**Systematic Review of Health Literacy Measurement Instruments for Children and Adolescents and Adaptation of the HLS-EU-Q for Kids**

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**SYSTEMATIC REVIEW**

**Objectives, Methods, and Search Design**

**Objective**
To review health literacy measurement and assessment instruments for children and adolescents

**Methods**
Systematic Literature Search

**Database Search**
PubMed, CINHAL, PsyNet,ERIC, FIS

**Identified Health Literacy Components**

- N=15 unique instruments
- N=4 adaptations of adult tools for children
- N=11 use a broad model
- N=2 instruments use their own specific definition
- N=5 Instruments in primary schools
- N=1 reporting on interviewing children before development
- Items varying from N=4 (Min.) to N=72 (Max.)

**Quantitative Results**

**Flow Chart**

**Identification**
Records identified through database searching (n=1539)

**Selection**
Full-text articles identified for eligibility (n=780)

**Eligibility**
Inclusion of study
Non-health literacy
Nil before 1990
Health validation to editors
Any English
Any or no study reporting on interviewing children before development
Children 17 years

**Search Algorithm**
((health literacy[Title/Abstract]) AND ((child[Title/Abstract]) OR (adolescent[Title/Abstract]) OR (youth[Title/Abstract]) AND ((measure[Title/Abstract]) OR (test[Title/Abstract]) OR (tool[Title/Abstract]) OR (instrument[Title/Abstract]) OR (questionnaire[Title/Abstract]) OR (assessment[Title/Abstract]) OR (screen[Title/Abstract]) OR (survey[Title/Abstract]) OR (psychometric[Title/Abstract]) OR (review[Title/Abstract])))

**Inclusion & Exclusion Criteria**

<table>
<thead>
<tr>
<th>STUDY</th>
<th>YEAR</th>
<th>COUNTRY SETTING</th>
<th>INSTRUMENT ITEMS</th>
<th>TYPE</th>
<th>AGE GRADE</th>
<th>POPULATION</th>
<th>MODEL</th>
<th>DOMAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2006</td>
<td>USA</td>
<td>HC</td>
<td>REALQUAL-Test (65 Words)</td>
<td>PBA</td>
<td>10-19 y.</td>
<td>N=1135</td>
<td>Functional Literacy: 1 Reading Levels</td>
</tr>
<tr>
<td>4</td>
<td>2009</td>
<td>USA</td>
<td>HCP</td>
<td>TOPHLAD</td>
<td>ET Items</td>
<td>PBA</td>
<td>13-17 y</td>
<td>N=50</td>
</tr>
<tr>
<td>5</td>
<td>2009</td>
<td>GER</td>
<td>SCH</td>
<td>CHC Test</td>
<td>JR Items</td>
<td>PBA</td>
<td>10-11</td>
<td>N=322</td>
</tr>
<tr>
<td>6</td>
<td>2009</td>
<td>GER</td>
<td>URB</td>
<td>Questionnaire</td>
<td>ET Items</td>
<td>SR</td>
<td>12-18 y</td>
<td>N=200</td>
</tr>
<tr>
<td>8</td>
<td>2010</td>
<td>CH</td>
<td>SCH</td>
<td>Questionnaire</td>
<td>JR Items</td>
<td>PBA</td>
<td>10-12 Grade</td>
<td>N=275</td>
</tr>
<tr>
<td>9</td>
<td>2012</td>
<td>CH</td>
<td>SCH</td>
<td>S.H.E.Q.</td>
<td>JR Items</td>
<td>SR</td>
<td>Elementary and Middle School</td>
<td>N=9006</td>
</tr>
<tr>
<td>10</td>
<td>2012</td>
<td>ENG</td>
<td>SCH</td>
<td>All Aspects of Health Literacy Scale</td>
<td>Q&amp;A</td>
<td>SR</td>
<td>8-12 Grades</td>
<td>N=146</td>
</tr>
<tr>
<td>11</td>
<td>2012</td>
<td>GER</td>
<td>SCH</td>
<td>Knowledge Quiz 49 Items</td>
<td>PBA</td>
<td>7th Grade</td>
<td>N=900</td>
<td>Health Knowledge Concept: Nutrition, Prevention, Leisure Time, Body: Below/You/Anatomy</td>
</tr>
<tr>
<td>12</td>
<td>2013</td>
<td>USA</td>
<td>HCS</td>
<td>Materials at 6th Grade reading level</td>
<td>ET Items</td>
<td>SR</td>
<td>13-17 y</td>
<td>N=1280</td>
</tr>
<tr>
<td>13</td>
<td>2013</td>
<td>AT</td>
<td>no</td>
<td>HLS-EU Q-18 Items</td>
<td>ET Items</td>
<td>SR</td>
<td>15 y</td>
<td>N=571</td>
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<tr>
<td>14</td>
<td>2014</td>
<td>USA</td>
<td>IMP</td>
<td>NOS</td>
<td>ET Items</td>
<td>PBA</td>
<td>7-12 y</td>
<td>N=47</td>
</tr>
</tbody>
</table>

**ADAPTATION OF THE HLS-EU-Q: HLS-EU-Q KIDS SCALE**

**Objectives and Methods**

**Objective**
To review of HLS-EU-Q47 and HLS-EU-Q16

**Methods**
Item per item analysis
Screening of child related health surveys
Screening of general child questionnaires
Expert consultation
Original developers
Childhood experts
Methodological experts
Development of an assessment guide
Development of childhood-specific items
Content and context sensitive literacy levels
Comprehensibility, plain language reading/grammar, linguistic complexity

**Results from the adaptation process**

<table>
<thead>
<tr>
<th>Items Adapted (Original Items)</th>
<th>Health Care</th>
<th>Disease Prevention</th>
<th>Health Promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find</td>
<td>2 (4)</td>
<td>2 (4)</td>
<td>2 (5)</td>
</tr>
<tr>
<td>Understand</td>
<td>2 (4)</td>
<td>3 (3)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Appraise</td>
<td>2 (4)</td>
<td>2 (5)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Apply</td>
<td>2 (4)</td>
<td>2 (3)</td>
<td>2 (4)</td>
</tr>
</tbody>
</table>

| Items in %                     | 50%         | 60%             | 50%              |

**General Issues**
Children’s ability to act and decide autonomously in health related context?

**Objective measure vs. self-report measure**
Self-report might be an inadequate method to assess and reflect on the construct

**Case study vignettes / scenarios**

**Conclusion**

Adaptation of HLS-EU-Q for kids is feasible, cognitive testing needed
Some content modifications, e.g. reducing item complexity, matching child’s daily life experiences
Some methodological modifications: scenarios/vignettes, re-structuring

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