Effectiveness of a Comprehensive Pain Rehabilitation Program in the Reduction of Pain Catastrophizing

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Objectives

• Define the concept of pain catastrophizing
• Review the research on pain catastrophizing and its impact on chronic pain
• Describe how cognitive behavioral treatment within a pain rehabilitation program can improve functionality while reducing pain catastrophizing

Significant Costs Of Chronic Pain

• Chronic pain affects 30 to 70 million Americans
• 20 to 50 million partially or totally disabled
• 80 to 100 million lost work days/year
• $80 billion/year medical care for chronic pain

Pain Catastrophizing

• Described as an “exaggerated negative ‘mental set’ associated with actual or anticipated pain experiences”
• Important predictor of functional outcomes with chronic pain

Pain Catastrophizing

• Sullivan (1995) proposed that catastrophizers experience difficulty controlling pain related thoughts
• Catastrophizing- a psychological construct incorporating elements of rumination, magnification and helplessness in regards to pain

Pain Catastrophizing

• Elements include:
  – Rumination- “I can’t stop thinking about the pain”
  – Magnification- “I worry they’ve missed something serious”
  – Helplessness- “There’s nothing I can do”
Pain Catastrophizing Scale (PCS)

- Developed by Sullivan (1995) to:
  - measure pain catastrophizing
  - better understand the mechanism by which catastrophizing impacts the experience of pain

Pain Catastrophizing Scale (PCS)

- 13 item instrument (< 5 minutes)
- Requires 6th grade reading level
- Asks participants to reflect on “past painful experiences”
- Each question uses a 5 point Likert scale (0= not at all, 4=all the time)

PCS Assessment

- Yields a total score and a score on each of the three subscales (rumination/magnification/helplessness)
- Excellent internal consistency
- Coefficient alphas:
  - Total= 0.87
  - Ruminatin= 0.87
  - Magnification= 0.66
  - Helplessness= 0.78

PCS Assessment

- Yields a score=sum of the 13 items
  - Range 0-52
- Clinically relevant if the score is>38
  - >38 corresponds to the 75th % of clinic sample

PCS Assessment

- Research has linked high scores on the PCS to:
  - Greater pain intensity
  - Increased perceived disability
  - Increased occupational impairment
  - Greater emotional distress
  - Increased medication use
  - Greater use of health care services

Why is measuring pain catastrophizing important?

- Catastrophizing may interfere with the efficacy of treatment strategies including coping strategies
- Catastrophizing is even an important variable in research in pain-free subjects undergoing experimental pain tasks
Despite this, there is minimal research on effective interventions to decrease pain catastrophizing.

Does pain rehabilitation reduce pain catastrophizing?

Chronic Pain Rehabilitation Overview
- Multidisciplinary, multimodal therapies
- Rehabilitation rather than relief
- Establish expectations
- Limited medical evaluation

Chronic Pain Rehabilitation Overview
- Limited treatment of nociception
- Improve functional status
- Reduce behavioral morbidity
- Address psychiatric co-morbidity
- Improved quality of life

Pain Rehabilitation Center
- Comprehensive Multidisciplinary Approach
  - MD
  - RN/Case Manager
  - CNS
  - Psychologist
  - Physical Therapy
  - Occupational Therapy
  - Pharmacist

Who are our Patients?
- 400 Patients per year (approximate)
- 62% Married
- 83% Midwest area residents
- 73% Female
- Mean age = 45 years
- Duration of pain = 8 years
- Years of education = 14 years
Cognitive Behavioral Model

“Hope does not lie in a way out but in a way through”

Robert Frost

Process of Change

• Interventions focus not only on improving physical functioning but also on shifting expectations of and reactions to their chronic pain
• Interventions target catastrophic thoughts with both education and actual experience

Key Educational Concepts

• Differences between acute pain and chronic pain (to reduce beliefs about pain as a signal of harm/damage)
• Information regarding pathophysiology of chronic pain including sensitization of pain pathways
• Discussion regarding interplay between physiologic and emotional events

Key Educational Concepts

• Role of pain behaviors in heightening the pain experience
• Limited effectiveness of narcotics and other analgesics in treating chronic pain
• Information regarding opioid-induced hyperalgesia
• Specific planning for management of a difficult day

Increased Activity Involvement

• Steady exposure to safe exercise helps overcome fears regarding injury, increased pain
• Emphasis on consistency in activity level despite pain levels
• Importance of graduated and paced activity
• Energy saving techniques and proper body mechanics
• Incorporation of regular fitness activity post-treatment
Cognitive and Emotional Change

- Group environment reduces sense of isolation
- Structured goal setting improves self action and mastery
- Communication sessions for improved emotional coping
- Reduction of pain behaviors as communication

Cognitive and Emotional Change (cont)

- Restructuring of specific catastrophic thoughts and fears
- Skill practice in monitoring/modifying self-defeating thoughts
- Family support group session

Additional Self-Management Strategies

- Socialization
- Moderation
- Relaxation and biofeedback
- Relapse prevention
- Decrease dependence on health care system
- Yoga
- Diversional strategies for reducing attention to physical sensations

Does pain rehabilitation actually reduce pain catastrophizing?

Methods

- Subjects consisted of 1182 consecutive patients admitted to the Mayo Comprehensive Pain Rehabilitation Center beginning August 2003
- Demographics
  - Female 75%
  - Married 63%
  - High school graduates 93%
  - Duration of pain: mean of 9.4 years

Outcome Measures

- Pain Catastrophizing Scale
- CES-D
- Pain Anxiety Symptom Scale
- Multidimensional Pain Inventory
Outcome Measures

- Pain severity—Multidimensional Pain Inventor
  - Widely used measure of psychosocial functioning in chronic pain
  - Kerns, Turk and Rudy 1985
  - Raw scores are transformed to standardized scores

Outcome Measures

- Centers for Epidemiologic Studies-Depression (CES-D) scale
  - Measures the presence and severity of depressive symptoms
  - Radloff 1977
  - Scores range from 0 to 60, with higher scores indicating more pronounced depressive symptomatology
  - Standard cutoff of >16 = acutely depressed outpatients, >20 = requires intervention

Outcome Measures

- Pain-Related Anxiety—Pain Anxiety Symptom Scale (PASS-20)
  - McCracken et al 1992
  - Good reliability and validity
  - Patients with high PASS scores tend to avoid potentially painful physical exertion to reduce their fears

Results

- Group differences in pain severity, depression, Pain-related anxiety, and opioid use on admission based on PCS scores
- Patients with clinically significant PCS scores at admission reported greater pain severity, depression, pain-related anxiety, and greater likelihood of using daily opioids than those with low or moderate scores.
Results

– Upon completion of the 3 week program, patients reported significant decreases in pain catastrophizing, pain severity, depression, and pain-related anxiety.

Percent of Patients with Clinically Significant Pain Catastrophizing Before Rehabilitation

– At admission a large percent of patients (42%) reported clinically significant pain catastrophizing (> 75th percentile).
– Over one-quarter of the patients demonstrated moderate levels of pain catastrophizing.

Percent of Patients with Clinically Significant Pain Catastrophizing After Rehabilitation

– Upon completion of the program, patients reported significant decreases in pain catastrophizing with only 6.0% reported clinically significant pain catastrophizing.
– Upon completion of the program, the majority of patients (81.5%) reported low levels of pain catastrophizing.
Conclusions

• At admission patients with clinically significant pain catastrophizing also reported greater pain severity, depression, pain-related anxiety and were more likely to be using opioid medication for their pain than patients with lower pain catastrophizing

References


Conclusions

• Upon completion of a pain rehabilitation program, patients demonstrated a significant reduction in pain catastrophizing

References