

**Health literacy and confidence: a novel approach to patient education to reduce readmissions**

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**Abstract**

There is a continued focus on the patient discharge process as hospitals continue to tackle readmission reduction and prevention. The motivating factors are many: reduction of costs and penalties, optimization of payment, achievement of pay for performance measures and improvement of publicly reported quality indicators and patient satisfaction measures. “Potentially preventable readmissions” have been connected to insufficient or ineffective discharge strategies.

Chronic, high-profile conditions such as congestive heart failure (CHF), diabetes and chronic obstructive pulmonary disease (COPD) have been identified as the main foci of readmission reduction projects. A review of literature demonstrates that health literacy is intimately tied to a patient’s success at managing their chronic condition(s). Current discharge education strategies such as ‘teach back’ do not appear to be consistently utilized to meet the need of properly preparing this population to self-manage.

This presentation will review the importance of health literacy, the impact that lower health literacy plays in patient engagement, readmission reduction and review tools and strategies to positively impact greater health literacy in our populations.

**Interactive Health Literacy and Symptom Self-Management for Patients with Lung Cancer**

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**Background**

Lung cancer causes a high symptom burden, which can negatively impact quality of life and healthcare costs. Patients with lung cancer face the task of self-managing multiple symptoms at the same time. Self-management requires health literacy skills that facilitate obtaining and

processing information and applying it to one’s own health needs. Specifically, interactive health literacy (IHL) involves communicating with healthcare providers regarding health-related information. However, the role of IHL in symptom self-management is not clear.

**Research Question**

- 1) For patients with lung cancer, how is IHL related to symptom self-management?
- 2) What do patients with lung cancer experience when interacting with healthcare providers regarding symptom self-management?

**Methods**

This critical realist study used a cross-sectional mixed methods design. Participants included adults who had received pharmaceutical and/or radiation treatment for lung cancer within the past six months. Participants were recruited from virtual support groups hosted by non-profit lung cancer support organizations. Quantitative data was collected using an online survey comprised of a demographic questionnaire; the Memorial Symptom Assessment Scale-Short Form (MSAS-SF), which measures frequency and distress of 32 cancer-related symptoms; and the All Aspects of Health Literacy Scale (AAHLS), which includes a subscale that measures IHL. Qualitative data collection involved semi-structured individual interviews aimed at exploring participant experience of interactive health literacy and symptom self-management. Data was analyzed using a critical realist methodology, which explores external structures and personal agency factors to identify patterns of underlying mechanisms that explain how complex phenomena such as IHL and symptom self-management are experienced by individuals.

**Results**

The final sample included 12 participants aged 48-73 years (mean 58.33). Most were White (91.67%), female (75%), and had some postsecondary education (83.33%). The mean IHL score on the AAHLS was 8.27 (range 6-9); eight participants (67%) scored in the high range, and four (33%) scored in the moderate range. On the MSAS-SF, participants reported an average of 14 concurrent symptoms. The most frequent and most distressing symptoms included lack of energy, feeling drowsy, and worrying. Analysis of qualitative interview data revealed three overarching themes: 1) patients with lung cancer obtain symptom management information from a wide

range of sources; 2) IHL affects patient perception of access to healthcare providers for symptom management information; and 3) patients with high IHL engage with healthcare providers differently than patients with moderate IHL. The relationship between patients and oncology providers represented a generative mechanism for patient access to reliable symptom management information. The nature of the relationship was influenced by patient agency as demonstrated by active engagement with oncology providers, which was more common in participants with high IHL. The structural factor affecting the patient-provider relationship was related to quality interactions, described by participants in terms of adequate time, personalized answers, and multiple avenues of contact (e.g. patient portal).

### Conclusions & Implications

Researchers and clinicians should direct attention to determining patient-centered strategies that facilitate patient engagement in collaborative patient-provider relationships and effective symptom self-management. This is especially important for patients with lower IHL.

#### **The Role of Acculturation in Dementia Literacy of African migrants in Eastern Society: A Qualitative study**

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### Aims

To explore whether acculturation does occur among African migrants. To also examine how the nature of acculturation affect the dementia literacy of Africans living in Hong Kong.

### Design

Interpretive descriptive qualitative study.

### Method

Individual semi-structured zoom and telephone interviews were conducted from January 2021 to March 2021 among 30 African migrants in Hong Kong. A purposive sampling approach was used to recruit participants for the study. Each interview was audio-recorded and lasted approximately 60 mins. Data were transcribed, and thematic analysis was used to analyse

the data.

### Findings

Data highlighted that acculturation does occur among African migrants but at a liminal level. Irrespective of the level of acculturation, dementia literacy was relatively low among all participants. There was a general perception that dementia could not affect Africans, and it is a white man's disease. However, social structures (free Wi-Fi, availability of government website for health and dementia services) and host society's mental health practices positively impacted dementia literacy (understanding and access to dementia information) of African migrants. Additionally, numerous societal and individual factors influenced the impact of acculturation on African migrants' dementia literacy.

### Conclusion

This study provides a better understanding of the role acculturation has played in the dementia literacy of African migrants. This study provides a piece of valuable insight into how cultural beliefs is connected to one's understanding of mental health. The social and structural agents mentioned by African migrants can be utilised by future interventional studies to improve the dementia literacy of African migrants and other ethnic minority groups in Hong Kong and other eastern societies.

### Implications

This study highlights the gap in public education of ethnic minority groups in Hong Kong and provides valuable insight for public and community mental health nurses on developing educational interventions to help African migrants in society.

#### **What About Mom? Abating Adolescent Maternal Mortality**

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### Background

Most countries including the U.S., show a J-shaped pattern of maternal-mortality risk, with adolescents having a greater risk of maternal mortality than women in their twenties and early thirties exacerbated by racial/ethnic disparities.

## Research Question

Given the gap in research available on the use of Apps to deliver postpartum instruction to adolescent mothers, this descriptive study 1) assessed new adolescent moms' perception of the quality and usability of the What About Mom? App and 2) determined if and how to adapt the app to meet adolescent needs to identify and care for postpartum emergent symptoms.

## Methods

Participants were recruited via email lists and ads on social media of community partners serving new mothers in both English and Spanish. Inclusion criteria included: live in U.S., self-identify as female, ages 18-21, delivered a baby in the last two years, and English speaking.

## Measurement

Demographics collected, included age, age of pregnancy and delivery, education level, e-health literacy, marriage status, job status, income, race, and ethnicity. To assess the quality of the What about Mom app, participants completed the User Version Mobility Assessment Rating Scale (uMARS), a 26-item measure that includes six subscales: Engagement, Functionality, Aesthetics, Information, Subjective quality, and Perceived Impact. Participants rated items on a 5-point scale; mean scores for each subscale and the total app were calculated. uMARS has reported Cronbach's  $\alpha = .90$  and good test-retest reliability. E-health literacy was assessed with the eHealth Literacy Scale (eHEALS), an 8-item measure of knowledge, comfort, and perceived skills of finding, evaluating, and applying electronic health information to health problems. The items were rated on a 5-point Likert scale with higher scores indicating higher e-health literacy. The eHEALS has reported a Cronbach's  $\alpha = .88$  and test-retest reliability  $r=.68$ .

## Data collection

Participants were enrolled between February 2021 and April 2021 via email or response to ads on social media from a community partner with which they interact. Participants used a link to the What About Mom? App and a Qualtrics survey that included the consent form, demographics, e-HEALS and the uMARS. Data was cleaned and descriptive statistics described the sample and UMARS results.

## Results

The sample included 159 diverse participants with mean age 19.9 years, almost half had less than \$25K annual income and a third with high school diploma or less. The mean e-Heals score was 30.04 (range 9 to 40) with higher scores indicating higher e-health literacy. Compared with the standard uMARS scores for Engagement, Functionality, Aesthetics, Information, and Subjective Quality, the What About Mom? App rated above the norms for all except Functionality. Free text suggestions to improve Functionality included making 911 and the National Postpartum Depression Hotline touch functional for immediate access, short videos of moms' experiences with symptoms, and conversion to iOS/Android accessibility.

## Conclusion/Implication

Reducing maternal health disparities is a national, state and local priority. The What About Mom? App can help increase healthcare engagement for adolescent moms which may help reduce age, as well as racial and ethnic disparities in adolescent maternal morbidity and mortality.

### Adaptation and Reliability of the Newest Vital Sign as an Electronic, Self-Administered Health Literacy Screening Tool for US Adult Patients

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## Background and Research Question

Health literacy is integral to how individuals make decisions about their health. The Newest Vital Sign (NVS) has been widely used in clinical practice and research to assess patient health literacy. Still, it has not been adapted for electronic, self-administration in the United States. Given the rapid rise of telehealth, electronic and self-administered NVS adaptation for US patients is especially timely. This study, therefore, sought to answer the following question: is an adapted electronic and self-administered NVS tool reliable in comparison to the original and interviewer administered NVS in a sample of diverse, adult patients?

## Methods

Individuals 18 years and older were recruited by mail and telephone from two large federally qualified health

## Health Literacy and COVID-19 Impacts among Adults in Northern Arizona

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centers in Northern Arizona. The first study phase occurred from July to October 2020 and involved 33 individuals to determine response options for the adapted, electronic NVS. The second study phase used a randomized cross-over design with a washout period of two to four weeks. Participants were randomly assigned to first complete the traditional, interviewer or the adapted electronically, self-administered NVS. Phase 2 data collection occurred from October 2020 to June 2021 with 73 participants completing both conditions. Descriptive statistics were first computed to determine the distribution of NVS scores (range = 0-6; 0-1 = high likelihood of limited health literacy; 2-3 = possibility of limited health literacy; and 4-6 = almost always adequate health literacy) followed by an Exact McNemar's Test to determine if participants' scores were equivalent between conditions (traditional and electronic NVS).

### Results

Participants' NVS scores were as follows: traditional, interviewer administered NVS mean = 5.01 (SD = 1.35) and electronically, self-administered NVS mean = 5.45 (SD = 1.01). The traditional, interviewer-administered NVS took 1 minute and 26 seconds to 15 minutes to use, and the electronic, self-administered NVS took 3 minutes to 12 minutes to use. Participants' scores did not significantly differ between the two NVS versions insofar as most participants, except for two, had scores indicative of the same health literacy level (adequate or possible limited health literacy versus likely limited health literacy) at each time point ( $p = 1.0$ ).

### Conclusions and Implications

Study results suggest that the electronic, self-administered NVS performs as well as the traditional, interviewer-administered NVS in terms of identifying patients with likely limited health literacy. The electronic and self-administered NVS may be a useful tool to assess patient health literacy in clinical practice and health services research. Assessing patient health literacy is important in clinical practice because patients with limited health literacy may benefit from additional support in making treatment decisions and following care plans. Health literacy level additionally affects health behavior including services use and outcomes, making it an important determinant to measure and account for in research.

### Background and Research Question

Health literacy (HL) is the ability to process and use information to make appropriate health decisions. HL is a capacity critical to navigating the COVID-19 pandemic and the infodemic of false or inconsistent information it has brought about. This study, therefore, sought to address the following question: what associations exist between health literacy level and COVID-19 impacts among a diverse sample of adults living in Northern Arizona?

### Methods

A cross-sectional, interviewer-administered survey was conducted with English speaking adults recruited from two large federally qualified health centers in Northern Arizona. The Newest Vital Sign—a widely used, brief health literacy screener—assessed health literacy level (adequate versus limited). The Epidemic–Pandemic Impacts Inventory measured COVID-19 impacts on an array of personal and family life domains. Since July 2020, 114 individuals have participated. Descriptive, bivariate, and linear regression statistics were computed.

### Results

The average age of participants was 55 years (SD=17.8), and 52% were female. Among participants: 24% identified as Indigenous, and 42% had public health insurance. Twenty-six percent of participants had limited health literacy. Of 92 possible COVID-19 impacts, participants had an average of 22 impacts (range: 0-44; SD=9.8). Frequently reported impacts were as follows: being separated from family or close friends and being unable to access medical care. Though the COVID-19 impacts experienced directly by participants were not significantly related to their health literacy level, impacts experienced by other individuals in the participant's household were significantly correlated with health literacy (limited health literacy mean=5.5; adequate health literacy mean=1.6;  $p=.001$ ). Even after adjusting for age, sex, race, and insurance, this association remained statistically significant.

## Conclusions and Implications

Health literacy was correlated with COVID-19 impacts experienced by participants' households, suggesting that individuals with limited health literacy have experienced more COVID-19 related impacts. For this reason, health literacy remains an important health determinant to assess and account for in both clinical practice and health services research. Individuals with limited health literacy may further benefit from additional supports in health care settings as they recover from greater COVID-19 impacts.

### Child Dehydration Management: A Health Literacy-Focused Resource Analysis

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## Background

As children are at high dehydration risk, caregivers must have access to understandable and actionable educational resources. A significant proportion of dehydration-related hospitalizations are not only preventable, but also often attributable to inadequate parental education and/or prevention (i.e., not providing enough fluids at home). Research Question: To assess usability, accessibility, complexity and readability of educational materials for at-home childhood dehydration management.

## Methods

In January 2021, we conducted Internet searches to identify brand name and generic over-the-counter pediatric electrolyte replacement solutions (PERSs) currently available in the US (brand name=5; generic=9). PERS label content was organized in four separate sections: (1) specific product details, (2) nutrition facts label, (3) usage and instructions and (4) electrolyte replacement solution comparison chart/figure. Flesch Reading Ease (FRE) was used to calculate reading grade level of usage and instructions. PMOSE/IKIRSCH tool was used to evaluate nutrition facts label and electrolyte replacement solution comparison chart/figure document complexity. Length and width of PERS labels were recorded to the nearest millimeter (mm), while text point size was determined by measuring distance from ascent to descent line. We reviewed PERS container

labels to assess whether a hyperlink and/or Quick Response (QR) code was included. If a hyperlink and/or QR code were provided, content features were evaluated: product overview, use of photographs/graphics, landing page features, product information, dehydration/rehydration information, audiovisual resource(s) and language availability. Descriptive analyses were calculated to depict health-literacy characteristics of PERS labels and scope of information included across accompanying internet-based resources.

## Results

Overall, PERS label panels had similar dimensions (length=9.41±0.46 cm; width=7.86±0.50 cm). With text point size averages of 15.42±6.75 cm and 15.21±5.38 cm respectively, both manufacturer and electrolyte names were the most prominently displayed product-specific information. Nutrition facts labels had low document complexity (level 2) based on PMOSE/IKIRSCH scores. Thirteen pediatric electrolyte replacement solutions included a usage and instruction section with text point size averaging 6.04±0.14 cm (range 6.0-7.0 cm). Usage and instruction sections (n=13) had average FRE scores of 65.70±15.33, indicating reading difficulty between 8th and 9th grade level. Thirteen products included an electrolyte replacement solution comparison chart/figure with all having either very low (n=12) or low (n=1) document complexity based on PMOSE/IKIRSCH scores. Just one pediatric electrolyte replacement solution included English- and Spanish-language information on their label. All (n=5) brand name PERS provided a hyperlink and/or QR code where a caregiver could find additional product-related information. Much of the Internet-based supplemental information was also included on labels (e.g., ingredients, nutrition facts label) affixed to PERS containers.

## Conclusion

Our review of PERS labeling revealed both positive aspects and identified features to improve upon as future iterations are considered. Implications: It was encouraging that both nutrition facts and electrolyte replacement solution comparison charts/figures had low document complexity indicating that a significant proportion of caregivers would be able to use and act on this information. However, reading demands and text

point sizes of usage and instruction sections did not align with health literacy-related formatting guidelines.

### **An Elective Health Literacy Class for RN to BSN students: Does it improve health literacy knowledge**

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Health literacy education for health care professionals and health care students continues to be an area that is under explored. What knowledge or application behaviors are present and can they be further developed? A group of RN to BSN nursing students participated in a 7 week health literacy course as an elective. The group was given the HLKACS instrument prior to the start of the class and repeated at the end of class. There was also an open ended question asking them what they learned and how this will change their practice. Preliminary results indicate that health literacy knowledge was increased and that the RNs in the RN to BSN class plan to increase their practice of health literacy strategies. One of the themes identified is that the practicing RNs had no previous knowledge of how huge the issue of health literacy was and that the strategies used in the class will be used to further help patients understand in the clinical setting. The implications of the study indicate that further education among health care students and professionals is needed and benefit the long term outcomes in the clinical setting.

### **Health Literacy Initiatives for Library Employees**

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#### **Background**

Shortly after the Library's employees began to work from home due to the COVID-19 pandemic, a new health literacy working group was formed to explore how best to use the Library's resources to respond to the current public health crisis. The working group's mission was to improve the health of library employees by making health information easy to understand and use.

In this poster, we describe the initiatives implemented by the working group since its inception, including creating a charter, co-sponsoring a health literacy article discussion series, publishing an online semesterly newsletter, and implementing a health literacy lecture

series. We also discuss our reasons for creating an in-house working group rather than depending on campus health literacy resources, our experiences after the first full semester of this working group being active, and our plans for future initiatives and possible collaborative partners.

Initiatives from the first semester were well-received and met the goals laid out in our charter. We will continue to practice our current initiatives and expand to other activities as time and resources allow.

### **Low health literacy among colorectal patients in America's Deep South associated with race, increasing age, SES**

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#### **Background**

Limited health literacy has been linked to poor outcomes in many chronic medical conditions, especially among colorectal surgery patients. Understanding what patient factors are associated with health literacy can help identify populations whose care may benefit from interventions targeting health literacy.

#### **Research Question**

Our objective was to characterize factors associated with low health literacy among a colorectal surgery population in Alabama, which has a racially diverse population and low national literacy ranking.

#### **Methods**

This is a retrospective cohort study (April 2018-February 2021) of a health literacy database at a high volume, tertiary care academic center in Alabama. The 4-item Brief Health Literacy Screen (BRIEF) instrument was used as a well-validated screening tool with scores ranging from 4 to 20, interpreted as limited (4-12), marginal (13-16), and adequate (17-20) health literacy. ANOVA and bivariate analysis were used to assess the effects of patient factors on BRIEF score. Patients with multiple recorded scores were grouped by direction of change and compared by age with ANOVA.

#### **Results**

Among 1,791 patients with 2,182 charted scores, the mean BRIEF score was 18.2(SD=3.4, median=20) with 83.4% scoring "Adequate"(n=1,591), 6.7% "Limited"(n=127), and 9.9% Marginal(n=190). Mean age was 54.1 years(SD=16.2, median=55). Most patients were female(n=682, 54%). The racial breakdown matched state demographics(White n=70.0%, Black n=26.2%). Median income of ZIP was \$49,662 (SD=\$20,094). On unadjusted analysis, BRIEF was negatively associated with age(coefficient: -0.12,  $p<0.0001$ ). BRIEF was higher for patients under 65 years compared to older(18.2 vs 17.4,  $p=0.0001$ ) and among female compared to male patients(18.2 vs 17.8,  $p=0.02$ ). Health literacy was highest among white(mean=18.2, SD=0.11) and Black(mean=17.8, SD=0.19) patients and lowest among Asian(mean=16.3, SD=0.75) and Native American (mean=13.9, SD=1.2) patients( $p<0.0001$ ). Median income was significantly associated with BRIEF scores(coefficient: 0.087,  $p=0.007$ ). Among patients who had multiple BRIEF scores(n=1,208), 5.5% decreased(n=66), 85% had no change(n=1,028), and 9.4% increased(n=114). Patients with increased scores were younger(mean=51.6yr, SD=15.6) than those without change(mean=54.2yr, SD=16.1). Those with decreased scores were oldest(mean=60.8, SD=13.8) ( $p<0.001$ ).

### Conclusions

Health literacy varies by race, age, and socioeconomic background. Patients at higher risk of complications and lower access to care, namely older patients, lower income patients, and patients from minoritized backgrounds also have lower health literacy. Patients are more likely to have decreases in their health literacy as they age.

### Implications

Multi-level interventions for elderly patients, patients from minoritized backgrounds, and those from low-income areas can help improve patient understanding and interaction with the healthcare system. Importantly, tracking changes in patients' health literacy over their lifetime can help alert providers and caregivers to timely interventions to improve their healthcare engagement as their health literacy declines.

## Examining the associations between COVID-19 health literacy and health behaviors among health professional college students

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### Background

Health professional college students are dually positioned as they are: being trained to provide accessible, understandable and usable information and/or services to future patients/community members; and are recipients of such health literacy (HL) efforts. The evolving COVID-19 pandemic presents a unique opportunity to examine this priority population's HL levels and the impact on subsequent health behaviors that are critical to preventing/mitigating infections and promoting overall health and well-being. The purpose of this study was to examine the associations of COVID-19 HL with (1) preventive behaviors, (2) health care-seeking behaviors, and (3) unhealthy behaviors, among emerging health professionals.

### Research Question

Is higher HL associated with a range of health behaviors among emerging health professionals?

### Methods

Guided by the Integrated Model of Health Literacy, health degree-seeking undergraduate/graduate college students (n=144) at a large metropolitan university completed an online survey via Qualtrics. This survey included items on sociodemographic characteristics, COVID-19 HL, and engagement in 22 health behaviors during the pandemic. A 16-item HL score (composite score range 1-10, with 10 = high HL) was created to measure participants' ability to access information about COVID-19, understand the information received, appraise the information found, and apply the information to make informed decisions concerning their health and the protection of others' health. Pearson correlation coefficient was used to conduct bivariate analyses between the health behaviors and the HL score. Data were analyzed in SPSS version 26.

### Results

Most participants identified as female (83%), White/Caucasian (73%), non-Hispanic (83%), and masters-level (30%) or professional students (29%). The majority were pursuing degrees from public health (33%), nursing (30%), and medicine (28%). The overall HL score was high ( $M = 7.99$ ,  $SD = 1.58$ ), indicating participants were generally able to access, understand, appraise and apply COVID-19-related information. Although, participants reported it was easiest to “understand” ( $M = 8.16$ ,  $SD = 1.62$ ) and hardest to “appraise” this information ( $M = 7.62$ ,  $SD = 2.12$ ). Regarding preventive behaviors, HL was significantly correlated with the use of face coverings in public, adherence to physical distancing guidelines, adherence to public gathering guidelines, working remotely, self-isolation if recommended, and disinfecting the workplace. A significant inverse relationship was observed between HL and more alcohol use. HL was not significantly correlated with health care-seeking behaviors.

### Conclusion

Health professional students reported generally high overall COVID-19 related HL, with lowest scores in the appraise domain. HL was significantly correlated with engagement in preventive and unhealthy behaviors, but not health care-seeking behaviors.

### Implications

This population is acutely affected by the COVID-19 pandemic and serve as emerging health professionals who will be tasked with providing critical future practice, policy, and research functions. Furthermore, this population will be contributing to efforts aimed at preventing, mitigating and treating complications resulting from pandemics and other persistent/emerging diseases. Future research could develop and evaluate innovative training efforts to support health professional college students’ HL, ultimately contributing to a cadre of health literate professionals who can effectively contribute to the delivery of high quality clinical and public health services.

### Examining Health Literacy and Training Needs Among Health-Degree Seeking College Students During COVID-19

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### Background

During a global pandemic, health literacy is critical to promote health and prevent morbidity/mortality. Health-professional students represent a key priority group as they are recipients and agents for health literacy exchanges. Although previous research has revealed COVID-19 impacts on medical students, impacts on other health-professional students remain understudied. This study explored health literacy assets and deficits, needs, and future training directions among college students enrolled in health-related degree programs during the COVID-19 pandemic.

### Research Question

What are the health literacy assets and deficits, needs, and future training directions among college students enrolled in health-related degree programs during the COVID-19 pandemic.

### Methods

A quantitative study was conducted with students ( $n=169$ ) enrolled in one of 20 health-related degree programs offered in a College of Health and Human Services at a state university in the mid-western United States. Students completed an online survey through Qualtrics. Survey development was guided by the Integrated Model of Health Literacy and other relevant literature. Forty-five questions were developed assessing: (1) demographics; (2) health literacy; (3) health behaviors; (4) health/well-being; and (5) academic/financial impacts. A health literacy score across four domains (access, understand, appraise, apply) was calculated. The health literacy score was calculated by averaging 16 health literacy scores (4 items for each of the 4 domains). The groups were then divided into insufficient health literacy (with average scores 1-7.5) and sufficient health literacy (with average scores 7.5-10). Associations between health literacy and categorical variables were tested (Chi-square/Fisher's exact tests). Comparisons between sufficient and insufficient health literacy were performed (Wilcoxon rank-sum tests).

## Results

Participants had sufficient (55.6%) and insufficient (44.4%) health literacy. Age was statistically significant with health literacy ( $p < 0.5$ ). The top three topics that participants identified wanting to learn more about in their education program were the transmission of COVID-19 (44.4%), vaccine status (40.2%), and testing (33.1%). The top three future training opportunities that participants reported being interested in were psychological impact and mental health during a pandemic (79.9%); diagnoses, treatment, and prevention during a pandemic (73.4%); and understanding racial/ethnic/health disparities during a pandemic (71.6%).

## Conclusions

Emerging health professionals reported sufficient health literacy, yet information gaps and training needs and opportunities remain.

Implications: Findings suggest that the evolving pandemic underscored the importance of integrating evidence-based health literacy curricula into health professional training programs to support the engagement of health-promoting actions among students with their future patients and clients. Continued research should further explore ways to develop frontline health professional skills, supports and services for personal and societal health.

### **Assessing Spanish Health Literacy and Cervical Cancer Knowledge, Attitudes, and Behaviors in a Student-Run Free Clinic**

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It is well-established that Hispanic populations in the United States have a higher incidence of invasive cervical cancer compared to non-Hispanic populations. Variations in cancer screening utilization and socioeconomic status are thought to account for much of this observed difference, and examination of health literacy has the potential to illuminate further aspects of this disparity. In addition to an association between English health literacy and Papanicolaou (Pap) test knowledge, research has shown that in the setting of Spanish health materials low Spanish health literacy is

strongly associated with never having a Pap test. This indicates that even when health information is provided in Spanish, low functional health literacy limits adequate care.

The objective of this project is to examine Spanish health literacy and cervical cancer screening knowledge, attitudes, and behaviors in the patient population of the BRIDGE Healthcare Clinic; a student-run free clinic that serves primarily Spanish-speaking populations in the Tampa area. Spanish health literacy will be measured by the Short Assessment of Health Literacy–Spanish (SAHL-S), a validated health literacy questionnaire. A short questionnaire examining functional cervical cancer health literacy will measure the knowledge and attitudes of BRIDGE patients. Cervical cancer screening behaviors will be measured via the electronic medical record.

Patients will be approached for recruitment as they wait for their appointments. Eligibility criteria include having a cervix, speaking Spanish as a primary language, and being over the age of 21. Spanish health literacy will be assessed using the SAHL-S followed by a written questionnaire. This questionnaire will be based on previous studies of cancer health literacy. Patients will be asked to agree or disagree with knowledge and attitude statements like “HPV causes cervical cancer” and “I think it is important to get regular Pap smears.”

Data collection will begin in September 2021. Data quality will be monitored as the questionnaires are completed and manually transcribed into an Excel file. All data will be managed and analyzed using SPSS. We anticipate having preliminary descriptive data to present by late October; specifically, we will have a baseline assessment of initial participants’ Spanish health literacy via analysis of their responses to the SAHL-S survey and the functional cervical cancer health literacy questionnaire, which will be assessed via analysis of variance (ANOVA) tests. We anticipate also being able to provide preliminary estimates of association between SAHL-S scores and functional cervical cancer literacy as measured by our questionnaire using logistic regression.

After an adequate number of participants are recruited, a quantitative assessment using nonparametric and parametric statistics will be used to synthesize the SAHL-S, questionnaire, and EMR data. The results of this

project will be used to generate information on how Spanish health literacy may mediate cervical cancer screening. Additionally, based on our findings we hope to find opportunities for quality improvement through creating targeted cervical cancer educational materials for patients. Ultimately, we hope that this project will illuminate understudied aspects of the widening disparity in Hispanic cervical cancer incidence and identify future directions for addressing this disparity from a health literacy perspective.

**Understanding the Health Literacy Strengths and Weaknesses of an antenatal clinical cohort: an interim analysis**

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**BACKGROUND**

Pregnant women are provided with vast amounts of information and are required to navigate parts of the health system they may not have previously encountered such as hospital settings, various types of health care providers and an array of models of care they are required to choose from. There are concerns that many measures of health literacy are limited to reading and numeracy skills and fail to capture all the domains embodied in definitions of health literacy. As a result, there have been more recent efforts to develop health literacy measures, such as the Health Literacy Questionnaire (HLQ) that span the other health literacy domains and are able to be used to drive system change to improve access to care. This presentation is an interim analysis of the first 200 respondents to the HLQ survey in an antenatal cohort and sits within a larger body of work that will investigate this in a larger cohort and examine the relationships between health literacy profiles and patient reported outcomes and experience measures (PROMs and PREMs).

**METHODS**

Cross-sectional survey using the Health Literacy Questionnaire (HLQ) to describe the health literacy profile of women using antenatal health services at an Australian regional health service.

**RESULTS**

200 women completed the HLQ and demographic survey: median (IQR) for demographic variables included an age of 29 (26-33) years and gestation of 24 (22-28) weeks. 60.5% were multiparous and 94% were born in Australia. 11.0% had not completed high school and 19.5% had not undertaken any further studies since completing high school. 73.0% were working (full or part time) and 19.5% reported their status as 'home duties'.

Across the 9 health domains the median (IQR) scores were calculated and then a k-means cluster analysis identified two main clusters.

\*see attached file/figures\*

**CONCLUSION**

This is the first time the HLQ has been reported in an antenatal cohort and these interim results show that higher scores are seen in the domains for social support for health and understanding health information whereas lower scores were seen in the domains related to actively managing health and appraisal of health information.

Two distinct clusters of those with higher scores versus those with lower scores across all domains were seen. However, even within the cluster with higher overall scores the appraisal of health information was the domain with the lowest score.

**IMPLICATIONS**

This is an interim analysis to present early findings of using the HLQ in an antenatal cohort and ongoing work is continuing to be able to determine more distinct clusters and describe their demographics, link these different clusters to PROMs and PREMs and undertake interviews with representatives of these clusters to further understand their experiences accessing antenatal care.

**Validation of European Health Literacy Survey Questionnaire short forms in Cameroonian context: Cameroonian Health Literacy Survey Questionnaire short forms (HLS-Cam-Q16)**

Wamba, André<sup>1</sup>, Soh, Gustave<sup>2</sup>, Tachom Waffo, Boris<sup>2</sup>, Maingari, Daouda<sup>2</sup>

## Background

Improving health literacy is critical for addressing health inequalities. However, the first stage of all health literacy educational action among different populations resides in the determination of their present level of health literacy true a suitable tool adapted to their local reality and valid regarding its psychometric properties. Until this date, no comprehensive health literacy survey tool has been available for general use across Cameroon.

## Objective

The aim of this study was to analyse the validity of two models of European Health Literacy Survey Questionnaire short form (HLS-EU-Q16) in Cameroon and to explore its psychometric properties for assessing health literacy in this population.

## Methods

A cross-sectional national survey using HLS-EU-Q16 were conducted. 1226 persons (50.5% females, ages 15-96 years, mean age 27.99 years, standard deviation 9.73) completed an online (47%) and paper (53%) questionnaire. Data was analysed through reliability and confirmatory factor analysis via SPSS AMOS. 23. Results: The analyses show that both HLS-EU-Q16 health context and skills structures fit with Cameroonian sample. The Cameroonian Health Literacy Survey Questionnaire short form (HLS-Cam-Q16) has three (Healthcare, Disease prevention, Health promotion) and four (Accessing, Understanding, Appraising, Applying) dimensions for health context and cognitive information processing skills respectively.

## Conclusions

The HLS-Cam-Q16 can be used effectively to evaluate Health Literacy in the Cameroonian context, in order to adapt community health interventions aimed at eradicating risky behaviours.

## Guidelines for Systemic Arterial Hypertension: the language of the Basic Care Notebooks versus the script developed based on health literacy

Cabral, Lisidna A<sup>1</sup>, Galiza, Dayze D<sup>1</sup>, Sampaio, Helena A<sup>1</sup>

<sup>1</sup>Ceará State University

## Introduction

The Basic Care Notebooks of the Ministry of Health in Brazil provide guidelines and strategies for the care of people with chronic illnesses. In this study, the notebook for the management of systemic arterial hypertension was approached, which contains informations about definition, risk of overweight and consumption of fruits, vegetables and salt, among others. The aim of the study was to develop a script for an educational video about these informations based on health literacy and compare it with the language used in the Basic Care Notebooks.

## Methods

Descriptive methodological study of technology development. The stage of preparing the script is inserted in the pre-production phase. The content of the elaborated script is composed by definition, risk of overweight and consumption of fruits, vegetables and salt. All these informations is in the guidelines of the Ministry of Health/Brazil. Both material were evaluated by the FrePort readability index, adapted from Flesch for the Portuguese language.

## Results

The language of the official material had an average of 2.33 syllables per word and 28.45 words per sentence. Of the total number of words, 17.53% have 4 syllables or more. Regarding readability, the text is classified as very difficult (22.84), with the presence of technical terms, requiring higher education level for understanding. The script prepared has an average of 2.07 syllables per word and 15.72 words per sentence. Of the total number of words, 10.7% have 4 syllables or more. Regarding readability, it is classified as an easy text (57.8), requiring schooling from 6th to 9th grade.

## Conclusion

The script developed based on health literacy requires fewer years of study to be understood and it is easier to read than the text of the basic care notebook – systemic arterial hypertension.

## The dispersion of lived health literacy experiences across a southern US State

Feinberg, Iris<sup>1</sup>, Tighe, Elizabeth<sup>1</sup>

<sup>1</sup>Georgia State University

### BACKGROUND

In the typical health literacy assessment, constructs are measured without a clear understanding of how results can improve an individual's lived experiences of health literacy. The Health Literacy Questionnaire (HLQ) sheds light on nine constructs of patient-reported outcomes measures that describe how people find, understand, and use health information and health services in the real world using cognitive and social skills. HLQ scales can be further organized according to Nutbeam's health literacy schema to create three composite scales and better understand basic, interactive, and critical health literacy.

### RESEARCH QUESTIONS

1. What are the lived health literacy experiences of individuals across a southern US state as measured by the HLQ?
2. What are the relations between health literacy composite scales and demographics typically associated with higher or lower health literacy?
3. How much do demographics typically associated with higher or lower health literacy explain health literacy composites?
4. Can clusters of health literacy levels be categorized, and if so, what are the demographic characteristics associated with each cluster?

### METHODS

Participants ages 18 and over who live in one southern US state were recruited from various sources using Qualtrics Research Services; the participant pool (n=520) was purposefully stratified to mirror state-wide demographics of geography (urban vs rural county) and race. We collected demographic information on age, sex, race, highest level of educational attainment, health insurance status, and zip code. The HLQ measure was used to collect different aspects of lived health literacy experiences. We then collapsed the nine HLQ scales into basic, communicative, and critical health literacy

composite scales according to Nutbeam's schema.

### KEY RESULTS

County type and having health insurance were significantly positively related to all three composite scales ( $r_s = .093-.254$ ,  $p_s < .05$ ). In regression analysis, the six predictors accounted for 6.7% of the variance in basic ( $F[6, 439] = 5.287$ ,  $p < .001$ ) with race and health insurance status as the only unique predictors ( $\beta_s = .106, .236$ ,  $p_s = .027, <.001$ , respectively). For communicative, the six predictors accounted for 10% of the variance ( $F[6, 438] = 8.154$ ,  $p < .001$ ) with race and health insurance status as the only unique predictors ( $\beta_s = .136, .295$ ,  $p_s = .004, <.001$ , respectively). For critical, the six predictors accounted for 6% of the variance ( $F[6, 439] = 4.675$ ,  $p < .0010$ ) with race, health insurance status, and country as unique predictors ( $\beta_s = .120, .181, .124$ ,  $p_s = .012, <.001, .008$ , respectively). Finally, in a two-step cluster analysis based on the nine HLQ scales, results indicated 4 distinct health literacy clusters.

### CONCLUSION

Lacking health insurance and race appear to be the most consistent contributors to lower health literacy across the state.

### IMPLICATION

People who have health insurance may have stronger health literacy skills and agency in using those skills when navigating the real-world experience of health care. Individual health literacy interventions could be focused on populations with no health insurance; organizational health literacy interventions should strive to be universal across race, age, sex, and educational level.

### Navigating COVID-19: Elucidating BIPOC Student Perspectives

McFadden, Trinity<sup>1</sup>, Hill, Joseph C<sup>1</sup>, Contreras, Jessica<sup>1</sup>, Panko, Tiffany L<sup>1</sup>, Hauser, Peter C<sup>1</sup>  
<sup>1</sup>RIT/NTID

### Background

The COVID-19 pandemic has exposed disparities across all facets of health care. Those who identify within the Black, Indigenous, and People of Color (BIPOC) community have faced additional disparities with testing and vaccination access. For the Deaf and Hard of Hearing community, information regarding COVID-19 has not been accessible in American Sign Language (ASL). This

unique project focuses on health literacy gaps, in the context of identifying as both a deaf ASL user and a member of the BIPOC community.

### Research Questions

What is the vaccination rate of BIPOC deaf students?

What is the COVID-19 test rate of BIPOC deaf students?

Did BIPOC deaf students have any adverse experiences while getting the COVID test or vaccine?

What is the experience of BIPOC deaf students in accessing COVID tests or vaccines?

What are barriers and facilitators to a positive experience getting the COVID test or vaccine for BIPOC deaf students?

### Methods

This is a mixed-methods study. The quantitative portion of the study is a Qualtrics survey that was made available to all Rochester Institute of Technology students. We expect 200 students to participate in this survey. The qualitative portion of the study consists of semi-structured interviews with five students who identified as BIPOC and Deaf/Hard-of-Hearing. Both the survey and the interview will ask questions about their experiences with the COVID-19 pandemic, along with testing and vaccination.

### Expected Outcomes

This research study is one of the few COVID-19-related studies that consider differences across racial and ethnic demographics, in addition to focusing on deaf ASL users in college. Data is currently being collected and preliminary results will be shared at the conference. We aim to gain a better understanding of the disparities of BIPOC deaf ASL users in order to empower this population with health-related issues they may generally face. We can tackle health disparities and decrease the gaps in minority populations.

### Deaf LGBT Adults' Health Literacy: Possible Effect of Stigma

Doane, Ella<sup>1</sup>, Edwards, Isabella<sup>1</sup>, Wright, S. Jordan<sup>1</sup>, Panko, Tiffany L<sup>1</sup>, McKee, Michael M<sup>1</sup>

<sup>1</sup>RIT/NTID

### Background

Research has shown that Deaf American Sign Language (ASL) users can encounter many challenges when trying to access health information. It is possible that stigma plays a role in creating barriers for this community as has been observed in the hearing LGBT community. These challenges can stem from health workers' inherent bias, discrimination, or lack of education.

### Objective

This specific study's main objective was to assess if being Deaf and being LGBT have separate effects on health literacy and having primary healthcare providers, compared to hearing and to non-LGBT adults.

### Participants

892 individuals from Rochester, NY; Flint, MI; and Chicago, IL were recruited to participate in this study between 2016 and 2019 for a larger health literacy study investigating the mechanisms deaf people use to obtain health information online. Our sample includes 445 hearing adults (42 self-identified as LGBT+) and 447 Deaf adults (58 self-identified as LGBT+).

### Methods

Participants were interviewed in their preferred language (ASL or spoken English) about how they identify themselves and their health care use. Health literacy was assessed with an ASL version of the Newest Vital Sign.

### Results

Analyses of variances will be conducted to see if there are main effects of hearing status and of sexual orientation/gender identity on health literacy and if there are any interactions. We predict the following NVS results: hearing non-LGBT > Deaf non-LGBT = hearing LGBT+ > Deaf LGBT+. Chi Square analysis will be conducted to see if there are group differences in having a primary care physician. Analyses are currently being conducted and will be available for the conference.

### Conclusion

If the expected results are observed, then they will provide additional support to the Minority Stress Model and demonstrate the possible impact of this stress on the development of minority individuals' health literacy and their history of connecting with the health care system.

This study will help for years to come as understanding how stigma shapes health literacy performance scores can allow healthcare providers to determine where areas of weakness exist within communities, and if these disparities change between communities. If Deaf LGBT+ individuals are at greater risk for inadequate health literacy then this has important implications for this population's health education. Acknowledging the impact of low health literacy scores can help the medical system to provide better care for these communities and hopefully, improve health care for everyone by lowering the stigma LGBT communities face.

### **Effects of Language Deprivation on Deaf Adults' Cognitive Health**

Gray, Margaret<sup>1</sup>, Contreras, Jessica<sup>1</sup>, Panko, Tiffany L<sup>1</sup>, Hauser, Peter C<sup>1</sup>, McKee, Michael M<sup>1</sup>  
<sup>1</sup>RIT/NTID

#### **Background**

The cognitive processes that control goal oriented skills important for learning, such as inhibition, working memory, and cognitive flexibility. These cognitive processes are known as Executive Function (EF) and previous research has suggested that there is a disparity in EF between deaf and hearing individuals, which has been claimed to be due to auditory deprivation.

#### **Objective**

This study aims to investigate the separate effects, if any, of auditory deprivation and language deprivation on the executive functions. We predict that the EF disparities can be explained by language deprivation, measured through language competency, and not auditory deprivation as has been previously claimed.

#### **Participants**

This study utilizes data from a larger study conducted between 2016 and 2019 that investigated how deaf individuals navigate health information online. In the study, 892 individuals from Rochester, NY; Flint, MI; and Chicago, IL were recruited, including 447 deaf (Mage = 46.1; SDage = 16.9) and 445 hearing (Mage = 41.0; SDage = 16.8) individuals.

#### **Methods**

Participants were tested individually and were administered the Color Trails Test (CTT), American Sign Language Sentence Reproduction Test (ASL-SRT, deaf participants only), and Speaking Grammar Subtest of the Test of Adolescent and Adult Language (3rd edition, hearing participants only). Specific family, language, and education background information related to language development were gathered through a questionnaire.

#### **Results**

Statistical analysis currently being conducted and the results are expected to show deaf individuals performing worse on CTT than hearing adults overall. Multiple regression analyses with background co-variants and the results of language testing and language questions will be used to explore if variance in EF can be explained by language skill rather than hearing ability.

#### **Conclusion**

These findings will contribute to our understanding of EF development, and will have important implications for deaf individuals' cognitive health. They will potentially provide evidence in support of early language exposure for deaf children, and will show that significant differences in EF are due to language level and not due to previous claims of hearing level.

### **Disparities in Cardiovascular Knowledge in the Deaf Community: Importance of Accessibility**

Hose, Tiana<sup>1</sup>, Panko, Tiffany L<sup>1</sup>, Contreras, Jessica<sup>1</sup>, Hauser, Peter C<sup>1</sup>, McKee, Michael M<sup>1</sup>  
<sup>1</sup>RIT/NTID

#### **Background**

The Deaf community is known to have higher risk of cardiovascular diseases (CVD) and a lower health literacy. A large portion of CVDs are preventable with an informed and healthy lifestyle, yet it is the number one killer in the United States. Health information is typically spread through spoken English and is not often translated into American Sign Language (ASL) or made accessible for everyone. Due to the high prevalence of CVD, it is especially important for information on risks, symptoms, and prevention to be accessible to everyone, including Deaf/hard-of-hearing individuals. The main aim of our larger study is to understand the mechanisms deaf people use to obtain health information online.

## Objective

This specific study investigated the deaf community's CVD knowledge and factors that could explain variance in CVD knowledge.

## Participants

892 individuals from Rochester, NY; Flint, MI; and Chicago, IL were recruited to participate in this study between 2016 and 2019. Our sample includes 447 deaf (Mage = 46.1; SDage = 16.9) and 445 hearing (Mage = 41.0; SDage = 16.8).

## Methods

Health literacy and cardiovascular knowledge assessment questionnaires were adapted into ASL by a translation work group of experts to make it more accessible and accurate for Deaf ASL users. Univariate and bivariate analyses were conducted using SPSS to evaluate CVD knowledge, health literacy, English reading proficiency, and ASL skills between deaf and hearing participants.

## Results

The results of this study are expected to contribute to our understanding about the deaf community's knowledge of CVD. We predict that the deaf group will have less correct answers on the CVD questionnaire and variance in their performance can be partially explained by their language skills and health literacy.

## Conclusion

This study will provide critical data on the deaf community's accessibility, or inaccessibility, to health information. Findings will be used to develop and structure web-based information that is accessible and will enhance knowledge within this isolated community. This will aid in future efforts to disseminate information and mitigate the risk for CVD within the Deaf community.

**Supporting the learning and behavior change process inherent in self-management: a pilot trial of a dyadic web-based psychosocial and physical activity self-management program (TEMPO) for men with prostate cancer and their caregivers**

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<sup>1</sup>McGill University, <sup>2</sup>Sunnybrook, <sup>3</sup>BC Cancer Agency,

<sup>4</sup>University of Alberta

## Background

Men with prostate cancer and their caregivers experience many physical and psychosocial challenges that adversely affect their quality of life. To enhance illness adjustment, programs that provide tailored information and self-management strategies that address not only patients' and caregivers' individual challenges, but also those that are dyadic (e.g., communication) are needed. In this study, we evaluated the acceptability, feasibility, and clinical significance of a dyadic, Tailored, wEb-based, psychosocial and physical activity self-management PrOgramme called TEMPO. TEMPO includes five modules focused on the learning and behavior change processes inherent in self-management: 1) needs assessment, 2) setting goals, 3) tracking progress, 4) strengthening support systems, and 5) self-managing after TEMPO. TEMPO also includes a repository of over 49 factsheets based on the most up-to-date evidence on self-management and physical activity.

## Methods

A convenience sample of 49 men with prostate cancer and their unpaid caregivers have used TEMPO for 10 weeks. The acceptability data collected included attrition (benchmark: < 25% across groups) and system usability (benchmark: scores > 68 on the System Usability Scale). Feasibility was assessed through recruitment rate (benchmark: 8 dyads/month), refusal rate (benchmark: <45%), missing data (benchmark: <10%), and protocol infringement (benchmark: amenable to change). Clinical significance was defined as an effect size (ES) of at least 0.2 for the primary (quality of life and anxiety) and secondary outcomes of interest measured with a questionnaire patient-caregiver dyads completed at baseline and 3 months follow-up. As this is a pilot, the focus was not on statistical significance. Dyads were also interviewed once they returned the follow-up questionnaire. All interviews were audio-recorded, transcribed verbatim, and analyzed using thematic analysis.

## Results

Feasibility benchmarks were met with the exception for recruitment with on average 6.1 dyads recruited/month. The acceptability criterion for attrition was met and the average System Usability Scale score for patients was 75.0 (SD = 15.9) and 81.8 (SD = 15.0) for caregivers,

indicative of above average perceived usability. The clinical significance benchmark was exceeded for patients' quality of life (mental ES = 0.23 and physical ES = 0.35), but not for anxiety (ES = 0.19). The ES benchmark was met for all caregivers' primary outcomes (Quality of life mental ES = 0.87, Quality of life physical = 0.21, anxiety = 0.43). The ES = 0.2 benchmark was also met on some of the secondary outcomes for both patients and caregivers, such as depression. In the interviews, patients and caregivers said they were overall satisfied with TEMPO, particularly the initial modules focused on identification of shared needs and setting individual and dyadic goals. The overall experience with TEMPO was described as "smooth" and "easy".

## Conclusion

TEMPO is the first web-based intervention specifically designed to address the needs of the patient-caregiver dyad and to support their learning and daily integration of key self-management skills. It targets multiple risk challenges to improve dyadic coping, and participants choose which challenges they will address over the course of the program. This pilot trial was overall a success and a full trial is the next step.

### Patients with rare tumor syndromes and the medical encounter

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<sup>1</sup>Vrije Universiteit, Brussel

## Introduction

Patients with a rare disease experience several challenges in their patient journey. Information seeking can be difficult with little information available and with a variety of phenotypes of the disease. Patients show a high interest in knowing more about perspectives and treating options. Patients with a delayed diagnosis will initially seek information based on symptoms.

## Research question

This study examines the role of health literacy on the patient-doctor interaction. It aims to explore the strategies of obtaining information and of creating a context for active participation.

## Methods

In-depth semi-structured interviews are conducted with patients or with parents of children suffering of a rare

disease. Inclusion criteria are: patients with a diagnoses of a rare tumor syndrome or patients waiting for diagnosis. In addition a group of healthcare professionals active in the domain of rare diseases have been interviewed. The interviews are analyzed and coded using the constructivist grounded theory method.

## Results

Data from the interviews shows that most patients demonstrate an information hunger which sometimes is difficult to fulfill. This 'need to know' turns them into an active information seeker who gradually gains confidence to participate in the patients-doctor encounter.

Health literacy and digital literacy seem to develop simultaneously. After all, in rare diseases most sources are digital. Informing oneself starts from a 0-point, patients have usually heard little or nothing about the disease before diagnosis. The learning curve can then be very fast and patients and physicians keep pace in knowledge about the disease and treating options. Drivers of the learning curve are: the need to play an active role in the decision-making process, the intensity of the contacts with doctors and the severity of the symptoms. We see that the learning curve flattens out at times when there is stability in the clinical situation. At moments of stress and uncertainty, it can flare up again.

## Conclusions

From this study we can conclude that Information seeking is an important strategy in coping with a rare tumor syndrome. Patients may benefit from support by healthcare professionals in finding relevant information. If the treating doctors plays a role in information seeking, the relationship with the patients will become one based on equity, trust and co-creation. Patients who are supported in their coping and information seeking process, experience more continuity and coherence in their journey.

## Implications

In the hospital setting, we suggest to develop instruments and methods, on- and off-line, to support patients in their information needs. Understanding the context of a disease not only benefits compliance to medical treatments but it gives a feeling of control to the patient. As the syndromes are mostly hereditary,

incurable and chronic, there is a need for a shift in the medical encounter: the focus ideally shifts from the disease itself to the context and the preferences of the patient. There is a need for a shift from 'what is the matter with you' towards 'what matters to you'.

### **Measuring the Extent of Premature Aging, Health Literacy, and Cognitive Impairment in the Chronically Homeless**

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<sup>1</sup>Nova Southeastern University, <sup>2</sup>EM Papper Laboratory of Clinical Immunology

#### **Background**

The homeless population is heavily burdened by the prevalence of low health literacy (HL). Health literacy is important because it has been proposed as a good indicator for health, health management, as well as disease management. As such, it is proposed that if individuals are able to manage their health, they will influence cellular health which will contribute to their longevity and physical health. Individuals with low HL poorly manage chronic illnesses and have poorer health outcomes. Low HL increases miscommunication and medical errors. In the general population, individuals may benefit from distributed health literacy. Unfortunately, the homeless lack this type of resource and support.

#### **Research Question**

The purpose of this study was to examine the direction of the relationship among physiological markers of premature aging, health literacy, and cognitive health. Methods. Adults (N=60) experiencing homelessness for at least 12 months and non-homeless (N=45) participated in this study. Newly developed and validated assessment tools along with biomedical analyses were utilized to provide a thorough evaluation of the targeted groups' health literacy, cognitive health, as well as physical health. Health literacy and cognitive function were assessed using the Fostering Literacy for Good Health Today (FLIGHT)/Vive Desarollando Amplia Salud (VIDAS) tool, the Montreal Cognitive Assessment (MoCA), the Comprehensive Trail Making Test, and the Hopkins Verbal Learning Test. Cognitive load was analyzed using the Tobii Nano eye tracking device.

#### **Results**

Individuals from the homeless group scored significantly lower in the Hopkins Verbal Learning test and in the FLIGHT/VIDAS health literacy assessment. Similarly, the mean MoCA score was higher in the non-homeless group than in the homeless group ( $26.4 \pm 2.07$  and  $20.1 \pm 2.86$ ,  $p = 0.000$ ) with evidence of higher increase in cognitive load during HL assessment in the homeless group. On average, the homeless group spent significantly longer time completing the health literacy assessment and the MoCA test, suggesting a correlation with HL, processing speed, executive functioning and memory.

#### **Conclusions**

This study captured possible interactions between health literacy, cognitive and executive functioning, and socioeconomic status and their joint contribution to mismanagement of health in the homeless population.

#### **Implications**

Individuals from the homeless population are one of the largest recipients of Emergency Room services. More often than not, their visits to the ER are usually recurring visits that may be presented with worsened conditions during each visit. The literature reveals that those over the age of 50 who are homeless and who visit the ER are at higher risk to be admitted to the hospital, often arrived in critical conditions, and subsequently have a higher risk of mortality. The majority of individuals experiencing homelessness do not know how to manage available resources to their benefit in order to maximize their health. As such, the results of this study suggest that improving the health literacy of individuals in the homeless population may help increase their ability to manage their health and any health conditions, which will in turn improve their lives and reduce burden on the health care systems.

### **Measuring the Extent of Premature Aging, Health Literacy, and Cognitive Impairment in the Chronically Homeless**

Murugesu, Laxsini<sup>1</sup>, Damman, Olga C<sup>1</sup>, Derksen, Marloes E<sup>1</sup>, Timmermans, Danielle R<sup>1</sup>, de Jonge, Ank<sup>2</sup>, Smets, Ellen<sup>3</sup>, Franssen, Mirjam P<sup>1</sup>

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Shared decision-making requires adequate functional health literacy (HL) skills from clients to understand information, as well as interactive and critical HL skills to obtain, appraise and apply information about available options. This study aimed to explore women's HL skills and needs for support regarding shared decision-making in maternity care. In-depth interviews were held among women in Dutch maternity care who scored low (n = 10) and high (n = 13) on basic health literacy screening test(s). HL skills and perceived needs for support were identified through thematic analysis. Women appeared to be highly engaged in the decision-making process. They mentioned searching and selecting general information about pregnancy and labor, constructing their preferences based on their own pre-existing knowledge and experiences and by discussions with partners and significant others. However, women with low basic skills and primigravida perceived difficulties in finding reliable information, understanding probabilistic information, constructing preferences based on benefit/harm information and preparing for consultations. Women also emphasized dealing with uncertainties, changing circumstances of pregnancy and labor, and emotions. Maternity care professionals could further support clients by guiding them towards reliable information. To facilitate participation in decision-making, preparing women for consultations (e.g., agenda setting) and supporting them in a timely manner to understand benefit/harm information seem important.

### **Health Literacy and Beyond: Educating Youth on Policy and Social Determinants of Health**

Montgomery, Ebony<sup>1</sup>

<sup>1</sup>Individual

#### **Objectives**

To demonstrate the importance of teaching youth about policy and social determinants of health.

To show the session participants how the Curriculum that I have developed to teach youth and young adults about policy and social determinants is increasing health literacy, particularly public health literacy and critical health literacy.

To share the research objectives that have been established as part of the H.A.P.P.Y. Curriculum, and to

acquire feedback from the health literacy community on additional relevant research methods and measures.

#### **Background**

Health literacy is an educational undertaking that should begin early in life. This Special Interest Panel discusses an Innovative Curriculum, called HA.P.P.Y. (Health Advocacy Policy Preparation for Youth) that focuses on public health literacy and educating youth on the importance of policy and social determinants of health. In this panel, you will learn about why this type of education is important and how the H.A.P.P.Y. Curriculum aims to improve health outcomes for youth and communities. Session participants will also have an opportunity to provide feedback on the research component of the H.A.P.P.Y. Curriculum, as well as offer best practice suggestions, as it relates to appropriate research methods and outcome measures.

H.A.P.P.Y. (Health Advocacy Policy Preparation for Youth) is a health education advocacy and health policy curriculum that I created to bridge the gap between health literacy and health outcomes, through an understanding of health policy and social determinants of health. H.A.P.P.Y. advocates for youth and young adults - high school age and older- to attain public health literacy through an understanding of policy as a social determinant of health. H.A.P.P.Y. is a foundational step for self advocacy and for improving health outcomes of individuals and communities. When youth are provided with the information to understand the factors that impact their health, they can become informed adults who can be proactive in directing their health over a continuum, until positive health outcomes are reached. When an understanding of policy is woven into this process, a positive impact can be felt not only at the individual level, but at the community level as well.

H.A.P.P.Y. provides an opportunity for youth to identify and to understand the social determinants that may potentially influence their health as individuals, and as community members. This will be done through a broad examination of aspects of their current living environment and their developing lifestyle, along with the policy framework that helps to shape it, and their respective communities. If individual and community change is what is desired, then an understanding of the current situation must first be had in order to truly

understand where improvement can be seen, the exact way in which change needs to happen, and what would be required for that change to occur. My hope is that having this awareness will inspire youth to advocate for healthy change in themselves and in the world, while giving them the tools and consciousness to do so.

We must prepare youth to be more health literate so that they will become adults who are able to contribute both positively and effectively to their own health outcomes. Given the vigorously complex nature of this endeavor, one should not wait until adulthood, when these factors weigh heavily and sometimes unexpectedly on an individual as one's independent responsibility. Waiting until that moment of realization to understand the factors that contribute to individual and community health is too late. This process should undoubtedly begin earlier in life - at the age where a person is mature enough to first identify, then understand the specific and relevant factors at play. Moreover, how the interface of these factors affect that individual and their community in question. Having awareness and understanding of your health and the federal, state and local policies that contribute positively to it does not have to wait until adulthood. When youth and young adults begin to develop an early understanding of how policy prejudices these factors, it is then that communities can begin to see improved individual and community health outcomes.

**Health Literate Intervention: Strategies for Implementation, Movement and Sustainability**  
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### **Objectives**

Highlight AHRQ toolkit implementation strategies to achieve a health literate clinic/organization

Explore ways to make the health literacy movement sustainable through strategic planning

Discuss steps to ensure the health literacy movement within an organization is prioritized

### **Background**

Many people navigating the healthcare system have difficulty accessing, understanding, and applying health information to make informed health decisions. Therefore, people cannot actively participate in their care. On the other side of the system, healthcare providers are racing to implement health literacy-based strategies to bridge an impending gap. The efforts are geared towards removing obstacles between the act of providing health education and the patient's ability to understand and apply the information.

This session will describe how delivering care and education using a universal approach to health literacy can empower patients as they struggle to understand, apply, and activate information to make informed health decisions. The panelist group will share their unique journey of utilizing the AHRQ Health Literacy Universal Precautions Toolkit by tailoring the practice recommendations to their goals and clinic needs.

The journey began with a research study that utilized a universal approach to health literacy to provide education and coaching to increase empowerment as patients worked on goal attainment. The study's setting was in an oncology research clinic. Cancer care is complex and the decision-making process within an oncology research clinic is intricate as patients are having to decide between standard of care treatment and non-FDA approved treatments. All health literacy-based interventions were implemented and adapted with respect to the environment. The study results showed favorable data in goal attainment and satisfaction with the educational intervention.

Following the completion of the study, leaders were brought to the table to discuss the importance of health literacy and the universal approach to health literacy, results, and plan for moving forward. As a result, a Health Literacy Task Force was developed with a goal of providing a forum for members to work collaboratively in using evidence-based and best practice strategies for achieving a health literate oncology clinic. The task force consists of 11 interdisciplinary team members.

It is critical that the entire health care team embrace and have active involvement in the movement towards implementing a health literate clinic or organization.

Team members not only consist of practitioners and nurses but front office staff, patient financial counselors, and others.

In the implementation phase it is important to recognize and discuss personal bias. Additionally, each member must be able to verbalize the value their role brings to the patient experience and how the work they do in their role, impacts patient care.

For movement to occur, we must acknowledge the way we do things today and discuss how we can improve and why the improvement needs to occur; always keeping the patient at the center. In this phase we take the quality improvement projects related to health literacy that have been completed and move to a systematic and comprehensive approach.

Sustainability takes strategic planning. It is important that patients are kept engaged. The journey is long and patient advocacy groups can help keep motivation high. It is also important that leadership be apprised of the ongoing work related to health literacy and that every accomplishment is celebrated.

Please join the panel in a dynamic discussion on the art and science of implementing health literacy-based interventions.

The theory of the process in becoming a health literate organization will transform into a tangible goal through open discussion of the panel's experience and journey towards this goal. Panelists have experience in completing a research study using the universal approach to health literacy in addition to the creation of a multi-disciplinary Health Literacy Task Force. Interactive discussions will be led with the goal of preparing attendees to not only implement health literate interventions, but also maintain longevity in their efforts.

Each organization has unique qualities that will need to be accounted for to fully engrain health literate principles in implementation strategies. We will discuss how to tailor the AHRQ toolkit to set projects up for success in a variety of settings.

The act of becoming a health literate organization does not have a finish line. As there will continue to be updated evidence, new staff, new patient materials, etc., strategies for sustainability will be discussed.

In order to address the full continuum of needs when implementing health literacy-based interventions, organizational buy-in and prioritization will also be addressed.