New Zealand GUIDELINES GROUP
Te Rōpū Rarangi Tohutohu
Promoting Effective Health and Disability Services

RapidE: Chronic Care

Health Literacy Interventions – A brief summary

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Health literacy interventions

This report provides a brief summary of the main messages from only very current (published in the last 18 months) health literacy systematic reviews that have a focus on the impact of health literacy interventions for adults with chronic disease/illness. The reviews summarised in this report focus specifically on interventions that aim to increase individual's knowledge and understanding of chronic disease/diseases of interest and its effective management.

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Table of contents

Introduction

New Zealand specific data on health literacy for high-risk populations

Kōrero Mārama: Health literacy and Māori describes the health literacy skills of the adult Māori population compared with the adult non-Māori population.[1] The data in this report is sourced from the 2006 Adult Literacy and Life-Skills Survey (ALL), which measures the literacy skill level of the adult New Zealand population.[2]

For each literacy domain the 2006 ALL proficiency was measured on a scale ranging from 0 to 500, with level 1 being the lowest measured level of literacy and 5 the highest. In this report level 3 is described as the 'minimum required for individuals to meet the complex demands of everyday life and work in the emerging knowledge-based economy'.

The report found that Māori have much poorer health literacy skills compared with non-Māori, regardless of age, gender, level of education, labour force status, household income or rural/urban location, and this is likely to have a negative impact on their health status.

The key findings of the report are listed below.

- On average, New Zealanders have poor health literacy skills, with both Māori and non-Māori males and females scoring on average less than 275, which is the minimum required score for individuals to meet the complex demands of everyday life and work in the emerging knowledge-based economy.
- Four out of five Māori males and three out of four Māori females have poor health literacy skills.
- Māori who live in a rural location have on average the poorest health literacy skills, closely followed by Māori who live in an urban location.
- Māori in the 50−65, 16−18 and 19−24 years age groups have the poorest health literacy compared to the rest of the population. This is particularly concerning because over half of the Māori population (53%) was less than 25 years of age at the 2006 census. Also, older age groups have high levels of health need and are generally high users of health services.
- Māori and non-Māori with a tertiary education are more likely to have good health literacy skills compared to those with lower levels of education, which is consistent with international evidence.
- Māori across all labour force status types have poorer health literacy skills compared with non-Māori, but Māori who are unemployed or looking for work have the poorest health literacy skills of all groups.

Māori across all income quintiles have poorer health literacy skills compared with non-Māori. The ALL survey included an oversample of Pasifika adults enabling further analysis of the distribution of literacy and numeracy skills among the adult Pasifika population. The Literacy and Life-Skills for Pasifika Adults report[3] describes the distributions of these skills in relation to a number of different factors.

The key findings of the report are listed below:

- Among almost all population subgroups of Pasifika adults in New Zealand in 2006 identified in this report (ie. groups defined by age, gender, labour force status etc), nearly two thirds or more of members of the subgroup did not have the level of skills allowing full participation in the knowledge society and economy.
- For Pasifika adults in New Zealand in 2006, those in the following groups were most likely to have the level of skills allowing full participation in the knowledge society and economy:
  - 25–34 year olds
  - women
  - the employed
  - those with a tertiary-level education
  - those who, when at home, most frequently spoke English
  - those who were born in New Zealand
  - those who were in the highest 20 percent of Pasifika income earners.
- Between 1996 and 2006, there appeared to be some decreases in the percentages of Pasifika adults with the level of skills allowing full participation in the knowledge society and economy. However, due to a small sample in 1996, these changes may be less marked than they appear.
- There were some differences in the distributions of literacy and numeracy skills among the Pasifika ethnic populations. In general, Niuean adults tended to have relatively higher skills and Tongan adults relatively lower. However, there was considerable overlap in their distributions.

Definitions

There is no 'gold standard' definition of health literacy. Below are two examples from the New Zealand Ministry of Health and United Nations Educational Scientific and Cultural Organisation (UNESCO).

> 'Health literacy is the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions.'[1]

UNESCO defines health literacy as a composite of seven skills:

- identification
- understanding
- interpretation
- creation
- communication
- computation
- ability to use printed and written materials to process information.[4]

Patient education may be used to improve health literacy.

Body of evidence

Four systematic reviews of health literacy interventions for self-management of chronic conditions were identified (refer to Supplementary Material A for Health Literacy Systematic Review at www.health.govt.nz).

- Two were considered to be of good quality (Berkman et al, 2011 & Ekl et al, 2011).[5, 6]
- Two were considered to be of mixed quality (Basu et al, 2010 & Van Scoyoc & DeWalt, 2010).[7, 8]

Berkman et al (2011) updated the results of a 2004 systematic review that contained two questions. One of the two questions asked in the review were of relevance to this work – this was a question centred on health literacy interventions designed to improve the use of health care services and health outcomes for individuals with low health literacy. Although this question encompasses some aspects outside of the aim of this report, the results relating to improved comprehension are discussed in this summary.[5] This systematic review included twenty-seven randomised controlled trials, two cluster randomised controlled trials, and thirteen quasi-experimental designs. The population of interest included people with low health literacy (of all races and ethnicity).

A Cochrane systematic review, Ekl et al (2011) included 35 randomised and non-randomised controlled parallel and cross over studies. The aim of the review was to evaluate the effects of using alternative statistical presentations of the same risks and risk reductions on understanding, perception, persuasiveness and behaviour of health professionals, policy makers and consumers. Interventions consisted of presentations of a risk (eg. frequencies and probabilities) or of a risk reduction (eg. RRR, ARR, NNT) of the same evidence about health. The participants of interest included health professionals, policy makers and consumers.

Basu et al (2010) included four systematic reviews and 30 primary studies, including observational studies.[7] The population of interest was people with low health literacy (including ethnic and minority groups). The wide-ranging health literacy interventions were divided into three overlapping categories aimed at:

- enabling direct literacy skill building

- mitigating the effects of low health literacy
- enhancing provider-patient interaction at the point of care or 'care interface'.

Van Scoyoc & De Walt (2011)[8] included studies of patients with diabetes (high or low literacy). The relevant question that was identified in the review asked: What interventions improve knowledge of diabetes among patients with diabetes and low literacy? The review of this question included two randomised controlled trials and four quasi-experimental designs.

Summary of findings

The reviews summarised in this report are limited in their ability to measure health literacy. No gold standard instrument is currently available to adequately assess the more global concept of health literacy. This reduces the overall applicability of the findings to the New Zealand context, in particular the Ministry of Health's current definition of health literacy (cited above).

Three reviews[5, 7, 8] included studies using common methods to measure literacy such as the 'Rapid Estimate of Adult Literacy in Medicine' (REALM) and the 'Test of Functional Literacy in Adults' (TOFHLA) and others. Health literacy measures such as these have been strongly criticised for their inability to fully measure a person's ability to seek, understand and use health information, calling into question their overall relevance and usefulness: 'Limited empirical evidence exists on the reliability and construct validity of health literacy measures. This raises uncertainty about the accuracy of data being produced in relation to health literacy levels at an individual and population level' (Jordan et al, 2011, Psg. 367[9]). New measures incorporating broader constructs of health literacy are currently being developed.[10]

The review by Berkman et al (2011) found that although the overall strength of evidence was low or insufficient, a number of specific design features within the interventions seemed to improve comprehension for low health literacy populations in one or a few studies:[5]

1. presenting essential information by itself (ie. information on hospital death rates without other distracting information, such as information on consumer satisfaction)
2. presenting essential information first (ie. information on hospital death rates before information about consumer satisfaction)
3. presenting health plan quality information such that the higher number (rather than the lower number) indicates better quality
4. using the same denominators to present baseline risk and treatment benefit
5. adding icon arrays (pictographs) to numerical presentations of treatment benefit
6. adding video to verbal narratives.

Ekl et al (2011) found that participants (health professionals and consumers) understood natural frequencies better than probabilities (SMD 0.69 [95% confidence interval (CI) 0.45 to 0.93]).[6] Relative risk reduction (RRR) compared with absolute risk reduction (ARR) and number needed to treat (NNT), may be perceived to be larger and is more likely to be persuasive. However, it is uncertain whether presenting RRR is likely to help people make decisions most consistent with their own values and, in fact, it could lead to misinterpretation.

Basu et al (2010) identified five general principles for organising health literacy-related interventions for low-literate populations :[7]

1. complex interventions are superior to single component interventions
2. successful interventions based on principles of multiple intelligence and sensitive to different learning styles
3. successful interventions personalised or tailored to specific individuals or groups, and are outcomes focussed
4. pictograms, cartoons and multimedia-based enhancement of prescriptions and textual messages, and writing of instructions at lower educational or grade levels are beneficial
5. multicomponent, use multimedia, pictures and require lower grade level reading, involve personalised communication, have universal applicability, relatively independent of language-based literacy states. (ie. whether or not the target population speak English as a first or second language may not be as important as the key design elements included in the programme [and how well the programme is implemented]).

Van Scoyoc & De Walt (2011) found that most of the interventions resulted in an improvement in diabetes knowledge among patient with low literacy, at least immediately after the intervention.[8] Personalised interventions were found to be better than those using multimedia. Overall, five of the six studies showed improvement in diabetes knowledge as measured by a significant improvement in a diabetes knowledge test. These results were limited by the fact that all of these studies used a different diabetes knowledge test. Of the studies that looked at improvements in diabetes knowledge across literacy levels, two studies showed similar improvement across literacy levels, and one study showed less improvement among those with lower literacy. None of these studies narrowed the disparity in knowledge by literacy level.

Conclusion

All of the systematic reviews identified and included were mostly well conducted but were limited in the conclusions they could draw because the strength of evidence for specific design features was low or insufficient. Studies investigating the effectiveness of health literacy interventions rely on measures of health literacy that may not be consistent or applicable to the Ministry of Health's current definition.

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