National Study of Chronic Disease Self-Management: Six-Month Outcome Findings

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Abstract

Objective: To investigate how the Chronic Disease Self-Management Program (CDSMP) changes health outcomes, lifestyle behaviors, and health care service utilization over a 6 month period.

Method: The participants were 1,170 adults enrolled in the National Study of CDSMP in 2010-2012 (M age = 65.4 years). Six-month assessments were available for 903 participants. Linear mixed models and generalized linear mixed models were used to assess the changes between baseline and 6-month assessment for primary and secondary outcomes among CDSMP participants.

Results: Social/role activities limitations, depression, and communication with physicians improved significantly from baseline to 6-month follow-up. Study participants reported significant improvements in more physical activity and less emergency room (ER) visits and hospitalization during that period.

Discussion: Nationally, CDSMP not only improves health outcomes and lifestyle behaviors but also decreases costly ER visits and hospitalization. Geriatricians and other primary care providers should be encouraged to refer patients with chronic conditions to such self-management programs.

Introduction

Chronic diseases are pervasive in our society with more than 50% of older Americans having two or more chronic diseases, including heart disease, stroke, diabetes, cancer, and arthritis (Federal Interagency Forum on Aging-Related Statistics, 2012; U.S. Department of Health Human Services, 2011). The increasing prevalence of multiple chronic conditions places enormous strain on the American economy with more than US$2 trillion in health care costs, which could be substantially reduced through greater attention to disease prevention efforts (Kaiser Family Foundation, 2012; Parekh & Barton, 2010; Trust for America's Health, 2008). A greater emphasis on self-management strategies is an essential strategy for avoiding the onset of chronic conditions and helping those with diseases to manage their conditions more effectively in terms of slowing disease progression, reducing complications, and lowering costs. Health Care Reform initiatives are identifying strategies to reduce the burden of chronic diseases by examining the role of patients in managing their chronic conditions (Freudenberg & Olden, 2011).

There are several low-cost evidence-based programs that show promise to help older adults with chronic illnesses to take control of their own health (Centers for Disease Control and Prevention [CDC], 2011). The Chronic Disease Self-Management Program (CDSMP), one of the most well-studied evidence-based programs, has been selected for widespread national dissemination through the aging services network (Administration on Aging, 2012). This program is designed to address the complex array of health issues and self-management behaviors that cut across different chronic illnesses. Although CDSMP has been extensively studied in smaller disseminations, less is known about how a national rollout of this program will impact various behavioral, clinical, and health care utilization outcomes.

The purposes of this study were to (a) identify baseline characteristics of those who enrolled in and completed CDSMP workshops under the auspices of the 2010-*2012 Communities Putting Prevention to Work (CPPW)* initiative funded through the American Recovery and Reinvestment Act and (b) examine 6-month outcomes in terms of improvements in primary outcomes (e.g., communication with doctors, ability to perform everyday social roles, depressive symptomatology) and secondary outcomes (e.g., other quality of life indicators, health care utilization, lifestyle behaviors including physical activity).

Method

Data Source and Study Population

This study utilized a pre–post longitudinal design to examine intervention effects among middle-aged and older adults enrolled in CDSMP workshops delivered nationwide by 22 licensed sites. Data used in these analyses were collected at baseline and 6 months after enrollment as part of the National Study of the CDSMP, which entered participants between August 2010 and April 2011. A list of licensed CDSMP entities maintained by the Stanford Patient Education Research Center served as the sampling frame. From this list (n = 522), 365 entities responded to the initial screening survey for a 70% response rate. Among these entities, 39 sites met eligibility criteria designed to identify established delivery sites that had previously delivered the CDSMP programs with fidelity. The specific eligibility site criteria included being affiliated with the CPPW initiative, having delivered six or more CDSMP/Tomando (Spanish version CDSMP) workshops in the past 12 months, having an average completion rate of at least 66%, and planning to deliver at least six workshops during the study recruitment phase. With a goal of reaching 1,000 participants, including 200 from workshops held in Spanish, the 39 eligible sites were contacted in randomized order to reduce selection biases. Of the 39 potentially eligible sites, 22 became part of the study, 2 refused due to workload or personnel concerns, 7 had eligibility or administrative problems, and 8 were not contacted because they were at the bottom of the randomized list and their participants were not needed.

Drawn from 17 states across the nation, each participating CDSMP delivery site recruited participants in their usual fashion, which included referrals from aging network organizations, health care facilities, and social service organizations as well as self-referrals from a variety of recruitment activities, including community flyers and brochures and health fairs. Participant

eligibility criteria included having at least one self-reported chronic disease or condition, enrolling in a CDSMP workshop delivered in either English or Spanish, attending at least one of the first two class sessions, having not previously taken CDSMP, completing a baseline survey, and consenting to being in this study. Baseline questionnaires distributed by class leaders on the 1st day of the workshop were sent to Stanford University Patient Education Research Center staff who processed the baseline data and also mailed out the 6-month follow-up questionnaires. Institutional Review Board approval was obtained at Stanford University and Texas A&M University.

Intervention

Drawing on evidence-based behavior change principles, CDSMP is delivered in a small-group workshop format and stresses concepts, including goal setting, problem solving, and action planning. Workshops are facilitated by two trained leaders, one or both of whom are non-health professionals and have at least one chronic disease. Workshops consist of six highly participative classes held for 2.5 hour each, once a week, for 6 weeks. Subjects covered include (a) techniques to deal with problems such as frustration, fatigue, pain, and isolation; (b) appropriate exercise for maintaining and improving strength, flexibility, and endurance; (c) appropriate use of medications; (d) effective communication with family, friends, and health professionals; (e) nutrition; and (f) how to evaluate new treatments.

Measurements. Outcome measures were collected at baseline and 6-month follow-up.

Primary outcomes. The analysis of 6-month outcomes focuses on three broad categories of outcomes to reflect basic self-management tasks addressed during CDSMP skill building activities: role management, emotional management, and medical management. Defined as primary outcomes, these concepts were operationalized by the following three standardized scales, all of which have been used in a previous CDSMP randomized controlled trial (RCT; Lorig et al., 1996).

Social/Role Activities Limitations—Study participants were asked how much their health has interfered with their social/role activities (i.e., normal activities, recreational activities, household chores, and errands) during the past week (Lorig et al., 1996). Scores for these items were summed and divided by 4 to create an average value of their social/role activities limitations. Higher scores indicate greater activity limitations.

Depression—Participants' depression was measured by using the eight-item Personal Health Questionnaire Depression Scale (PHQ8; Kroenke et al., 2009). Scores range from 0 to 24. Higher scores indicate more severe depression.

Communication With Physicians—Communication with a physician was measured using a three-item scale, which asked participants if they did the following things when visiting a physician: prepare a list of questions, ask questions about things they want to know or do not understand, and discuss personal problems (Lorig et al., 1996). Scores for these items were summed and divided by 3 to create an average value. Higher scores represent better communication with a physician.

Secondary outcomes. Several secondary outcomes were selected based on outcomes previously examined in CDSMP outcomes research.

The CDC Healthy Days measures (CDC, 2000) were used to gauge self-assessed health status, including estimates of the number of days physical and mental health was not good during the past 30 days, as well as the number of days the participant was limited from usual activities. An analogue scale ranging from 0 to 10 was used to assess symptoms associated with chronic disease, including fatigue, pain, shortness of breath, stress, and sleep problems.

To measure participants' health-related behaviors, participants were asked a series of questions intended to document prescription medication adherence (Morisky, Green, & Levine, 1986). Using a variant of the Behavioral Risk Factor Surveillance Survey (BRFSS) items (CDC, 2012), participants were asked if they engage in moderate-intensity physical activities as well as the amount of time they spent engaging in moderate-intensity physical activities.

Health care utilization in the past 6 months was measured by a series of standard self-reported items that asked participants to indicate the number of nonemergency physician visits (physician visits), number of emergency room visits (ER visits), number of times hospitalized for one night or longer (hospital stays), and the number of total nights spent in an acute care hospital (length of stays).

Study Covariates—Several personal characteristics served as covariates. This included standard demographic variables such as age, gender, race/ethnicity, and highest level of education received. Health status was assessed by the number of chronic conditions. This was measured by a series of items that asked respondents to self-report information about the number and type of chronic conditions in which they had been diagnosed (e.g., diabetes, heart disease, asthma and other lung-related diseases, cancer, arthritis).

Analyses. Baseline characteristics were compared between the completers and non-completers of the follow-up assessment using $\chi 2$ tests for categorical variables and two-sample *t*-tests for continuous variables. Varying analyses were performed to examine change from baseline to the 6-month follow-up assessment for primary and secondary outcomes. Linear mixed models (using Stata *xtmixed* procedure) with participant-level random intercepts were fitted for continuous outcome variables controlling for age, gender, race, education, and number of chronic conditions. Generalized linear mixed models with Poisson distribution and participant-level random intercepts (using Stata *xtpoisson* procedure), controlling for the same covariates, were used to assess changes in count outcome measures (e.g., number of unhealthy physical days in the past 30 days). The physical activity variable and some health care utilization variables (including number of emergency room visits and hospitalization) were severely skewed and zero-inflated, thus multilevel two-part mixed effects models (using Stata *gllamm* procedure; Lee, Zhao, Yau, & Xiang, 2010) were utilized to assess change for those variables from baseline to 6-month followup. These three types of mixed-effects models are likelihood-based approaches that used all available data in model estimation and provided unbiased estimates of the intervention effects under the assumption of missing at random.

An effect size (d = [posttest mean − pretest mean] / pretest standard deviation) using estimates of changes from the mixed effects models was computed for each outcome except the zero-inflated variables. Effect sizes of d = 0.2 were considered small; d = 0.5 medium; and d = 0.8, large (Cohen, 1988). For comparison purposes, we have included available data from a recent meta-analysis of findings from randomized clinical trials conducted between 1999 and 2009 of English-speaking small-group CDSMP workshops (Brady et al., 2013). While this meta-analysis does not cover all of the current variables, it provides insights into the comparability of current findings to previous studies.

Results

Baseline Sample Characteristics

In total, 1,170 participants enrolled in the program and completed the baseline assessment. Approximately 77% (N = 903) of the original participants completed the 6-month assessment (see Figure 1). As shown in Table 1, the average age of these participants was 65 years (59% were 65 and older while another 28% of the participants were between 50 and 64 years of age), and the average years of education was 13 years. The majority of participants was female (82.7%) and more than half self-identified as non-Hispanic White (55.2%). The overall workshop completion rate was 79% (i.e., attending four or more of the six workshop sessions).

Compared with noncompleters, participants who finished the 6-month assessment were significantly older, more likely to be non-Hispanic White, and had higher completion rates for the workshop. At baseline, the completers also had significantly more comorbidities, fewer social/role activities limitations, lower depression, and better communication with doctors, than the noncompleters.

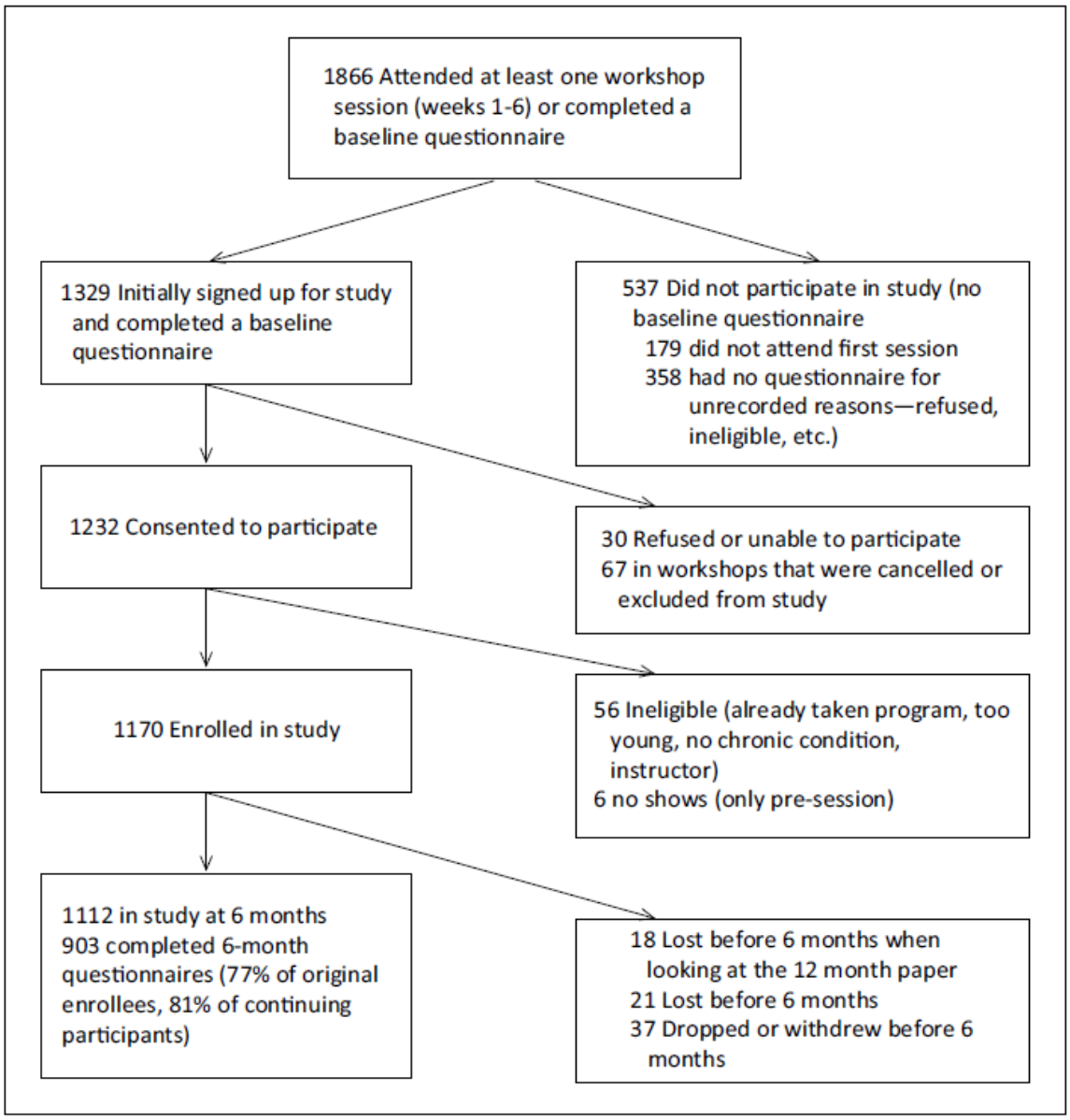

Figure 1. Participants in the National CDSMP Implementation Study: From baseline to 6 months.

Change Analyses

Results of the adjusted analyses in Table 2 show that all three primary outcomes (role, emotional, and medical management) improved significantly ($p < .001$) from baseline to 6-month follow-up with small effect sizes ranging from 0.14 to 0.19. The adjusted analyses also revealed significant changes for most of the secondary outcomes, with the exception of stress symptomatology, medication adherence, and number of doctor visits in past 6 months (Table 3). The observed significant changes for continuous secondary outcomes had effect sizes ranging from 0.04 to 0.21.

With respect to zero-inflated secondary outcomes, the odds of participants engaging in moderate physical activities was significantly higher at 6-month follow-up than baseline (odds ratio [OR] = 1.75, $p < .001$; Table 3). Among those who engaged in physical activities, the average minutes of moderately active increased from 166 min to 181 min per week from baseline to 6-month follow-up. And, the adjusted mean ratio of physically activity minutes between 6-month follow-up and baseline was significantly different from 1 (M ratio = 1.13, $p = .002$). Furthermore, the odds of ER visits in the past 6 months among CDSMP participants was significantly reduced from baseline to 6-month follow-up (OR = 0.68, $p = .007$); and the odds of having any hospitalization in the past 6 months among CDSMP participants were significantly lower at the 6-month assessment (OR = 0.72, $p = .03$) than at baseline.

Discussion

This national study documents the ability of CDSMP to improve health outcomes and reduce health care utilization for the growing population of seniors confirming many earlier results (CDC, 2011; Lorig et al., 1999). In particular, in terms of primary outcomes, study participants reported decreased activity limitations and depression symptomatology, while at the same time improving communication with their physicians. This improved communication with their physicians after completing CDSMP, which is confirmed by other studies (Barlow, Turner, Edwards, & Gilchrist, 2009; Elzen, Slaets, Snijders, & Steverink, 2007; Lorig et al., 1999). After completing CDSMP, participants tended to more frequently prepare lists of questions for their physicians, ask questions about things they do not understand well, and discuss illness-related personal issues.

It is well known that better patient–physician communication can positively influence self-efficacy and behavioral outcomes among patients with chronic disease (Murray, Burns, Lai, & Nazareth, 2005). For maximal benefit, the continued widespread dissemination of CDSMP should be complemented by geriatric education programs that assist physicians in not only being prepared for more activated patients but also for initiating more meaningful and effective communication with their patients (National Institute on Aging, 2008).

Table 1. Baseline Characteristics of CDSMP Participants by Follow-Up Status.

Table 1. Baseline Characteristics of CDSMP Participants by Follow-Up Status.

	Total (N = 1,170)	Completed 6-month survey (n = 903)	Not completed 6-month survey (n = 267)	
	n (%)	n (%)	n (%)	p value[a]
Female	967 (82.7)	748 (82.8)	219 (82.0)	.76
Race/ethnicity				.01
Non-Hispanic White	645 (55.2)	520 (57.7)	125 (46.8)	
African American	187 (16.0)	128 (14.2)	59 (22.1)	
Latino/Hispanic	260 (22.3)	196 (21.8)	64 (24.0)	
Asian/Pacific Islander	34 (2.9)	27 (3.0)	7 (2.6)	
American Indian/Alaska Native	8 (0.7)	5 (0.6)	3 (1.1)	
Other	34 (2.9)	25 (2.8)	9 (3.4)	
Workshop completion rate (attend 4+ sessions)	925 (79.1)	761 (84.3)	164 (61.4)	<.001
	M (± SD)	M (± SD)	M (± SD)	p value[b]
Age in years (from 19 to 80)	65.4 (±14.3)	67.0 (± 13.2)	59.8 (±16.1)	<.001
Years of education (from 1 to 23)	12.9 (±3.8)	13.0 (±3.9)	12.6 (±3.7)	.20
Number of comorbidities (from 1 to 12)	3.0 (±1.7)	3.0 (±1.7)	2.7 (±1.7)	.004
Role function (from 0 to 4)	1.4 (±1.2)	1.3 (±1.1)	1.5 (±1.2)	.02
PHQ depression (from 0 to 24)	6.6 (±5.5)	6.3 (±5.5)	7.6 (±5.7)	<.001
Communication with doctor (from 0 to 5)	2.6 (±1.4)	2.7 (±1.3)	2.3 (±1.4)	<.001

[a]p value for chi-square test comparing the participants who completed the 6-month survey with those who did not complete the 6-month survey.
[b]p value for two-sample t test comparing the participants who completed the 6-month survey with those who did not complete the 6-month survey.

Table 2. Adjusted Changes Between Posttest and Pretest Means and Effect Sizes for the Primary Outcomes.

Primary outcomes	Baseline[a] (*N* = 1,170) *M* (± *SD*)	Six-month[a] (*n* = 903) *M* (± *SD*)	Adjusted change	*p* value	Effect size *d*	ES CDC meta-analysis comparison
Role function (from 0 to 4)	1.4 (±1.2)	1.2 (±1.1)	−0.17	<.001	0.14	0.17
PHQ depression (from 0 to 24)	6.6 (±5.5)	5.4 (±5.0)	−1.07	<.001	0.19	0.22
Communication with doctor (from 0 to 5)	2.6 (±1.4)	2.9 (±1.4)	0.22	<.001	0.16	0.26

Note. Adjusted changes between 6-month and baseline from linear mixed regression models. All changes and p values are adjusted for gender, age, race, education, and no. of chronic conditions.

[a]Raw means and standard deviations at baseline and 6-month.

Table 3. Adjusted Changes or Ratios Between Posttest and Pretest Means and Effect Sizes for the Secondary Outcomes.

	Baseline[a] (*N* = 1170)	Six-month[a] (*n* = 903)	Adjusted change or ratio			
A. Continuous secondary outcomes	*M* (± *SD*)	*M* (± *SD*)	Change[b]	*p* value	Effect size *d*	ES CDC meta-Analysis
Self-assessed health status (from 1 to 5)	3.2 (± 0.9)	3.1 (± 0.9)	−0.14	<.001	0.16	0.14[c]
Quality of life (from 0 to 10)	6.5 (± 2.1)	6.9 (± 2.0)	0.34	<.001	0.16	
Fatigue (from 0 to 10)	4.9 (± 2.9)	4.5 (± 2.9)	−0.39	<.001	0.13	0.14[c]
Pain (from 0 to 10)	4.6 (± 3.1)	4.1 (± 3.0)	−0.46	<.001	0.15	0.13
Shortness of breath (from 0 to 10)	2.7 (± 2.9)	2.3 (± 2.8)	−0.39	<.001	0.13	0.08
Stress (from 0 to 10)	4.2 (± 3.1)	4.0 (± 3.0)	−0.06	.49	0.02	
Sleep problems (from 0 to 10)	4.6 (± 3.3)	3.8 (± 3.1)	−0.7	<.001	0.21	
Medication compliance score (from 0 to 1)	0.25 (± 0.3)	0.22 (± 0.3)	−0.01	.12	0.03	
			Mean ratio[d]			
Unhealthy physical days (from 0 to 30)	8.7 (± 10.0)	7.6 (± 9.5)	0.9	<.001	0.09	
Unhealthy mental days (from 0 to 30)	6.7 (± 9.1)	6.0 (± 8.4)	0.94	.001	0.04	
Days health kept from usual activities (from 0 to 30)	5.8 (± 8.9)	4.9 (± 8.2)	0.88	<.001	0.08	
Number of days/week moderately active (from 0 to 7)	2.4 (± 2.3)	2.9 (± 2.3)	1.18	<.001	0.19	
Number of doctor visits in the past 6 Months	3.6 (± 3.7)	3.7 (± 3.7)	1.02	.45	0.02	0.04

(continued)

Table 3. (continued)

B. Zero-inflated secondary outcomes	*M* (± *SD*) or %	*M* (± *SD*) or %	Odds ratio[e] or mean ratio[f]			
Weekly minutes moderately active						
Any time moderately active	66%	74%	1.75	<.001	NA	0.12[c]
Total minutes moderately active among those engaged in moderate activity	166.0 (± 167.1)	181.0 (± 160.8)	1.13	.002	NA	
Number of emergency room (ER) visits in the past 6 months						
Any ER visit	18%	13%	0.68	.007	NA	0.02
Number of ER visits among those with any ER visit	1.5 (± 1.1)	1.4 (± 0.8)	0.95	.28	NA	
Number of time hospitalized in the past 6 months						
Any hospitalization	14%	11%	0.72	.03	NA	0.01
Number of hospitalizations among those with any hospitalization	1.4 (± 1.1)	1.4 (± 0.8)	0.97	.61	NA	0.09[c]

Note. All changes, ratios, and *p* values are adjusted for gender, age, race, education, and no. of chronic conditions. CDC = Centers for Disease Control and Prevention.

[a]Raw means and standard deviations at baseline and 6-month.

[b]Adjusted changes between 6-month and baseline from linear mixed regression models.

[c]Significant at $p < .01$.

[d]Adjusted ratio of 6-month and baseline mean from random intercept Poisson regression models.

[e]Adjusted odds ratio of any health care utilization or physical activity at 6-month versus baseline from the logistic regression part of two-part multilevel mixed regression models.

[f]Adjusted ratio of 6-month versus baseline mean among those who had any health care utilization or physical activity from the gamma regression part of two-part multilevel mixed regression models.

With regard to other secondary outcomes, this study identified previously reported improvements in self-assessed health, quality of life, fatigue, and sleep problems associated with CDSMP participation. The findings are relevant in that they point to programmatic strategies for improving older adult's health and well-being, which can be adopted by the aging services network and the health care community.

Unlike a previous CDSMP study (Lorig et al., 1999), the current study showed significant improvements in pain and shortness of breath as well. Considering participants have different health issues depending on their diseases or sociodemographic characteristics, future research should investigate which health conditions affect different subsets of patients as well as which subpopulations benefit most from CDSMP. These factors should also be associated with the frequency and quality of interaction with physicians and other health care professionals.

The significant decrease in ER visits and hospitalization from baseline to the 6 month follow-up is consistent with other studies showing a decrease in health care utilization, although the current study differs in revealing a significant decrease in both types of care. The current study revealed that ER visits and hospitalization decreased from baseline to 6-month follow-up (i.e., 18% to 13% and 14% to 11%, respectively). These findings are indicative of the potential saving in health care costs, particularly because the number of Americans with at least one chronic condition is expected to grow to 157 million
by 2020 (Bodenheimer, Chen, & Bennett, 2009). Similarly, the economic burden of chronic conditions has potential to increase to more than US$4 trillion in 2023 (Bodenheimer et al., 2009). While the current study did not specifically examine cost, a 2001 study reported actual 2-year saving to be between US$390 and US$520 per CDSMP participant (Lorig, Sobel, Ritter, Laurent, & Hobbs, 2001). Despite ongoing debates about cost-savings associated with disease management programs (Fireman, Bartlett, & Selby, 2004), CDSMP has potential to contain health care costs when caring for patients who suffer from chronic conditions.

Study findings revealed the ability of CDSMP to successfully reach and retain diverse populations in both programmatic and research aspects, which gives more credence to the generalizability of study findings. Approximately 77% of this racially/ethnically diverse population completed the 6-month follow-up. The study population was 55% non-Hispanic White, 16% African American, 22% Hispanic, and 3% Asian. However, as in many health promotion interventions (Wilcox, Dowda, Griffin, Rheaume,
& Ory, 2006), the population was predominantly women; thus restricting generalizability to primarily female participants. Consistent with the sampling frame that targeted delivery organizations with prior experience in delivering CDSMP workshops, nearly 80% of study participants successfully completed the CDSMP workshops, indicating participants received sufficient intervention dose.

While a translational research study, the design reflects a "best case scenario" versus sampling from all potential delivery sites that may have been less experienced or less able to hold classes with consistently high completion rates. Offered under the auspices of the Administration on Aging, the workshops were geared toward those 60 and older and those who had at least one chronic condition. Accordingly, the mean age of the current study was 65.4. However, the workshops allowed caregivers/family members to attend, and this was especially so among minority populations. In our additional analysis (results not presented), we found that non-Hispanic White participants tended to be older while Hispanic participants tended to be younger. The broader age range in the national study reflects the realities of dissemination in

real-world settings, as do the less than perfect completion rates, which are still associated with positive outcomes (Durlak & DuPre, 2008; Smith, Hochhalter, Cheng, Wang, & Ory, 2011).

Several limitations can be acknowledged. First, the study lacks a control group, which may be considered a threat to internal validity. However, the primary purpose of this investigation was to determine whether a national rollout of an evidence-based disease self-management program could duplicate findings of earlier RCTs. While significant changes were observed and generally in the predicted direction, the effect sizes tended to be more attenuated for the primary outcomes, which reflects greater variability in community-based delivery than in tightly controlled research studies. Second, a survivor bias may have existed as the completers of the 6-month assessment were significantly different from the noncompleters in certain aspects, including workshop attendance, age, race/ethnicity, number of comorbidities, and primary outcomes at baseline. It is unknown if those who experienced greater intervention effects remained in the program, or if remaining in the program helped participants to achieve more benefits. Next, all outcome variables in this study were self-reported, which may have led to under- or overestimation of participant responses. Nevertheless, we were unable to find problematic patterns related to this concern, and this research team actively followed-up with study participants to clear any ambiguous or contradictory responses. There may be specific concerns about recall bias for the health care utilization outcomes. However, previous studies have found a fairly high concordance between self-reported and objectively measured health care utilization for ER and inpatient utilization as compared with physician visits (Ritter et al., 2001). While such studies may minimize these concerns, they also call for future research examining administrative health service claims records for those participating in CDSMP workshops. Finally, while significant pre–post improvements were seen in most outcome variables, effect sizes were often modest. We believe these change scores reflect positive benefits when accumulated over the different types of outcomes, and are typical of small gains over large populations often seen in health intervention research (Crain, Martinson, Sherwood, & O'Connor, 2010).

In sum, the CDSMP demonstrated a number of benefits in the current study with significant improvements in primary health indicators. Furthermore, the cost implications of significant decreases in key secondary outcomes such as ER visits and hospitalization have important practice and policy implications. These findings stress the importance of encouraging increased patient referrals to such evidence-based CDSMP along with more infrastructure support to ensure the availability of such programs for the escalating population of seniors with multiple chronic conditions.

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Declaration of Conflicting Interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Kate Lorig receives royalties from the book used by participants in the Chronic Disease Self-Management Program (CDSMP) program. There are no other potential conflicts of interest.

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