Promoting Health And Function Among Chronically Ill Workers: Evaluation Of A Self-management Group Program

Robert K. McLellan, MD, MPH\textsuperscript{1} and William S. Shaw, Ph.D.\textsuperscript{2}

\textsuperscript{1}Geisel School of Medicine at Dartmouth, Hanover, NH
\textsuperscript{2}University of Connecticut Health Center, Farmington, CT

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Disclosures

Robert McLellan – no conflicts

William Shaw – at the time of this work, he was employed by Liberty Mutual’s Research Institute for Safety, Center for Disability Research

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Agenda

• Prevalence of chronic pain and illness at work
• Strategies for pain self-management
• Applying self-management at work
• Results and Conclusions
Workers over age 55 in the Labor Force as a Proportion of all workers, projected 1950 to 2030

<table>
<thead>
<tr>
<th>Year</th>
<th>Proportion</th>
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<tbody>
<tr>
<td>1950</td>
<td>One in six</td>
</tr>
<tr>
<td>2010</td>
<td>One in five</td>
</tr>
<tr>
<td>2030</td>
<td>One in four</td>
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</tbody>
</table>

Figure 1. Growth in Disability Prevalence by Age

Prevalence = 4.5715e^{0.0383\times\text{Age}}

R^2 = 0.9881

Source: NIDRR Demographics and Statistics RTC at Cornell University’s Employment and Disability Institute, calculations from 2003 ACS PUMS file performed by Robert Weathers, 2005.
Unsustainable work disability rates

**Working Age Population Growth Vs. Worker Disability Growth**

- **Worker Disability Enrollment**
- **Population Age 18-64**


**S@W/R2W**

Stay-at-Work/Return-to-Work Policy Collaborative

Almost Half of the Workforce Has at Least One Chronic Condition

US working adults, ages 18-64

Increasing Prevalence of Two or More Chronic Conditions

Data Brief 100. Multiple Chronic Conditions Among Adults Aged 45 and Over: Trends Over the Past 10 Years

Data table for Figure 1. Prevalence of two or more of nine selected chronic conditions among adults aged 45 and over, by age and sex: United States, 1999–2000 and 2009–2010

<table>
<thead>
<tr>
<th>Age in years</th>
<th>1999–2000</th>
<th>2009–2010</th>
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<tr>
<td></td>
<td>Percent</td>
<td>SE</td>
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<tr>
<td>45–64</td>
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<td></td>
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<tr>
<td>Total</td>
<td>16.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Men</td>
<td>15.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Women</td>
<td>16.9</td>
<td>0.4</td>
</tr>
<tr>
<td>65 and over</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>37.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Men</td>
<td>39.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Women</td>
<td>35.8</td>
<td>0.6</td>
</tr>
</tbody>
</table>

NOTE: SE is standard error.
SOURCE: CDC/NCHS, National Health Interview Survey.
Top ten causes of disability among men and women aged 15 years and over, Canada, 2001

- Alzheimer's Disease: Female 0.4%, Male 1.2%
- Stroke: Female 1.2%, Male 3%
- Cancer: Female 2.8%, Male 3%
- Ulcers: Female 4.6%, Male 6.1%
- Urinary incontinence: Female 2.9%, Male 4.5%
- Bowel disorder: Female 6.8%, Male 5.6%
- Heart disease: Female 9.3%, Male 6.8%
- Diabetes: Female 12.7%, Male 14.9%
- Asthma: Female 12.6%, Male 17.6%
- Mood disorder: Female 16.4%, Male 19.2%
- Migraine: Female 14.9%, Male 17.6%
- Arthritis: Female 19.8%, Male 22.2%
- High blood pressure: Female 22.2%, Male 24%
- Back pain: Female 24%, Male 25%
Pain-related Problems at Work

• Pain interference with work activities
  • Getting started in the morning
  • Overcoming confines of work
  • Planning for pain flare-ups

• Negative self-perceptions
  • Doubting your abilities
  • Stigma and embarrassment

• Interpersonal challenges
  • Lack of understanding and recognition
  • Irritability

• Inflexibility of work
  • Unsupportive health and safety culture
  • Highly competitive or independent work
  • Therapeutic or charitable work

### Possible Workplace Self-Management Intervention Strategies

<table>
<thead>
<tr>
<th>Relevant to workplace</th>
<th>Less relevant to workplace</th>
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<tbody>
<tr>
<td>- Anger management</td>
<td>- Planning for pain flare-ups</td>
</tr>
<tr>
<td>- Cognitive restructuring</td>
<td>- Problem-solving</td>
</tr>
<tr>
<td>- Attention techniques</td>
<td>- Sleep hygiene</td>
</tr>
<tr>
<td>- Effective communication</td>
<td>- Stress management</td>
</tr>
<tr>
<td>- Ergonomics/ body posture</td>
<td>- Stretching and exercise</td>
</tr>
<tr>
<td>- Gadgets, tools, devices</td>
<td>- Time-based pacing</td>
</tr>
<tr>
<td>- Overcoming obstacles</td>
<td>- Relaxation methods</td>
</tr>
<tr>
<td>- Pain diary</td>
<td></td>
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</tbody>
</table>

- Understanding diagnostics
- Communicating with MDs
- Sex and intimacy
- Pleasant activity scheduling
- Finding resources
- Medical education
- Nutrition
- Self-rewards
- Goal-setting

Incorporating the Workplace Context

• Assessing physical demands and limitations
  • Identify problematic job tasks
  • Identify areas of perceived limitation
  • Establish baseline function and goals
  • Identify ways to modify job tasks to improve comfort

• Estimating and using available job leeway
  • Organizational influences on work
  • Corporate rules and regulations
  • Understanding productivity expectations
  • Understanding cultural and procedural norms
Incorporating the Workplace Context

• Understanding workplace roles and relationships
  • Communicating for social support
  • Communicating for temporary assistance
  • Communicating to request job changes
Primary Research Question

Can a group intervention program (based around pain and illness self-management principles) be shown to reduce work disability and improve performance among workers with chronic medical conditions?
Intervention Limited to One of Several Possible Levels

- Organizational climate and practices
- Physical job accommodation
- Supervisor
- Individual
Conceptual Model

Workplace problems
- Health symptoms can make work more burdensome and exhausting
- Jobs are not flexible enough to accommodate special health needs
- Complaining about your health can lead to conflicts with supervisors and coworkers
- Physical limitations can lead you to feel worthless and down about your work

Group intervention

Session 1
- Normalization
- Functional implications
- Theories of pain & fatigue
- Need to self-manage

Session 2
- Problem solving
- Job flexibility & leeway
- Time-based pacing
- Work style

Session 3
- Effective communication
- Workplace roles
- Being judicious
- Issues of disclosure

Session 4
- Coping strategies
- Negative thoughts
- Mindfulness
- Social support

Session 5
- Goal setting
- Group problem solving
- Role play
- Group cohesion & support

Self-efficacy at work

Belief that my personal efforts to self-manage symptoms at work may improve my job effectiveness and satisfaction

Belief that I can modify job tasks and alter my work style to reduce discomfort and improve job performance

Belief that I can express needs at work judiciously and in appropriate ways without problems or embarrassment

Belief that I can anticipate and react to problems and cope with temporary setbacks without feeling irritable and worthless

Belief that I can apply self-management principles in my job and rely on occasional assistance and support

Outcome measures

Workplace function
- Work limitations
- Work engagement
- Work-related fatigue

Workplace coping
- Sickness absence
- Turnover intention
- Job satisfaction

Health status
- Physical function
- Emotional distress
- Health care use
Study Design

• “Proof of Concept” pilot
• Randomized, controlled trial
• Enrollment target
  • 200 workers with chronic medical conditions
• 5 employers
• Intervention arm:
  • 5 facilitated group workshops (10 hours)
  • 5-10 participants in each group
• Wait-list control arm:
  • Invitation to a full-day workshop one year later
• 6- and 12-month follow-up
Study Population

• “Workers with chronic medical conditions who are interested in exploring ways to deal with health-related challenges at work”

• **Inclusionary criteria:**
  • Full time (> 20 hours/week)
  • Job tenure > one year
  • Chronic medical condition (>6 months)
  • No current full or partial disability status
  • Age ≥ 18 years

• **Exclusionary criteria:**
  • Pending retirement (next 12 months)
  • Job instability (expect to change job within 12 months)
  • Not available to attend workshop sessions
  • Inability to read and understand English
Chronic pain and illness self-management programs

- **Psycho-educational** technique (grounded in CBT)
- Enhance and broaden **coping skills** and daily function
- Uses everyday language, understandable to **lay persons**
- Includes elements of **group participation and peer support**
- Tailored to **individual needs**, participant as expert
- Emphasizes patient **empowerment, responsibility**
- Focuses on **less severe** (but recurrent, chronic) symptoms
- **Consistent evidence** of reduced pain, improved function
  - Kerns et al., Clin J Pain 1986
  - Turner et al., J Consult Clin Psychol 1988
  - Nicholas et al., Pain 1992
  - Kerns et al., Pain 2000
  - Lamb et al., Lancet 2010
Eight evidence-based SM programs

• Manage your pain: Practical and positive ways of adapting to chronic pain
  • Nicholas et al., 2003

• Feeling better: A 6-week mind-body program to ease your chronic symptoms
  • Barksy et al., 2006

• Living a healthy life with chronic conditions (2nd ed.)
  • Lorig et al., 2000

• The arthritis helpbook (6th ed.)
  • Lorig & Fries, 2006

• Pain management for older adults: a self-help guide
  • Hadjistavropoulos & Hadjistavropoulos, 2008

• The pain survival guide: How to reclaim your life
  • Turk & Winter, 2006

• The pain relief handbook: self-help methods for managing pain
  • Wells & Nown, 1998

• Managing chronic pain: a cognitive-behavioral therapy approach
  • Otis, 2007
Coping with discomfort at work: The worker perspective

- Knowing your work setting
- Keeping moving
- Finding leeway
- Being prepared for a bad day
- Monitoring Thoughts and emotions
- Using care when talking about pain

Leveraging existing job flexibility

- Change the ordering of job tasks
- Vary the speed or pacing of work
- Switch or rotate among activities
- Use equipment to reduce discomfort
- Avoid uncomfortable or awkward postures
- Alter tasks to fit personal preferences
- Alternate physical and sedentary tasks
- Working from a different location
- Ask for occasional help
- Take micro-breaks to stretch
- Customize work stations
- Alter job hours
- Use available lift-assist devices
- Reduce long reaches
- Use mechanical transport devices

Five, 2 Hour Workshop Sessions

Session Content:

1) *Intro to health self-management principles*
2) *Job modification, pacing, and problem solving*
3) *Communicating about health problems at work*
4) *Keeping a positive outlook, adopting realistic goals*
5) *Putting it all together: Taking care of yourself at work*
Session I: Intro to health self-management principles

• Group introductions
• Goals of the program
• The workplace impact of pain
• Theories of chronic pain
• The concept of self-management
• The physical demands of work
• Introduction of problem solving approach
Session 2: Job modification, pacing, and problem solving

**Problem-Solving Process**

- Evaluating Solution
- Implementing Solution
- Selecting & Planning Solution
- Identifying & selecting problem
- Analyzing problem
- Generating Potential Solutions
- Selecting & Planning Solution

• 6-step process
• Use available leeway
• Make changes
• Get assistance
Session 3: Communicating about health problems at work

- Reasons for communicating about pain
- How communication can become a problem
- Concepts of assertive communication
- Discussion to contrast roles and support
- Communication role play
Session 4: Keeping a positive outlook, adopting realistic goals

- Automatic thoughts
- Emotions and pain
- Cognitive errors
- The ABC model
- Restructuring of thoughts
- Resources and follow-up
Session 5: Taking care of yourself at work

- Mindfulness/ body awareness
- Stress management
- Stretching and exercising, keeping moving
- Sleep hygiene
- Flare-ups and set-backs
- Time-based pacing
- Work-life balance, healthy life style
Session Format

• Check-in, review of weekly exercise
• Didactic presentation (facilitator)
• Group discussion
• In-session exercises
• Assignment of weekly exercise/ phone support
200 volunteer workers recruited from 5 employment settings

Baseline Survey

Randomization

Control arm (n=100)

Intervention (n = 100)

Participate in five 2-hour group workshop sessions

Outcome survey

Outcome survey

Participate in five 2-hour group workshop sessions

Outcome survey

Outcome survey

Invocation to attend a one-day workshop

6 months

12 months
Employer Recruitment Strategy

- Commercial Insurance customers
- Research and clinical colleagues
- Conference presentations
- EAP Institutions
- Wellness consultants
- (Much more difficult than anticipated!)
- 5 employers (3 healthcare, 2 light manufacturing)
Worker Recruitment Strategy

• General workforce announcements
  • Email
  • Flyers
  • Postings

• Letter notifications to workers reporting conditions
  • EAP
  • Wellness office
  • Health risk appraisal
  • Occupational health and safety

• On-site recruitment, consent, and scheduling by an existing EAP/wellness program coordinator
Primary Outcome Measures

• Presenteeism
  • Work Limitations Questionnaire (WLQ-25)
    (Lerner, Amick et al., Med Care 2001;39:72-85)

• Work Engagement
  • Utrecht Work Engagement Scale (UWES)
Presenteeism

• Definition:
  • “Present at work but experiencing decreased productivity or below-normal work quality because of health”.

• Sample measures:
  • Stanford Presenteeism Scale (6 items; Koopman et al., 2002)
    • Sample item: “At work, I was able to focus on achieving my goals despite my (health problem)”.
  • Work Limitations Questionnaire (25 items; Lerner et al., 2003)
    • Sample item: “How much of the time did your physical health or emotional problems make it difficult for you to...get going easily at the beginning of the work day?”

• Lerner et al., Med Care 2003;41:649-659.
Additional Measures

• **Secondary outcome measures:**
  • SF-36 general health status (36 items)
  • Occupational Fatigue Exhaustion Recovery Scale (20 items)
  • Turnover intentions (4 items)
  • Job satisfaction (3 items)
  • Health care utilization (self-report)
  • Days out of work (self-report)

• **Covariates or moderating variables**
  • Chronic conditions checklist (16 items)
  • Job characteristics (Six Areas of Worklife scale – 28 items)
  • Job Leeway Scale (25 items)
Participant Demographics

• 119 participants enrolled as of May 2017
• 82% female
• Age range 20-69 (mean = 46, median = 49)
• Income: Median $50k
• Race/ethnicity:
  • 104 White, non-Hispanic
  • 7 Black
  • 4 White, Hispanic
  • 2 Asian
• 56% married/domestic partner
• 90% some college
Occupational Characteristics

• General occupational categories:
  • 37 Clinical work
  • 36 Admin work
  • 31 Manual work
  • 15 Data/computer work

• Duration with present employer:
  • 20.1% < 2 years
  • 28.6% 2-5 years
  • 24.4% 5-10 years
  • 26.9% >10 years

• Work shifts:
  • 88.2% Daytime
  • 5.9% Night shift
  • 5.9% Revolving shifts

• 11.8% working for more than one employer
• 42.0% expecting to work at current job < 5 years
Chronic Symptoms Checklist

- 84.9% Problems with back or neck
- 60.5% Problems with arms or hands
- 54.6% Problems with legs or feet
- 43.2% Migraine or severe headaches
- 31.1% Vision problems
- 24.6% Stomach or bowel disorders
- 22.0% Asthma, bronchitis, or emphysema
- 16.8% Mental disorders
- 11.8% Hearing problems
- 5.1% Cardiovascular illness
- 4.2% Diabetes
- 4.2% Severe skin disorders
- 0.8% Epilepsy
- 0.0% Life threatening illness (HIV, Cancer, e.g.)
Sum of chronic conditions

Mean = 3.68
Std. Dev. = 1.9
N = 119
Medical Visits – Past 6 Months

Please estimate the total number of visits you’ve had with a medical provider (per past 6 months).

Frequency

Mean = 5.54
Std. Dev. = 5.458
N = 119
Baseline health characteristics

• 90% had fewer than 10 medical visits in past 6 mos.
• 42% had at least one CAI care visit
• 26% had at least one modified duty day
• 8% had more than 10 days absent due to illness

• Mental Component Score (SF-12) mean = 43.91
• Physical component score (SF-12) mean = 39.20
  • (mean represents approx. lowest 15% of general pop.)
Baseline Work Self-efficacy (RTWSE-19)

RTWSE scale - higher score means greater confidence/self-efficacy

Mean = 3.93
Std. Dev. = 1.085
N = 119
Job turnover intent

• 16.0% thinking about leaving the organization
• 22.7% planning to look for a new job
• 31.9% will ask people about new job opportunities
• 10.1% not likely to be with organization much longer
Baseline Job Leeway Scale (JLS)

![Histogram of Job Leeway Scale]

- Physical flexibility
- Task flexibility
- Staffing flexibility

Mean = 3.02
Std. Dev. = 1.433
N = 119
Primary Outcomes @ 6 Months

**Work limitations***

- **Intervention**
  - Baseline: 6.8
  - 6-month: 7.7
  - Time effect: p = .19
  - Time x Group interaction: p = .66

- **Control**
  - Baseline: 7.8
  - 6-month: 8.1

**Note**: Scores reflect percentage lost productivity

*** p > 0.05, ** p < 0.05

**Work engagement***

- **Intervention**
  - Baseline: 4.3
  - 6-month: 4.6
  - Time effect: p = .54
  - Time x Group interaction: p = .006

- **Control**
  - Baseline: 5.1
  - 6-month: 5

**Note**: Higher scores reflect more work engagement

** * p > 0.05, ** p < 0.05
Primary Outcomes @ 12 Months

**Work limitations***

- Intervention: 7.9, 8.4, 7.7
- Control: 6.7, 7.6, 7.4

**Time effect**: p = .19
**Time x Group interaction**: p = .66

*Note: Higher scores reflect more work limitations*

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**Work engagement***

- Intervention: 5.1, 4.7, 4.5
- Control: 4.9, 4.7, 4.7

**Time effect**: p = .54
**Time x Group interaction**: p = .039

*Note: Higher scores reflect more work engagement*

---

* p > 0.05, ** p < 0.05

**Note**: Scores reflect percentage lost productivity
Secondary Outcomes

SF-12 physical *

Time effect: p = .001
Time x Group interaction: p = .43

Note: Higher scores reflect higher physical function (50 is general population norm)

SF-12 mental *

Time effect: p = .88
Time x Group interaction: p = .81

Note: Higher scores reflect higher mental function (50 is general population norm)

* p > 0.05
Secondary Outcomes

Work self-efficacy *

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4.1</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Time effect: p = .55
Time x Group interaction: p = .31

Fatigue recovery (OFER) *

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.93</td>
<td>2.88</td>
<td>2.81</td>
</tr>
<tr>
<td>2.66</td>
<td>2.79</td>
<td>2.79</td>
</tr>
</tbody>
</table>

Time effect: p = .08
Time x Group interaction: p = .84

Note: Higher scores reflect greater self-efficacy for work

* p > 0.05

Note: Higher scores on the OFER reflect inability to recover from work fatigue
Conclusions

• Workers are willing to attend an employer-sponsored group self-management program for chronic ill health at work (but employers are hesitant).

• Candidate workers generally have poor health status, strong skills and job tenure, and moderate levels of job limitation.

• A 5-session group intervention program has benefits for work engagement, but may not improve productivity, work self-efficacy, fatigue recovery, or physical/mental functioning.

• Training of supervisors as well as chronically ill workers to benefit more from this self-management program.
Project Collaborators

• Emily (Yueng-Hsiang) Huang, Ph.D.
• Glenn Pransky, M.D., M.Occ.H.
• Torill H. Tveito, Ph.D. (Univ of Bergen, Norway)
• Cécile Boot, Ph.D. (VU Univ Medical Center, Neth.)
• Michael Nicholas, Ph.D. (Univ of Sydney)