Health Literacy Assessment of University Employees Using the Newest Vital Sign (NVS) Tool

Joyce Karl, DNP, CRNP, ANP-BC, COHN-S and Jodi McDaniel, PhD, RN

Purpose
The purpose of this project was to assess baseline levels of health literacy in a sample of Ohio State University (OSU) employees.

Background/Significance
Health literacy (HL): the ability to obtain, process, communicate, and understand basic health information and services in order to make appropriate health decisions. HL is a stronger predictor of health status than age, income, race, ethnicity, education level or employment status. 9 out of 10 adults have difficulty using routinely available health information.

• Low literacy associated with:
  • More hospitalizations
  • More frequent use of emergency care
  • Lower rate of mammography screening
  • Lower rate of influenza vaccination
  • Poorer ability to demonstrate taking medications appropriately
  • Poorer ability to interpret labels and health messages

And among older adults:
• Poorer overall health status
• Higher mortality and readmission rates
• Higher risk for injuries, illnesses, and fatalities

Design
• Observational, cross-sectional design

Procedures/Measures
• Verbal consent, demographic data, tool administered and timed

Sample/Setting
• Convenience sample (volunteers)
• N = 120 new and existing OSU employees (≥ 18 years of age) visiting UHS for onboarding, medical surveillance, or non-emergent routine care
• Outpatient clinic for employee/occupational health and primary/urgent care (central campus)

Instrument: NVS Tool
• Six-question screening tool
• Identifies risk for limited health literacy
• Based on interpreting ice cream nutrition label
• Can be administered in ~ 3 minutes
• Reliability: Cronbach’s α = 0.76; Criterion Validity: r = 0.59 compared with established Test of Functional Health Literacy Assessment (TOFHLA) tool.

Findings

Distribution of age, NVS score, education level, and time to complete NVS

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>120</td>
<td>36.73</td>
<td>13.31</td>
<td>18.00</td>
<td>74.00</td>
</tr>
<tr>
<td>NVS Score</td>
<td>120</td>
<td>2</td>
<td>1.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (years)</td>
<td>120</td>
<td>14.92</td>
<td>2.00</td>
<td>0.00</td>
<td>26.00</td>
</tr>
<tr>
<td>Time (minutes)</td>
<td>120</td>
<td>0.55</td>
<td>1.94</td>
<td>0.00</td>
<td>11.07</td>
</tr>
</tbody>
</table>

Mean NVS score (2.00) indicates “Likely Adequate” HL. Mean time to administer NVS tool (1.97 min); feasible in clinical practice.

Findings

Distribution of NVS score and Score Classifications

<table>
<thead>
<tr>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVS Score</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Score Classification</td>
<td>Limited (0-1)</td>
</tr>
</tbody>
</table>

Most participants (83%) had “Likely Adequate” NVS scores, but, 17% had “Limited” or “Possibly Limited” NVS scores.

Language Differences of On-Ave. Groups Differences in NVS Score and Time

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample Size</th>
<th>Overall Mean (STD)</th>
<th>On-Ave. Mean (STD)</th>
<th>Difference Between Means (STD)</th>
<th>Effect Size (Cohen’s d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVS Score</td>
<td>120</td>
<td>2.00 (1.00)</td>
<td>1.67 (0.50)</td>
<td>0.33 (0.90)</td>
<td>0.17</td>
</tr>
</tbody>
</table>

Non-English native language participants had lower NVS scores and took a longer time to complete the tool than English native language participants.

Discussion
• Findings aligned with previous studies
• Recommend adoption of health literacy universal precautions throughout organization
• Mean time for NVS completion was < 2 minutes - feasible in clinical practice
• Everyone can have “situational” health literacy challenges

Implication
• Nurses are positioned to design and lead patient-centered, evidence-based, strategic initiatives to overcome health literacy challenges for individuals, the health system, and society.

References
1 Affordable care act. (2014).

Acknowledgements
Sigma Theta Tau, Epsilon Chapter – Grant support
Cola E. Wills, PhD, RN – DNP Committee
Jery Mansfield, PhD, RN – DNP Committee
Lorane Sinnott, PhD – Statistician
University Health Services Clinic Staff