bohlman, 2004). Communication skills (verbal and written) of the individual receiving the health care information, as well as the person delivering the information are major factors (and predictors) in how information is transmitted and received. Basic literacy skills (e.g. reading, writing, math) are required but the presence of these skills do not guarantee a person can comprehend all forms of text or instructions (Coleman, 2011). Many may perceive this issue as a patient-focused concern, but there remains an impact from healthcare professionals' struggling to convert medical terminology to lay-terms for communication with the public (Coleman & Appy, 2012). Additionally, this can be compounded by a lack of updated knowledge by the care provider or the delivery of healthcare information to a patient in a stressful environment (e.g. hospital discharge) which may impact lower information retention. Also, cultural norms may influence how people communicate and engage with one another in the healthcare setting.

Impact of Impaired Health Literacy

Although many providers connect HL to groups traditionally impacted by health disparities (e.g. elderly, minorities, ESL, lower socio-economic classes) an important study completed by Parikh et al. (1996) set the stage for healthcare professionals understanding of the breadth of low HL rates. The authors determined that two-thirds of their surveyed patients (n=58) admitted to having basic literacy concerns (i.e. reading difficulties) that were never reported to their spouses

or significant others and almost 15% never reported this issue to anyone. This encouraged healthcare providers to consider the possibility that all patients were potentially impacted by this significant health care issue.

The IOM further confirmed these findings with the release of their report “Health Literacy: A Prescription to End Confusion” (Kindig, Panzer & Nielsen-Bohlman, 2004) which highlighted the severity of the problem and offered recommendations for implementation. The editors and authors of the landmark document acknowledged that nearly half of all Americans had minimal knowledge about their health condition/ treatment, had minimal understanding and use of preventative health services, and had higher rates of initial and recurrent hospitalizations. The Centers for Disease Control and Prevention (CDC, 2009) further acknowledged that nearly 9 out of 10 adults in communities with reduced health equity may lack the needed skills for effective health care management. With such overwhelming statistics, healthcare personnel (e.g. physicians, nurses, pharmacists, etc.) have become increasingly focused on ways of improving our understanding of HL and increasing the HL rates of patients served. This will require additional education for the providers and consideration of the methods used to assess patient knowledge, skills, and abilities.

Nurses and Health Literacy

Nurses receive foundational education about expected levels of patient, family, and community HL as well as methods of assessment and treatment. The nursing profession readily acknowledges that HL is a concern for patients navigating the complex arena of the healthcare environment but often overstate their patients HL levels (Dickens, Lambert, Cromwell, & Piano, 2013). The authors in this study documented an investigation into the perception vs. the reality of HL among high risk minority groups within an inpatient care setting. Dickens et al. (2013)

conducted HL testing on a selected population and determined that 63% of patients had a high likelihood of limited HL but nurses of the same patient population reported only 19% had potentially limited HL. The same group of nurses reported that 68% of their patients had adequate HL levels which was a significant overestimation of the true HL levels of the at-risk population which may have led to inadequate health education, training, and provision of patient support.

A study performed by Macabasco-O'Connell & Fry-Bowers (2011) identified that 80% of nurses never or rarely performed formal HL testing on their patients and 56% viewed HL as a low priority for health care providers and health organizations as compared to other patient problems. Schwartzberg et al (2007) also acknowledge the methods taken by the various health professions to communicate with patients greatly differ and may have a negative effect on a patient's overall understanding of health content. Many of the health professionals within this study did not routinely use methods of effective communication as recommended by leading healthcare organizations such as the Agency for Healthcare Research and Quality (AHRQ, 2011). Although, most healthcare professional participants in this study reported the use of basic communication techniques (e.g. use of simple language, handing out printed material, and speaking more slowly) less than 40% used specific methods such as the "Teach-Back" technique to provide information on healthcare treatments (Schwartzberg et al., 2013). Methods such as "Teach Back" are recognized as one of the most effective approaches to patient education by HL advocates and remains a foundational point in basic nursing education (AHRQ, 2011).

Nursing Education and Health Literacy

During pre-licensure preparation, nursing students are taught communication skills, methods, and processes such as motivational interviewing to improve their understanding on factors impacting patient health outcomes. Unfortunately, students may not receive enough time cultivating their communication skills due to issues such as crowded curricula, fast paced educational process and other factors influencing their education (Scott, 2016). Additionally, there are very few guidelines offering specific details about the method and depth faculty should explore on the subject of health literacy. Consequently, educators are open to their own interpretation of degree of student exposure (Scott, 2016). While this is supportive of the educational process it may not provide students with the knowledge, skills and attitudes needed to effectively support patients at differing health literacy levels. A study was conducted to evaluate the nature and depth of health literacy education at 63 medical schools across the country (Coleman, 2012). The study participants identified the following areas to be of the greatest educational importance: prevalence of low HL, connection to negative patient outcomes, using methods such as teach back to evaluate understanding of teaching, and use of plain language when explaining medical information to patients. The majority of participants (72%) reported an average of three hours devoted to teaching HL concepts in a traditional manner.

McCleary-Jones (2016) conducted a systematic review on the subject of HL in nursing education and identified an absence in accreditation guidelines, limited content, and inconsistent delivery within nursing curricula. Conversely, many schools of nursing across the country include this important information in their pre-licensure nursing curriculum. Traditional methods

employed by nurse educators for teaching HL concepts include students watching videos to demonstrate the impact of limited health literacy on health outcomes, education on tools used to measure HL rates, integration of exercises to practice HL assessments, and identification of available resources for continued learning and patient support (McCleary-Jones, 2016).

Healthcare educators are recommended to use a variety of methods to teach and train pre-licensure students on the history, prevalence, and reality of HL (Scott, 2016). Educators are encouraged to engage in frequent classroom discussions about health literacy, conduct healthcare environmental assessments, perform interviews with healthcare administrators, critically analyze healthcare documents, and reflect on experiences to identify opportunities for growth. This would include engagement in joint collaborations with community agencies, expansion of traditional lectures to include hands-on experiences, workshops, consideration problem-based learning exercises, and clinical exposure.

Methods and Design

A descriptive study design was chosen to gain an understanding of the impact of HL within a selected region. First-year nursing students (N= 14) collaborated with a representative from a local health facility to improve the students and the facility's understanding of HL within their service region. The agency representative shared a desire to understand the "real" vs "perceived" rates of HL for their patient population and students voiced an interest in understanding how health care personnel might evaluate HL rates and consider options for interventions.

Upon receipt of Institutional Review Board (IRB) approval, the following research questions were generated by the student group and the agency representative:

- What are the health literacy rates of patients seeking outpatient services at a local health care center?
- What are the health literacy rates of the local community potentially served by the health care center?
- How do the members of both of these communities best learn?
- What measures can be applied to improve the current awareness of health care professionals on community health literacy rates?

To answer these questions a joint decision was made with between the students and the agency representative to use the REALM- R© tool (a brief HL screening instrument) and the VARK© analysis questionnaire to identify how people preferred to learn.

Participants

The inclusion criteria for community member participation in the study was as follows:

- At least 18 years of age
- English speaking
- Resident of selected community
- Willingness to consent

Potential community subjects for the project were selected based on available 2010 census data (United States Census Bureau, 2010; STATSIndiana, 2016). The residents within this community were located within the service area of the selected health care center. The data identified 496,069 residents within the region, with 349,226 residents at age 18 or above. It was determined that a target sample of approximately 390 participants would be needed in order to

support a minimal 95% confidence level for results validity. Therefore, a convenience sample of residents from 17 different cities, towns, and municipalities were targeted for participation in local stores, centers, and businesses. Random participants were approached by students at the aforementioned community settings and verbally invited to complete the study questionnaire. Those showing interest in participation were provided a detailed study information sheet and all questions answered prior to completion of the questionnaire.

Community health facility inclusion criteria were:

- At least 18 years of age
- English speaking
- Receiving outpatient services at the local healthcare center
- Willingness to consent

Additional participants were identified for the health center based on average daily census for all outpatient areas served by the facility (emergency room, radiology, outpatient laboratory, and outpatient surgery). The target sample size was identified as 180 subjects within the aforementioned areas. Similarly, to the community member process, random participants were selected by students receiving healthcare services in the outpatient areas of the inpatient facility and verbally invited to complete the survey tool.

Instruments

The group used the Rapid Estimate of Adult Literacy for Medicine (REALM-R[©]; Bass, Wilson & Griffith, 2003) and a questionnaire designed to develop a profile of learning preferences which include taking in information and giving out information. The REALM-R[©] asks patients to identify and pronounce commonly used medical terms (total 11 items, 3 items not scored). For the purposes of this study, the tool was slightly modified to include

determination of comprehension of the medical terminology. A score of 0-2 (0- unable to pronounce the word, 1- able to pronounce the word, 2- able to pronounce and define the word) was applied for an individual's ability to pronounce and comprehend basic medical terminology. In the original REALM-R[©] scoring, only pronunciation of the word was evaluated and a score of 6 or below indicated a high risk of poor HL (Bass, Wilson & Griffith, 2003). Based on the modifications of the tool for this study, a score of 12 or below indicated poor health literacy.

The secondary questionnaire administered was the VARK[©] questionnaire (Fleming & Mills, 1992) which evaluates individual responses to a variety of questions and assists in identifying the following preferred learning styles: visual, auditory, read/write, and kinesthetic. The VARK[©] questionnaire consisted of 16 multiple-choice questions with each answer option corresponding to a specific learning style (visual, auditory, read/write, kinesthetic). The total number of items (learning styles) selected were calculated to get the score for each learning style category. The highest numbered category indicated the individuals preferred method of learning.

Procedure

First-year nursing students enrolled in a class focused on health promotion methods were joined by a graduating nursing student in the role as a research assistant to learn basic knowledge about the impact of HL on health care outcomes and the role of nursing professionals in assessment of such groups. Additionally, students were trained in basic research methods, data collection processes, and completed institutionally approved human subjects research training protocols. Upon completion of the students' preliminary education, a collaborative agreement was developed with a representative of a local health care facility. Together the two groups (nursing student and healthcare representative) identified the following project objectives and research questions:

- Project Objective
 - Understand the “real” vs “perceived” rates of HL for patients within the regional service community
- Research Questions
 - What are the health literacy rates of patients seeking outpatient services at a local health care center?
 - What are the health literacy rates of the local community potentially served by the health care center?
 - How do the members of both of these communities best learn?
 - What measures can be applied to improve the current awareness of health care professionals on community health literacy rates?

The student teams worked together to conduct face to face recruitment for survey participation at various community locations and outpatient services areas within a selected healthcare facility. The student teams took the time to offer a detailed explanation of the study design and obtain informed consent for all possible survey participants. The REALM-R© survey and VARK© questionnaire were completed in person with the students and research participants. Survey and questionnaire results were tabulated and exported to Microsoft Excel for analysis using descriptive statistics (frequency distribution, central tendency, and variance). The data collection process occurred over a three-week time frame from February to March 2013 for both the greater community and the healthcare facility.

Results

A convenience sample total of n=401 residents of the selected community and n=210 patients seeking care in outpatient areas of the local healthcare facility participated in the face to face survey and questionnaire. This is slightly larger than the target number of participants (community= 390; local healthcare facility= 180) and ensured a 95% confidence level in results were achieved based on the overall population (18 years of age and older) of the greater community (population= 349,226) and patients served by the outpatient areas of the healthcare facility (average daily census= 114). For the selected community, the confidence interval (CI= 4.89) was calculated using an expected confidence level of 95%, a sample size of 401 residents, a reported population (based on US Census data) of 349,226 individuals (age 18 and older), and a 50% accuracy rate. A similar approach was taken for the healthcare facility group (n= 210) to ensure 95% confidence level.

Health Literacy Rates of Patients Served by Local Healthcare Center and Surrounding Community

Representatives from eighteen cities, towns, and municipalities were sampled across the selected county with the average age of the participant being 39 years old. The average modified REALM-R results of all participants was 12.7 out of a possible 16 points (See Table 1) and demonstrated a risk for poor HL. Survey respondents from the hospital outpatient center were an average 42.7 years of age and identified to be at a definite risk for poor health literacy with a modified REALM-R score of 11.5 out of a possible 16 points (See Table 1).

Learning Analysis of Patients Served by Local Health Care Center and Surrounding Community

In an effort to understand the preferred learning styles of each group, a total of 199 participants from the hospital outpatient centers sample (n=210; 95% of subjects completing the modified REALM-R test) volunteered to complete the VARK analysis. The majority of the participants demonstrated multimodal preferences with a small majority (30%) identifying as read/write learners (focus on textual information). This result was closely followed by preferences for auditory learning (heard/ spoken materials, 27%), and kinesthetic (hands-on) learning at 27% of the group. Only 15% of the respondents selected a preference toward visual (graphics) learning.

A total of 354 community members from the selected county (n= 410; 86% of subjects completing the modified REALM-R test) agreed to complete the VARK questionnaire. This population was closely multimodal with a 1-2 percentage point difference noted between the top three learning-style preferences (Kinesthetic- 28%, Auditory- 26%, and Read/ Write-25%) Similarly to the hospital group, they reported a lesser desire for visual (graphic) materials alone (22%).

Reports from Students and Agency Representative

Qualitative content analysis of feedback and reports from the student teams and the agency representative was performed with several themes noted. Nursing students acknowledged an opportunity for early exposure and involvement in community health assessment and analysis process. Additionally, they were able to apply classroom/ didactic related material in a realistic manner. A major theme from student reports was the connection of classroom learning to practice. Student group discussions included conversations on the following: early exposure to

the community, combined efforts of classroom material and hands on experience, and opportunity to understand community health concepts from first-hand experience. Students shared perceived benefit from early engagement with the local community. Although the course did not have a clinical or lab component, students reported an improved understanding of HL concepts after using the REALM-R instrument as a patient assessment tool. Many students voiced challenges when applying HL concepts (definition, scope of problem, professional role) to proposed patient care. Several voiced concerns with lack of active role modeling of HL assessment in the clinical setting and acknowledged the project as a way to see it in a real-world setting. During student group debriefing sessions, students reported a continued need for educational support through innovative, active learning strategies for improved awareness and ability to respond to the issue.

Feedback from the healthcare agency representative included reports of increased ability to utilize the resources and manpower of the nursing students to better understand the depth of the HL issue in the community. The representative encouraged feedback from administrative leadership and engaged students in the collaborative process of the healthcare team for improved connection to current research. Comments from the representative were centered on the following themes:

- Increased availability of resources
- Partnership with local university for research support
- Identification and improved knowledge of agency population

Finally, group discussion between the healthcare agency representatives and the student teams promoted brainstorming of ideas for improved nursing assessment and patient education. Consideration was given to the possibility for completion of the Modified REALM-R on all patients as a part of the admission process and formal evaluation of learning styles prior to the delivery of teaching sessions with healthcare staff.

Discussion included the possible development of teaching teams, revision of closed-captioned television (CCTV) services within the facility for delivery of improved health educational content, and the use of interactive, age-appropriate games.

Discussion

This exploratory study revealed that members from the surrounding region and immediate patient care community of a local healthcare facility were at risk for poor health literacy. Reports from the agency representative and senior leadership from the local healthcare facility reported no formal health literacy evaluation of clients receiving care at the specified institution. The methods of health care education were provided by various healthcare personnel (physicians, nurses, etc.) in a variety of ways without the benefit of initial evaluation. Therefore, some assumptions may have been made about the patient's ability to understand, demonstrate, and navigate health care information and instructions. These assumptions include patient comprehension, reading skill and ability, and comfort level with content topic. However, the assumptions may not be accurate and may indirectly affect the health outcomes of persons seeking treatment. Additionally, they may not be receiving the educational support as needed from healthcare professionals. Pre-licensure nursing students gained foundational knowledge of the HL rates of the community for which they were training to become healthcare providers. Both the student participants and the collaborating agency reported positive impact from the

collaborative process. The students worked in small teams to assess the issue of HL within the community, devise a method for collaboration within their small team and the community agency and then work together to develop methods of assessment, implementation, and evaluation of the community at large. Reports from students acknowledged the active learning process of this project increased their knowledge of teamwork and leadership principles and diversity awareness. Upon completion of the study, a collaborative meeting was held with hospital leadership in patient care services (e.g. education, pharmacy, care transitions, and home health) to discuss results. The group considered possible methods of improved staff training of the impact of HL on patient outcomes and opportunities for individual assessment of all patients (e.g. inclusion of HL training in annual staff education content).

Researchers continue to stress the importance of health literacy as a national priority and suggest hospitals and other inpatient facilities consider ways to implement assessment methods and improved treatment methods for the affected populations (Cawthon, Mion, Willens, Roumie, & Kripalani, 2014). Suggestions by these researchers included similar suggestions offered by the healthcare facility engaged in the study: change intake documentation in all adult care units to include a formal HL assessment and connect the results of the assessment to the education delivered to patients. The authors suggest the inclusion of a formal HL assessment in the electronic health record (EHR) documentation allowed ease of staff use and improved understanding of patient HL status. Thus, promoting increased action from healthcare personnel.

Challenges/ Limitations

The collaboration between the student group and the agency allowed for active problem solving for an actual healthcare issue. It allowed students and healthcare professionals to consider the challenges of lack of resources, potential lack of engagement, and methods for

active assessment of HL levels of all patients seeking health care treatment. In the beginning students readily identified feelings of being overwhelmed by the vastness and depth of the project. They reported challenges with their own perceived lack of knowledge and limitations in health education and research experience. Yet, by the end of the project the participating students voiced not only increased knowledge of the subject of health literacy but they were able to collaborate in a team based environment in an effort to problem solve a real issue vs the use of stories or case studies. Initially, the agency representative voiced challenges related to administration/ staff involvement and lack of project interest. As students became increasingly involved administration and staff reportedly (per agency representative) became more interested in the subject matter and discussion of possible solutions.

Limitations of the study included students' minimal prior healthcare and research experience, the sample size (albeit large) may not be representative of the entire community, and may not be generalizable for other areas. Finally, the REALM-R© tool could be limited in its assessment of HL vs. other available HL assessment tools. The tool can only be used for persons that speak English and has not been validated for other languages. Therefore, findings in this study should be considered exploratory in nature and future research into this important topic is suggested.

Implications for Nursing Education and Patient Care

Individuals seeking care within the healthcare system are increasingly more diverse with more co-morbidities and other healthcare problems than in prior history. The ability of healthcare professionals such as nurses to properly assess and evaluate client needs is monumental in improving health outcomes. Teaching and learning processes are a fundamental component of nursing education. Although, knowledgeable about methods of providing patient teaching (e.g. teach-back, lecture, verbal recall, and demonstration) many nurses in direct care settings are

potentially educating patients without the benefit of a formal assessment of their health literacy (Cawthon, Mion, Willens, Roumie, & Kripalani, 2014). Additionally, a significant amount of patient care teaching takes place at the time of discharge. Discharge patient teaching is acknowledged as a significant component of quality care transitions and lack of effective discharge education is a key factor in hospital readmissions (Peter et al., 2015). Lack of knowledge to the degree for which patients comprehend, respond to, and act upon health care information can impact the quality of the discharge process. Essentially, the teaching provided by nurses and other healthcare personnel may be ineffective for the patient and/or family member(s) in receipt of that information.

Organizations such as the Institute of Medicine (IOM) and The Joint Commission have recommended that patient care settings should include some form of a health literacy assessment to promote improved patient care and transition support. However, challenges such as time, staff training, and healthcare facility routines are noted barriers to implementation (Cawthon, Mion, Willens, Roumie, & Kripalani, 2014). The increased involvement of collaborative processes and groups to reduce these challenges, better understand the impact of HL, and determine possible interventions for deliberate implementation may be the tools used by healthcare professionals (training and experienced) to improve the health of the communities served.

Conclusion

The early exposure of HL assessment offers prelicensure nursing students an opportunity to establish foundational assessment skills in patient communication. Although nurses report the use of informal patient assessment measures when providing disease education, discharge instructions, medication management, physician follow-up, and other health related directives; many fail to properly implement HL evaluation as a part of their routine nursing assessment. The

inclusion of HL as a part of the standard nursing assessment process promotes patient-centered, individualized care for reading, understanding, and taking action on health information. Active use of strategies for effective communication is needed and future nurses are challenged to incorporate these measures into their developing nursing practice. As nurses continue to be a leader in addressing the health of vulnerable populations, the profession is encouraged to actively use the evidence-based measures of health literacy promotion for improved health outcomes.

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Table 1: Participant Characteristics of Subjects Completing Modified REALM-R

<i>Surveyed Characteristics</i>	<i>Selected Hospital Outpatient Centers</i>	<i>Selected County of Study</i>
<i>Number of Subjects Completing Modified REALM-R</i>	<i>n= 210</i>	<i>n= 401</i>
<i>Mean age, years</i>	42.7	39
<i>Mean modified REALM-R Score (SD)*</i>	11.5 (3.55)	12.7 (2.82)
<i>Avg. modified REALM-R Score- Gender (n, %)</i>		
<i>Male</i>	11.7 (66, 31%)	12.2 (195, 49%)
<i>Female</i>	11.5 (144, 69%)	13.3 (204, 51%)
<i>Unknown/ Did not answer</i>	0	13 (2, 0%)
<i>Avg. modified REALM-R Score- Race/ethnicity (n, %)</i>		
<i>White</i>	13.1 (69, 33%)	13.2 (184, 46%)
<i>African-American/ Black</i>	11. (100, 48%)	11.9 (112, 28%)
<i>Hispanic</i>	10.3 (37, 18%)	12.7 (85, 21%)
<i>Asian/ Pacific Islander</i>	NA (0%)	15 (2, 1%)
<i>Unknown/Other</i>	13.3 (4, 1%)	13.9 (18, 4%)
<i>VARC Results</i>	Kinesthetic Learners	Read/Write Learners

**Modified REALM-R maximum score of 16. Scores of 12 and below indicates a risk of poor health literacy.*

Table 2: Participant Characteristics of Subjects Completing VARK

<i>Surveyed Characteristics</i>	<i>Selected Hospital Outpatient Centers</i>	<i>Selected County of Study</i>
<i>Number of subjects completing questionnaire</i>	<i>n= 199</i>	<i>n= 354</i>
<i>Gender (n, %)</i>		
<i>Male</i>	61 (31%)	171 (48%)
<i>Female</i>	138 (69%)	183 (52%)
<i>Race/ethnicity (n, %)</i>		
<i>White</i>	64 (32%)	152 (43%)
<i>African-American/ Black</i>	98 (49%)	109 (31%)
<i>Hispanic</i>	33 (17%)	73 (20%)
<i>Asian/ Pacific Islander</i>	1 (0.05%)	6 (2%)
<i>Unknown</i>	3 (2%)	14 (4%)
<i>*Number of individual VARK Responses (% , SD)</i>		
<i>Visual</i>	356 (15%, 11.88)	1071 (22%, 22.58)
<i>Auditory</i>	644 (27%, 23.97)	1238 (26%, 27.12)
<i>Read/Write</i>	706 (30%, 21.51)	1191 (25%, 24.37)
<i>Kinesthetic</i>	638 (27%, 21.54)	1339 (28%, 29.73)

About the Author

Crystal Shannon is an Assistant Professor of Nursing at Indiana University Northwest with 20 years of nursing experience in the areas of obstetrics, reproductive endocrinology, case management, gerontology, community health nursing, public health, and community health literacy. She holds degrees in Nursing, Business Administration, and Public Health. Her doctoral work focused on the role and involvement of local nursing schools on improving the health of the community. Dr. Shannon's research interests and publications include topics focused on community-based health, participatory research, and the social responsibility of health professions. The research reported in this paper relates to the design of quality community engagement activities for student learning and the promotion of community health through active community engagement and collaboration.

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Public Interest Statement

Health literacy impacts all individual within the healthcare setting. Millions of people continue to report the inability to read, understand, and properly act on medical information provided by healthcare personnel. Although health care professionals readily acknowledge the negative effect of low health literacy, many providers (e.g. nurses) are challenged when assessing individuals, families, and communities. Best practices suggest a collaborative approach when addressing patient care needs. This paper describes the results of a collaboration between an educational unit and a local healthcare facility. The objective was to understand the actual health literacy rates within a service population and consider possible opportunities for improved assessment and patient care delivery.

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