5. A new measure of health literacy: Health Literacy Management Scale (HeLMS)
## Comparison of constructs and existing measures

<table>
<thead>
<tr>
<th>INDIVIDUAL ABILITIES:</th>
<th>REALM</th>
<th>TOFHLA</th>
<th>SILS</th>
<th>ALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of where to seek health information</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Verbal communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literacy skills</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Proactive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity to process and retain information</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BROADER FACTORS:

- Healthcare services
- Competing lifestyle commitments
- Social support
- Socioeconomic
- Community resources
- Educational background
- Patient attitudes towards health
- Perceptions of health professional
- Emotional/physical disposition
- Lay knowledge
- Cultural background
Purpose of new measure

• Assess individual ability to seek, understand and utilise health information within the healthcare setting
  − Generic and potentially modifiable abilities and factors

• Target population
  − Adult patients

• Setting
  − Clinical or population
Key steps in development of measure

(i) Conceptualisation of the phenomenon to be measured
(ii) Purpose of instrument
(iii) Item development
(iv) Response (answer) format
(v) Initial field testing
(vi) Cognitive interviewing
(vii) Structural analysis
Methods:

• **Initial field testing:**
  – Test with relevant population groups
    • Patient with chronic conditions
    • Varied healthcare experiences

• **Refine the measure**
  – Determine the measurement model
  – Use factor analysis to identify ‘best’ items
  – How well the model fits collected data

• **Validate the measure**
  – Test with broader range of patient groups
    • Emergency Department
    • Patient with chronic conditions

• **Confirm the measure**
  – Use factor analysis
Identify content areas for new measure

Core individual abilities of health literacy within the healthcare setting

- Knowledge of where to access health information
- Verbal Communication
- Being proactive
- Literacy skills (reading, comprehension, listening, writing)
- Capacity to retain and process information
- Application skills to manage health

Extrinsic Factors
- Healthcare Setting
- Competing life demands
- Social Support
- Socio-economic
- Community resources
- Educational background
- Attitudes towards health
- Perceptions of health professional
- Emotional or physical disposition
- Lay knowledge
- Cultural background

Intrinsic Factors

Construction of measure

• Items generated from patient statements:
  – Concept mapping
  – In-depth interviews

• Criteria established for writing items:
  – administered verbally or written
  – instant comprehension

• Cognitive interviewing with patients
Health Literacy Management Scale (HeLMS)

- 8 distinct scales
  - 5 focus on patient abilities to seek, understand and utilise health literacy
  - 3 focus on broader factors that affect abilities

- 29 items
Scoring of the HeLMS

- 5 point Likert-type scale
- Focus on ‘difficulty’ experienced

5 = Without any difficulty
4 = With little difficulty
3 = With some difficulty
2 = Very difficult
1 = Unable to do
Start Here
Please read each question and tick the box most suitable:

A. Are you able to:

<table>
<thead>
<tr>
<th>Question</th>
<th>Without any difficulty</th>
<th>With little difficulty</th>
<th>With some difficulty</th>
<th>Very difficult</th>
<th>Unable to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read health information brochures found in hospitals or at a doctor’s clinic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get a second opinion about your health from a health professional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask family or friends for help to understand health information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carry out instructions that a doctor gives you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use information from a doctor to make decisions about your health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results: Initial field testing

- Individuals with chronic conditions (n = 542)
- 61% response rate (n = 333)
  - 75% female
  - Age range: 25 – 93 years
  - Predominantly Caucasian

Factor analysis

- Refine measure and exclude problematic items based on recognised criteria
- 37 items across 8 distinct factors
Psychometric properties of new measure

Confirmatory Factor Analysis (CFA)
8 latent variables which measure their respective constructs (37 items)
• no cross-loadings
• no within- and between-factor correlated errors

Program: MPlus version 5.0
Root mean square error of approximation (RMSEA) = 0.08
Comparative Fit Index (CFI) = 0.98
Root Mean Square Residual (RMR) = 0.043
Results: validation

• RMH ED patients and chronic condition (n = 700)
  – 50% response rate (n = 350)
    – 70% female
    – Age range: 23-94 years

• Confirmatory factor analysis
  – 29 items
  – Good model fit:
    RMSEA = 0.07
    SRMR = 0.051
    CFI = 0.967

• Reliability (test-retest)
  – Intraclass correlation coefficient >0.7 for all 8 domains
1. Patient attitudes towards health

- This relates to an individual's motivation to manage their health. It assesses their ability to attend to their health needs as well as a willingness to change their lifestyle.

- 4 items:

  Are you able to:
  - Find the energy to manage your health
  - Pay attention to your health needs
  - Make time for things that are good for your health
2. Understanding health information

• This domain focuses on an individual's ability to read and understand different formats of health information.

• 4 items:

  Are you able to:
  • Find health information in a language you understand
  • Fill in medical forms e.g. Medicare
3. Social support

- Social support refers to family, friends and broader community networks that assist individuals in enhancing their abilities to seek, understand and utilise health information.

- 4 items:

  Are you able to:
  - Discuss your health with people other than a doctor
  - Take a family or friend with you to a doctor’s appointment
4. Socioeconomic factors

- This domain looks at broader socioeconomic circumstances of an individual to be able to access healthcare services and subsequently health information.

- 3 items:

  Are you able to:
  - Pay to see a doctor
  - Afford transport to medical appointments
  - Pay for medication you need to manage your health
5. Access to GP healthcare services

• This domain is concerned with an individual's ability to access healthcare services.

• 4 items:

  Are you able to:
  • Know where a doctor can be contacted
  • Know how to get a doctor’s appointment
6. Communicating with health professionals

• This assesses an individuals’ ability to communicate with health professionals to get the information they want about their health

• 3 items:

  Are you able to:
  • Ask a doctor questions to help you understand health information
  • Get the information you need when seeing a doctor
  • Follow up with a doctor to understand information about your health
7. Being proactive

- This refers to an individual's ability to be proactive in seeking and understanding information about their health from health professionals

- 3 items:

  Are you able to:
  
  - Change to a different doctor to get better care
  - Get a second opinion about your health from a health professional
8. Using health information

- This refers to an individual's ability to understand and use information to make informed health decisions and maintain their health.

- 4 items:

  Are you able to:
  - Use information from a doctor to make decisions about your health
  - Follow instructions that a doctor gives you
Scoring of the HeLMS

- Averaged domain score

- Mean score <4 regarded as a ‘flag’ to indicate that an individual may require assistance

- Current studies applying HeLMS:
  - Hospital emergency department (Vic)
  - Back pain study (WA)
  - Cluster RCT study (Thailand)
6. Interventions to improve suboptimal health literacy
Evidence of interventions

- 3 main approaches:
  
  (i) Improving readability and comprehension of written health materials
  
  (ii) Using multi-media forms
  
  (iii) Training and education of health professionals
(i) Improving readability and comprehension of written health materials

- **Development of linguistic frameworks**
  - Guide writing of patient information
  - Creation of direct health messages

  (Clerehan et al 2005)

- **Illustrated medication schedule to assist with medication management** (Kripalani et al 2007)
  - Of 209 respondents, 94% found it helpful for remembering medication information
  - Individuals with low or marginal health literacy (REALM) more likely to use it initially and at 3 month follow up
Illustrated medical schedule

<table>
<thead>
<tr>
<th>Date: 03-15-06</th>
<th>Name: Jane Doe</th>
<th>GMH# 01234567</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Names of Pills</strong></td>
<td><strong>What It’s For</strong></td>
<td><strong>Morning/ Breakfast</strong></td>
</tr>
<tr>
<td>Lisinopril</td>
<td>Blood Pressure</td>
<td></td>
</tr>
<tr>
<td>20 mg</td>
<td>1 pill once a day</td>
<td></td>
</tr>
<tr>
<td>Simvastatin (Zocor)</td>
<td>Cholesterol</td>
<td></td>
</tr>
<tr>
<td>40 mg</td>
<td>1 pill at bedtime</td>
<td></td>
</tr>
</tbody>
</table>
(ii) Multi-media forms

- Focus on enhancing communication between health professional and patient
  - Use of audiotapes
    - (Santo et al 2005)
  - Video and written material for low literacy patients
    - (Murphy et al 2000)
    - Using video improved knowledge about sleep apnoea
    - Pt feedback more information on treatments and outcomes
Verbal communication – Ask Me 3 Initiative

• Teach back method
  – Provide verbal information
  – Ask the patient to explain it in their own words to ensure understanding

• Ask Me 3 Initiative
  – USA National Patient Safety Foundation (2007)

  3 questions patients to ask health professionals
  1. What is my main problem?
  2. What do I need to do?
  3. Why is it important for me to do this?
(iii) Training and education of health professionals

• Teaching management strategies:
  – Variety of information formats
  – Involving family members
  – ‘Teach back’ method

• Health professionals notified of low health literacy before consultation (Seligman et al 2005)
  – Four times more likely to use management skills
  – No difference in post-efficacy scores or HbA$_{1c}$ between control and intervention patient groups
Summary

• Health literacy is an emerging concept and field

• Range of health literacy measures exist
  – Broader constructs
  – Application at a clinical level

• Further work required around effective interventions to assist individuals with suboptimal health literacy
  – Hard to reach groups
Thank you

joannejordan14@gmail.com