Understanding health literacy

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Outline of presentation

1. What is health literacy and why is it important?
2. How is health literacy measured?
3. How health literate are Australians?
4. What is important to patients when seeking, understanding and utilising health information?
5. A new measure of health literacy
6. Interventions to improve suboptimal health literacy
1. What is health literacy and why is it important?
Where is the term ‘health literacy’ from?

*Attributed to Scott Simonds (1974):
   - arguing case for school health education with the intention that pupils would not only be educated in the customary curriculum subjects but might become as ‘literate’ in health as they were, for example, in history and science.

Subsequently acquired a more limited technical meaning:

“…the currency patients need to negotiate a complex health care system”

Origin of health literacy

• Convergence of two main areas of study:

  i. Adult literacy and health education
     – Empower individuals
     – Better control of health

  ii. Comprehension and compliance studies by clinicians and researchers
     – Risk factor
     – Affect access to healthcare services and overall health outcomes
What is health literacy?

Myriad of definitions:

- “Health literacy is a constellation of skills including the ability to perform basic reading and numerical tasks required to function in the healthcare environment” (American Medical Association, 1999)

- “Health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (World Health Organisation, 1998)

- “Health literacy is the ability to make sound health decisions in the context of everyday life – at home, in the community, at the workplace, the healthcare system, the marketplace and the political arena” (Kickbusch, 2001)
Health Literacy – definition

Definition:

“An individual’s capacity to seek, understand and utilise health information to make informed decisions about their own health”

USA Department of Health & Human Services “Healthy People 2010”
Importance of health literacy

Suboptimal health literacy associated with poorer health outcomes including:
- Inadequate knowledge about health
- Increased risk of hospitalisation
- Poor access and utilisation of health services
- Poorer self-reported health status

Importance of health literacy in context

• Patient-centred care approach:
  • Provision of health information to patients
  • Active decision making
  • Partnerships between patients and health professionals
  • Emphasis on self-management

Assumption
• This approach assumes a minimum level of health literacy
Health literacy at the individual level

- Critical factor in individual’s engaging in their own health

- Require specific skills and knowledge to be able to:
  - seek information
  - understand rights and responsibilities
  - negotiate the healthcare system
  - make health decisions for themselves

- All these impact on the probability of an individual achieving and maintaining good health
Why is health literacy important?

Healthcare level
- Health professionals must understand the health literacy of patients to optimise communication, ensure they understand information, instructions about care

Research level
- Need to understand what health literacy is, how best to measure it across the population

Policy level
- Need to understand health literacy of the community to be able to set appropriate policies and provide appropriate resources within healthcare setting
2. How is health literacy measured?
How to measure health literacy?

• Neglected area of clinical training/care

• Ask the patient?
  • Poor reliability – shame, hide it well
Ask the patient?

• 202 mainly African-Americans, acute care hospital Atlanta – 42.6% suboptimal literacy

• Of those, 67.4% (n=58) admitted trouble reading and understanding what they read

• Almost 40% (n=23) who acknowledged trouble admitted shame

• 67.2% had never told their spouse, 53.4% had never told their children, 19% had never disclosed difficulty reading to anyone

How to measure health literacy?

• Neglected area of clinical training/care

• Ask the patient?
  • Poor reliability – shame, hide it well

• Health professional estimate?
Health professional estimate?

- Residents incorrectly estimated literacy in 34% cases and 94% were overestimates\(^1\)
- 12 experienced (non-academic) primary care physicians\(^2\)
  - 100 patients
  - 25% overestimated levels; 15% underestimated
  - Occurred commonly with individuals from ‘minority’ groups

\(^1\)Bass et al. Residents’ ability to identify patients with poor literacy skills. Acad Med 2002;77:1039-41.
Specific health literacy measures

Study: critical appraisal of health literacy measures

Purpose:
• Systematically review the development and content of existing measures of health literacy and critically appraise their properties

Methods:

• **Search terms:**
  - health, literacy, health literacy, instrument, tools, assessment

• **Databases:**
  - Medline, PubMed, PsychInfo

• **Inclusion criteria**
  - Generic measures
Methods cont:

• Development
  – Purpose
  – Setting/Target population
  – How measure was constructed
  – Scoring

• Psychometric properties:
  – Face validity
  – Content validity
  – Construct validity
  – Reliability
  – Responsiveness to change
  – Generalisability
  – Feasibility
Results:

• 19 measures identified
  – 12 original
  – 7 short form or adaptations

• 3 main approaches to measurement:
  i. Direct testing n = 11
  ii. Self-report n = 4
  iii. Population proxy-based measures n = 4
(1) Direct testing of patient abilities

- Rapid Estimate of Adult Literacy in Medicine (REALM)
  - 4 shortened versions

- Test of Functional Health Literacy in Adults (TOFHLA)
  - Shortened version (S-TOFHLA)

- Newest Vital Sign (NVS)
REALM

• Purpose
  – Identify individuals with limited reading skills in the primary care setting

• Method
  – Patients read aloud a list of words
  – Scored on correct pronunciation

• Scoring
  – Interview administered
  – Raw score is converted to a USA school grade estimate

REALM

- 66 items

<table>
<thead>
<tr>
<th>List 1</th>
<th>List 2</th>
<th>List 3</th>
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<tbody>
<tr>
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<td>behaviour</td>
<td>medication</td>
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<td>smear</td>
<td>prescription</td>
<td>occupation</td>
</tr>
<tr>
<td>nerves</td>
<td>notify</td>
<td>sexually</td>
</tr>
<tr>
<td>germs</td>
<td>gallbladder</td>
<td>alcoholism</td>
</tr>
</tbody>
</table>

TOFHLA

• Purpose
  – Measure **functional health literacy** in patients in the healthcare setting

• Method
  – 2 domains:
    • Reading comprehension passage (insert word)
    • Numeracy section (interview administered)

• Scoring
  – Score out of 100 (50:50 reading : numeracy)
  – Converted to three categories:
    adequate/marginal/inadequate health literacy

(i) Reading ability (50 items)

1) Your doctor has sent you to have a _____________ X-ray.
   a. stomach
   b. diabetes
   c. stitches
   d. germs

2) You must have an _____________ stomach when you come for ______ .
   a. asthma
   b. empty
   c. incest
   d. anaemia
   a. is
   b. am
   c. if
   d. it

(ii) Numeracy (17 items)

**Abbocillin VK Tablets 250mg** 50
Take ONE tablet by mouth four times a day

**Mr Ian Garfield**  nil Rpts
16/04/06 Dr Michael Lubin FF941858
$11.53

Q1. If you take your first tablet at 7.00am, when should you take the next one? ____________

Q2. And the next one after that? ____________
NVS

• **Purpose**
  – Screen for limited literacy in patients in primary healthcare settings

• **Method**
  – Patients answer 6 questions in relation to a cue card (ice-cream nutritional label)

• **Scoring**
  – Raw score (0-6) is converted to 3 categories:
    • adequate, marginal and inadequate
    • Based on scoring with TOFHLA

READ TO SUBJECT: This information is on the back of a container of a pint of ice cream.

QUESTIONS
1. If you eat the entire container, how many calories will you eat?

ANSWER: 1000 calories the only correct answer
(2) Patient self-report measures

- Set of brief screening questions
- Single Item Literacy Screener (SILS)
- Functional, Communicative and Critical Health Literacy Scale (FCCHL)
  - 3 scales based on Nutbeam (2001) hierarchy of health literacy levels
  - Focus on patients with diabetes
Set of Brief Screening Questions

• **Purpose**
  – Detect inadequate or marginal health literacy in patients within the healthcare setting

• **Method**
  – Patients rate themselves on a 4 point scale:
    (i) How often do you have someone help you read hospital materials?
    (ii) How confident are you filling out forms by yourself?
    (iii) How often do you have problems learning about your medical condition?

Chew., et al., Brief questions to identify patients with inadequate health literacy. Family Medicine, 2004. 36: p. 588-594
Single Item Literacy Screener

• Purpose
  – Identify patients with limited reading ability

• Method
  – Patients rate themselves on a 5 point scale:
    (i) How often do you need help to read or understand printed health information?
     (1 = never to 5 = always)

• Scoring
  – Cut-off score <2 indicates difficulty

Morris., et al., The Single Item Literacy Screener: evaluation of a brief instrument to identify limited reading ability. BMC Family Practice, 2006. 7:21
Functional, Communicative and Critical Health Literacy Scales

• **Purpose**
  – Measure patients ability to extract, understand and use health information in primary care

• **Method**
  – Patients rate themselves on a 4 point scale:
    (i) Functional health literacy domain (5 items)
    (ii) Communicative health literacy domain (5 items)
    (iii) Critical health literacy domain (4 items)

• **Scoring**
  – Scores are averaged within each domain

(3) Population proxy based measures

- **Adult Literacy and Life Skills Survey (ALLS)**
  - Used in recent health literacy population surveys in Australia (Australian Bureau of Statistics)

- **Purpose:**
  - Measure health literacy among the population aged 16 years and older

- **Method**
  - Computer assisted personal interviewing system
Adult Literacy and Life Skills Survey

• Format
  – 5 domains:
    (1) Health promotion (60 items)
    (2) Health protection (65 items)
    (3) Disease prevention (18 items)
    (4) Healthcare and disease management (16 items)
    (5) Systems navigation (32 items)

• Scoring
  – 5 proficiency levels
  – Level 1 (lowest) to Level 5 (highest)
Considerations – health literacy measures

• Content is narrow
  – Reading, comprehension, numeracy skills

• Scoring categories not easily applied into a clinical context

• Several measures require interviewer

• Majority of measures not based on a conceptual framework of health literacy
3. How health literate are Australians?
Vic population-based study of health literacy

- Random sample adult population from 2004 Victorian electoral roll – 310 participants
- Face-to-face interviews
  - Trained interviewers (n=10)
- REALM, TOFHLA and NVS health literacy measures

Barber M, Osborne RH, Staples M, Clerehan R, Elder C and Buchbinder R. *Up to a quarter of the Australian population may have suboptimal health literacy depending on the measurement tool: results from a population based survey.* Health Promotion International 2009; 24: 252-261
**Representativeness of sample**

**Sociodemographic comparisons between study and population**

- **Income >$40000**
  - FHL study
  - Victoria

- **Post-school qualifications**
  - FHL study
  - Victoria

- **Age 50+**
  - FHL study
  - Victoria

- **Metropolitan**
  - FHL study
  - Victoria

- **Australian born**
  - FHL study
  - Victoria

- **Female**
  - FHL study
  - Victoria

* * Means significantly different from Victorian general population
<table>
<thead>
<tr>
<th>REALM</th>
<th>(N = 310)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 4-6</td>
<td>May need low-literacy materials; may not be able to read prescription labels</td>
<td>6 (2%)</td>
</tr>
<tr>
<td>Grade 7-8</td>
<td>May struggle with most currently available patient education materials</td>
<td>35 (11%)</td>
</tr>
<tr>
<td>High school</td>
<td>Should be able to read most patient education materials</td>
<td>269 (87%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOHFLA</th>
<th>(N = 309)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate</td>
<td>May be unable to read and interpret health texts</td>
<td>8 (3%)</td>
</tr>
<tr>
<td>Marginal</td>
<td>Would have difficulty reading/interpreting health texts</td>
<td>13 (4%)</td>
</tr>
<tr>
<td>Adequate</td>
<td>Could read and interpret most health texts</td>
<td>288 (93%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NVS</th>
<th>(N = 308)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Suggests highly likely (50% or more) limited literacy</td>
<td>22 (7%)</td>
</tr>
<tr>
<td>2-3</td>
<td>Indicates possibility of limited literacy</td>
<td>58 (19%)</td>
</tr>
<tr>
<td>4-6</td>
<td>Almost always indicates adequate literacy</td>
<td>228 (74%)</td>
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</table>
### Definition of 13 REALM words

<table>
<thead>
<tr>
<th>Nausea</th>
<th>Hormones</th>
</tr>
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<tbody>
<tr>
<td>Allergic</td>
<td>Asthma</td>
</tr>
<tr>
<td>Calories</td>
<td>Colitis</td>
</tr>
<tr>
<td>Arthritis</td>
<td>Hepatitis</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Antibiotics</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>Anaemia</td>
</tr>
<tr>
<td>Obesity</td>
<td></td>
</tr>
</tbody>
</table>

Scored as

- 2 – correct
- 1 - partially correct
- 0 - incorrect
## Definition of 13 REALM words

Only 3 (1%) defined all 13 words correctly

<table>
<thead>
<tr>
<th>Category</th>
<th>Average Number of Words (out of 13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>$7.2 \pm 2.7$</td>
</tr>
<tr>
<td>Partially Correct</td>
<td>$3.4 \pm 1.8$</td>
</tr>
<tr>
<td>Incorrect</td>
<td>$2.4 \pm 2.0$</td>
</tr>
</tbody>
</table>

- Nausea
- Allergic
- Calories
- Arthritis
- Diabetes
- Osteoporosis
- Obesity
- Hormones
- Asthma
- Colitis
- Hepatitis
- Antibiotics
- Anaemia
<table>
<thead>
<tr>
<th>Pronunciation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Correct</td>
</tr>
<tr>
<td>Hormones</td>
<td>97</td>
</tr>
<tr>
<td>Diabetes*</td>
<td>95</td>
</tr>
<tr>
<td>Obesity</td>
<td>92</td>
</tr>
<tr>
<td>Arthritis*</td>
<td>99</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>90</td>
</tr>
</tbody>
</table>

* Having the condition not associated with better definitions
Interpretation of Vic population survey

- 7-26% of participants had suboptimal ‘health literacy’ skills, depending upon the measure

- This is likely to be an underestimate of the true size of the problem

- Correct pronunciation of words ≠ understanding
Australian health literacy survey - 2006

- Australian Bureau of Statistics
  - used the Adult Literacy and Life Skills Survey (ALLS)
    - 5 levels of health literacy
    - Reading, comprehension, numeracy
    - Level 1 (lowest) to Level 5 (highest)

- 59% Australians were reported to have inadequate knowledge and skills required to understand and use information relating to health issues

South Australian health literacy survey

- Random sample adult population from 2008 South Australian Omnibus survey
- 2824 participants aged 16 years +
- Face-to-face interviews
- Newest Vital Sign (NVS) – health literacy measure

READ TO SUBJECT: This information is on the back of a container of a pint of ice cream.

QUESTIONS
1. If you eat the entire container, how many calories will you eat?

ANSWER: 1000 calories the only correct answer
Results

• 24% individuals with limited functional health literacy (FHL)
• 21% high likelihood of inadequate FHL

• Individuals with high likelihood of inadequate FHL:
  – Lower education (left school <15 years)
  – Low income
  – CALD population
  – More likely to report having diabetes, cardiac disease or stroke
Summary

• Estimates of health literacy in Australian populations vary

• Measures focus on assessing reading, comprehension and numeracy skills

• Is this adequate information to inform policy and practice?
Mismatch between measure and definitions

- **Definitions**
  - Seek, understand and utilise health information
  - Cognitive and social skills
  - Abilities to make sound health decisions

- **Measures**
  - Reading comprehension
  - Numeracy
4. What is important to patients when seeking, understanding and utilising health information?
Methods:

• Consultation with range of patient groups
  – Disease continuum
  – Healthcare setting
  – Socioeconomic status

• Qualitative methods
  – In-depth interviews
  • 3 patient groups
  – Concept mapping workshops
  • 2 workshops with patients from low/high SES background
## Results: participants (interviews)

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Chronic disease</th>
<th>General population</th>
<th>Emergency Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants (n)</td>
<td>20</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Age (years): median (range)</td>
<td>57 (32-85)</td>
<td>74 (30-83)</td>
<td>49 (25-67)</td>
</tr>
<tr>
<td>Sex: % Female</td>
<td>75%</td>
<td>64%</td>
<td>50%</td>
</tr>
<tr>
<td>Education completed: n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>5 (25)</td>
<td>4 (29)</td>
<td>Not reported</td>
</tr>
<tr>
<td>High school</td>
<td>10 (50)</td>
<td>8 (57)</td>
<td>Not reported</td>
</tr>
<tr>
<td>University</td>
<td>5 (25)</td>
<td>2 (14)</td>
<td>Not reported</td>
</tr>
<tr>
<td>Main Health problem: n (%)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lung Disease</td>
<td>5 (25)</td>
<td>1 (7)</td>
<td>5 (36)</td>
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<tr>
<td>Chest Pain</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>8 (57)</td>
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<tr>
<td>Osteo and rheumatoid arthritis</td>
<td>4 (20)</td>
<td>1 (7)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3 (15)</td>
<td>0 (0)</td>
<td>1 (7)</td>
</tr>
</tbody>
</table>
Interview results: components of health literacy

7 key individual abilities

- Knowing when to seek health information:
- Knowing where to seek health information:
- Literacy skills
- Verbal communication
- Assertiveness
- Capacity to retain and process health information
- Application skills

Broader factors

- Healthcare system
- Socioeconomic
- Social support
- Education
- Cultural influences
- Personal health attitudes

Jordan JE, Buchbinder R, Osborne RH. Conceptualising health literacy from the patient perspective. Patient Education Counseling, epublication November 2009
Abilities important in seeking health information

• Knowing when to seek health information

“…knowing where to go, where to get help from and probably understanding a little bit about the urgency…is this a really urgent problem? Am I going to be sitting in Casualty for six or eight hours or ten hours when I could just as easily make an appointment to see a doctor somewhere else tomorrow.”

[Female participant with a chronic condition]

• Knowing where to seek health information

“…knowing what’s available is very helpful. A lot of people don’t know all that is available to them. I probably don’t either but I have done a lot of community work and I have a fair idea of what’s available, …even just a list of specific places or counselling that is to do with disabilities or whatever…”

[Female participant with a chronic condition]
Abilities important in understanding health information

• Literacy skills
• Verbal communication
• Assertiveness

“I think that the hardest thing for any patient is trying to explain what it [the health problem] actually is because you’re not medically minded... I think that communication should be quite open...the doctor can’t tell what it is with you, unless you tell him [doctor] what it is...it comes down to straight out communication...”

[Male participant, general population]
Abilities important in utilising health information

- Capacity to retain and process information

  “…my thyroid became overactive and that was a new thing that happened and it was quite a shock and I didn’t really fully understand exactly what was being told to me and I was also upset about it…if something gives me a shock or makes me feel very stressed…my brain doesn’t function very well…they need the capacity to mentally process the information…”

  [Female participant with a chronic condition]

- Application skills

  “Well at the moment…I have got seven or eight medicines to take every day and you’ve got to take this one an hour before food and another one with food…we start off at six o’clock in the morning and go ‘til eight o’clock at night…so that’s all day, all different hours, all different times and when am I going to do my ordinary things?”

  [Male participant, Emergency Department]
Broader factors that affect health literacy abilities

HEALTHCARE SYSTEM LEVEL:

• Patient physical and emotional disposition

• Medical terminology

• Use of different information formats

“...when you’re sick, you haven’t got the strength. ...you don’t feel like talking, you don’t feel like doing anything. ...you’re just scared something will happen. ...”

[Female participant presenting to RMH ED]

“I think depending on the patient, you have to pitch whatever information according to the patient’s level of understanding. When I see my GP, he’s got diagrams and so on that you can really see what’s happening, what he’s trying to do. ...so diagrams cut across languages. Basically it works.”

[Male participant, general population]
Broader factors that affect health literacy abilities

COMMUNITY LEVEL:

• Lifestyle commitments

  “It’s time management and the business. I’ve got 12 guys working for me, plus all the subbies [subcontractors], plus 15 customers. So they sort of come first, I’ll get to the doctor if I’ve got anything serious...but I don’t know, they say go home and rest. Well the business needs decisions, it won’t run itself...”

  [Male participant, general population]

• Social support

  “I needed to take my daughter with me so that she could also think on my behalf. I’ve got three children and one of them would come along and help interpret what I’m not getting the gist of the information”

  [Female participant with a chronic condition]

• Financial

  “I find that services now are becoming very expensive...I can’t afford to do the things to help my body. My fibromyalgia is really playing up and I’m going to hydrotherapy and to the exercise program as an outpatient now. It was fine while I was an inpatient because I didn’t pay, but now, the hydro session is $7 and the exercise program is $15. I just don’t know how much longer I can sustain doing it...”

  [Female participant with a chronic condition]
Interview results: components of health literacy

7 key individual abilities

Knowing when to seek health information:
Knowing where to seek health information:
Literacy skills
Verbal communication
Assertiveness
Capacity to retain and process health information
Application skills

Broader factors

- Healthcare system
- Socioeconomic
- Social support
- Education
- Cultural influences
- Personal health attitudes

Jordan JE, Buchbinder R, Osborne RH. Conceptualising health literacy from the patient perspective. Patient Education Counseling, epublication November 2009
Concept mapping workshops

- **Structured conceptualisation process**

  1. **Brainstorming session**

  2. **Sorting and rating of statements**

  3. **Multivariate analysis**

  4. **Interpretation of maps**

  What abilities does a person need to get and use all of the information they need to manage their health?”
Results: participant demographics

- Individuals with chronic condition from low SES area (n = 8)
- Individuals from general community from high SES area (n = 7)

<table>
<thead>
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<th>Descriptor</th>
<th>Overall</th>
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<tbody>
<tr>
<td>Participants (n)</td>
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</tr>
<tr>
<td>Age (years):</td>
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<td>40-49</td>
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<tr>
<td>50-59</td>
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<td>60-69</td>
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<td>70-79</td>
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<td>80+</td>
<td>1</td>
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<tr>
<td>Sex (% Female)</td>
<td>80%</td>
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<tr>
<td>Education completed: n (%)</td>
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</tr>
<tr>
<td>Primary school</td>
<td>2 (13%)</td>
</tr>
<tr>
<td>Some high school</td>
<td>6 (40%)</td>
</tr>
<tr>
<td>High school</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>University</td>
<td>4 (27%)</td>
</tr>
</tbody>
</table>
- Able to deal with all the practical issues of doing the things you have been advised to do
- Can afford transport to appointments
- Know how to deal with the medical system to get what you need
- Information on how to manage your illness
- Able to use the local library
- Confidence to ask questions of doctors
- Good communication skills
- Able to be assertive when this is necessary
Results: concept map (workshop #1)

Access to health professionals (face to face, esp GP)

Communication skills

Cost and transport

Education, Access to relevant information

Relevant up to date information (Information needed at particular times)

Support and support groups

Positive attitude

Emotional skills and support

Emotional and psychological issues necessary to help yourself (require support)
Concept mapping results: 8 key themes

- Patient attitudes towards health
- Socioeconomic factors
- Skills for sourcing health information
- Access healthcare services
- Verbal communication skills
- Being proactive
- Self-management skills
- Social support
**Consolidation of qualitative themes**

- Descriptive meta-matrices to consolidate abilities and factors identified

<table>
<thead>
<tr>
<th>Seeking health information</th>
<th>Individual interviews</th>
<th>Concept Mapping</th>
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</thead>
<tbody>
<tr>
<td>• Knowing where to seek health information</td>
<td>• Knowing where to seek health information</td>
<td>• Skills for sourcing health information</td>
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<tr>
<td>• Knowing where to seek health information</td>
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<td>• Accessing health professionals and broader healthcare system</td>
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<thead>
<tr>
<th>Understanding health information</th>
<th>Individual interviews</th>
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<tr>
<td>• Verbal communication</td>
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<td>• Assertiveness</td>
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<td>• Literacy skills</td>
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<tr>
<th>Utilising health information</th>
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<tr>
<td>• Capacity to retain and process information</td>
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<td>• Self-management skills</td>
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<td>• Application skills (apply to lifestyle)</td>
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Comparison of constructs and existing measures

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<tr>
<th>INDIVIDUAL ABILITIES:</th>
<th>REALM</th>
<th>TOFHLA</th>
<th>SILS</th>
<th>NAAL</th>
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<td>Proactive</td>
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<td>Capacity to process and retain information</td>
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<td>Application skills</td>
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<th>BROADER FACTORS:</th>
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<tbody>
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<td>Competing lifestyle commitments</td>
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5. A new measure of health literacy