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ORIGINAL ARTICLE

A Disease-Specific Self-Help Program Compared With a Generalized Chronic Disease Self-Help Program for Arthritis Patients

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Objective. **Both the Arthritis Self-Management Program (ASMP) and the generic Chronic Disease Self-Management Program (CDSMP) have been shown to be successful in improving conditions in patients with arthritis. This study compared the relative effectiveness of the 2 programs for individuals with arthritis.**

Methods. **Patients whose primary disease was arthritis were randomized to the ASMP (n = 239) or to the CDSMP (n = 116). Analyses of covariance were used to compare the outcome measures for the 2 programs at 4 months and 1 year. Measures included quality of life outcomes (self reported, health distress, disability, activity limitation, global health, pain, and fatigue), health behaviors (practice of mental stress management, stretching and strength exercise, aerobic exercise), self efficacy, and health care utilization (physician visits and hospitalizations).**

Results. **Both programs showed positive results. The disease-specific ASMP appeared to have advantages over the more generic CDSMP for patients with arthritis at 4 months. These advantages had lessened slightly by 1 year.**

Conclusion. **The disease-specific ASMP should be considered first where there are sufficient resources and participants. However, both programs had positive effects, and the CDSMP should be considered a viable alternative.**

KEY WORDS. Patient education; Self management; Arthritis; Randomized trial.

INTRODUCTION

The Chronic Care model and the Institute of Medicine have established self-management programs as a necessary component of good care for persons with chronic disease (1–5). Within the model, such programs are known as self-management support, which is how providers and systems support patients in their self-management efforts. Over the past 2 decades, there have been many examples of effective self-management support (2,6). Most of these programs have been disease specific, whereas a few are more generic. One of the major questions arising from past self-management studies is how to best understand the effectiveness of different programs. In this report, we examine the specific issue of the relative effectiveness of a disease-specific self-management program versus a generic self-management program for individuals with arthritis and discuss the policy implications for the findings.

The Arthritis Self-Management Program (ASMP), also known as the Arthritis Self-Help Course and Challenging Arthritis, is now more than 25 years old. It has been found to be useful for persons with arthritis (7–9).

In the past 10 years, the Chronic Disease Self-Management Program (CDSMP), also known as the Expert Patient Program, has been developed and evaluated (8,10,11). Unlike the ASMP, the CDSMP is a generic program that individuals with many different types of chronic conditions attend at the same time. In an initial randomized study, persons with arthritis who attended the CDSMP workshop showed improvements in health behaviors and health status (12). Both the ASMP and the CDSMP are large programs in the United States, Great Britain, Australia, New Zealand, and Canada.

Whether a disease-specific self-management program would have advantages over a more generic program remains an open question, although intuitively this would seem to be the case. This is especially true because a large percentage of persons with arthritis also have comorbid conditions (13).

Although many individuals with arthritis have participated in CDSMP studies, we have not been able to evaluate the distinct outcomes for these individuals in the CDSMP.

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We do not know if their arthritis was the reason for attending the program or was, as we suspect, often a secondary comorbid condition. Because of the wide dissemination of both of these programs, we have often been asked about the relative merits of the ASMP and the CDSMP but have not been able to give an evidence-based response. In the current study, we hypothesized that both programs would be effective for individuals with arthritis, and that there would be few differences in effectiveness at 4 months and 1 year.

PATIENTS AND METHODS

Background. *The Arthritis Self-Management Program.* The ASMP is a 6-week (2 hours per week) program offered to all persons with rheumatic conditions (14). Programs are typically held in community locations such as churches and senior centers and are led by a pair of trained peer leaders, one or both of whom have a rheumatic condition. Each program is attended by 10–15 individuals with arthritis as well as some participants' significant others.

The ASMP arose from a needs assessment conducted among patients with arthritis and the rheumatologists who treated them (15). The results of the program have been assessed in a randomized study (7). Highly significant increases in knowledge and in the adoption of taught behaviors were achieved. Pain was reduced significantly (15–20% from baseline on average; $P < 0.05$).

Subsequently, we studied 503 ASMP participants 4 years after completing the program. The response rate was 80%. Compared with their baseline levels, there was a sustained 19% reduction in pain, depression was slightly lower, visits to physicians were reduced by 43%, and perceived self efficacy was ~17% higher (8). These long-term improvements occurred despite the expected 9% increase in physical disability, and were additive to the benefits of medication or other treatments.

The reduction in visits to physicians permitted a cost effectiveness analysis that showed, over 4 years, individual savings 4–5 times greater than the cost of the program. Thus, when calculated on national prevalence rates for chronic arthritis, large savings would accrue if similar results were attained with larger numbers of patients. For example, for 1% of persons with osteoarthritis, the net savings over 4 years would be $14,500,000 (8). This analysis was recently confirmed by others (16).

The effectiveness of the ASMP has recently been observed in a population-based replication study in Great Britain (n = 544). The study demonstrated that participants had reduced pain, fatigue, and health distress, with a trend toward fewer visits to physicians (17). The ASMP is now offered throughout the US and is also conducted in Australia, Canada, Great Britain, Lithuania, Denmark, and New Zealand. In all cases it is offered by voluntary arthritis organizations.

Chronic Disease Self-Management Study. The CDSMP, similar to the ASMP, is a 6-week community-based intervention led by peers (18). Unlike the ASMP, which is disease specific, the CDSMP was designed to accommodate persons with most symptomatic chronic conditions. Therefore, participants in any one program have a variety of chronic conditions. In a randomized study, participants (n = 952) with arthritis, heart disease, lung disease, or stroke were all placed together in the same 14-hour, peer-led intervention (12). Outcome data suggest that intervention participants, when compared with randomized controls at 6 months, significantly improved their self-management behaviors, improved their health status (role activities, health distress, disability, and fatigue), improved their self efficacy, and decreased the number of days in the hospital ($P < 0.05$) (12). Many of these effects persisted for 2 years (19).

This study has been replicated with 613 participants from a major health maintenance organization (HMO). The population represents all the patients participating in the CDSMP through the HMO during 1998. At 6 months and 1 year, these participants demonstrated changes similar to those of the original CDSMP participants (11). The CDSMP is now offered by ~150 organizations in the US, including several major HMOs. It has recently been adopted as a national prototype self-management program by the National Health Service of the UK, and is also being offered in Australia, New Zealand, Canada, Mexico, Japan, China, Singapore, Holland, Norway, Denmark, Sweden, Switzerland, and Austria.

Patients. Between February 2002 and June 2003, 355 participants with arthritis as their primary reason for wishing to attend a self-management program were recruited from the San Francisco Bay Area. Sample size was determined based on the number of participants needed for sufficient power (at the 0.80 level) to detect effect-size differences in pain of 0.3 at the 0.05 significance level (2-tailed test), allowing for moderate attrition. This same sample size is sufficient to detect effect-size differences of 0.23 at the 0.10 significance level with a 1-tailed test. Therefore, if there were, contrary to our expectations, large differences in the effects of the 2 programs, there would be enough power to demonstrate statistical significance. These effect sizes are the minimal levels that have generally been found to be clinically significant to patients (20,21).

Separate parallel recruitment strategies were used for individuals with arthritis and for those with other chronic diseases. That is, participants with arthritis and those with other chronic diseases were recruited separately to guarantee that those with arthritis in the randomized trial were participating in the program because of a primary interest in their arthritis. In both cases, discussions were held in community locations such as senior centers and libraries, public service announcements were posted, and disease-specific organizations such as the Arthritis Foundation were targeted for recruitment.

All participants completed a mailed informed consent and a self-administered questionnaire, and were randomized into 2 groups using random-number charts: approximately two-thirds were randomized to the disease-specific ASMP (n = 239) and one-third were randomized to the generic CDSMP (n = 116). The unequal distribution of the

Table 1. Comparison of the content and processes of the Arthritis Self-Management Program (ASMP) and the Chronic Disease Self-Management Program (CDSMP)

Program characteristics	ASMP	CDSMP
Attributes		
Arthritis specific	Yes	No
Peer led	Yes	Yes
6 weeks	Yes	Yes
Session length	2 hours	2.5 hours
Systematic use of self-efficacy strategies	Yes	Yes
Content		
Goal setting (action planning)	Yes	Yes
Pain management	Yes	No
Exercise	Disease specific	More general
Participant reference book	Arthritis helpbook	Living a healthy life with chronic conditions
Osteoporosis	Yes	No
Energy conservation	Yes	No
Anger/fear/frustration	Yes	Yes
Depression	Yes	Yes
Advanced directives	No	Yes
Better breathing	No	Yes
Fatigue management	Yes	Yes
Sleep	Yes	No
Healthy eating	Yes	Yes
Making nontraditional treatment decisions	Yes	No
Medication overview	Yes	Yes
Working with health professionals	Yes	Yes
Cognitive techniques	For pain management	Relaxation/symptom management
Communications	No	Yes
Problem solving	Yes	Yes

arthritis participants allowed enough space in the chronic diseases classes for other participants who did not have arthritis as their primary disease. Therefore, the makeup of the CDSMP was similar to what one would find in a real world situation. Investigators were blinded to intervention assignment, but the nature of the programs precluded the participants from being blinded. Participants were randomized by a staff coordinator only after completing the baseline questionnaire and signing the consent form.

In addition, 128 individuals who had a primary chronic disease other than arthritis were recruited. These individuals were not study participants. In each CDSMP program, one-third to one-half of the participants were attending for reasons (diseases) other than arthritis. Therefore, the programs offered in this study closely mirrored how both the ASMP and the CDSMP are offered in the community. Data were collected at baseline, 4 months, and 12 months. This time frame was chosen because it reflects the time frame in most past ASMP studies.

All participants for the randomized study met all of the following criteria: a diagnosis of any rheumatic condition supplied by their physician (although this is a very heterogeneous group, it does mirror how the ASMP is normally offered), have no previous participation in the ASMP or CDSMP, and age at least 18 years. Other CDSMP participants had a diagnosis of a physician-confirmed chronic disease other than arthritis, had not participated in the ASMP or CDSMP, and were at least 18 years of age.

Because many persons with arthritis have comorbid conditions and many persons with other chronic diseases have arthritis, we asked all participants entering the study to identify what disease they consider to be causing them the most problems. Persons who considered arthritis as the cause of their problems were randomized to the ASMP or the CDSMP, and persons who considered another disease as the cause were not randomized and were assigned to the CDSMP. The latter participants were not included in these analyses. Although the programs are similar in length and the way they are presented, there are many differences. These differences are detailed in Table 1.

Measures. Information was collected on 12 self-report instruments and on demographic variables and the presence of other diseases (comorbidity). These instruments have been used extensively in our research as well as others' research, and have been previously examined and validated. The criteria for choosing instruments were that they have previously been validated, represent key outcomes in 1 or more past studies of chronic conditions, are relatively short, and are sensitive to change in the range of 0.2 effect size. Instruments were selected for Health Indicators, Health Behaviors, Self Efficacy, and Health Care Utilization.

The following Health Indicator instruments were selected: Health Distress (measures worry and concern caused by chronic illness, 5 items [23]), Self-Rated Global Health (this item comes from the National Health Survey and has been found to be predictive of future health status, 1 item [23]), Activity Limitations (measures role function, 4 items [22]), Health Assessment Instrument (measures disability and is used in the National Health Survey, 20

items [24]), and Visual Numeric Fatigue and Visual Numeric Pain (adaptations of visual analog instruments that have been found to be easy for participants to complete, 2 items [25]). Two Health Behaviors instruments were selected: Practice Mental Stress Management (number of times per week individuals practice mental stress management and relaxation techniques, 1 item [22]) and Self-Reported Exercise (measures minutes per week of aerobic exercise, 5 items, and minutes per week stretching and strengthening exercise, 1 item [22]). One Self-Efficacy instrument was selected: Self-Efficacy for Managing Chronic Disease (measures the confidence one has in managing chronic conditions and has been found to be predictive of future health status, 5 items [22]). The 2 Health Care Utilization instruments selected were Physician Visits (self report of number of times visited a physician in past 4 months [22,26]) and Hospitalizations (self report of number of times hospitalized in past 4 months [22,26]).

Although a large number of variables were tested, all have been used in previous randomized studies of the ASMP and CDSMP, and all were included in the a priori hypotheses. Information about all instruments used in this study can be found on the Stanford Patient Education Website at http://patienteducation.stanford.edu.

Hypothesis. We hypothesized that there would be little difference between the 2 programs when we compared each of the variables listed above. In addition, we expected each program to replicate the success that we had seen in previous trials.

Statistical analyses. Comparisons of baseline scores for the 2 interventions were carried out using *t*-tests. Any baseline scores found to be significant were subsequently included as covariates when comparing the outcomes (changes) between the 2 interventions.

Within each group, the success of the intervention was assessed by comparing outcome scores at 4 months and 1 year with the baseline scores. We used *t*-tests to determine if the changes were significantly different than zero. The CDSMP and ASMP have each been evaluated previously, and these analyses were necessary to first ascertain if the results for the 2 programs replicated what we have seen previously before proceeding to the comparisons of the 2 programs.

The 2 programs were compared using analyses of covariance (ANCOVAs). The outcome scores at 4 months or 1 year were estimated using demographic variables, the baseline score, and any additional variables that had been determined to differ at baseline as covariates, with the type of intervention as the class variable. Adjusted least-squared means for the 2 interventions were compared and tested for significance. The SAS computer package was used for all analyses (SAS Institute, Cary, NC).

RESULTS

Randomization. Nearly all of the potential participants who contacted us were eligible for enrollment in the program (425 of 437) (Figure 1). The main reason for ineligibility was having attended a prior program. Of those deemed eligible, 51 (12.0%) elected not to join and did not fill out a baseline questionnaire. An additional 4.4% filled out a questionnaire and were randomized, but then failed to ever attend a program and were dropped from the study. A total of 239 patients with arthritis participated in the ASMP, and 116 patients with arthritis participated in the CDSMP.

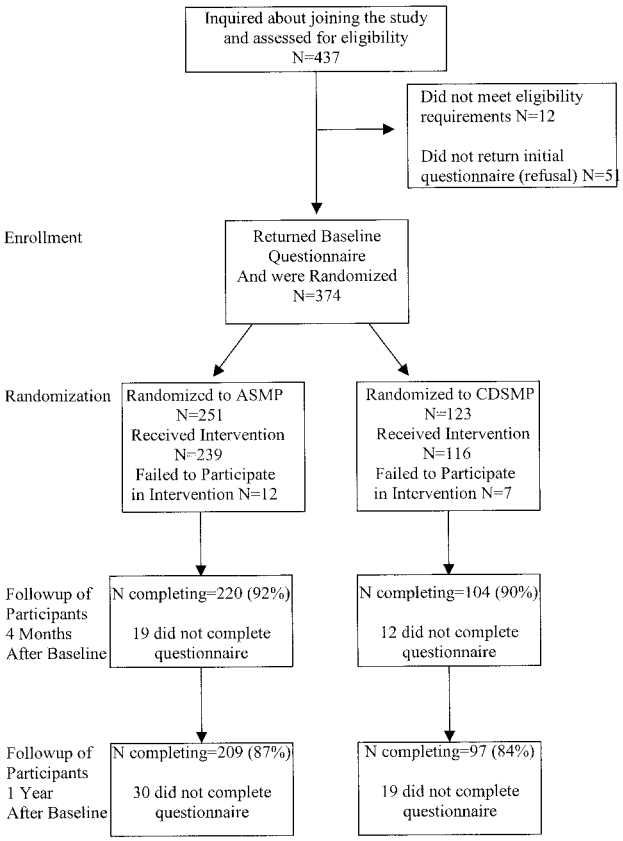

Figure 1. Study participants.

There were no significant differences in demographic variables between participants randomized to the arthritis group and those randomized to the chronic disease group (Table 2). The mean age was 65.2 years, and the mean number of years of education was 15.4. The participants were 83% non-Hispanic white, 85% were women, and 47% were married. Therefore, the sample can be described as an older, mainly female, mainly non-Hispanic white population with a relatively high level of education.

There were no significant differences between the 2 groups in the percentage of those with osteoarthritis or rheumatoid arthritis. However, there was a difference between the percentage reporting other kinds of arthritis, with a higher percentage in the chronic disease group (19.8% versus 10.5%; $P = 0.028$). There was also a marginal difference in the presence of comorbidity, with a slightly higher percentage once again in the chronic disease group (75.4% vesus 65.7%; $P = 0.065$).

There were no significant differences in the baseline values of outcome variables (Table 2), although 2 variables

Table 2. Baseline means, comparing the Arthritis Self-Management Program (ASMP) with the Chronic Disease Self-Management Program (CDSMP)*

Variable	ASMP (n = 239)	CDSMP (n = 116)	*P*† (difference)
Demographic variables			
Age	65.5 ± 14.4	64.6 ± 13.5	0.536
Female sex, %	81.3	77.8	0.748
Years of education	15.5 ± 2.78	15.2 ± 2.66	0.416
Married, %	53.9	54.9	0.752
Non-Hispanic white, %	86.9	92.4	0.370
Diseases, %			
Osteoarthritis	75.7	75.1	0.745
Rheumatoid arthritis	18.0	13.0	0.228
Other arthritis	10.5	19.8	0.028
Comorbidity (other diseases)	65.7	75.4	0.065
Health indicators			
Health distress (0–5)‡	2.15 ± 1.27	2.21 ± 1.12	0.695
Self-reported global health (0–5)‡	2.90 ± 0.931	3.08 ± 0.796	0.071
Activity limitation (0–4)‡	1.71 ± 1.12	1.95 ± 1.03	0.053
Disability (0–3)‡	0.401 ± 0.408	0.420 ± 0.376	0.663
Fatigue (0–10)‡	5.17 ± 2.48	5.71 ± 2.41	0.053
Pain (0–10)‡	5.46 ± 2.50	5.85 ± 2.12	0.129
Health behaviors			
Practice mental stress management (0–7)§	1.02 ± 2.86	1.32 ± 3.28	0.382
Aerobic exercise (minutes/week)§	114.9 ± 104.7	55.5 ± 59.9	0.771
Stretching and strength exercise (minutes/week)§	45.4 ± 51.9	118.3 ± 105.6	0.103
Self efficacy			
Self efficacy (1–10)§	5.98 ± 2.07	5.57 ± 1.92	0.074
Health care utilization			
Physician visits (past 4 months)	3.41 ± 8.56	3.51 ± 3.39	0.871
Hospitalizations (past 4 months)	0.064 ± 0.292	0.042 ± 0.819	0.447

* Values are the mean ± SD unless otherwise indicated. The range and direction are given with each variable, where applicable.
† *P* values are from *t*-tests comparing the 2 groups.
‡ A lower value is desirable.
§ A higher value is desirable.

Table 3. Four-month change scores within randomized program (ASMP or CDSMP)*

Variable	ASMP (n = 220)				CDSMP (n = 104)			
	Mean ± SD change	Effect size of change	Percent change	*P*†	Mean ± SD change	Effect size of change	Percent change	*P*†
Health distress (0–5)‡	−0.455 ± 1.09	0.366	21.2	< 0.001	−0.120 ± 1.20	0.095	5.4	0.308
Self-reported global health (0–5)‡	0.068 ± 0.709	0.074	2.3	0.155	0.175 ± 0.747	0.214	5.7	0.019
Activity limitation (0–4)‡	−0.438 ± 0.870	0.399	25.6	< 0.001	−0.267 ± 1.02	0.260	13.7	0.009
Disability (0–3)‡	−0.025 ± 0.330	0.068	6.2	0.264	0.007 ± 0.320	0.026	1.7	0.819
Fatigue (0–10)‡	−0.441 ± 2.23	0.184	8.5	0.004	−0.106 ± 2.35	0.043	1.9	0.647
Pain (0–10)‡	−0.636 ± 2.45	0.266	11.6	< 0.001	−0.212 ± 2.11	0.103	3.6	0.308
Practice mental stress management (0–7)§	0.232 ± 3.12	0.079	22.7	0.271	0.635 ± 3.86	0.227	48.5	0.096
Aerobic exercise (minutes/week)§	22.5 ± 102.1	0.212	19.6	0.001	17.45 ± 107	0.176	14.7	0.099
Stretching and strength exercise (minutes/week)§	13.0 ± 56.4	0.241	28.6	< 0.001	15.0 ± 63.1	0.263	33.0	0.017
Self efficacy (1–10)§	0.508 ± 2.17	0.251	8.5	< 0.001	0.363 ± 1.87	0.195	6.5	0.051
Physician visits (past 4 months)	−0.329 ± 6.47	0.038	9.6	0.453	0.0 ± 4.93	0.0	0.0	1.000
Hospitalizations (past 4 months)	0.0 ± 0.407	0.0	0.0	1.000	0.048 ± 0.323	0.250	114.0	0.132

* The range and direction are given with each variable, where applicable. ASMP = Arthritis Self-Management Program; CDSMP = Chronic Disease Self-Management Program.
† *P* values are from *t*-tests comparing whether the real change score might be zero.
‡ A lower value is desirable.
§ A higher value is desirable.

Table 4. Comparison of Arthritis Self-Management Program (ASMP) with Chronic Disease Self-Management Program (CDSMP) at 4 months*

Variable	ASMP (n = 220)	CDSMP (n = 104)	*P* (difference)
Health distress (0–5)†	1.72	1.96	0.034‡
Self-reported global health (0–5)†	3.00	3.13	0.096‡
Activity limitation (0–4)†	1.32	1.55	0.020‡
Disability (0–3)†	0.388	0.414	0.482‡
Fatigue (0–10)†	4.80	5.28	0.033‡
Pain (0–10)†	4.91	5.30	0.108‡
Stretching and strength exercise (minutes/week)§	59.8	67.9	0.220¶
Aerobic exercise (minutes/week)§	142.8	141.9	0.936‡
Self efficacy (1–10)§	6.43	6.12	0.140‡
Practice mental stress management (0–7)§	1.40	1.59	0.563¶
Physician visits (past 4 months)	3.11	3.48	0.354‡
Hospitalizations (past 4 months)	0.072	0.089	0.651‡

* Values are the least-squared means from the analysis of covariance procedure, with covariates controlling for the baseline outcome score, age, sex, marital status, ethnicity, education, and baseline self efficacy, fatigue, self-reported health, activity limitation, comorbidity, and other arthritis.
† A lower value is desirable.
‡ ASMP participants improved more than CDSMP participants.
§ A higher value is desirable.
¶ CDSMP participants improved more than ASMP participants.

approached significance and 2 others also showed a trend towards difference. The mean Activity Limitation score was 1.71 for ASMP participants and 1.95 for CDSMP participants ($P = 0.053$). Similarly, the mean Fatigue score was 5.17 for ASMP participants and 5.71 for CDSMP participants ($P = 0.053$). The P value for the differences between participants in the 2 programs was 0.074 for self efficacy and 0.071 for global health. Consequently, ANCOVAs comparing the 2 groups were run including the above 4 variables as covariates, as well as including the percentage of participants reporting other arthritic conditions and comorbidity.

Four-month outcomes. Participants randomized to ASMP, when compared with their own baseline values, demonstrated significant improvements ($P < 0.05$) at 4 months for health distress, activity limitation, fatigue, pain, stretching and strength exercise, aerobic exercise, and self efficacy (Table 3). CDSMP participants had significant ($P < 0.05$) improvements in activity limitation and range of motion exercise, with trends ($P = 0.05–0.1$) toward improvement in self efficacy, mental stress management, and aerobic exercise. They also had a significant negative change in self-reported global health (Table 3).

Table 4 shows the results of the 4-month comparison of ASMP participants with CDSMP participants using ANCOVAs that controlled for baseline self efficacy, activity limitation, self-reported global health, and fatigue, and controlled for the baseline value of each specific outcome variable and for demographic variables (including baseline comorbidity and other arthritis). Similar results were obtained without the additional control values. These results show significant differences for health distress, activity limitation, and fatigue, with ASMP participants demonstrating greater improvement. There were also trends toward significant differences for global health and pain, again with ASMP participants having better outcomes. Intent-to-treat analyses were also performed (data not shown) by substituting the baseline value for the missing 4-month value. The changes were minor, and all significant differences remained the same.

One-year results. The changes at 1 year for ASMP and CDSMP participants are shown in Table 5. ASMP participants had significant improvements in health distress, activity limitation, disability, fatigue, pain, practicing of mental stress management, stretching and strengthening exercise, and self efficacy. CDSMP participants showed improvements in health distress, activity limitation, and practice of mental stress management, with a trend toward improvement in self efficacy ($P = 0.053$). As with 4 months, the CDSMP participants showed a significant negative change in self-reported global health.

The comparison of ASMP participants' and CDSMP participants' 1-year results is shown in Table 6. The ASMP participants had a significantly greater improvement in global health and fatigue than the CDSMP participants. There was also a trend toward significance for pain ($P = 0.088$). Intent-to-treat analyses were also performed and all significant differences remained the same.

DISCUSSION

In previous trials, patients with arthritis randomized to the ASMP were found to have positive outcomes compared with those randomized to continue with usual care. Subsequently patients with arthritis randomized to the CDSMP had better outcomes compared with patients who remained in usual care. The current study did not include a usual care group, but the results for both ASMP and CDSMP participants were positive and similar to what we had found in the previous studies (8,12).

The comparative data from the current study suggest

Table 5. One-year change scores within randomized program (ASMP or CDSMP)*

Variable	ASMP (n = 209)				CDSMP (n = 97)			
	Mean ± SD change	Effect size of change	Percent change	P†	Mean ± SD change	Effect size of change	Percent change	P†
Health distress (0–5)‡	−0.522 ± 1.17	0.415	24.3	< 0.001	−0.374 ± 1.13	0.373	16.9	0.002
Self-reported global health (0–5)‡	−0.010 ± 0.772	0.011	3.4	0.858	0.229 ± 0.814	0.279	7.4	0.007
Activity limitation (0–4)‡	−0.446 ± 0.982	0.402	26.1	< 0.001	−0.369 ± 0.975	0.357	18.9	<0.001
Disability (0–3)‡	−0.050 ± 0.319	0.121	12.5	0.026	0.013 ± 0.336	0.035	3.1	0.707
Fatigue (0–10)‡	−0.426 ± 2.14	0.174	8.2	0.004	0.031 ± 2.29	0.013	0.5	0.894
Pain (0–10)‡	−0.660 ± 2.40	0.270	12.1	< 0.001	−0.318 ± 2.32	0.177	5.4	0.108
Practice mental stress management (0–7)§	0.548 ± 3.58	0.185	53.7	0.028	1.000 ± 4.30	0.356	75.8	0.025
Aerobic exercise (minutes/week)§	7.03 ± 103.4	0.066	6.1	0.326	−3.24 ± 107	0.030	2.7	0.766
Stretching and strength exercise (minutes/week)§	16.6 ± 60.2	0.313	36.6	< 0.001	5.41 ± 52.7	0.092	9.7	0.314
Self efficacy (1–10)§	0.683 ± 2.19	0.328	11.4	< 0.001	0.430 ± 2.16	0.230	7.7	0.053
Physician visits (past 4 months)	−0.367 ± 6.21	0.042	10.7	0.396	−0.206 ± 3.72	0.060	5.9	0.586
Hospitalizations (past 4 months)	0.015 ± 0.458	0.050	23.4	0.648	0.041 ± 0.320	−0.212	−97.6	0.208

* The range and direction are given with each variable, where applicable. ASMP = Arthritis Self-Management Program; CDSMP = Chronic Disease Self-Management Program.
† The *P* values are from *t*-tests comparing whether the real change score might be zero.
‡ A lower value is desirable.
§ A higher value is desirable.

that the disease-specific ASMP has advantages over the more generic CDSMP. This was especially true at 4 months. However, these advantages had lessened slightly by 1 year. It must be noted that one cannot accurately compare the significance (*P* values) of the CDSMP versus ASMP outcomes at 4 months or at 1 year (Tables 3 and 5) because the number of CDSMP participants with arthritis was less than half that of ASMP participants, thus reducing the statistical power for CDSMP. However, one can compare the unadjusted magnitude of the change scores for the ASMP or CDSMP participants, or look at the least-squared adjusted means for the 2 programs from the multivariate analyses (Tables 4 and 6).

Table 6. Comparison of Arthritis Self-Management Program (ASMP) with Chronic Disease Self-Management Program (CDSMP) at 1 year*

Variable	ASMP (n = 209)	CDSMP (n = 97)	P (difference)
Health distress (0–5)†	1.67	1.72	0.659‡
Self-reported global health (0–5)†	2.93	3.21	0.001‡
Activity limitation (0–4)†	1.33	1.41	0.458‡
Disability (0–3)†	0.365	0.399	0.364‡
Fatigue (0–10)†	4.76	5.43	0.005‡
Pain (0–10)†	4.82	5.27	0.088‡
Practice mental stress management (0–7)§	1.79	2.24	0.300¶
Stretching and strength exercise (minutes/week)§	63.2	57.4	0.406¶
Aerobic exercise (minutes/week)§	117.4	113.6	0.723‡
Self efficacy (1–10)§	6.61	6.21	0.073‡
Physician visits (past 4 months)	3.08	3.30	0.531‡
Hospitalizations (past 4 months)	0.091	0.062	0.474¶

* Values are the least-squared means from the analysis of covariance procedure, with covariates controlling for the baseline outcome score, age, sex, marital status, ethnicity, education, and baseline self efficacy, fatigue, self-reported health, activity limitation, comorbidity, and other arthritis.
† A lower value is desirable.
‡ ASMP participants improved more than CDSMP participants.
§ A higher value is desirable.
¶ CDSMP participants improved more than ASMP participants.

The programs can also be compared by examining the effect sizes of the 2 programs. If an effect size of 0.2 is considered a minimally important difference, then 6 outcomes were improved for the ASMP participants at 4 months, whereas only 3 outcomes showed such improvement for the CDSMP participants. At 1 year, ASMP participants (using the criteria of effect size ≥0.2) showed at least minimal improvement for 5 outcome variables. The CDSMP participants showed this level of improvement for 4 outcome variables. Thus, the level of differences between the 2 programs was reduced slightly at 1 year.

The final question, which this study sought to answer, is one of policy. Should organizations and health care systems offer disease-specific programs or generic programs? Here the answer is not as clear as we might like. First, these findings may not be similar for individuals with chronic conditions other than arthritis; we do not know if patients with heart disease will do better in a heart disease self-management program than in the CDSMP. Based on the data from this study, we would suggest that for individuals whose major symptom is arthritis, the ASMP is initially (4 months) more effective than the CDSMP, although some of these differences are lost by 1 year.

However, to sustain a disease-specific program, one must have a large enough patient base. It may be that by offering a generic program, more individuals can be reached at less cost. In addition, a generic program may

actually reach larger numbers of persons with arthritis because arthritis is one of the most common comorbid conditions.

Our sample was a predominantly female, elderly population with a high incidence of other diseases and relatively high education level. The finding may not apply equally well to patients with arthritis with, for example, lower education levels. The present study did not include enough participants to look at men alone or those with low education alone. Future studies might be necessary to see if there are similar differences between the same programs among varying age, ethnic, sex, and educational groups.

In conclusion, self-management support such as the ASMP and CDSMP is helpful for persons with arthritis. How each program is used individually or together depends on the health care provider and the patient base. As with other treatments, the best treatment for all concerned is often a tradeoff between individual need, system ability, and costs.

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