Measuring and Addressing Health Literacy in Primary Health Care

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COMPaRE-PHC, UNSW, Sydney, 2\textsuperscript{nd} June 2016
Why health literacy? Why might it be useful?

**THEORETICAL MAXIMUM**
100% Coverage
No more improvement possible

1. **QUICK WINS**
Large-scale impact from simple tasks

2. **DIMINISHING RETURNS**
From continued work on maturing campaign or programs

3. **PLATEAU**
Flattened performance from stagnating campaign or programs

Source: Roy Batterham, Deakin University
Why health literacy? Why might it be useful?

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   Large-scale impact from simple tasks

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How can we meet the needs of those we are currently failing to engage or be effective with?

Source: Roy Batterham, Deakin University
Inclusive Health Literacy organizing framework

Empowerment / Agency / Appraisal

Health competencies (skills / abilities / reading / numeracy)

Knowledge

Vocabulary

Language

Supportive & determining structures (Trust, faith, emotional, cultural, environmental)

Basics (absence of catastrophic health problems, absence of poverty, safety)

© Richard Osborne, Alison Beauchamp 2013
Health Literacy Responsiveness

The Way In Which Services Make

| Information | Resources | Supports | Environments |

Available and Accessible

To People With Varying Health Literacy Strengths And Limitations
How has health literacy been measured?

• Mostly been assessed through measuring reading ability, comprehension and word recognition skills

• Tools used with patients:
  1. Rapid Estimate of Adult Literacy in Medicine (REALM)
  2. Test of Functional Health Literacy in Adults (TOFHLA)
  3. Newest Vital Sign (NVS)

• Audits and surveys
  4. Audit of written materials / health facilities (e.g. signage)
  5. National Literacy Surveys

• New / Modern / multidimensional scales
Rapid Estimate of Adult Literacy in Medicine: REALM

66 words

List 1  List 2  List 3
fat       fatigue  allergic
flu       pelvic   menstrual
pill      jaundice  testicle
dose      infection colitis
eye       exercise  emergency
stress    behaviour  medication
smear     prescription  occupation
nerves    notify  sexually
germs     gallbladder  alcoholism

Test of Functional Health Literacy in Adults: (TOFHLA)

Numeracy (17 items)

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

Q2. And the next one after that? ______________
Newest vital sign (NVS)

**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:** 1,000

If one is truly to succeed in leading a person to a specific place, one must first and foremost take care to find him where he is and begin there.

Grounded development of questionnaires: Concept mapping
Structured conceptualisation process that captures the local wisdom of patients, practitioners and policy makers

Seeding statement:
Thinking about your experiences in trying to look after your health (or the health of your family), what abilities does a person need to have to be able get and to use all of the information they need?

1. Brainstorming session
2. Sorting and rating of statements
3. Multivariate analysis (multi-dimensional scaling and cluster analysis)
4. Interpretation of maps
The Health Literacy Questionnaire: 44 questions

Strongly Agree—Strongly disagree

1. Feeling understood and supported by healthcare providers
   • I can rely on at least one healthcare provider

2. Having sufficient information to manage my health
   • I am sure I have all the information I need to manage my health effectively

3. Actively managing my health
   • I spend quite a lot of time actively managing my health
   • I make plans for what I need to do to be healthy
   • Despite other things in my life, I make time to be healthy
   • I set my own goals about health and fitness
   • There are things that I do regularly to make myself more healthy

4. Social support for health
   • I have at least one person who can come to medical appointments with me

5. Appraisal of health information
   • When I see new information about health, I check up on whether it is true or not

Cannot do—Very easy

6. Ability to actively engage with healthcare providers
   • Discuss things with healthcare providers until you understand all you need to

7. Navigating the healthcare system
   • Work out what is the best care for you
   • Decide which healthcare provider you need to see

8. Ability to find good health information
   • Get health information in words you understand

A quote from Primary Care…

“Richard… these are the things that doctors hate most about their patients”

This describes the “heart sink” patient (Trish Greenhalgh)

These look like ordinary questions (frontline practitioner)
Psychometric properties of the English, Danish, German, Dutch, Slovakian HLQ... very strong

<table>
<thead>
<tr>
<th>Scale</th>
<th>N items</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feeling understood and supported by healthcare providers</td>
<td>4</td>
<td>0.86</td>
</tr>
<tr>
<td>2. Having sufficient information to manage my health</td>
<td>4</td>
<td>0.85</td>
</tr>
<tr>
<td>3. Actively managing my health</td>
<td>5</td>
<td>0.85</td>
</tr>
<tr>
<td>4. Social support for health</td>
<td>5</td>
<td>0.80</td>
</tr>
<tr>
<td>5. Appraisal of health information</td>
<td>5</td>
<td>0.81</td>
</tr>
<tr>
<td>6. Ability to actively engage with healthcare providers</td>
<td>5</td>
<td>0.89</td>
</tr>
<tr>
<td>7. Navigating the healthcare system</td>
<td>6</td>
<td>0.88</td>
</tr>
<tr>
<td>8. Ability to find good health information</td>
<td>5</td>
<td>0.87</td>
</tr>
<tr>
<td>9. Understand health information well enough to know what to do</td>
<td>5</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Calibration sample N=634 (community health, ED, outpatients)
Replication sample N=412 (ED: rural, younger people)
Further replication N=813 (9 disparate health / community services)
Mrs Jones, you seem to have a lot of trouble being motivated” why is this?

Mrs Jones, you seem to now know how to find your way around the health service. Very good!”
HLQ organisational feed back sheet (hypothetical)

"Western NSW PHN, you seem to have a lot of people who have trouble being motivated" Why is this?

“South Eastern NSW PHN, your patients seem to now know how to find your way around the health service. Very good!” Why is this?
Distribution of health literacy strengths and weaknesses across socio-demographic groups: a cross-sectional survey using the Health Literacy Questionnaire (HLQ)


Discussion

This study demonstrates small to very large differences in health literacy within demographic sub-groups of typical adult users of services in Victoria. Particular groups with the largest health literacy differentials compared to their counterparts are those born overseas, those not speaking English at home, and those with low education.
Differences in Understanding and Engagement in 29,000 Danish citizens.
Friss, Lasgaard, Osborne, Maindal
BMJ Open, 14th January, 2016
Role of ‘health literacy’

• Health literacy is best thought of as a problem solving tool to assess and meet the needs of those who do not access or benefit from existing services and approaches as much as others.

• It is deeply linked to the concept of equity and the concept that
  • not everyone has the same needs, and that
  • effective approaches are not the same for everyone.
Intervention development
(intervention mapping)

1. **Needs assessment** (fine grained health literacy needs: e.g., HLQ, eHLQ)
   - Needs of consumers / patients
   - Needs of system (practitioners, planners/managers, policymakers)

2. From the needs assessment to create a matrix of proximal program objectives

3. From the target users, select interventions, methods and practical strategies and suggestions

4. Co-design and plan interventions with all stakeholders

5. Prioritisation, adoption and implementation of interventions

6. Monitoring and program evaluation.

If you get this wrong, everything else is wrong.
Australian Research Council Linkage Grant (2012-2015)

Key investigators
- Richard Osborne
- Rachelle Buchbinder
- Roy Batterham
- Alison Beauchamp
- Sarity Dodson
- Brad Astbury
- Gerald Elsworth

Partners – Victorian Government
1. Home and Community Care (HACC)
2. Primary Care
3. Hospital Admissions Risk Program (HARP)

www.ophelia.net.au
What is the Ophelia Approach?

Ophelia aims to improve health outcomes and reduce health inequalities, by Empowering health and community services to understand, prioritise and take action – to be responsive to clients with varying health literacy strengths and needs.

Ophelia means Optimizing Health Literacy and Access to health information and services.
Ophelia protocol

The protocol draws on three discourses:
1. Intervention mapping
2. Quality improvement collaboratives
3. Realist evaluation thinking

http://www.biomedcentral.com/1471-2458/14/694
Ophelia’s Principles

1. Focus on improving health and wellbeing *outcomes*
2. Respond to *locally-identified health literacy needs*
3. Focus on increasing *equity* in health outcomes, and access to services for people with varying health literacy needs
4. Prioritise *local wisdom, culture and systems*
5. Engage all relevant stakeholders in the *co-creation* and implementation of solutions.
6. Focus on improvements at, and across, *all levels of the health system*
7. Focus on achieving *sustained improvements* through changes to environments, practice, culture and policy
8. Respond to the *variable and changing health literacy needs* of individuals and communities
Health literacy and access to health promotion and health services

Stages of engagement with a service or provider

**Stage 1:** Approaching a health service or provider

**Stage 2:** Receiving a service or episode of care

**Stage 3:** Fully understands own health needs
Health literacy and access to health promotion and health services

Health literacy barriers

- People don’t know about service
- People have difficulty explaining needs to intake workers
- Services don’t tailor what they do to individual patients’ learning needs
- Providers unaware that patients are not able to put knowledge into practice

Stage 1: Approaching a health service or provider

Stage 2: Receiving a service or episode of care

Stage 3: Fully understands own health needs
The Health Literacy Questionnaire: 44 questions

**Strongly Agree—Strongly disagree**

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7. Navigating the healthcare system
   - Work out what is the best care for you
   - Decide which healthcare provider you need to see

8. Ability to find good health information
   - Get health information in words you understand

9. Understand health information well enough to know what to do
   - Read and understand all the information on medication labels
   - Understand what healthcare providers are asking you to do
The HLQ has nine individual scales

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Health provider support</td>
<td>Have enough info</td>
<td>Actively manages health</td>
<td>Social support for health</td>
<td>Appraisal health info</td>
<td>Active engage with HP</td>
<td>Navigate health services</td>
<td>Find good health info</td>
<td>Understand health info for action</td>
</tr>
<tr>
<td>2</td>
<td>3.4</td>
<td>3.1</td>
<td>2.8</td>
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<td>2.4</td>
<td>4.3</td>
<td>3.4</td>
<td>3.2</td>
<td>4.5</td>
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</table>

Response Options:  
Strongly Agree—Strongly Disagree  

Response Options:  
Cannot do—Very easy
The HLQ has nine individual scales

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<td>Understand health info for action</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>Mod</td>
<td>Low</td>
<td>Very high</td>
<td>Very low</td>
<td>High</td>
<td>Low</td>
<td>Very low</td>
<td>Very high</td>
<td></td>
</tr>
</tbody>
</table>

Provides a picture of health literacy strengths and weaknesses
### Example of health literacy profiles of a group of clients (using cluster analysis)

<table>
<thead>
<tr>
<th>% of sample in each cluster</th>
<th>Health provider support</th>
<th>Have enough info</th>
<th>Actively manage health</th>
<th>Social support</th>
<th>Appraise health info</th>
<th>Active engage with HP</th>
<th>Navigate health services</th>
<th>Find good health info</th>
<th>Understand health info</th>
</tr>
</thead>
<tbody>
<tr>
<td>22%</td>
<td>3.68</td>
<td>3.45</td>
<td>3.40</td>
<td>3.50</td>
<td>3.16</td>
<td>4.55</td>
<td>4.40</td>
<td>4.26</td>
<td>4.46</td>
</tr>
<tr>
<td>24%</td>
<td>3.17</td>
<td>3.01</td>
<td>2.93</td>
<td>2.98</td>
<td>2.76</td>
<td>4.10</td>
<td>4.00</td>
<td>3.83</td>
<td>4.00</td>
</tr>
<tr>
<td>20%</td>
<td>3.35</td>
<td>2.91</td>
<td>3.08</td>
<td>3.12</td>
<td>2.84</td>
<td>3.74</td>
<td>3.47</td>
<td>2.96</td>
<td>2.83</td>
</tr>
<tr>
<td>20%</td>
<td>2.72</td>
<td>2.49</td>
<td>2.74</td>
<td>2.54</td>
<td>2.43</td>
<td>3.44</td>
<td>3.32</td>
<td>3.31</td>
<td>3.71</td>
</tr>
<tr>
<td>14%</td>
<td>2.83</td>
<td>2.39</td>
<td>2.70</td>
<td>2.68</td>
<td>2.23</td>
<td>2.38</td>
<td>2.19</td>
<td>1.94</td>
<td>2.24</td>
</tr>
</tbody>
</table>
Ms Vanger is 59 and is currently working part-time as a receptionist in a tyre sales room. She found this job after experiencing a long-time out of work with severe back pain. She lives alone and her only daughter lives interstate. She has a few friends that she sees regularly but has long since decided to stop talking about her back or her pain as she had lost some friendships in the past. She has seen many doctors about her back pain over the years and feels that they don’t take her seriously. One doctor, in particular, she felt was almost abusive and deliberately trying to discredit her story for the benefit of her employer. She has tried many suggestions to manage the pain and now uses a mix of over-the-counter medicines and homeopathic applications. She has worked out an activity schedule for herself that she seems able to manage. She knows she should go to a doctor to have her BP and blood sugars checked but feels disinclined to engage with doctors again just yet.
The Ophelia process is an enhancement of fairly standard participatory development approaches that incorporates a health literacy perspective by:

- Assessing health literacy using a multi-dimensional tool
- Emphasizing understanding health literacy diversity
- Emphasizing local wisdom as a major source of solutions
Advantages of working with practitioners and community members

- Years of experience and tacit knowledge are important resources
  - knowledge of local situations
  - knowledge of people
- Likely to be implementable
  - co-designed *in situ* with all stakeholders
- Don’t need to achieve subsequent buy-in
  - Don’t need to convince them it’s a good idea... it’s their idea!
Phase 1: Identify health literacy strengths & needs

- Collect health literacy data from community members
- Discuss results in workshops to generate intervention ideas

Phase 2: Co-create health literacy interventions

- Identify which interventions have potential to address local health literacy needs or improve outcomes

Phase 3: Apply interventions; evaluate on an ongoing basis

- Health literacy interventions are applied and evaluated

Ophelia – optimising health literacy to improve outcomes
Ophelia Victoria – intervention ideas

• ~100 HLQs collected at each site (n=9)
• Over 200 intervention ideas generated in co-design workshops
• Following the workshops, intervention ideas were:
  • Refined collaboratively using program logic models
  • Processes and materials were pilot tested using quality cycles
### ACCESSING CREDIBLE HEALTH INFORMATION ONLINE CHECKLIST

- **Is the information from a reliable site?**
  - Sites that have domain names with `.gov`, `.edu` or `.org` are more likely to hold accurate science-based information. Sites with `.net` or `.com` are less likely to be reliable.

- **Can you find information about the organisation behind the website?**
  - Before you believe any health information on the internet, find out what you can about the organisation. Who put the information on the site?

- **Are the qualifications of the author listed?**
  - An author’s qualification should be related to the topic and strengthened by the organisation with which they are associated.

- **Are the contact details of the organisation available?**
  - Is the phone number, address or email on the website? This means you can ask further questions or check that the author can be trusted.

- **Is the information related to research (fact) or opinion?**
  - Look at other reliable sites to fully understand the issue. Look for any research or statistics to back up the information. Stay away from sites that offer a ‘miracle cure’.

- **Has the site been sponsored?**
  - Some websites are paid for by food or drug companies and may present one-sided information. Avoid sites that ask you to send money or personal details.

- **Is the website current?**
  - Health information changes all the time. Websites that are current should have the date they were last updated.

- **Are all the links current and working?**

Source: Adapted from the Department of Health Western Australia, Health guide to accessing health information. A resource for professionals working with youth. Perth, Department of Health Western Australia.
<table>
<thead>
<tr>
<th>Site &amp; target client group</th>
<th>Aim</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional HARP program</td>
<td>To support HARP clinicians to provide effective client education on health service navigation and engagement</td>
<td>1) <strong>Screen client learning preferences</strong> so education can be tailored appropriately; 2) Develop client-focused health appointment plans; 3) Use teach-back in patient education.</td>
</tr>
<tr>
<td>All HARP clients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural CHC (120km from CBD)</td>
<td>To build community capacity to navigate online health information</td>
<td>1) Deliver online navigation training within existing computer course at community house in low SES area; 2) Deliver a <strong>video education</strong> session via the CHC website; 3) Deliver presentations at CHC groups to provide key messages about online health information.</td>
</tr>
<tr>
<td>Clients with chronic disease (esp. those with limited access)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro City Council HACC program</td>
<td>To facilitate an open exchange between consumers and their GP</td>
<td>1) <strong>Screen for client-GP engagement issues</strong>; 2) Provide guidance to clients on strategies to engage with their GP; 3) Provide information to GPs regarding guidance offered to their clients.</td>
</tr>
<tr>
<td>Clients not engaging with GPs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro HARP program</td>
<td>To support clients to navigate health appointments and to manage perceived health crises appropriately</td>
<td>1) Provide tailored and focused education and support based on episodes of health crises; 2) Develop client-focused health appointment plans; 3) Use teach-back in patient education.</td>
</tr>
<tr>
<td>All HARP clients</td>
<td></td>
<td></td>
</tr>
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</tr>
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<td>---------------------------</td>
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</tr>
</tbody>
</table>
| • Metro CHC  
• Clients with chronic disease who access the service for episodic care only | To support clients to move from episodic to ongoing care where appropriate | 1) Implement a referral pathway between on-site dental service and primary health care services within the CHC;  
2) Begin to develop a health literacy policy on service access. |
| • Rural CHC (250km from CBD)  
• Community members from more remote and rural areas | To build community health literacy knowledge and capacity by supporting CHC volunteers to act as health mentors for their rural community | 1) Volunteers who run existing CHC group programs in their local rural community deliver health literacy messages and resources;  
2) Volunteers attending clients’ homes as part of the ‘friendly visitors’ program deliver guidance on the above topics;  
3) Integrate additional training in health literacy as part of the volunteer induction program for interested volunteers. |
| • Metro City Council HACC program (low SES area)  
• Socially isolated clients with limited mobility | To develop a mentorship program whereby community volunteers are trained to act as health mentors | 1) Utilise mentors to support clients in a gentle exercise program in a group setting;  
2) Utilise mentors to support clients in a gentle exercise program at home. |
### Examples of Ophelia Victoria interventions

<table>
<thead>
<tr>
<th>Level</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Client level</strong></td>
<td>• Improving skills in appraisal of online health information</td>
</tr>
<tr>
<td></td>
<td>• Providing resources for clients to better engage with doctors</td>
</tr>
<tr>
<td><strong>Practitioner level</strong></td>
<td>• Enhanced skills in client education (e.g. identify clients’ preferred learning styles)</td>
</tr>
<tr>
<td></td>
<td>• Strategies to help clients use care plans (e.g. teach-back)</td>
</tr>
<tr>
<td><strong>Organisation levels</strong></td>
<td>• Service access policies (e.g. directing clients with chronic disease from ‘one-off’ visits to an ongoing model of care)</td>
</tr>
<tr>
<td></td>
<td>• Training volunteer peers to deliver health literacy messages in rural communities</td>
</tr>
<tr>
<td><strong>Inter-agency level</strong></td>
<td>• Engaging other organisations for mutual benefit (e.g. training members of a community women’s group as ‘health coaches’ to support older community members)</td>
</tr>
</tbody>
</table>
Population-based survey of residents in the South East Melbourne PHN region

Leads:
- Fiona Mouritz/Shol Blustein (SEMPHN), Alison Beauchamp (Deakin)

- Broad questions:
  - What are the health literacy needs of the population we serve?
  - What improvements can we do?

- Method (N=1466)
  - Computer assisted telephone interview
  - All SEMPHN postcodes, stratified by level of disadvantage, then randomly sampled from each strata
  - HLQ, demographic, health and service use questions
Index of relative socio-economic disadvantage 2011 SA1 State decile

Inner Metro
Port Phillip
Glen Eira
Stonnington
Bayside (part)

Mid Metro
Bayside (part)
Kingston

Outer Metro
Frankston

Outer Metro
Dandenong
Casey

Rural
Cardinia

Rural
Mornington Peninsula

Legend:
- Unrated
- Least disadvantaged
- Most disadvantaged

Map showing the distribution of socio-economic disadvantage across different areas.
Who was in the survey? (n=1466)

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>512</td>
<td>34.9%</td>
</tr>
<tr>
<td>Female</td>
<td>954</td>
<td>65.1%</td>
</tr>
<tr>
<td>Mean age</td>
<td>62.9 (15.0)</td>
<td>range 18 to 99</td>
</tr>
<tr>
<td>Completed or part completed high school</td>
<td>582</td>
<td>40.1%</td>
</tr>
<tr>
<td>TAFE/Trade</td>
<td>317</td>
<td>21.8%</td>
</tr>
<tr>
<td>Undergraduate or postgraduate degree</td>
<td>554</td>
<td>38.1%</td>
</tr>
<tr>
<td>Born in Australia</td>
<td>1,018</td>
<td>69.4%</td>
</tr>
<tr>
<td>English is spoken at home</td>
<td>1,372</td>
<td>93.7%</td>
</tr>
<tr>
<td>Aboriginal or TSI</td>
<td>12</td>
<td>0.8%</td>
</tr>
<tr>
<td>Private Health Insurance</td>
<td>995</td>
<td>68.7%</td>
</tr>
<tr>
<td>Working full-time</td>
<td>353</td>
<td>24.3%</td>
</tr>
<tr>
<td>Working part-time</td>
<td>244</td>
<td>16.8%</td>
</tr>
<tr>
<td>Retiree</td>
<td>718</td>
<td>49.4%</td>
</tr>
</tbody>
</table>
### Who was in the survey – health status

<table>
<thead>
<tr>
<th>Condition</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>323</td>
<td>(22%)</td>
</tr>
<tr>
<td>Back pain</td>
<td>272</td>
<td>(18.6%)</td>
</tr>
<tr>
<td>Heart condition</td>
<td>173</td>
<td>(11.8%)</td>
</tr>
<tr>
<td>Asthma or a lung condition</td>
<td>124</td>
<td>(8.5%)</td>
</tr>
<tr>
<td>Depression or anxiety</td>
<td>152</td>
<td>(10.4%)</td>
</tr>
<tr>
<td>Average number of health conditions</td>
<td>1.17</td>
<td>(1.40)</td>
</tr>
<tr>
<td>Reports has no health condition</td>
<td>606</td>
<td>(41.3%)</td>
</tr>
</tbody>
</table>

#### Self-rated health. Mean score = 2.44 (sd 1.14)

<table>
<thead>
<tr>
<th>Rating</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. excellent</td>
<td>339</td>
<td>(23.4%)</td>
</tr>
<tr>
<td>2. very good</td>
<td>461</td>
<td>(31.8%)</td>
</tr>
<tr>
<td>3. good</td>
<td>409</td>
<td>(28.2%)</td>
</tr>
<tr>
<td>4. fair</td>
<td>174</td>
<td>(12%)</td>
</tr>
<tr>
<td>5. poor or very poor</td>
<td>68</td>
<td>(4.6%)</td>
</tr>
</tbody>
</table>

#### Attended ED in last 12 months

<table>
<thead>
<tr>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>292</td>
<td>(20.2%)</td>
</tr>
</tbody>
</table>

#### Number of times used locum service in past 12 months

<table>
<thead>
<tr>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>174</td>
<td>(12%)</td>
</tr>
</tbody>
</table>
HLQ results for the overall sample (n=1466)
Mean HLQ scales by region

- Inner metro (n=378)
- Mid metro (n=149)
- Outer metro (n=572)
- Rural (n=367)
HLQ scores by key demographics
Lives alone vs. lives with others

Cohen’s d effect sizes of ≥0.25 for difference in means are highlighted

- 1. Feeling understood and...
- 2. Having sufficient...
- 3. Actively managing my health
- 4. Social support for health
- 5. Appraisal of health...
- 6. Ability to actively engage...
- 7. Navigating the healthcare...
- 8. Ability to find good health...
- 9. Understanding health...

Lives alone (n=382)  Lives with others (n=1075)
Speaks English at home

1. Feeling understood and...
2. Having sufficient information to...
3. Actively managing my health
4. Social support for health
5. Appraisal of health information
6. Ability to actively engage with...
7. Navigating the healthcare system
8. Ability to find good health...
9. Understanding health...

Cohen’s d effect sizes of $\geq 0.25$ for difference in means are highlighted

English at home (n=1367)
Other language at home (n=93)
Cohen's d effect sizes of ≥0.25 for difference in means are highlighted.

Education: Primary or part secondary vs. completed secondary or more

1. Feeling understood and... 2. Having sufficient... 3. Actively managing my... 4. Social support for health 5. Appraisal of health... 6. Ability to actively engage... 7. Navigating the... 8. Ability to find good... 9. Understanding health...

- Primary or part secondary (n=247)
- Completed secondary (n=1,218)
Used locum service in past year

Cohen’s d effect sizes of ≥0.25 for difference in means are highlighted.
## Cluster analysis of HLQs from 1,500 people

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>61</td>
<td>60.0</td>
<td>3.86</td>
<td>3.78</td>
<td>3.88</td>
<td>3.85</td>
<td>3.72</td>
<td>4.85</td>
<td>4.74</td>
<td>4.79</td>
<td>4.86</td>
</tr>
<tr>
<td>B</td>
<td>139</td>
<td>64.6</td>
<td>3.88</td>
<td>3.30</td>
<td>3.38</td>
<td>3.73</td>
<td>2.91</td>
<td>4.86</td>
<td>4.45</td>
<td>4.24</td>
<td>4.70</td>
</tr>
<tr>
<td>C</td>
<td>114</td>
<td>58.7</td>
<td>3.87</td>
<td>3.76</td>
<td>3.59</td>
<td>3.66</td>
<td>3.52</td>
<td>4.28</td>
<td>4.04</td>
<td>4.13</td>
<td>4.21</td>
</tr>
<tr>
<td>D</td>
<td>41</td>
<td>59.9</td>
<td>2.97</td>
<td>3.23</td>
<td>3.67</td>
<td>3.35</td>
<td>2.97</td>
<td>4.16</td>
<td>4.02</td>
<td>4.28</td>
<td>4.63</td>
</tr>
<tr>
<td>E</td>
<td>149</td>
<td>61.9</td>
<td>3.18</td>
<td>3.03</td>
<td>2.87</td>
<td>3.03</td>
<td>2.73</td>
<td>4.69</td>
<td>4.44</td>
<td>4.39</td>
<td>4.70</td>
</tr>
<tr>
<td>F</td>
<td>93</td>
<td>63.7</td>
<td>3.66</td>
<td>3.10</td>
<td>2.95</td>
<td>3.38</td>
<td>2.48</td>
<td>4.45</td>
<td>4.08</td>
<td>3.71</td>
<td>4.12</td>
</tr>
<tr>
<td>G</td>
<td>50</td>
<td>59.9</td>
<td>3.51</td>
<td>3.23</td>
<td>3.58</td>
<td>3.40</td>
<td>3.18</td>
<td>3.78</td>
<td>3.60</td>
<td>3.62</td>
<td>3.70</td>
</tr>
<tr>
<td>H</td>
<td>299</td>
<td>64.0</td>
<td>3.15</td>
<td>3.08</td>
<td>3.05</td>
<td>3.08</td>
<td>2.95</td>
<td>4.05</td>
<td>3.96</td>
<td>3.97</td>
<td>4.03</td>
</tr>
<tr>
<td>I</td>
<td>244</td>
<td>64.4</td>
<td>2.90</td>
<td>2.80</td>
<td>2.75</td>
<td>2.74</td>
<td>2.50</td>
<td>3.92</td>
<td>3.85</td>
<td>3.85</td>
<td>3.96</td>
</tr>
<tr>
<td>J</td>
<td>138</td>
<td>63.2</td>
<td>3.04</td>
<td>2.96</td>
<td>2.91</td>
<td>2.93</td>
<td>2.63</td>
<td>3.73</td>
<td>3.56</td>
<td>3.49</td>
<td>3.62</td>
</tr>
<tr>
<td>K</td>
<td>68</td>
<td>65.8</td>
<td>3.20</td>
<td>2.53</td>
<td>2.89</td>
<td>2.94</td>
<td>2.30</td>
<td>3.71</td>
<td>3.29</td>
<td>2.74</td>
<td>3.59</td>
</tr>
<tr>
<td>L</td>
<td>44</td>
<td>58.0</td>
<td>2.45</td>
<td>2.45</td>
<td>2.88</td>
<td>2.37</td>
<td>2.59</td>
<td>2.91</td>
<td>2.87</td>
<td>3.52</td>
<td>3.90</td>
</tr>
<tr>
<td>M</td>
<td>22</td>
<td>66.4</td>
<td>2.91</td>
<td>2.60</td>
<td>2.81</td>
<td>2.68</td>
<td>2.50</td>
<td>2.66</td>
<td>2.45</td>
<td>2.41</td>
<td>2.32</td>
</tr>
</tbody>
</table>
Cluster L has an average age of 58. They have poor self-reported health and those who have health conditions are likely to have more than one although 41% report no health conditions. Education levels are in the mid range and nearly all speak English at home. They are more likely than average to have arthritis and/or back pain and/or depression. In some ways this cluster is the opposite of the previous cluster, they have very low scores on 1. Understood and supported by health providers and remains in the bottom 2 on this scale. All other scales are low but 3. Actively managing my health, 8. Finding health information and 9. Understanding health information are less low. This pattern indicates an independent information seeking style that is not that successful and is often associated with decreased trust in health providers. It is often associated with chronic pain.
Cluster L – link to demographics

Cluster L has an average age of 58. They have poor self-reported health and those who have health conditions are likely to have more than one although 41% report no health conditions. Education levels are in the mid range and nearly all speak English at home. They are more likely than average to have arthritis and/or back pain and/or depression. In some ways this cluster is the opposite of the previous cluster, they have very low scores on 1. Understood and supported by health providers and remains in the bottom 2 on this scale. All other scales are low but 3. Actively managing my health, 8. Finding health information and 9. Understanding health information are less low. This pattern indicates an independent information seeking style that is not that successful and is often associated with decreased trust in health providers. It is often associated with chronic pain.
Ms Vanger is 59 and is currently working part time as a receptionist in a tyre sales room. She found this job after experiencing a long time out of work with severe back pain. She lives alone and her daughter lives interstate. She has a few friends that she sees regularly but has long since decided to stop talking about her back or her pain as she had lost some friendships in the past. She has seen many doctors over the years and feels that they don’t take her seriously. One doctor, in particular, she felt was almost abusive about her story for the benefit of her employer. She has tried many suggestions to manage the pain and now uses a mix of over the counter medicines and homeopathic applications. She has worked out an activity schedule for herself that she seems able to manage. She knows she should go to a doctor to have her BP and blood sugars checked but feels disinclined to engage with doctors again.

Ask expert clinicians/ care workers and their managers “what is being done, or could be done, to improve outcomes for this client?”

What if there were lots of people like this in your community or attending your service?
What did a sample of stakeholders across the PHN come up with?

- Note: Focused, broadly, primary care preventable admissions
  - Could have focused on many areas with population sample
- De-medicalisation, build safe community-based environments to help people enter the system, co-locate mothers’ groups at Health Service
- Reduce stigma through community-level engagement
- Linkages between players in the system, start with non-treatening entry points into community health, then to GPs.
- Work with municipalities, especially through workplaces to get consistent messages out there in many many settings
- Relationships with patients
- Teach Back
Asset-based model of health literacy

The more common use of the term ‘asset-based’ is in relation to development and is similar to ‘strengths-based’ and opposed to ‘needs-based’ or ‘deficit-based’. Applying this view to health literacy the health literacy assets of a community relate to the people resources, associations, institutions, physical assets and connections that enable people to understand and make decisions related to their health.

Source: Roy Batterham

What can be built upon?

What assets can be added?
UNDERSTANDING THE NEEDS FOR VILLAGE-LEVEL HEALTH LITERACY INTERVENTIONS

Roy Batterham, Arnat Wannasri, Charay Vicathai, Anuchit Hirankitty, Richard Osborne
Health Insurance System Research Office (HISRO) Thailand
Health Systems Improvements Unit, Deakin University
Warin Chamrap District Hospital

22nd IUHPE World Conference on Health Promotion
Curitiba, Brazil
23 May 2016
## Relationship between ISHAQ and village

<table>
<thead>
<tr>
<th>Scale</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
<th>R-square</th>
<th>% variance explained by village factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knowledge of service entitlements</td>
<td>50.47</td>
<td>10</td>
<td>4.764</td>
<td>.000</td>
<td>.201</td>
</tr>
<tr>
<td>2</td>
<td>Awareness of neighborhood resources</td>
<td>175.47</td>
<td>10</td>
<td>10.000</td>
<td>.000</td>
<td>.346</td>
</tr>
<tr>
<td>3</td>
<td>Ability to access health services</td>
<td>88.69</td>
<td>10</td>
<td>5.753</td>
<td>.000</td>
<td>.233</td>
</tr>
<tr>
<td>4</td>
<td>Ability to get information and advice you want from healthcare personnel</td>
<td>130.77</td>
<td>10</td>
<td>11.117</td>
<td>.000</td>
<td>.370</td>
</tr>
<tr>
<td>5</td>
<td>Support from closest people</td>
<td>149.21</td>
<td>10</td>
<td>11.247</td>
<td>.000</td>
<td>.373</td>
</tr>
<tr>
<td>6</td>
<td>Ability to find information</td>
<td>119.97</td>
<td>10</td>
<td>5.289</td>
<td>.000</td>
<td>.219</td>
</tr>
<tr>
<td>7</td>
<td>Evaluating trustworthiness of health information</td>
<td>125.47</td>
<td>10</td>
<td>5.690</td>
<td>.000</td>
<td>.231</td>
</tr>
<tr>
<td>8</td>
<td>Taking responsibility for own health</td>
<td>143.49</td>
<td>10</td>
<td>14.201</td>
<td>.000</td>
<td>.429</td>
</tr>
<tr>
<td>9</td>
<td>Travel-related barriers to taking care of health</td>
<td>116.86</td>
<td>10</td>
<td>9.702</td>
<td>.000</td>
<td>.339</td>
</tr>
<tr>
<td>10</td>
<td>Eating for good health</td>
<td>129.68</td>
<td>10</td>
<td>15.245</td>
<td>.000</td>
<td>.446</td>
</tr>
<tr>
<td>11</td>
<td>Exercising for good health</td>
<td>151.97</td>
<td>10</td>
<td>6.529</td>
<td>.000</td>
<td>.257</td>
</tr>
<tr>
<td>12</td>
<td>Managing stress</td>
<td>173.95</td>
<td>10</td>
<td>15.346</td>
<td>.000</td>
<td>.448</td>
</tr>
<tr>
<td>13</td>
<td>Using medicines</td>
<td>65.05</td>
<td>10</td>
<td>6.057</td>
<td>.000</td>
<td>.243</td>
</tr>
<tr>
<td>14</td>
<td>Using herbs and supplements</td>
<td>215.82</td>
<td>10</td>
<td>9.568</td>
<td>.000</td>
<td>.336</td>
</tr>
<tr>
<td>15</td>
<td>Sharing information with others with the same condition</td>
<td>119.21</td>
<td>10</td>
<td>7.972</td>
<td>.000</td>
<td>.297</td>
</tr>
<tr>
<td>16</td>
<td>Self-monitoring</td>
<td>188.79</td>
<td>10</td>
<td>14.033</td>
<td>.000</td>
<td>.426</td>
</tr>
</tbody>
</table>

An individual’s health literacy can very strongly relate to the particular village they come from.
## Potential individual and village level factors determining health literacy

<table>
<thead>
<tr>
<th>Individual factors</th>
<th>Village factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Education</td>
<td>• Health volunteers and nurses</td>
</tr>
<tr>
<td>• Intelligence</td>
<td>• Health leaders</td>
</tr>
<tr>
<td>• Personality types</td>
<td>• Infrastructure and food sources</td>
</tr>
<tr>
<td>• Experience with health services</td>
<td>• Community conversations and peer attitudes</td>
</tr>
<tr>
<td>• Family health habits</td>
<td>• Distance to health services</td>
</tr>
<tr>
<td>• Financial resources</td>
<td>• Alternative health providers</td>
</tr>
<tr>
<td>• Health</td>
<td>NB Village factors are in many cases more easily modifiable</td>
</tr>
</tbody>
</table>
The e-health literacy framework: A conceptual framework for characterizing e-health users and their interaction with e-health systems

Ole Norgaard
University of Copenhagen, Denmark
Dorthe Furstrand
University of Copenhagen, Denmark
Danish Cancer Society, Copenhagen, Denmark
Louise Klokker
Bispebjerg & Frederiksberg Hospital, Denmark
Astrid Karnoe
University of Copenhagen, Denmark
Roy Batterham
Deakin University, Melbourne, Australia
Lars Kayser
University of Copenhagen, Denmark
Richard H. Osborne
Deakin University, Melbourne, Australia
Grounded development of questionnaires: Concept mapping
Structured conceptualisation process that captures the local wisdom of patients, practitioners and policy makers

1. Brainstorming session
2. Sorting and rating of statements
3. Multivariate analysis (multi-dimensional scaling and cluster analysis)
4. Interpretation of maps

Seeding statement:
Thinking about citizens’ experiences in trying to look after their health (or the health of their family), what does a person need to be able to do in order to use digital health services?
Domain names and descriptors of the eHLQ

1. Ability to process information
Able to read, write and remember, apply basic numerical concepts, and understand context-specific language (e.g. health, IT or English) as well as critically appraise information. Know when, how and what information to use.

2. Engagement in own health
Know about basic physiological functions and own current health status. Aware of risk factors and how to avoid them or reduce their influence on own health as well as navigating the health care system.

3. Ability to actively engage with digital services
Being comfortable using digital services for handling information.

4. Feel safe and in control
Feel that you have the ownership of personal data stored in the systems and that the data are safe and can be accessed only by people to whom they are relevant (own doctor, own nurse etc.).

5. Motivated to engage with digital services
Feel that engaging in the use of digital services will be useful for them in managing their health.

6. Access to digital services that work
Have access to digital services that the users trust to be working when they need it and as they expect it to work.

7. Digital services that suit individual needs
Have access to digital services that suit the specific needs and preferences of the users. This includes responsive features of both IT and the health care system (including carers) as well as adaptation of devices and interfaces to be used by people with physical and mental disabilities.
eHealth Literacy Framework

1. Ability to process information
2. Engagement in own health
3. Ability to actively engage with digital services
4. Feel safe and in control
5. Motivated to engage with digital services
6. Access to digital services that work
7. Digital services that suit individual needs
How can organisations become more **health literacy** responsive to the communities they serve?

Anita Trezona with the Ophelia team + 31 organisations

<table>
<thead>
<tr>
<th>The Org-HLR Framework Domains</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domains</strong></td>
</tr>
<tr>
<td>1. Policy and funding mandate</td>
</tr>
</tbody>
</table>
| 2. Leadership and culture | • Financial management  
• Leadership and commitment  
• Health literacy is an organisational priority  
• Equity and diversity focused  
• Consumer-centred philosophy |
| 3. Systems, processes and policies | • Data collection and community needs identification  
• Performance monitoring and evaluation  
• Service planning and quality improvement  
• Communication systems and processes  
• Internal policies and procedures |
| 4. Access to programs and services | • Service environment  
• Initial entry and ongoing access  
• Outreach services |
| 5. Community engagement and partnerships | • Community consultation and ensuring consumer participation  
• Partnerships with other organisations |
| 6. Communication with consumers | • Communication principles/standards  
• Health information provision  
• Use of media and technology  
• Health education programs |
| 7. Workforce | • Recruitment  
• Supportive working environments  
• Practice tools and resources  
• Ongoing professional development |
CHAT: Conversational health literacy assessment tool

- Support practitioners at intake
- Not a questionnaire
- Open source
- Partnership with the Victorian Dept of Health and Human Services
- Supportive professional relationships
CHAT: Conversational health literacy assessment tool

Topic areas

1. Supportive professional relationships
   • Eg Who do you usually see to help you look after your health?

2. Supportive personal relationships
   • Eg Aside from healthcare providers, who else do you talk with about your health?

3. Health information access and comprehension
   • Eg Where else do you get health information that you trust?

4. Current health behaviours
   • Wg What do you do to look after your health on a daily basis?

5. Barriers to health promotion and support
   • Eg Thinking about the things you do to look after your health, what is difficult for you to keep doing on a regular basis?
New tools to meet the needs of practitioners, organisations, planners

- eHealth Literacy Questionnaire (eHLQ)
- The Organisational Health Literacy Response (Org-HLR) Framework
- Conversational Health Literacy Tool (CHAT)
- Information and Support for Health Action Questionnaire (ISHAQ)
  - Health literacy measurement in communal / collectivist / tribal communities
  - Developed in Thailand
- Ophelia toolkit
- Health Literacy Questionnaire (HLQ)
- Childrens’ health literacy test (Taiwan)
Using health literacy to solve problems...

Access issues
- Why do some groups of people not turn up for free cancer screening?
  - Victoria, Australia
- Why do some people present late for TB/HIV treatment?

Treatment issues
- Why do people not manage their diabetes as well as some others?
  - Steno, Denmark
- How can we encourage more people to complete TB treatments?
  - Andalas University Medical Centre, Padang, Indonesia

Complex problems
- Why do people keep coming back to the ED with Primary Care Preventable Admissions?
  - Melbourne Hospitals/Primary Care Networks; Oldham, England
- What can a community that has lost its only GP do to take care of the health and healthcare needs of citizens?
  - Letham, Scotland
- What do older people with NCDs need to self-manage?
  - Ubon Ratchathani, Thailand
- What do people need to be able deal with local emergencies?
  - Lavender Hill Settlement, South Africa

Health literacy of service providers
- Why does the effectiveness of village health volunteers and lay health workers vary so greatly and how can this be improved?
  - Nakhon Ratchasima and Ubon Ratchathani, Thailand
- How can the effectiveness of school teachers as health educators be maximized?
  - Monastic schools in Myanmar
Does health literacy link health information to health outcomes?

- Exposure/non-exposure to health messages and health ‘opportunities’
- Knowledge, understanding of health, cultural and religious practices, prevailing beliefs, community conversations
- Health literacy
- Health behaviours
  (life style, participation in screening, treatment)
- Health outcomes
What is our problem?

And what is the role of cognitive-behavioral-social strategies (including health literacy)?

1. **QUICK WINS**
   - Large-scale impact from simple tasks.

2. **DIMINISHING RETURNS**
   - From continued work on maturing campaign/programs

3. **PLATEAU**
   - Flattened performance from stagnating campaign/programs

**THEORETICAL MAXIMUM**
- 100% coverage
- No more improvement possible.

To be effective here can think about average HL in the population.

but to be effective here we really need to focus on health literacy diversity.

Meeting the needs of those we are currently failing to engage or be effective with.

Optimising mass and/or standardised strategies.

To be effective here can think about average HL in the population.

Meeting the needs of those we are currently failing to engage or be effective with.

Optimising mass and/or standardised strategies.
Thank you

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Exploring Health Literacy Profiles of Texas University Students

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Paul Yeung, PhD, MA
Till Bruckermann
Emma F. Moselen, MappPsy
Robyn Dixon, PhD, RGON
Richard H. Osborne, PhD
Olga Chapa, PhD
Donna Stringer, PhD

Objectives: We used the 9-domain Health Literacy Questionnaire (HLQ) to investigate university students’ health literacy. Methods: Overall, 221 students at a university in southern Texas completed an online version of the HLQ. Socio-demographic data were collected. Data were analyzed using descriptive statistics. Results: Descriptive analyses of the HLQ showed that women reported higher means for “Appraisal of health information” and “Understanding health information well enough to know what to do” than men. There was a small difference in the scores of persons “15-24 years old” and “25 years or older” regarding “Appraisal of health information.” Furthermore, parents’ education was associated with some elements of students’ self-reported health literacy. That is, the more educated the parents, the higher the levels of health literacy reported by respondents with respect to “Social support for my health.” The “above average” socioeconomic group demonstrated the highest scores in all of the significant health literacy domains. Conclusions: This study has revealed some small to medium effect size differences across 9 domains of health literacy. Tertiary education providers could use HLQ as an early intervention tool to improve knowledge, skills, resources, and services that are necessary to create student health and health literate environments.

Key words: health literacy; university students; health education; health promotion; health behavior

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RESEARCH ARTICLE

Exploring Health Literacy in Medical University Students of Chongqing, China: A Cross-Sectional Study

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Abstract

Health literacy is important in public health and healthcare, particularly in effective communication between patients and health professionals. Although most medical students will eventually work as health professionals after graduation, research on health literacy of medical students is scarce. This study aimed to assess the health literacy level of medical students in Chongqing, China, and its influencing factors. A cross-sectional study was conducted and 1,275 participants (250 males and 1,022 females) who majored in five different disciplines were involved. The Health Literacy Questionnaire was used as the survey tool. The junior students obtained the highest scores, whereas the freshman students had the lowest scores on each scale. The average score of males was higher than that of females except in “feeling understood and supported by healthcare providers,” and the average score of students who reside in urban areas was higher than that of students in rural areas. Moreover, the average score of engineering students was higher than that of medical or health sciences students. Multiple linear regression models ($R_{adj}^2 = 0.435$, $P = 0.000$) showed that the grade, socioeconomic status, and parent’s highest level of education were positively correlated with health literacy. In conclusion, the health literacy levels of the medical students are insufficient and need improvement.
Deakin University, Australia

• Why look at health literacy of our students?
  – Build a better student health service
  – Build a more equitable university
• Approval from University Council
• Participants
  – Faculty of Health
  – Faculty of Arts
Table 1: Demographic and course details of n=651 students completing the HLQ at Deakin University

<table>
<thead>
<tr>
<th>Variable name</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>554 (85.1%)</td>
</tr>
<tr>
<td>Male</td>
<td>95 (14.6%)</td>
</tr>
<tr>
<td>Intersex / Indeterminate / Unspecified</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>28.6 (SD 11.4, range 17 to 69)</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
</tr>
<tr>
<td>Australian</td>
<td>539 (83.7%)</td>
</tr>
<tr>
<td>Dual citizenship</td>
<td>22 (3.4%)</td>
</tr>
<tr>
<td>Asian</td>
<td>19 (3.0%)</td>
</tr>
<tr>
<td>European, Baltic</td>
<td>34 (5.3%)</td>
</tr>
<tr>
<td>India, Nepal, Sri Lanka, Mauritius</td>
<td>17 (2.6%)</td>
</tr>
<tr>
<td>Other</td>
<td>13 (2.0%)</td>
</tr>
<tr>
<td>Language at home</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>583 (89.4%)</td>
</tr>
<tr>
<td>English plus 1 other</td>
<td>29 (4.5%)</td>
</tr>
<tr>
<td>Other</td>
<td>40 (6.1%)</td>
</tr>
<tr>
<td>Course</td>
<td></td>
</tr>
<tr>
<td>H300 Bachelor of Health Sciences</td>
<td>174 (26.8%)</td>
</tr>
<tr>
<td>D391 Bachelor of Health Sciences/ Bachelor</td>
<td>20 (3.1%)</td>
</tr>
<tr>
<td>H313 Bachelor of Public Health and Health</td>
<td>33 (5.1%)</td>
</tr>
<tr>
<td>D388 Bachelor of Public Health and Health</td>
<td>6 (0.9%)</td>
</tr>
<tr>
<td>H330 Bachelor of Social Work</td>
<td>88 (13.6%)</td>
</tr>
<tr>
<td>H355 Bachelor of Occupational Therapy</td>
<td>57 (8.8%)</td>
</tr>
<tr>
<td>H412 Bachelor of Public Health and Health</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>H355 Bachelor of Health Sciences (Honours)</td>
<td>1 (0.2%)</td>
</tr>
<tr>
<td>H757 Master of Public Health</td>
<td>33 (5.1%)</td>
</tr>
<tr>
<td>H756 Master of Health and Human Service</td>
<td>6 (0.9%)</td>
</tr>
<tr>
<td>H515/ H615/ H759 Grad Cert/ Grad Dip/ M</td>
<td>18 (2.8%)</td>
</tr>
<tr>
<td>H703 Master of Social Work</td>
<td>36 (5.6%)</td>
</tr>
<tr>
<td>H704 Master of Health Economics</td>
<td>3 (0.5%)</td>
</tr>
<tr>
<td>H705 Master of Child Play Therapy</td>
<td>8 (1.2%)</td>
</tr>
<tr>
<td>A300 Bachelor of Arts</td>
<td>150 (23.1%)</td>
</tr>
<tr>
<td>Other</td>
<td>14 (2.2%)</td>
</tr>
<tr>
<td>Student type</td>
<td></td>
</tr>
<tr>
<td>Domestic student</td>
<td>613 (94.6%)</td>
</tr>
<tr>
<td>International student</td>
<td>35 (5.4%)</td>
</tr>
</tbody>
</table>
Comparison of Health and Arts students (n=643)

<table>
<thead>
<tr>
<th></th>
<th>Health (n=493)</th>
<th>Arts (n=150)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td>Effect size (95% CI)</td>
</tr>
<tr>
<td>1. Feeling understood and supported by healthcare providers</td>
<td>3.06 0.57</td>
<td>2.88 0.62</td>
<td></td>
<td>0.001</td>
<td>0.31 (0.12, 0.49)</td>
<td>0</td>
</tr>
<tr>
<td>2. Having sufficient information to manage my health</td>
<td>3.10 0.50</td>
<td>2.88 0.59</td>
<td></td>
<td>0.000</td>
<td>0.43 (0.25, 0.61)</td>
<td>0</td>
</tr>
<tr>
<td>3. Actively managing my health</td>
<td>3.26 0.48</td>
<td>3.09 0.50</td>
<td></td>
<td>0.000</td>
<td>0.34 (0.16, 0.52)</td>
<td>0</td>
</tr>
<tr>
<td>4. Social support for health</td>
<td>3.11 0.51</td>
<td>2.93 0.65</td>
<td></td>
<td>0.000</td>
<td>0.34 (0.15, 0.52)</td>
<td>0</td>
</tr>
<tr>
<td>5. Appraisal of health information</td>
<td>2.90 0.48</td>
<td>2.73 0.52</td>
<td></td>
<td>0.000</td>
<td>0.34 (0.15, 0.52)</td>
<td>0</td>
</tr>
<tr>
<td>6. Ability to actively engage with healthcare providers</td>
<td>3.74 0.66</td>
<td>3.53 0.88</td>
<td></td>
<td>0.002</td>
<td>0.29 (0.11, 0.48)</td>
<td>0</td>
</tr>
<tr>
<td>7. Navigating the healthcare system</td>
<td>3.69 0.57</td>
<td>3.46 0.80</td>
<td></td>
<td>0.000</td>
<td>0.38 (0.19, 0.56)</td>
<td>0</td>
</tr>
<tr>
<td>8. Finding health information</td>
<td>3.94 0.55</td>
<td>3.78 0.60</td>
<td></td>
<td>0.004</td>
<td>0.27 (0.09, 0.45)</td>
<td>0</td>
</tr>
<tr>
<td>9. Understanding health information well enough to know what to do</td>
<td>4.07 0.51</td>
<td>3.95 0.52</td>
<td></td>
<td>0.017</td>
<td>0.22 (0.04, 0.41)</td>
<td>0</td>
</tr>
</tbody>
</table>

Age

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th></th>
<th></th>
<th></th>
<th>Effect size (95% CI)</th>
<th>Missing data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>29.0</td>
<td>11.2</td>
<td>27.1 11.5</td>
<td>0.080</td>
<td>0.17 (-0.02, 0.35)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Self-rated health (1=excellent, 5=poor)</td>
<td>2.6 0.9</td>
<td>3.0 1.1</td>
<td></td>
<td>0.000</td>
<td>0.44 (0.26, 0.63)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>