

Feasibility and Acceptability of a Computer-Based Pain Self-Management Program for Acute Musculoskeletal Rehabilitation

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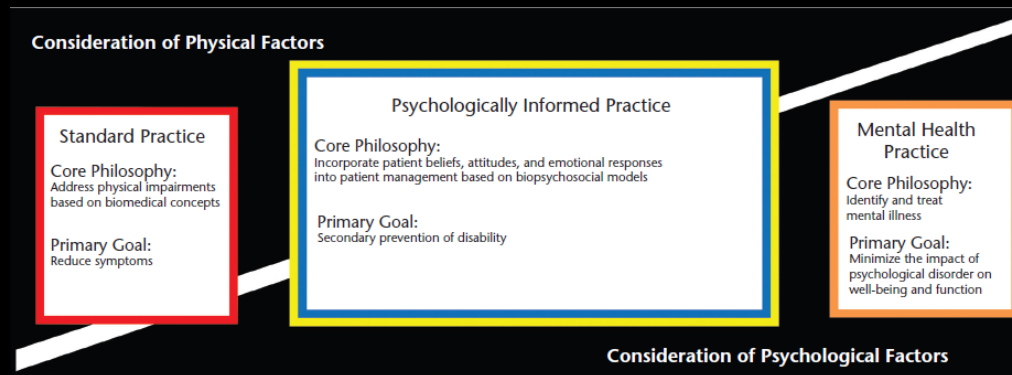
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Background

- Biopsychosocial approach to musculoskeletal pain
 - Cognitive-behavioral therapy (CBT) – addresses maladaptive thoughts or feelings
 - Psychologically-informed physical therapy (PIPT)



Background

- Challenges for delivering PIPT in real world
 - Lack of familiarity/confidence by clinicians for delivering psychological-based strategies
 - Training requirements may not be feasible for all settings
 - Lack of clinical time

Alexanders et al. 2015; Driver et al. 2017; Keefe, Main, and George 2018; Richmond et al. 2018



Background

- Technological advances allow for novel delivery of psychological-based strategies
- Utilization of a computer-based pain self-management (CBSM) program could overcome barriers to PIPT implementation



Objective

- To examine the feasibility and acceptability of a combined CBSM and PT approach in patients with acute musculoskeletal pain
- Specifically, we report here on indices of patient engagement with the CBSM program and perceptions of benefit prior to determining clinical efficacy



Design

- Feasibility analysis of a multisite, two-group randomized trial comparing:
 - Intervention group: CBSM + standard treatment (usual physical therapy)
 - Control group: Computer education + standard treatment (usual physical therapy)
- In patients with acute musculoskeletal injuries



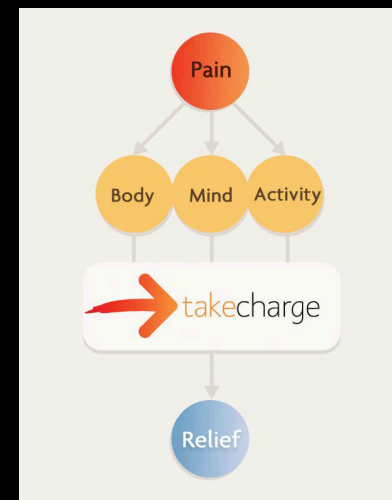
Participants

- Consecutive patients presenting to outpatient PT for an acute musculoskeletal condition
- Eligibility criteria:
 - Age 18 years or older
 - Undergoing PT for acute musculoskeletal sprain/strain
 - English speaking
 - Pain intensity rating $> 5/10$ on 11-point rating scale



CBSM Intervention

- *Take Charge of Pain* is an interactive, online CBT-based program to help individuals manage pain following an injury. It is designed to work with other treatments to help an individual decrease their pain and improve quality of life.
- Uses self-management principles:
 - Knowledge acquisition
 - Problem solving
 - Skill acquisition
 - Self monitoring
 - Identifying and building on strengths





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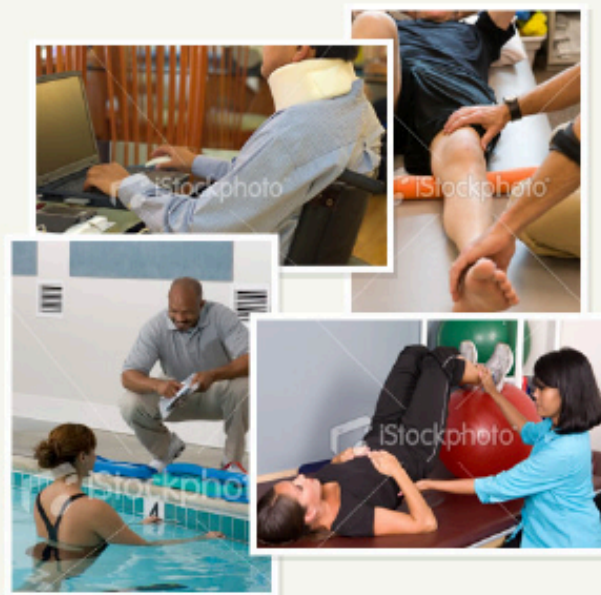
Welcome

Take Charge is an interactive program to help you manage pain following an injury or illness. It is designed to work with your other treatments to help you decrease your pain and get back to the life you want.

Pain is not a simple problem. It can affect your body, your mind, and your activity. Pain complicates recovery and can make life difficult. This is where Take Charge comes in. In this program, you will work through a series of lessons on the computer and, with help from your therapist, develop a pain management plan that best meets your needs.

Take Charge recognizes that YOU play an important role in your recovery. You, working with your health care providers can do a lot to decrease your pain, increase your activity, and improve your quality of life. It will help you manage your pain and prevent pain from slowing down your recovery. Take Charge uses techniques that have been scientifically proven to decrease pain and increase your level of activity.

Take Charge is not a substitute for medical care, rehabilitation therapy or individual counseling. It is designed to help you work with your doctors, therapists, and others to prevent pain from controlling your life. Through Take Charge you will discover there are many things you can do to help manage your pain. Here is a [blue link](#).



My pain and emotions were overwhelming..

I wanted to take control of my life.



Lesson 1: Take Charge of Pain

- Learn ways to take charge of pain by setting goals and using pain management tools
- Learn how pain impacts they body, mind and activity

Lesson 2: Stress & Relaxation

- Learn how stress can increase pain and delay healing
- Explore ways to relax the mind and body to manage stress

Lesson 3: Your Brain & Pain

- Explore how to use your brain to reduce pain
- Recognize pain changes over time

Lesson 4: Thinking About Pain

- Explore how negative thinking leads to negative feelings
- Learn how to change how you think

Lesson 5: Rest & Activity

- Understand how balancing rest an activity is about doing things in manageable amounts

Lesson 6: Managing Emotions

- Explore negative emotions that are common among people who experience pain

Lesson 7: Putting It All Together

- Learn about pain traps



Progress Check: Self-monitoring on pain intensity, pain interference, mood and activity level with graphic feedback on progress

Review: Review of Previous Lesson message and home activity

Interactive Learning: A variety of computer based “games” are used to teach and practice skills



Peer Modeling: Videos depict a range of individuals discussing and utilizing the lesson skills

Individual Tailoring: based on participants responses and preferences selected components of the lesson are tailored

Putting It into Practice: An away from computer activity to implement the lesson in daily life

Lesson Summary: Printable lesson summary of individuals input into lesson activity, Take Home Message and Home activity



Control Intervention

- Computer-based education (*Take Charge of Recovery*) was provided to patients to account for the novelty of computer exposure. This was similarly-designed to the CBSM program and non-interactive. Lesson topics included:
 - Understanding your injury and managing the healing process
 - Rehabilitation theory and the healing process
 - Recommendations to promote healing: Part I
 - Recommendations to promote healing: Part II
 - Rehabilitation therapy: home exercise program
 - Preventing future injury and staying healthy



Physical Therapy

- Both the CBSM intervention and computer education groups received standard PT
 - No limits placed on PT co-interventions
 - Frequency and duration of PT was at the discretion of evaluating therapist
- No formal training was provided on integration of the computer programs into clinical practice



Feasibility and Acceptability Measures

Feasibility

- Program completion rate
- Number of lessons completed
- Time to complete each lesson and program

Acceptability

- Ratings of ease of use and helpfulness of program
- Open-ended feedback on most important skills, any negative aspects, and suggestions for improvement



Participants

	Total (N = 127)	CBSM Intervention (n = 66)	Education Control (n = 61)
Age, mean \pm SD in years	44.6 \pm 13.7	43.4 \pm 12.4	45.9 \pm 14.9
Sex, N (%) female	88 (69)	48 (73)	40 (66)
Race, N (%) White	83 (65)	42 (64)	41 (67)
Ethnicity, N (%) Hispanic or Latino	123 (97)	64 (97)	59 (97)
Education, N (%) some college or more	108 (85)	57 (86)	51 (84)
Employment, N (%) working	103 (81)	57 (86)	46 (75)
Baseline pain, mean \pm SD 0-10 scale	3.7 \pm 2.4	3.4 \pm 2.3	3.9 \pm 2.6
Baseline depression, mean \pm SD PROMIS	48.0 \pm 8.5	47.9 \pm 8.6	48.1 \pm 8.5
Baseline anxiety, mean \pm SD PROMIS	51.8 \pm 8.4	50.9 \pm 8.8	52.6 \pm 7.9
Baseline anger, mean \pm SD PROMIS	49.6 \pm 8.3	49.0 \pm 7.7	50.3 \pm 8.9



Feasibility Results

	CBSM Intervention	Education Control	p
Number of modules completed	3.2 ± 3.0	4.9 ± 2.1	0.001
N (%) of Completers	23 (34.8)	46 (75.4)	< 0.001
Range of time on each module, in minutes	17.5 ± 8.5 to 23.6 ± 11.3	4.9 ± 9.6 to 8.3 ± 11.7	0.001
Days from baseline to complete all modules	36.6 ± 30.0	12.7 ± 14.1	< 0.001



Acceptability Results

- Both CBSM intervention (mean \pm SD = 9.1 \pm 2.2) and education control participants (mean \pm SD = 9.2 \pm 1.5) reported high *ease of use* of program.
- Relatively lower scores for *helpfulness* reported in both groups (CBSM intervention = 6.3 \pm 2.9; education control = 6.5 \pm 2.6)



Acceptability Results

- Most important lessons/skills learned from program (n = 17)

N	Theme
8	Relaxation
6	Distraction
5	Thinking positive during pain situations and in life

- Negative aspects of program (n = 15)

N	Theme
7	Time
5	Too many or irrelevant videos
3	Lack of relevance to acute pain conditions

- Suggestions for improving program (n = 6)

N	Theme
3	Better targeting towards participants in need of CBT strategies
3	Alter some aspects of program
2	Consider other pain management strategies



Exploration of CBSM Completers

- CBSM program completers had higher baseline psychological distress compared to non-completers

	Completers (n = 22)	Non-completers (n = 44)	p
Depression, mean \pm SD PROMIS	51.1 \pm 7.6	46.3 \pm 8.7	0.03
Anxiety, mean \pm SD PROMIS	55.0 \pm 6.2	48.9 \pm 9.3	0.008
Anger, mean \pm SD PROMIS	52.7 \pm 6.2	47.1 \pm 7.8	0.004



Limitations of Study

- Only feasibility/acceptability data reported
 - No data on clinical efficacy
- PT interventions/utilization not assessed
- Few patients provided feedback on program and may limit generalizability



Lessons Learned

- A CBSM program provided *in addition* to physical therapy is acceptable, however:
 - Additional program support is needed to encourage patient engagement
- Cognitive-behavioral content may not be perceived as appropriate for all patients with acute pain
- There is opportunity to test whether *integrating* a CBSM program within physical therapy is effective for improving chronic pain outcomes



Implications and Future Directions

- CBSM programs may be beneficial when provided with PT, but may depend on perceived quality of program, indicated use by patients at risk, and program support provided by clinicians
- Ongoing efforts aim to integrate *Take Charge of Pain* into PT by training therapists to use motivational interviewing to enhance patient engagement



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Thank You

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