

Virginia Chronic Disease Self-Management Program (CDSMP) Evaluation Report September 2012

Introduction

The Chronic Disease Self-Management Program (CDSMP) is an evidence-based self-management and health promotion program, developed by the Stanford Patient Education Research Center of the Stanford University School of Medicine (<http://patienteducation.stanford.edu/programs/cdsmp.html>). The overarching goal of the program is to improve the physical and emotional health and well-being of participants while reducing health care costs. The program is designed to “help people gain self-confidence in their ability to control their symptoms and how their health problems affect their lives.” Led by two (2) trained leaders, the CDSMP is a two and a half hour workshop conducted once per week for six weeks in community settings such as senior centers, clinics, and hospitals. The workshops are interactive and focus on skill-building, sharing experiences, and building social support.

There is strong evidence across many studies that CDSMP participants experience the following beneficial health outcomes:

- Greater energy/reduced fatigue
- Greater participation in physical activity
- Fewer social role activity limitations
- Better psychological well-being
- Enhanced communication and partnerships with physicians
- Improved health status
- Greater self-efficacy, and
- Reduction in pain symptoms

Long-term, CDSMP has been shown to reduce healthcare costs by decreasing the number of emergency room visits, the number of hospital admissions, and hospital length of stay. Healthcare needs are increasingly met through outpatient settings (e.g., physician offices). Health care cost savings from implementation of the program are achieved within the first year. Other studies show additional benefits of the CDSMP program: 1) effectiveness across various chronic diseases, 2) effectiveness across participant socioeconomic and educational levels, 3) enabling participants to manage progressive, debilitating illness, 4) maintenance of health benefits over time, and 5) support by decades of federal research from National Institute of Health (NIH), Centers for Disease Control and Prevention (CDC), and the U.S. Agency for Healthcare Research and Quality (AHRQ).

The Virginia Department of Health’s (VDH) CDSMP (*You Can! Live Well, Virginia*) started in 2005 under the management of the Virginia Arthritis Control Project. In 2010, VDH

partnered with the Virginia Department for the Aging (now the Department for Aging and Rehabilitative Services) to expand across the Commonwealth particularly to adults 60 years of age and older. The following results pertain to participant outcomes for workshops held from September 2010 through April 2012.

Evaluation Questions:

The evaluation study is designed to answer the following questions: Do participants experience...

1. ...better health status?
2. ...less severe or less frequent health-related distress?
3. ...less fatigue, shortness of breath, and pain?
4. ...more total time spent participating in aerobic and non-aerobic (strengthening/stretching) physical activity?
5. ...more frequent communications with treating physicians?
6. ...fewer hospitalizations and urgent care (ER) visits related to their chronic condition?

Method

Participant Recruitment

During the time period of September 2010 through April 2012, 1,957 adults attended CDSMP workshops across the state. Of those individuals, 1,068 (55%) adults living in seventeen local health district communities completed pre and post assessments. Participants were recruited by various organizations (i.e. Area Agencies on Aging, local health departments, health systems, etc.) to enhance self-confidence in controlling disease symptoms.

Evaluation Design and Instruments

The instruments (paper-and-pencil questionnaires) used in this evaluation have been developed and validated by the Stanford Patient Education Research Center and used for over 20 years. Participants completed a 27-item written questionnaire before and after participating in the CDSMP workshop. The questionnaire was comprised of demographic questions (four items) and self-administered rating scales measuring:

- Perceived general health status
- Health distress and illness intrusiveness
- Symptom severity (pain, fatigue, shortness of breath)
- Self-management behaviors, including: cognitive symptom management and communication with physicians

A copy of the questionnaire is in Appendix B. A more detailed description of the item scales, item coding and creation of index scores is presented in the *Results* section.

Statistical Analyses

Pre and post test data were entered into a Microsoft Access database, which was imported into a SPSS data file for later analysis. Descriptive analyses included mean index scores and

categorical response percentages. To test for differences between pre and post test mean index scores, repeated-measure t-tests were performed.

Results

Participants

From September 2012 through April 2012, 1,068 adults participated in the multiple-session chronic disease self-management program and completed the pre and post test. Participants were distributed across the state in seventeen local health district sites (Table 1).

Table 1 -- Distribution of Participants by Health District

Health District	Number of Participants
Central Shenandoah	179
Chesapeake	41
Chesterfield	12
Chickahominy	7
Cumberland Plateau	57
Fairfax	73
Lenowisco	60
Lord Fairfax	51
Mount Rogers	94
Norfolk	28
Peninsula	52
Richmond	200
Thomas Jefferson	28
Three Rivers	8
Virginia Beach	66
West Piedmont	5
Western Tidewater	77

Demographics:

- More than half (62%) participants were white, non-Hispanic (Figure 1)
- 50% had 12 years of education or less (i.e., high school education or less) (Figure 2)
- 30% were married (Figure 3)
- Three out of four (78%) were female (Figure 4)

Figure 1 – Percentage of Participants by Race/Ethnicity

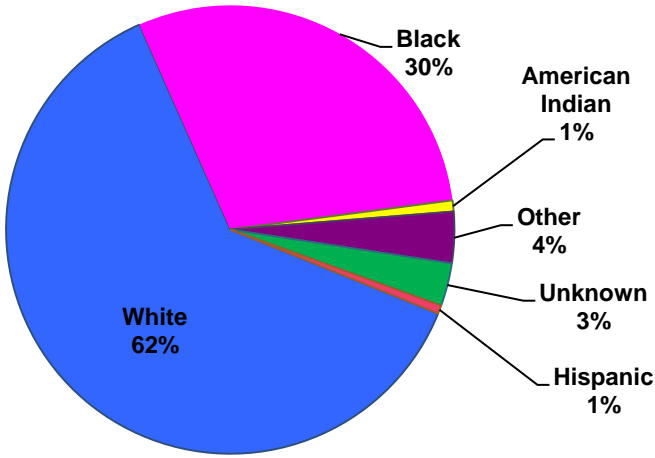


Figure 2 – Percentage of Participants by Educational Attainment

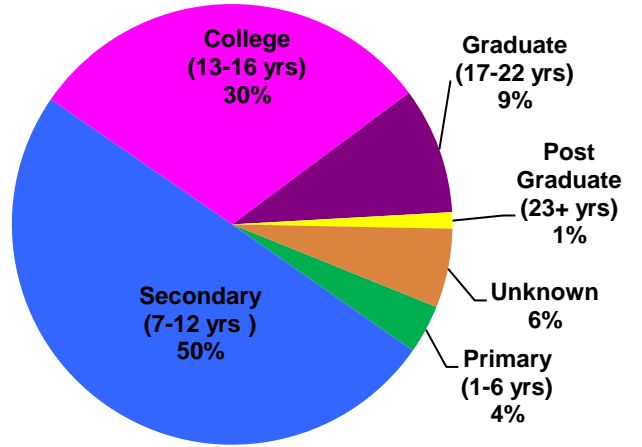


Figure 3 –Percentage of Participants by Marital Status

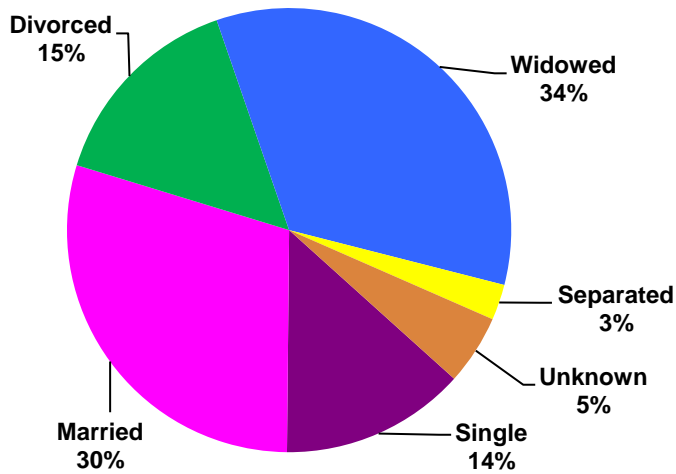
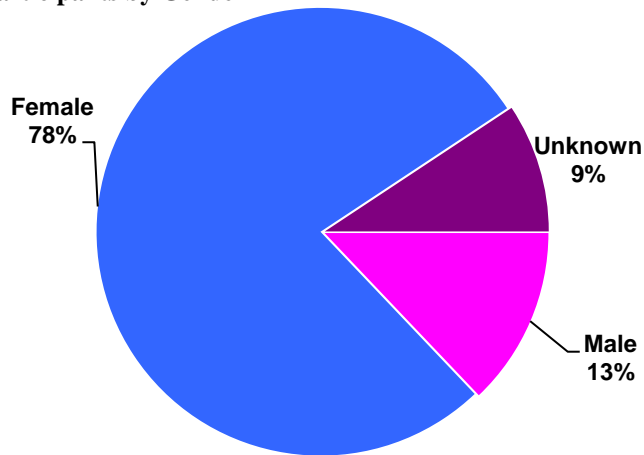


Figure 4 –Percentage of Participants by Gender



Chronic Health Condition: More than one third (33%) have one chronic condition, 55% have more than one condition, and 11% report having no chronic condition. A large number of participants report having arthritis (58%), heart disease (37%), diabetes (33%), or some other chronic health condition that was not listed (39%). See table 2 for the number of participants reporting each type of chronic condition.

Table 2 – Percentage of Adults Reporting Having a Chronic Health Condition

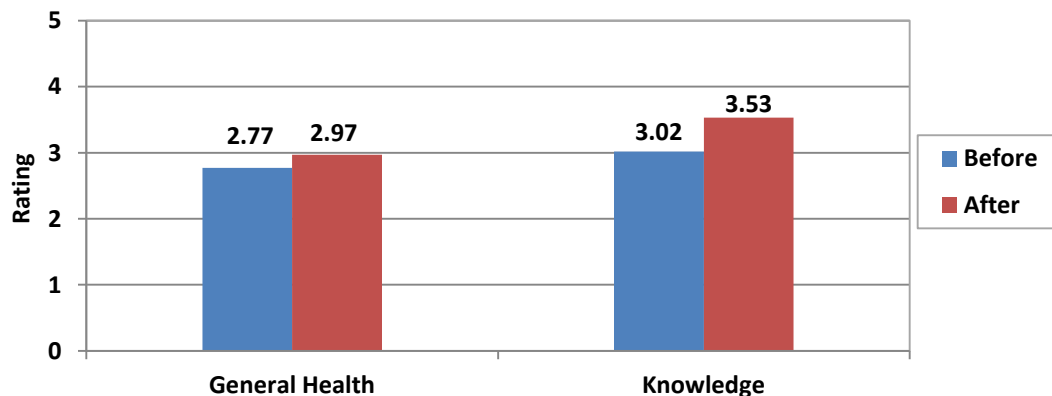
Chronic Condition	N	Percentage
Arthritis	544	57.5
Asthma	105	11.1
Cancer	116	12.3
Diabetes	309	32.7
Emphysema or Chronic Obstructive Pulmonary Disease (COPD)	59	6.2
Heart Disease	354	37.4
Other lung disease	39	4.1
Other chronic condition	369	39.0

General Health Status & Knowledge of Chronic Disease Management

Participants were asked to rate their general health status (“In general, would you say your health is...excellent/very good/good/fair/poor?”) and their knowledge about managing their chronic condition (“In general, would you say your knowledge about managing your chronic condition is...excellent/very good/good/fair/poor?”) on a five-point scale (e.g., 1=Excellent; 5=Poor). Ratings were reverse-scored -- for example, ratings of “excellent” (=1) were changed to have a value of 5.

At the start of the program, participants rated, on average, their general health as “good” (M=2.77) and their knowledge about managing their chronic condition as “good” (M=3.02). On both indicators there were statistically significant improvements (Significant at p<.05) found after the completion of the course (Figure 5). Ratings on general health status improved by 7% and ratings on self-management knowledge improved by 17% over baseline.

Figure 5 – General Health and Knowledge About Management of Chronic Condition*



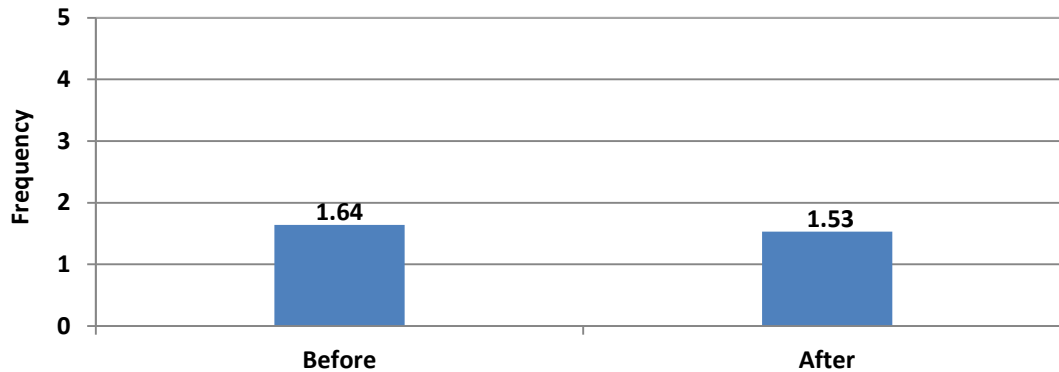
* Based on rating scale of 1 (“poor”) to 5 (“excellent”). Significant at p<.05.

Health Distress

Using a six-point rating scale, participants were asked to report “how much time during the **past month**” they were discouraged by their health problems, fearful about their future health, frustrated by their health problem, or considering their health a worry in their life. Reports ranged from “none of the time” (=0) to “all of the time” (=5). A mean total score was computed across the four items, with a possible range of zero to five. Higher scores indicated greater distress.

Before the program, participants typically reported feeling distressed from “a little of the time” to “some of the time” (M=1.64). By the end of the program, their level of distress about their health was significantly lower, decreasing by about 7% (Figure 6).

Figure 6 – Perceived Distress Related to Health Problems*



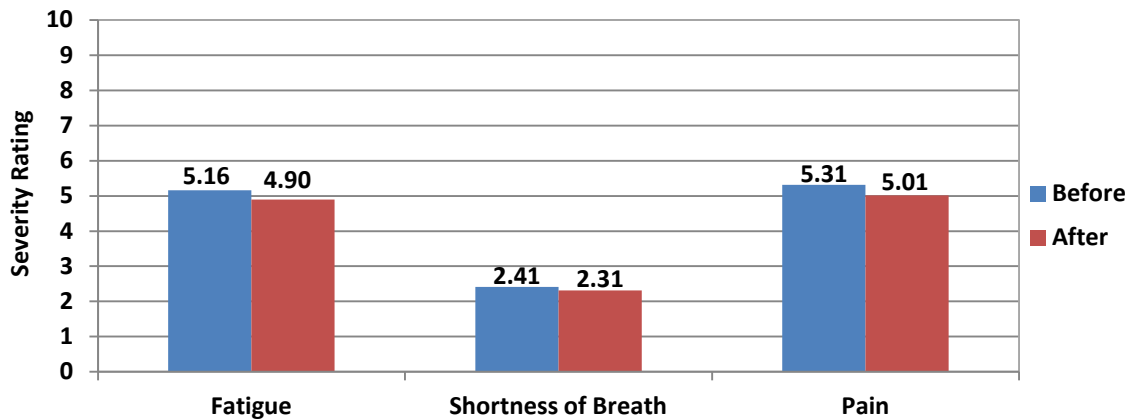
* Based on frequency scale of 0 (“none of the time”) to 5 (“all of the time”). Significant at $p < .05$.

Fatigue, Pain and Shortness of Breath Severity

Using a 10-point visual numeric rating scale, participants were asked to rate the severity of how much fatigue, shortness of breath, and pain affected them in the **past two weeks**. Higher scores denoted greater severity of physical symptoms, with ten (=10) being the highest rating. Participants indicated absence of symptoms as zero (=0).

Participants’ levels of fatigue, shortness of breath, and pain were significantly less severe by the end of the program (Figure 7). Mean level of fatigue decreased by 5%, level of pain decreased by 6%, and level of shortness of breath decreased by 4%.

Figure 7 – Perceived Severity of Fatigue, Shortness of Breath, and Pain*



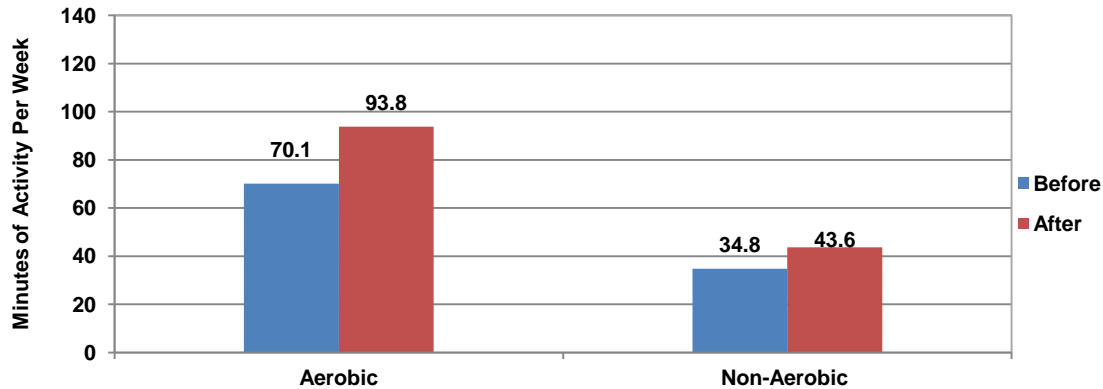
* Based on visual numeric severity rating scale of 0 (absence of symptom) to 10 (“severe”). Significant at $p < .05$.

Exercise/Physical Activity

Participants were asked to report how much total time (from no time to more than 3 hours per week) they spent in aerobic activity during the **past week**. Five questions regarding various aerobic-type activities--walking, swimming (including aquatic exercise), bicycling (including use of stationary bikes), use of aerobic exercise equipment (e.g., stairmaster, rowing, skiing machine) and other aerobic activities (e.g., dancing)--were asked. Participants were also asked one question about total time spent doing stretching or strengthening exercises (e.g., weight training, yoga, tai-chi), which is a non-aerobic activity. Responses were converted into minutes per week: “none”= 0 minutes; “less than 30 min/week”=15 minutes; “30-60 minutes”=45 minutes; “1-3 hours per week”=120 minutes; and “more than 3 hours per week”=180 minutes. Responses to the five aerobic activity questions were summed into a total score representing total time spent in aerobic activity per week. Higher scores indicated more minutes spent on physical activity.

Prior to the program, participants spent an average of 70 minutes in aerobic activity and an additional 35 minutes in stretching/strengthening exercises per week. Participants experienced significant increases (34% and 25%, respectively) in the amount of time spent in aerobic and non-aerobic activity by the end of the program (Figure 8).

Figure 8 – Total Time Spent in Aerobic and Non-Aerobic (Stretching/Strengthening) Activity Per Week*



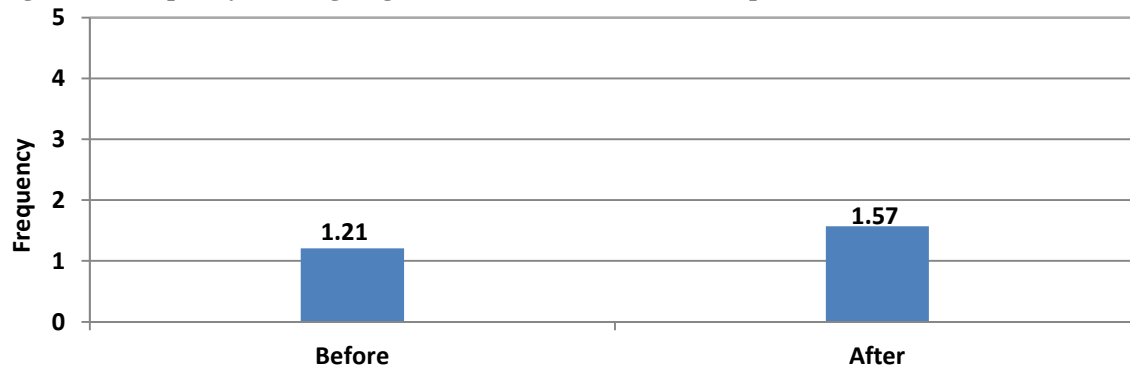
*Significant at $p < .05$

Cognitive Symptom Management

Using a 6-point behavior change scale – ranging from “never” (=0) to “always” (=5) -- participants were asked to report how often they practiced various cognitive stress reduction (or pain reduction) techniques (e.g., cognitive distancing, mind games, progressive muscle relaxation, visualization or guided imagery, positive thinking). Mean scores were computed using six items, with a possible range from zero to five. Higher scores indicated greater use of positive cognitive techniques for coping.

Prior to the program, participants typically reported that they “almost never” used cognitive techniques ($M=1.21$). By the end of the program, they reported significantly more frequent use of cognitive techniques, an increase of about 30% (Figure 9).

Figure 9 – Frequency of Using Cognitive Stress Reduction Techniques*



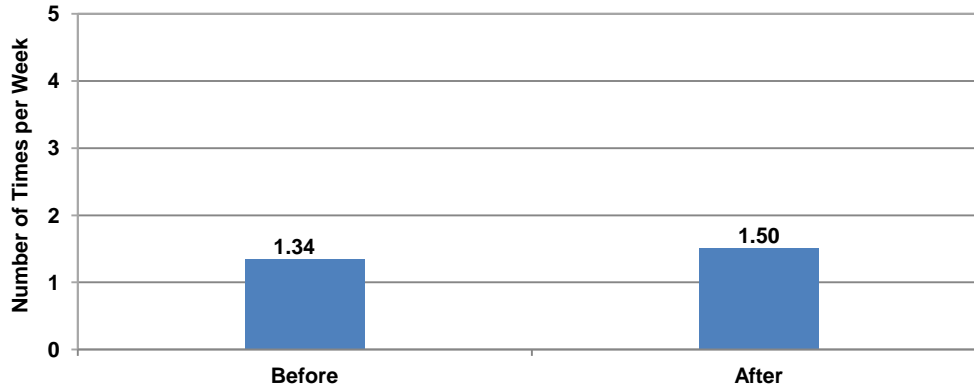
* Based on rating scale of 0 (“never”) to 5 (“always”). Significant at $p < .05$.

Mental Stress Management/Relaxation

Participants were asked “how many times do you do mental stress management or relaxation techniques” in the past week. To score the item, number of times was recoded into an ordinal scale representing number of days per week: “no days” (=0 times), “one to seven days” or averaging weekly (≥ 1 and < 8 times), and “8 or more days” per week or averaging more than

daily (≥ 8 times). Participants were more likely to perform these techniques on a weekly basis (from one to seven times). There was a 12% reduction in the frequency of use of stress management techniques by the end of the program (Figure 10).

Figure 10 – Frequency of Using Mental Stress Management/Relaxation Techniques in Past Week



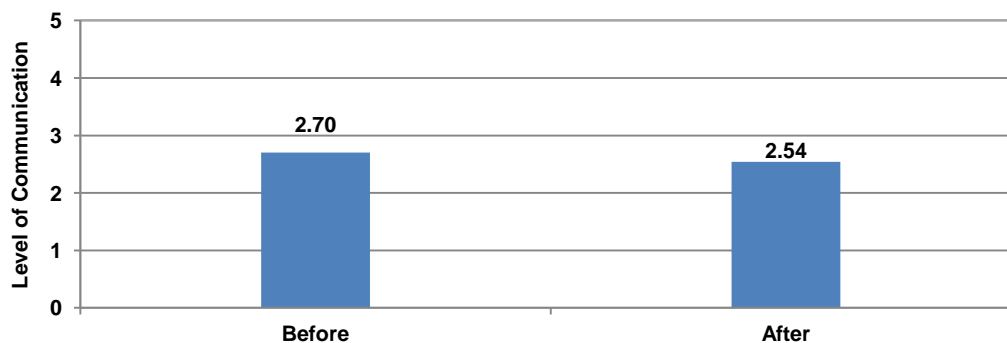
* Based on rating scale of 1 (“not at all confident”) to 5 (“total confident”). Significant at $p < .05$.

Communication with Physicians

Using a six-point scale (0=“never” to 5=“always”), participants were asked to indicate how often they communicated with their physician, specifically, preparing a list of questions for the doctor, asking the doctor for more information or clarification about their treatment, and discussing personal problems possibly related to their illness with their physician. A mean score was computed from responses to three items, with a possible range of zero to five. Higher scores indicated better communication with physicians.

There was no significant improvement in the participants’ levels of communication with their physicians (Figure 11). Levels of communication decreased from 2.70 to 2.54 which was not statistically significant.

Figure 11 – Participant Reported Level of Communication with Physicians*



* Based on rating scale of 0 (“never”) to 5 (“always”).

Summary

Among the 1,068 persons with chronic disease who participated in a chronic disease self-management program throughout Virginia, there is evidence to indicate that there were improvements in health status and knowledge of managing their chronic condition. While there was no significant improvement in the level of communication with physicians, by the end of the program, participants showed:

- Decreased health-related mental stress (distress)
- Reduced levels of pain, fatigue, and shortness of breath
- More frequent use of cognitive techniques for coping with emotional and physical symptoms
- More frequent use of mental relaxation techniques to manage their stress
- Increased amount of aerobic and non-aerobic physical activity

Mean rating scores on each health outcome indicator are summarized in Appendix A. Some of the limitations of this study include the small sample size and the duration of the study. For instance, the pre and post assessment within the 6 week interval does not allow tracking of long-term effects. With a longer follow-up interval (e.g., three, six, or twelve months) between pre- and post-test, greater significance may have been observed in some of the indicators.

In addition, the assessment tool was evaluated in the year 2011 and as a result the following sections were removed from the assessment: self-efficacy, physical ability to complete activities of daily living, and healthcare utilization. This change reduced the sample size, limiting the ability to demonstrate significant statistical changes. Therefore, the aforementioned sections were removed from this evaluation.

Appendix A: Virginia Chronic Disease Self-Management Program (CDSMP): Mean Health Outcome Ratings (Pre- and Post-Test Comparison)

	September 2012 - April 2012	
	Pre	Post
Total number of participants	1068	
Number of health district sites	17	
Participants who are white (%)	62%	
Participants who have 12 years of education or less (%)	50%	
Participants who are married (%)	30%	
One chronic condition	33%	
More than one chronic condition	55%	
Participants who have heart disease (%)	37%	
Participants who have arthritis (%)	58%	
Participants who have diabetes (%)	33%	
Participants who have lung condition (%)	11%	
Good general health status (mean) ¹	2.77	2.97*
Good knowledge re: managing chronic disease (mean) ¹	3.02	3.53*
Health distress (mean) ²	1.64	1.53*
Fatigue (mean) ³	5.16	4.90*
Shortness of breath (mean) ³	2.41	2.31
Pain (mean) ³	5.31	5.01*
Total time (minutes) for aerobic activity (mean)	70.1	93.8*
Total time (minutes) for non-aerobic activity (mean)	34.8	43.6*
Frequency of using cognitive symptom management techniques (mean) ⁴	1.21	1.57*
Number of times used mental relaxation techniques in past week (mean)	1.34	1.50*
Level of communication with physicians (mean) ⁵	2.70	2.54

* Significant at p<.05.

¹ Based on rating scale of 1 (poor) to 5 (excellent).

² Based on frequency rating scale of 0 (none of the time) to 5 (all of the time).

³ Based on severity rating scale of 0 (absent) to 10.

⁴ Based on frequency rating scale of 0 (never) to 5 (always).

⁵ Based on rating scale of 0 (never) to 5 (always).



Appendix B: You Can! Live Well, Virginia Program Assessment

Date:

Location:

Code: _____

Class Session:

Instructors:

Background

1. Ethnic origin (*check ✓ only one*):

- White not Hispanic
- Black not Hispanic
- Hispanic
- Asian or Pacific Islander
- Filipino
- American Indian/Alaskan Native
- Other: _____

2. Please circle the **highest** year of school completed:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23+

(primary) (high school) (college/university) (graduate school)

3. Are you currently (*check ✓ only one*):

- married
- single
- separated
- divorced
- widowed

4. Please indicate below which chronic condition(s) you have:

- Diabetes
- Asthma
- Emphysema or COPD
- Other lung disease *Type of lung disease:* _____
- Heart disease *Type of heart disease:* _____
- Arthritis or other rheumatic disease *Specify type:* _____
- Cancer *Type of cancer:* _____
- Other chronic condition *Specify:* _____

General Health

1. In general, would you say your knowledge about managing your chronic conditions is:

(Circle one)

- Excellent.....1
- Very good.....2
- Good.....3
- Fair.....4
- Poor.....5

2. In general, would you say your health is:

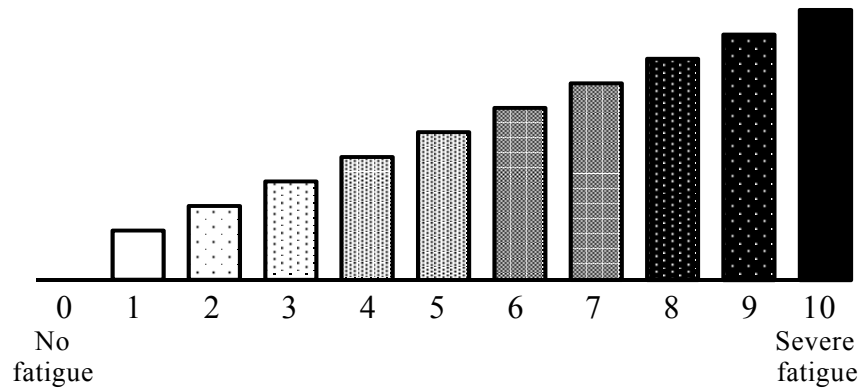
- Excellent.....1
- Very good.....2
- Good.....3
- Fair.....4
- Poor.....5

Symptoms

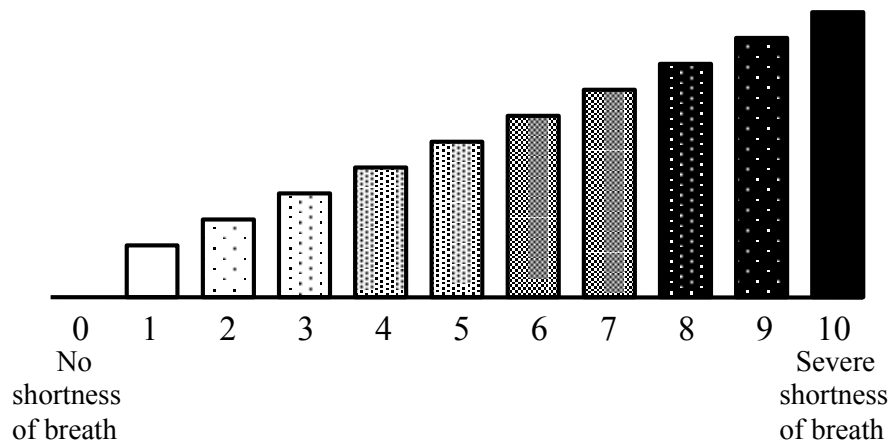
How much time during the **past month**...

	None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
1. Were you discouraged by your health problems?	0	1	2	3	4	5
2. Were you fearful about your future health?	0	1	2	3	4	5
3. Was your health a worry in your life?	0	1	2	3	4	5
4. Were you frustrated by your health problems?	0	1	2	3	4	5

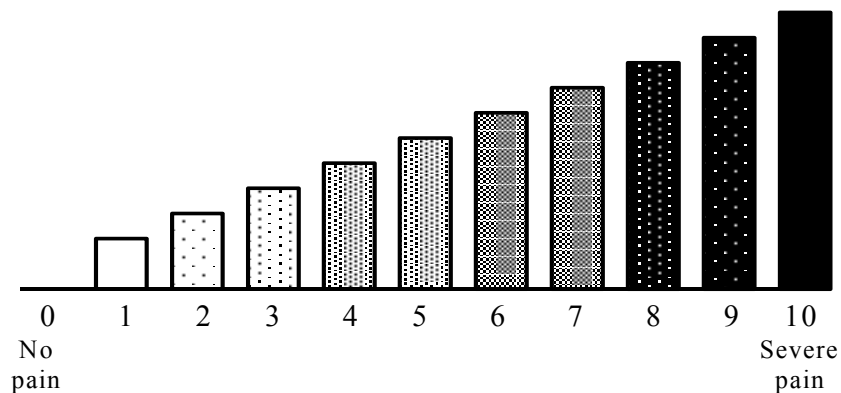
1. We are interested in learning whether or not you are affected by fatigue. Please *circle* the *number* below that describes your **fatigue** in the **past 2 weeks**:



2. We are interested in learning whether or not you are affected by shortness of breath. Please *circle* the *number* below that describes your **shortness of breath** in the **past 2 weeks**:



3. We are interested in learning whether or not you are affected by pain. Please *circle* the *number* below that describes your **pain** in the **past 2 weeks**.



Physical Activities

During the past week, even if it was not a typical week for you, how much **total** time (*for the entire week*) did you spend on each of the following? (*Please circle one number for each question.*)

	none	less than 30 min/wk	30-60 min/wk	1-3 hrs per week	more than 3 hrs/wk
1. Stretching or strengthening exercises (range of motion, using weights, etc.)	0	1	2	3	4
2. Walk for exercise	0	1	2	3	4
3. Swimming or aquatic exercise	0	1	2	3	4
4. Bicycling (including stationary exercise bikes).....	0	1	2	3	4
5. Other aerobic exercise equipment (Stairmaster, rowing, skiing machine, etc.)	0	1	2	3	4
6. Other aerobic exercise					
<i>Specify</i>	0	1	2	3	4

Coping With Symptoms

When you are feeling down in the dumps, feeling pain or having other unpleasant symptoms, how often do you (*Please circle one number for each question*):

	Never	Almost never	Some- times	Fairly often	Very often	Always
1. Try to feel distant from the discomfort and pretend that it is not part of your body	0	1	2	3	4	5
2. Don't think of it as discomfort but as some other sensation, like a warm, numb feeling	0	1	2	3	4	5
3. Play mental games or sing songs to keep your mind off the discomfort	0	1	2	3	4	5
4. Practice progressive muscle relaxation	0	1	2	3	4	5
5. Practice visualization or guided imagery, such as picturing yourself somewhere else.....	0	1	2	3	4	5
6. Talk to yourself in positive ways	0	1	2	3	4	5
7. In the past week, how many times did you do mental stress management or relaxation techniques?						

_____times

Medical Care

1. When you **visit your doctor**, how often do you do the following (*please circle one number for each question*):

	Never	Almost never	Some- times	Fairly often	Very often	Always
a. Prepare a list of questions for your doctor	0	1	2	3	4	5
b. Ask questions about the things you want to know and things you don't understand about your treatment.....	0	1	2	3	4	5
c. Discuss any personal problems that may be related to your illness	0	1	2	3	4	5