Behavioral Interventions for Obesity: An Evidence-Based Perspective

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Obesity Among U.S. Adults 2014

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)
A Bioecological Framework for Health Promotion

- Underserved Communities
- Socio-cultural factors
- Heritage
- Family
- Social Support
- Peers
- Modeling
- Parenting
- Genetics
- Psychosocial
- Other Personal Factors

- Environmental Factors

- Social Factors

- Individual Factors

- Norms and Values

- Health Behaviors (Physical Activity, Sedentary Behavior, Diet)

Adapted from Institute of Medicine, 2005
Mechanisms for Social Climate

- Autonomy Supportive vs. Controlling Health Care Climate
- Personality Differences in Autonomy
- Intrinsic vs. Extrinsic Life Aspirations

Needs Satisfaction of Autonomy Competence Relatedness

Mental Health
- Less Depression
- Less Somatization
- Less Anxiety
- Quality of Life

Physical Health
- Not Smoking
- Exercising
- Weight Loss
- Glycemic Control
- Healthier Diet
- Dental Hygiene

Ng et al. (2012). Perspectives on Psychological Science.
Look AHEAD Weight Loss Trial

* $p < 0.05$

Diabetes Prevention Program Trial

- Risk reduction of 31% for metformin vs. 58% for lifestyle
- Lifestyle resulted in 7% (14 pounds) loss of body weight
- Lifestyle resulted in 150 minutes/week of moderate intensity physical activity
- Outcomes for risk reduction were maintained over 4 years

Cost Effectiveness of the Diabetes Prevention Program

Cost of DPP Interventions vs. Metformin over 3 Years

Note: QOL = Quality of Life

Parenting and motivational approach for weight loss in African American families

16-week intervention
8 week face-to-face sessions
8 week online program

Specific calorie goals
200-300 calorie reduction in energy intake
100-200 calorie increase in energy expenditure

Behavioral Weight Loss Techniques

Positive climate: autonomy-supportive
Self-monitoring: track energy intake/expenditure
Goal setting: set specific, measurable goals
Reinforcement: use praise and rewards
Stimulus control: control environmental cues
Emotion regulation: replacements for emotional eating
Relapse prevention: predict high-risk situations
Communication Skills

Strategies for positive family communication

- In-session discussions and activities (e.g., problem-solving activity)
- Group ground rules
- Weekly take-home family bonding activities

Support strategies (descriptive praise, autonomy support)
<table>
<thead>
<tr>
<th>Push</th>
<th>Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>You must</td>
<td>You might</td>
</tr>
<tr>
<td>It’s important because</td>
<td>In what ways is this important?</td>
</tr>
<tr>
<td>We have the answer</td>
<td>You have the answer</td>
</tr>
<tr>
<td>Let us tell you</td>
<td>Let us help you find your way</td>
</tr>
<tr>
<td>You should because</td>
<td>Why might you consider?</td>
</tr>
<tr>
<td>Here’s how to change</td>
<td>How might you possibly go about it?</td>
</tr>
</tbody>
</table>
# Project FIT Results

<table>
<thead>
<tr>
<th>Change Variable</th>
<th>M+FWL Group</th>
<th>BH Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI†</td>
<td>-0.21 (0.74)</td>
<td>0.24 (0.76)</td>
</tr>
<tr>
<td>BMI z-score†</td>
<td>-0.01 (0.04)</td>
<td>0.02 (0.08)</td>
</tr>
<tr>
<td>Energy Intake (kcals)</td>
<td>-138.87 (253.11)</td>
<td>-0.86 (305.59)</td>
</tr>
<tr>
<td>Total daily fat intake†</td>
<td>-13.04 (20.46)</td>
<td>2.40 (20.50)</td>
</tr>
<tr>
<td>Daily fruit intake*</td>
<td>0.91 (1.37)</td>
<td>-0.66 (1.82)</td>
</tr>
<tr>
<td>Adolescent motivation for diet**</td>
<td>0.49 (0.51)</td>
<td>-0.05 (0.48)</td>
</tr>
<tr>
<td>Adolescent motivation for PA*</td>
<td>0.39 (0.44)</td>
<td>0.09 (0.36)</td>
</tr>
</tbody>
</table>

*†p<.10; *p<.05; **p<.01

Kitzman-Ulrich, Wilson et al. (2011). *Childhood Obesity*
Interaction of Treatment Condition and Parent Communication

Parent Moderate-to-vigorous Physical Activity

Behavior Matters: The Relevance, Impact, and Reach of Behavioral Medicine

Dawn K. Wilson, Ph.D.

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Abstract

Background/Purpose: Growing evidence suggests behavioral interventions that target a few key behaviors may be effective at improving population-level health outcomes; health status indicators; social, economic, and physical environments; personal capacity; and biological outcomes. A theoretical framework that targets both social and cognitive mechanisms of behavioral interventions is outlined as critical for understanding "ripple effects" of behavioral interventions on influencing a broad range of outcomes associated with improved health and well-being.

Behavioral Medicine in the Age of Specialization

Could the dominant approach to behavioral medicine have been somewhat misguided? Much of biomedical research places the emphasis on understanding very specific mechanisms associated with very specific defects. For example, the National Institutes of Health (NIH) defines personalized medicine as "the science of individualized prevention and therapy" [1]. Furthermore, the NIH and FDA have announced a new collaboration on translational science to accelerate research into medical products and therapies [2]. The intention is to...
Physical Activity and Mental Health

Behavioral intervention (n=401 overweight women)

Kerr et al. (2008). Depression and Anxiety.
Interventions for Multiple Health Behaviors

Weight loss RCT (n=239 women)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating self-efficacy</td>
<td>.27</td>
</tr>
<tr>
<td>Eating restraint</td>
<td>.17</td>
</tr>
<tr>
<td>Eating disinhibition</td>
<td>.16</td>
</tr>
<tr>
<td>External eating</td>
<td>.15</td>
</tr>
<tr>
<td>Emotional eating</td>
<td>.12</td>
</tr>
</tbody>
</table>

INTRINSIC MOTIVATION
PHYSICAL ACTIVITY
WEIGHT LOSS

Eating self-regulation

Mata et al. (2009). *Health Psychology*
Mechanisms of Interventions that Target Multiple Behaviors

Image-based behavioral counseling

Intervention

Fitness goal/Health behavior contract

Self-Efficacy Healthy Eating

Fruit & Veg Intake

Self Efficacy Stress Mgmt

Relaxation Activities

↑ FRUIT & VEGETABLE INTAKE

↑ RELAXATION ACTIVITIES

Mechanisms for Behavior Change

COGNITIVE

SOCIAL
Self-Regulation as a Causal Mechanism

Cognitive-Behavioral Skills

Domain-specific Cognitive Constructs

Global Cognitive Constructs

Physical Health

Mental Health

# Cognitive Mediators of the Exercise-Depression Relationship

<table>
<thead>
<tr>
<th>Authors</th>
<th>Design</th>
<th>Sample</th>
<th>Mediators</th>
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</thead>
</table>
| Dishman et al., 2006           | Cross-sectional                  | 1,250 adolescent girls | ▪ Physical Self-Concept  
▪ Self-Esteem                                  |
| Ryan, 2008                     | Cross-sectional                  | 376 undergraduates     | ▪ PA Self-Efficacy  
▪ Physical Self-Esteem  
▪ Global Self-Esteem                        |
| Pickett, Yardley, & Kendrick, 2012 | Cross-sectional                  | 164 adults             | ▪ PA Self-Efficacy                                  |
| McPhie & Rawana, 2012          | Prospective                      | 4204 adolescents       | ▪ Self-Esteem                                       |
| Petty et al., 2009             | Dose-Response, Randomized Intervention | 207 adolescents   | ▪ Physical Self-Worth  
▪ Global Self-Worth                      |
Positive Action for Today’s Health

WALK WITH US! BE SAFE!

DID YOU KNOW?
There is a new secure walking route in South Sumter?
Our walking group is led by certified walking leaders?
We can show you how to warm-up, cool down, and walk safely on the path?
The City of Sumter has partnered with us to keep our path clean and safe?
You can walk with our group? There is added safety in numbers, so let's walk together!

Calendar

What are your long-term goals this month?

What are your short-term goals this month?

Did you meet your goals?

If yes, how are you going to reward yourself for a job well done?

If no, how are you going to re-set your goals next month and start fresh?

JULY 2009

What are your long-term goals this month?

What are your short-term goals this month?

Did you meet your goals?

If yes, how are you going to reward yourself for a job well done?

If no, how are you going to re-set your goals next month and start fresh?

PATH TO HEALTH
PATH Results- Social Interaction

What do you like most about the PATH to Health Walks?

- Health Aspects: 24%
- Safety: 12%
- Fun: 6%
- Other: 12%
- Social Aspects: 47%
Active by Choice Today (ACT)

Conclusions

• Behavioral interventions key to obesity treatment
• Multiple systems need to be targeted for obesity treatment
• Positive social environment key
• Behavioral skills training essential
• Need to target multiple behaviors
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