

# Impact of Health Literacy on Chronic Disease Management: A Literature Review

Jennifer Innis NP, MA

Institute of Health Policy, Management and Evaluation, University of Toronto

## Background

Most adults in Canada and the United States lack an adequate level of health literacy, the ability to obtain, use and understand information to make decisions that maintain and promote health.

Individuals with low health literacy have difficulty

- following instructions from health care providers
- managing medication regimens
- making health-related decisions
- navigating the health care system

Low health literacy is associated with

- poor health outcomes
- increased adverse events
- increased complications
- increased 30-day hospital readmission post-discharge
- increased 30-day ED use post-discharge

These factors lead to increased costs for healthcare systems in Canada and the United States. Chronic diseases have been associated with the greatest number of readmissions. The management of chronic disease depends on a high level of self-management and this management can be challenging for patients with low health literacy. Improved patient education is a strategy that has been found to reduce the need for acute care services post-discharge.

## Methods

In April 2013, a search for health literacy interventions was completed using Ovid MEDLINE®. The inclusion criteria were interventions used with participants with low health literacy and participants with a chronic disease. Exclusion criteria were: interventions used in mental health and outcomes that were focused on advanced directives and informed consent.

19 empirical studies of health literacy interventions in chronic disease management were selected.

## Objectives

The objectives of this literature review are:

- What are characteristics of effective health literacy interventions in chronic disease management?
- What is the impact of health literacy interventions in chronic disease management on patient outcomes?
- Is there evidence that health literacy interventions impact healthcare system use?

## Results

Type of Intervention	Chronic Disease	Significant Outcomes	Authors
Self-Management Strategy <ul style="list-style-type: none"> <li>• Group &amp; individual education</li> <li>• Distribution of self-management tools (e.g. weight scales)</li> <li>• Phone call reminders</li> <li>• Written instructions</li> </ul>	CHF (congestive heart failure)	↓Hospitalizations	DeWalt et al, 2012
		↓Deaths (only for patients with low health literacy)	
		↑Health knowledge	DeWalt et al, 2006
	Diabetes	↑ Self-efficacy	Murray et al, 2007
		↑ Medication adherence	
		↓ ED visits	Schillinger et al, 2008
Health literacy training of health care providers	Diabetes	↓ Hospitalizations	Rothman et al, 2004
		↑ Engagement with diabetes clinic	Wallace et al, 2009
		Improved HbA <sub>1c</sub>	Kim et al, 2004
		↑Diabetes knowledge	Cavanaugh et al, 2009
Oral presentation	Arthritis	No effect on outcomes	Rudd et al, 2009
	HIV/AIDS	↑Disease knowledge	van Servellen et al, 2003
Phone calls <ul style="list-style-type: none"> <li>• Provided information on disease and medication use</li> </ul>	Hypertension	↑ Self confidence in use of medications	Bosworth et al, 2005
Video	HIV/AIDS	↑Disease knowledge	Brock & Smith, 2007
	Diabetes		Kandula et al, 2009
	Asthma		Sobel et al, 2009
	Coronary Artery Disease		Eckman et al, 2012
Video (with booklet)	Glaucoma	↑Medication Adherence	Muir et al, 2012
Pill cards	Multiple chronic diseases	↑ Level of accuracy in reporting medication adherence	Cordasco et al, 2009
	Coronary artery disease	Patients rated card as effective in adhering to medications	Kripalani et al, 2007
Demonstration of technique <ul style="list-style-type: none"> <li>• Teach to goal strategy</li> </ul>	Asthma	↑Medication Knowledge	Paasche-Orlow et al, 2005
		↑ Skill in using MDI (multi-dose inhaler)	

## Characteristics of Effective Interventions

Interventions that were the most effective had

- individualized focus
- used multiple modalities (i.e. in-person, phone, oral, and written communication approaches)
- emphasis on self-management
- patient-centred content

## Impact on Patient Outcomes

- Decreased number of deaths
- Decreased ED use
- Decreased number of hospitalizations
- Improved knowledge of disease
- Increased self-efficacy and self-confidence
- Improved medication management
- Improved symptom monitoring

## Impact on the Healthcare System

- Decreased ED use
- Decreased hospital readmission
- Improved clinical outcomes
- Decreased healthcare costs
- Improved use of acute care resources

**Reference list available upon request.**

## Acknowledgments

Thanks to Jan Barnsley and Whitney Berta for their feedback and insights.