

**Chronic Disease Self-Management Program
Program Evaluation
British Columbia 2003-2006**

Introduction

The British Columbia Ministry of Health Services provided resources to the University of Victoria - Center on Aging to implement the Stanford Chronic Disease Self-Management Program in the five health regions. The program was seen as a strategy to develop “informed activated patients”, an integral component of the Chronic Care Model.

This evaluation of the CDSMP was conducted by a research team from the University of Victoria - Centre on Aging, headed by Patrick McGowan PhD. This quantitative study was based on pre- and six-month post-program follow-up questionnaires.

Ethical approval for this research study was obtained from the University of Victoria - Office of Research Services. People taking the program received an explanation of the study from program leaders and were asked to complete a questionnaire (Appendix A) before they started the program and again six-months later when another one would be sent to them by mail. It was made clear that they were not required to participate in the research and that they could still take the self-management program if they chose not to participate in the research.

Participation in Research

Between April 1, 2003 and March 31, 2006, 1,644 program participants completed the pre-program questionnaire (Vancouver Coastal - 394; Fraser – 319; Interior – 626; and Northern – 305). Vancouver Island Health Region did not participate in the evaluation. To date, 639 participants have completed the six-month post-program questionnaire as well (Vancouver Coastal – 163; Fraser – 128; Interior – 255; and Northern – 93). As well, 562 participants have not completed the post-questionnaire yet because the six-month time period has not been reached.

This analysis involves a pre- and six-month post-program matched-group comparison of outcome measures completed by 639 course participants. A second analysis will be conducted in September 2006 that will include data from the 562 remaining subjects.

Outcome Measures

The questionnaire contained four types of outcome measures.

- 1) Self-management behaviours:
 - Amount of time doing cognitive symptom management;
 - Communication with physician;
 - Amount of time doing aerobic exercises; and
 - Amount of time doing stretching/strengthening exercises.
- 2) Self-efficacy levels:
 - Self-efficacy to manage symptoms; and
 - Self-efficacy to manage disease.
- 3) Outcomes regarding health status:
 - Self-rated health;

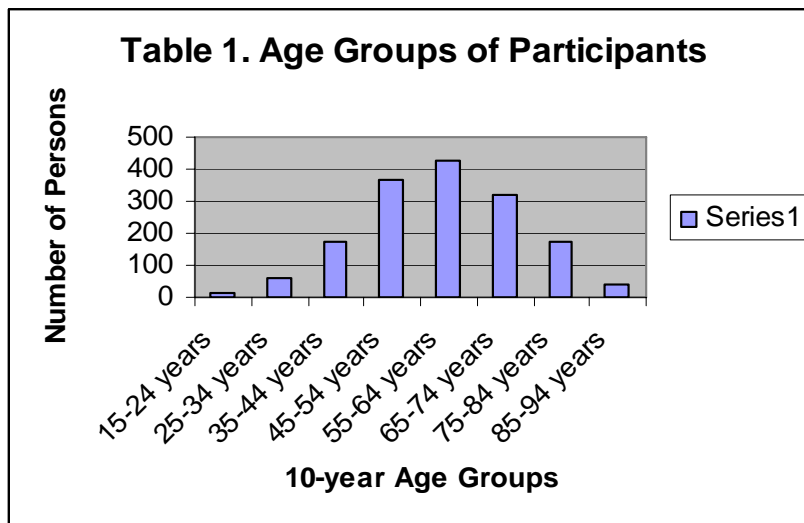
- Disability;
 - Social/role activities limitations;
 - Depression;
 - Energy and fatigue;
 - Health distress;
 - Fatigue level;
 - Shortness of breath;
 - Pain severity; and
 - Illness intrusiveness.
- 4) Medical Care Utilization (last six months):
- Number of doctor appointments;
 - Number of visits to hospital emergency room;
 - Number of times hospitalized;
 - Number of nights in hospital; and
 - Number of visits to other health professionals.

A description of the outcome measures and how they are scored is contained in Appendix B.

Descriptive analyses were conducted with data collected from the 1,644 CDSMP participants who completed the pre-course questionnaire. This analysis was conducted in June 2006.

Findings

The majority of persons (83%) indicated that English was their mother tongue, 52% were married or living with a partner, and 60% had more than one chronic health condition. The most common health condition was arthritis or other rheumatic disease. Participant ages ranged from 15 to 93 years with the average being 58 years (SD=14) (see Table 1). The mean education level was 14 years (SD=3). Eighty-two percent of participants were female.



Health measure scores were computed and compared between the two time periods to calculate whether differences were statistically significant. Table 2 shows the pre- and post-program scores on each measure as well as t-scores and significance levels.

Table 2. Pre- and six-month post-program scores on CDSMP outcome measures (n=639).

MEASURES	Pre	Post	T	Sig. (2-tailed)
<i>Self-Management Behaviours</i>				
Cognitive symptom management (coping)	1.64	1.90	-7.18	.000
Communication with physician	3.01	3.12	-2.58	.010
Time doing aerobic exercises	.74	.84	-4.11	.000
Time doing stretching/strengthening	1.59	1.58	.182	.856
<i>Self-efficacy Measures</i>				
Self-efficacy to manage disease symptoms	5.70	6.09	-4.46	.000
Self-efficacy to manage the disease	6.40	6.68	-3.04	.002
<i>Health Status</i>				
Self-rated health	3.15	3.06	2.98	.003
Disability	.35	.33	2.08	.038
Social/role activities limitations	1.63	1.47	4.56	.000
Depressive symptoms	11.33	10.13	5.55	.000
Energy/fatigue	2.21	2.38	-4.62	.000
Health distress	2.04	1.77	6.15	.000
Fatigue level	4.97	4.66	3.78	.000
Shortness of breath	2.23	2.17	.62	.537
Pain severity	4.75	4.34	4.54	.000
Illness intrusiveness	39.49	37.56	3.44	.001

Statistically significant changes (bolded) were observed on 14 of the 16 outcome measures.

At six-months post-program, participants:

1. were using more coping strategies to deal with pain or symptoms;
2. were communicating more with their physician (preparing written questions, asking questions, discussing problems);
3. were spending more time doing aerobic exercise;
4. had higher self-efficacy in their ability to manage disease symptoms;
5. had higher self-efficacy in their ability to manage their disease;
6. perceived they were in better health;

7. had less disability (dressing, arising, eating, walking, hygiene, reaching, gripping, activities);
8. felt their disease had less of an impact on social and recreational activities;
9. were experiencing fewer depressive symptoms;
10. had more energy and less fatigue;
11. were experiencing less distress;
12. were experiencing less fatigue;
13. were experiencing less pain; and
14. felt the disease had a lesser impact on their lives.

This evaluation does not include the analysis of health care utilization. This particular aspect of the study is currently being planned and results may be available in the Fall of 2006.

Choice of Research Design

Knowledge development progresses from basic biomedical or social sciences to clinical trials or other experimental studies to test the efficacy and effectiveness of interventions. Those found effective are then submitted to applied research on their management and dissemination. Much of the work that has been done at the levels of basic science and controlled trials remains to be applied and disseminated widely, especially to marginalized populations. The basic efficacy and effectiveness questions have been answered for more innovations than have been effectively implemented by practitioners or applied to or by seniors.

The research most needed in the area of implementing interventions to assist seniors to deal with chronic health conditions is at the demonstration and dissemination end of the spectrum. Here the research questions have more to do with adaptation, implementation, sustainability and diffusion of innovations. The Stanford CDSMP has already undergone randomized controlled trials (Lorig et al., 1999; 2001) and diffusion studies (Sobel et al. 2002).

Norris, Engelgau, and Venkat Narayan (2001) identified the need for methodologically sound non-experimental designs to test self-management programs, as they can reveal important information about the effectiveness of interventions (Vijan, Kent, & Hayward, 2000). Randomized controlled trials in this area of research are not always feasible, or even desirable, particularly when examining community educational interventions. Classic randomized, controlled trials emphasize efficacy, to the exclusion of factors influencing effectiveness, such as adoption, reach, and institutionalization (Glasgow, Vogt, & Boles, 1999).

It is with reference to this context that the 2003-06 CDSMP evaluation in BC used a one-group, pre- and six-month post-program matched group comparison design.

Selection of Outcome Measures

In 2001, Norris, Engelgau, and Venkat Narayan systematically reviewed 72 reports of published randomized controlled trials conducted since 1980 to:

1. ascertain the effectiveness of self-management training in type 2 diabetes;
2. provide summary information to guide diabetes self-management programs for future quantitative analyses; and
3. identify further research needs.

In their summary the reviewers emphasized that the objectives for ideal self-management interventions in diabetes are:

- behavioural interventions must be practical and feasible in a variety of settings;
- a large percentage of the relevant population must be willing to participate;
- the intervention must be effective for long-term important physiological outcomes, behavioural end points, and quality of life;
- patients must be satisfied; and that
- intervention must be relatively low-cost and cost -effective.

During 2003-06 the CDSMP was implemented widely across the province (see Table 3).

Table 3. Implementation of the CDSMP 2003-06 by BC Health Region.

Health Region	Leader Training Workshops	Trained Leaders	Courses	Participants
Fraser	9	86	61	688
Interior	17	192	101	1087
Northern	15	152	37	352
Vancouver Coastal	13	158	108	1414
Vancouver Island	11	118	79	827
TOTAL	65	706	386	4368

Norris, Engelgau, and Venkat Narayan (2001) also supported the concerns expressed by others (Glasgow & Osteen, 1992; Glasgow, Vogt, & Boles, 1999) that researchers may not be measuring the most important outcomes. For example, the focus has been on assessing knowledge and GHb outcomes to the exclusion of other variables. They emphasized that the process and mediating variables (such as self-efficacy, problem-solving, and coping skills) and quality of life outcomes must receive much more attention in intervention research.

This evaluation used outcome measures that included these important measures.

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References

- Glasgow, R., Vogt, T., & Boles, S. (1999). Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *American Journal of Public Health*, *89*, 1322-1327.
- Glasgow, R., & Osteen, V. (1992). Evaluating diabetes education: are we measuring the most important outcomes? *Diabetes Care*, *15*, 423-1432.
- Lorig, K., Holman, H., Sobel, D., Stewart, A.L., Brown Jr., B.W., Ritter, P.L., Gonzalez, V.M., Laurent, D.D., & Holman, H.R. (1999). Evidence suggesting that a chronic disease self-management program can improve health status while reducing utilization and costs: A randomized trial. *Medical Care*, *37*(1), 5-14.
- Lorig, K.R., Ritter, P.L., Stewart, A.L., Sobel, D.S., Brown, B.W. Jr, Bandura, A., Gonzalez, V.M., Laurent, D.D., & Holman, H.R. (2001). Chronic disease self-management program: 2-year health status and health care utilization outcomes. *Medical Care*, *39*(11), 1217-1223.
- Norris, S., Engelgau, M., & Venkat Narayan, K. (2001). Effectiveness of self-management training in type 2 diabetes. *Diabetes Care*, *24* (3), 561-587.
- Sobel, D.S., Lorig, K.R., & Hobbs, M. (2002). Chronic Disease Self-Management Program: From development to dissemination. *The Permanente Journal*, *6*(2), 15-22.
- Vijan, S., Kent, D., Hayward, R. (2000). Are randomized controlled trials sufficient evidence to guide clinical practice in type II (non-insulin-dependent) diabetes mellitus? *Diabetologia*, *43*, 125-130.