

# Impact of a Disease Self-Management Program on Employee Health and Work Performance: Introducing Workplace CDSMP

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## INTRODUCTION

### Chronic Conditions in the Workplace

- Disease management is increasingly recognized as an important component of workplace health promotion
  - Between 2006 and 2016, the number of workers aged 65–74 years will increase by 83%, and those aged 75 and older will increase by 84%
  - Approximately 77% of older adult have two or more chronic conditions
  - Depending on the chronic condition, between 22% and 49% of employees experience difficulties meeting physical work demands
  - Increased emphasis on of maintaining productive and competitive workforce

### Chronic Disease Self-Management Program (CDSMP)

- Created by the Stanford University School of Medicine
  - Workshops include 6 sessions, hosted over 6 weeks
  - Facilitated by 2 trained leaders
- Evidence-based program with wide-spread documented effectiveness (Better health; Better care; Lower cost)
- Subjects covered
  - Techniques to deal with problems, appropriateness of medications, use of medications, communication, nutrition, how to evaluate new treatments

### Translating CDSMP for Use in the Workplace

- Despite huge national reach (over 200,000 participants)
  - *Only 1.1% attended workshops in workplace settings*
- Weekly 2.5-hour workshops are difficult to schedule within the workday
- Need for tailoring to reach and meet needs of middle-aged and older workers
  - Reduce healthcare utilization
  - Boost work productivity and retention
  - Low delivery costs and scalable

## METHODS

### Part of a Larger Randomized Trial

- This study examines the effectiveness of a worksite-tailored version of CDSMP (wCDSMP [n=72]) relative to CDSMP ('Usual Care'[n=109]) to improve health and work performance among employees with 1+ chronic conditions
- Funded by the National Heart, Lung, and Blood Institute to translate CDSMP for use in the workplace among employees
  - Implemented in two rural communities in South Georgia
  - Data collected from employees at nine organizations
  - Data analyzed from baseline and 6-month follow-up

### Measures

- CDC QoL-4 Measures (unhealthy days, general health)
- Health Indicators (stress, pain, fatigue, depression, sleep)
- Eating Behavior (fast food, fruit/vegetables, sugar beverages)
- Physical Activity & Sedentary Behavior
- Communication with Healthcare Providers
- Work Limitations Questionnaire (demands on time, physical, mental, interpersonal, output)

### Statistical Analyses

- Multiple-group latent-difference score models
  - Use path constraints to create new latent variables
  - Model parameters involve the mean of the changes ( $\mu\Delta$ ) and the variance of the changes ( $\sigma^2\Delta$ )
  - Sandwich estimator to adjust standard errors

Comparison of CDSMP and wCDSMP workshop delivery	
CDSMP (Original)	wCDSMP (Workplace-Tailored)
<b>FORMAT</b>	
6 weeks	6 weeks
2.5 hour sessions (1 session per week)	60 minute sessions (2 sessions per week)
On-site or off-site (worksite dependent)	On-site or off-site (worksite dependent)
On work time or off work time (worksite dependent)	On work time or off work time (worksite dependent)
Facilitated by 2 leaders	Facilitated by 2 leaders
Leader training (4-day training)	Leader Training (4-day training) + <b>bridge training</b>
Participant materials (book & CD)	Participant materials (book & CD) [consider lending library]
Target participants aged 50 years and older	Target participants aged <b>40 years</b> and older
Up to 18 participants	Up to <b>16 participants</b>
<b>CONTENT</b>	
	Reorganized order of activities
	Emphasis on work-life balance
	Updated work-related examples, content, and activities
	Addition of stress-related content/activities
	Revised communication activity
	Revised and streamlined information about nutrition
	Reduced information about falls

Bold text indicates differences across programs

## RESULTS

- On average, age 47.9 ( $\pm 10.1$ ) years
- 87% female; 62% non-Hispanic white; 35% graduate degree
- On average, body mass index of 34.9 ( $\pm 7.9$ )
- On average, 3.3 ( $\pm 2.0$ ) chronic conditions
  - Obesity (73%), high cholesterol (45%), high blood pressure (45%), anxiety/emotional/mental health condition (26%), diabetes (25%), musculoskeletal injury/disorder (23%), depression (22%)

### Significant Improvements among wCDSMP Participants

- Physical unhealthy days
- Fatigue
- Sedentary behavior
- Soda/sugar beverage intake
- Fast food intake
- Patient-provider communication
- Work limitations due to mental demands

### Latent change regression analyses

	CDSMP (Usual Care)					wCDSMP (Workplace-Tailored)					Between-Group $\mu\Delta$	
	Baseline Mean (SE)	n	$\mu\Delta$ (SE)	P	Effect Size	Baseline Mean (SE)	n	$\mu\Delta$ (SE)	P	Effect Size	Difference (SE)	P
Physically Unhealthy Days	4.48 (0.78)	108	-2.13 (1.65)	0.198	-0.04	6.06 (0.73)	72	-2.07 (0.87)	0.018	-0.02	8.34 (4.48)	0.063
Fatigue	4.41 (0.26)	107	0.18 (0.46)	0.697	0.03	4.46 (0.25)	70	-2.88 (0.92)	0.002	-0.17	-3.68 (1.31)	0.005
Eating Behavior – Fast Food Intake (Past Week)	2.74 (0.13)	109	-0.59 (0.34)	0.082	-0.34	2.65 (0.15)	72	-0.76 (0.29)	0.009	-0.27	-1.04 (1.04)	0.317
Eating Behavior – Soda/Sugar Beverage Intake (Past Week)	1.61 (0.09)	108	0.15 (0.49)	0.765	0.05	1.69 (0.17)	72	-0.78 (0.35)	0.028	-0.24	-2.70 (0.92)	0.003
Physical Activity – Days Exercise (Past Week)	1.43 (0.15)	108	-0.84 (0.51)	0.102	-0.19	1.34 (0.26)	72	0.28 (0.35)	0.424	0.07	2.88 (1.40)	0.039
Sedentary Behavior on Work Days	9.02 (0.49)	109	-0.17 (1.02)	0.870	-0.01	9.66 (0.74)	72	-4.49 (1.90)	0.018	-0.02	-14.22 (9.24)	0.124
Patient-Provider Communication	3.28 (0.12)	109	0.41 (0.43)	0.334	0.26	3.28 (0.14)	72	0.46 (0.21)	0.031	0.33	1.34 (0.83)	0.106
WLQ: Mental Demands	16.30 (1.40)	107	1.54 (7.26)	0.832	0.00	19.80 (2.22)	71	-8.89 (4.47)	0.010	-0.02	-30.56 (14.87)	0.040

<sup>a</sup>Odds = Odds of variable at posttest compared to the odds of no variable at posttest.

<sup>b</sup>Odds Ratio = The odds of transitioning from unhealthy status to healthy status for worksite relative to odds of transitioning from unhealthy status to healthy status for usual care.

Note: All analyses control for age, sex, race/ethnicity, education, proportion of sessions attended, number of chronic conditions, and baseline levels of the dependent variable.

Note: SE (standard error); WLQ (work limitations questionnaire)

## DISCUSSION

### Successful Translation

- Similar findings to previous CDSMP studies with additional nuanced findings
- Younger adults living with chronic conditions have different challenges than traditional CDSMP participants
  - Often managing disease, work, and families
  - Often more mental than physical
- Opportunities to:
  - Improve employee health and productivity while reducing cost
  - Diversify participating worksites and employee types

### Lessons Learned & Next Steps

- Multi-level management support is key
  - Employer engagement process and incentive selection
- Ongoing assessment of 12-month findings
  - Work performance, biometrics, ROI, disease-specific
- Available nationally (with hundreds of leaders already trained)
  - <https://www.selfmanagementresource.com/programs>