Health Literacy and Adolescent Use of Online Health Resources

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Health Literacy
The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate healthcare decisions.

Health Literacy and Health
- In adults, limited health literacy is associated with
  - Poor health knowledge
  - Decreased ability to participate in prostate cancer treatment decisions
  - Lower adherence to anticoagulation therapy
  - Poorer glycemic control
  - Lower self reported health status
  - Increased healthcare utilization and costs

Disparities in health literacy
- Limitations in health literacy are most often found in
  - African Americans
  - Older adults
  - People with limited education
  - People with limited English proficiency
- Little research has been done in adolescents

Why health literacy matters in teens with chronic illness
- Adolescents are entering the transition from parental care to self care
- Adolescence tends to be a period of poor disease management
- Health information regarding disease management and prevention is often written in complex language
- Health literacy may be an important factor in teens ability to utilize online health information

Examples of Patient Focused E-Health
- E-Services (prescriptions, appointment scheduling, registration)
- Personal Electronic Health Records
- Computer Assisted Interviewing
- E-Home care & Tele-monitoring
- E-Counseling & Support Systems
- E-Disease Management
- Health Information
Traditional Predictors of Online Health Information Use

- Younger age
- Female gender
- White race
- Chronic Illness
- Education
- Income
- Frequent Internet use
- Hi speed connection

Predictors of Internet Health Information Use

<table>
<thead>
<tr>
<th>Predisposing</th>
<th>Enabling</th>
<th>Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Male</td>
<td>Black</td>
</tr>
<tr>
<td>Hi Speed</td>
<td>Regular</td>
<td>Poor</td>
</tr>
<tr>
<td>Chronic</td>
<td>Use</td>
<td>Health</td>
</tr>
<tr>
<td>Disease</td>
<td></td>
<td>Health Crisis</td>
</tr>
<tr>
<td>Diet &amp; Nutrition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chisolm DJ. Does online health information seeking act like a health behavior? A test of the behavioral model. Telemedicine and eHealth 16(2): 154-160

Health Literacy and Adolescent Use of Online Health Information

Research Team
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Unified Technology Acceptance and Use Theory (UTAUT)

Eligibility Criteria
- Ages 13-18
- Seen in an asthma or diabetes specialty clinic operated by Nationwide Children’s Hospital during recruitment period
- Sufficient English proficiency and developmental status to provide informed consent
- Sample size: 91 Diabetics and 89 Asthmatics
Methods

- Teens were approached by a research assistant and consented in the clinic waiting room
- The interviewer administered health literacy assessments using the Brief TOFHLA and the WRAT-3
- Participants then completed computer based questionnaires on demographics, Internet access and use, computer anxiety, disease-specific self-efficacy, and disease management behaviors
- Teens were then provided resource sheets listing recommended general health, teen health, and disease-specific websites

Resource Sheets

- After reviewing the sheets, participants completed a technology acceptance questionnaire specific to online health information
- Finally, teens were asked the likelihood that they would use any of the described sites and to what extent they would use it.
- Three month follow-up phone calls assessed actual use and perceived benefits and barriers

Sample Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>13-15</td>
<td>104 (57.8)</td>
</tr>
<tr>
<td>16-18</td>
<td>76 (42.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>90 (50.0)</td>
</tr>
<tr>
<td>Female</td>
<td>90 (50.0)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>130 (72.2)</td>
</tr>
<tr>
<td>Black</td>
<td>36 (20.0)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (7.8)</td>
</tr>
</tbody>
</table>

Literacy Levels

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Level (WRAT-3)</td>
<td></td>
</tr>
<tr>
<td>&lt;6th Grade</td>
<td>33 (18.3)</td>
</tr>
<tr>
<td>6th-8th Grade</td>
<td>27 (15.0)</td>
</tr>
<tr>
<td>High School</td>
<td>120 (66.7)</td>
</tr>
<tr>
<td>Health Literacy</td>
<td></td>
</tr>
<tr>
<td>Adequate</td>
<td>166 (92.2)</td>
</tr>
<tr>
<td>Less than Adequate</td>
<td>14 (7.8)</td>
</tr>
</tbody>
</table>

Health Literacy Levels by Demographics

- Graph showing health literacy levels by demographics.
Health Literacy and Internet Use

Intent to use Online Resources

Intent to use by health literacy score

Predictors of Intent to Use Internet Health Resources

Use of online health resources in three month follow-up

Relationship Between Intent and Use
Use rates by site category

Barriers to use

• Lack of computer or internet access
  – “I don’t really use the computer in the summer”
• Lack of interest
  – “They need more interesting facts instead of boring ones and I already knew all of them”
  – “There was nothing I was interested in. All medical stuff”
  – “I didn’t learn anything I didn’t already know. Don’t want to deal with diabetes”
• Busy
  – “Busy with gymnastics and school”
• Difficulty understanding content
  – “I didn’t understand it”
  – “It confused me”

Promoters of use

• Satisfaction with functionality
  – “I like how easy they are to navigate”
  – “They did what they were supposed to do”
• Perceived value
  – “I’m still trying to control my asthma. Still having problems so finding a way to control it”
  – “Because it’s really informational”
• Perceived social support
  – “I liked the discussions a lot – can see what other teens are thinking”
  – “I like to find people and stories with people like me”
• Belief that new information will be added
  – “I think its updated often enough that you can go back frequently for more information”
  – “To see if I find new information, to see if others have more research on it (asthma) instead of my opinion”
• Perceived “fun” or “cool” factors
  – “I really like the virtual thing, going through stores”
  – “They have good tips and stuff, had quizzes – thought that was neat”

Conclusions

• Health literacy rates and general literacy rates were high overall but racial disparity was noted
• A significant proportion of teens with chronic conditions have searched the internet for health information even those with health literacy limitations
• Willingness to try new health web sites and to become a committed user are significantly associated with health literacy and perceived usefulness
• Anecdotally, teens prefer sites that are geared directly toward them, that are visually interesting, that have “new” information, and have “cool” features

Other Projects

• Computer assisted risk behavior assessment and longitudinal follow-up (NIDA)
• Pharmacy Safety and Tracking (AHRQ)
• Personalized patient education (Abbott Fund)
• Neonatology video-teleconsulting
• Cell phone based glucose monitoring
• Health Literacy and transition to adult care in teens with special healthcare needs

Thank You