Mindfulness-Based Biofeedback:

Adding a mindfulness-based meditation component to biofeedback treatment in the stress management of severely injured individuals

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Overview

- Introduction
  - Experience with complex medical problems
  - Unique considerations

- Biofeedback

- Mindfulness Meditation

- Mindfulness-Based Biofeedback (MBB)
  - Case studies
  - Protocol
  - Research
Introduction

- My Background
  - Experience
  - Training

- Complex Medical Patients
  - Unique Considerations
  - Adjunctive referral sources
Stressors such as Illness

- Are not single traumatic events.
- They represent a series of new, ongoing and continuing demands such as:
  - The disease’s symptoms
  - Course and prognosis
  - Treatment and Side effects
  - As well as Social, Emotional, physical and financial consequences
Importance of Assessment

- Basis for diagnosis and treatment
- Failure to adequately assess treatment needs leads to poor outcomes
- Prompt diagnosis and treatment reduces the morbidity associated with unrelieved symptoms
Identify Psychophysiological Concerns

- Cognitive- Behavioral- patterns of irrational thoughts, attitudes and habits
- Mechanical- asymmetry, ergonomics, muscle misuse/disuse, poor fitting clothes
- Behavioral- Posture, smoking, caffeine, sleep
Identify Psychophysiological Treatment Plan

- Identify goals for treatment
- Determine limits of scope of practice
- Utilize referral sources
Biofeedback

- **Definition** - The use of monitoring instruments to provide physiological feedback re:
  1. Responses not ordinarily under voluntary control and
  2. Responses that ordinarily are easily regulated but for which regulation has broken down
Biofeedback

- Introduced in the clinical setting 1960s
- Abundant scientific research supporting its efficacy in numerous health conditions:
  1. Headaches:
  2. Neck, shoulder, and back pain and overall myofascial pain
  3. Repetitive Strain Injury, Carpal Tunnel
  4. High blood pressure
  5. Temporal Mandibular Joint Disorder (TMJ)
  6. Raynaud’s Syndrome
  7. Diabetes
  8. Post Traumatic Stress Disorder
  9. Sleep Disorders
  10. Rheumatoid Arthritis
Biofeedback:
How it works

- Nervous System
  - Sympathetic Nervous System
  - Parasympathetic nervous system
Physiological

Autonomic Nervous System

Parasympathetic

- Constricts pupils
- Stimulates flow of saliva
- Decreases heart rate
- Constricts bronchi
- Stimulates peristalsis and secretion
- Stimulates release of bile
- Contracts bladder

Sympathetic

- Dilates pupils
- Inhibits flow of saliva
- Increases heart rate
- Increases heart rate
- Inhibits peristalsis and secretion
- Stimulates adrenaline release
- Stimulates conversion of glycogen to bile
- Inhibits bladder contractions
Biofeedback Modalities

- Respiration
- Thermal
- Electro dermal activity
- Heart Rate (RSA training)
- Electroencephalography (EEG)
- Electromyography (EMG)
Muscular vs. Non-Muscular Evaluation

- **Upper Trapezius Evaluation (UTE)**
  - Series of movements Sitting and standing
  - Baseline, shrug, abduct, flex

- **Psychophysiological Stress Profile**
  - Artificially induced environmental, cognitive and/or emotional stress and recovery periods

- **Scoring**
  - Observe absolute values, values during challenge, recovery & symmetry for UTE

- **Awareness**
  - Observe patient’s awareness
Biofeedback
Relaxation Techniques

- Diaphragmatic Breathing
- Progressive Muscle Relaxation
- Guided imagery
- Autogenic training
Mindfulness-Based Meditation

Cultivating a different relationship with one’s experience
Mindfulness-Based Meditation

- Introduced to western practice 70’s
  1. Herbert Benson- (1971) Relaxation Response
  2. Jon Kabat-Zinn (1979) MBSR

- Growing scientific research re:
  1. Reduction in negative mood states
  2. Increased immune response
  3. Activation of left prefrontal cortex
Mindfulness-Based Meditation

- Definition: Paying attention in a particular way on purpose in the present moment, nonjudgmentally

- Jon Kabat-Zinn

1. Be Aware
2. Do not control - but allow
Case Study 1
Background

- Brief Medical history
  - 68 y.o. CF with h/o Chronic facial pain s/p MVA 28yrs ago
  - Multiple orthopedic/reconstructive surgeries, 6 week intensive rehab
  - Multiple pain clinics: 3wks Des Moines, Rochester clinic, Chicago, Psychiatric management

- Social Context
  - 39 yo with 5 children, infant with Down’s, husband killed in MVA 1 yr later
  - Failed Attempt to return to work
  - Takes care of child till age 10, marries husband with frontal lobe injury s/p MVA, abusive – now NH
Balanced Approach

Awareness

MBB

Effort
To know how other people behave takes intelligence, but to know myself takes wisdom. To manage other people's lives takes strength, but to manage my own life takes true power.

--John Heider: The Tao Of Leadership
Case Study 2
Background

- Brief Medical history
  - 58 y.o. CF with 2yr hx pubic/suprapubic pain P= 5/10
  - Past tx for fibromyalgia & bursitis around hips
  - Presently tried on multiple medications, TPI’s, and PT

- Social Context
  - Pain s/p sexual interaction in the course of an extramarital affair

- Psychological
  - Denial...cause of pain as chiropractic
  - Cognitive Components of Anxiety and fear
The Combined Approach

- change
- mindfulness
- biofeedback
- awareness
Case 3

- 1st Assessment and respiration training
- 2nd Review and diaphragmatic breathing practice
  - Panic and hyperventilation
  - Modification of protocol
- 3rd
  - Report of decreased pain and anxiety
Vulnerability to Stress and Health Problems

Non-awareness

Behavior & body habits

Cognitive distortions

Habits & Rumination

Maladaptive arousal

Biased Perception & Problem solving

Increased Stress, poor reactions & health problems
Mindfulness-Based Biofeedback: Prevention of Stress & Health Relapse

Stressor

Behavior and body habits

Cognitive distortions

Mindful Biofeedback

Observe vs react

Regain relaxation

Coping
MBB Treatment Format

- Session 1 Assessment
  - Identification of Target Goals
  - Establishing expectations
- Session 2-3 Diaphragmatic breathing training: Respiration and Heart rate
- Sessions 4-6 Biofeedback training according to tx goals
  - Relaxation Modalities
  - Musclular evaluation
  - Mindfulness modalities
- Sessions 7-6 Expansion of MBB skills
Relaxation Response

- Not the same as “relaxing”
- Immediate effect
- Long term effect
Contraindications

- Non-compliance
  - History or current behavior
  - External locus of control

- Psychiatric Conditions
  - Severe depression
  - Psychopathic personalities
  - Caution with severe PTSD

* Possibility of decompensation with relaxation
Mindfulness Based Biofeedback Treatment

Mindfulness

- Insight
- Reduced Need for Control

Biofeedback

- Relaxation
- Greater Control
Mindfulness Based Biofeedback Treatment

Awareness & Skill

Behavioral Modification
Overall Treatment Goals

- Improved Coping Skills
- Improved Functional ability
- Improved Quality of Life
- Increased Self Efficacy
- Internal Locus of Control
Overall Treatment Goals Summary

HELP PATIENTS
HELP PATIENTS,
HELP THEMSELVES
References


