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The Social Context as a Determinant of Weight-Related Behaviors: Focus on Social Norms

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The Social Context as a Determinant of Weight-Related Behaviors: Focus on Social Norms

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Disclosure

• We have no actual or potential conflict of interest in relation to this program or presentation.
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An Ecological Framework: Multiple Influences on Physical Activity and Eating Behaviors

- Individual Factors (personal)
  - Cognitions
  - Affective
  - Appetite
  - Preferences
  - Skills
  - Demographic
  - Biological
  - Genetic
  - Outcome expectations
  - Motivations
  - Self-efficacy
  - Behavioral capability

- Social Environment (networks)
  - Friends
  - Peers
  - Family
  - Co-workers
  - Role modeling
  - Social support
  - Social norms

- Physical Environments (settings)
  - Home
  - Worksite
  - School, Afterschool
  - Child-care
  - Neighborhoods & Communities
  - Availability
  - Access
  - Barriers
  - Opportunities

- Macro-level Environments (sectors)
  - Legislative, regulatory, or policy actions
  - Societal and cultural norms and values
  - Industry and non-profit
  - Marketing and media
  - Food production & distribution systems
  - Food assistance programs
  - Land use and transportation, zoning
  - Health care systems
  - Government & political structures and policies

- Multiple Influences on Physical Activity and Eating Behaviors

- Individual Factors
  - Personal
  - Preferences
  - Self-efficacy

- Social Environment
  - Networks
  - Friends, Peers, Family, Co-workers
  - Role modeling, Social support, Social norms

- Physical Environments
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- An Ecological Framework: Multiple Influences on Physical Activity and Eating Behaviors
Social Context

- Important determinant of weight and weight-related behaviors
- Potential intervention target
- Social support and social networks most commonly studied
  - Associated with health-related behaviors, including diet and physical activity
- Limited research on social norms
Social Norms

How the majority of individuals in a group think or behave; group standards and values for a particular behavior

Two types of social norms

1. **Injunctive norms**: overt pressure to engage in the behavior, or perception of engagement in the behavior as socially desirable.

2. **Descriptive norms**: perceptions of the occurrence or frequency of the health-related behavior in a population.
Social Norms and Obesity – Related Behaviors

- Obesity and weight gain clusters in social networks
- Few studies have examined the association of social norms with dietary and physical activity behaviors in adults
- No study has examined social norms for weight-loss specific behaviors
Research Question

- Is there an association between descriptive norms and associated behaviors?
- **Hypothesis:** Perception of the prevalence of obesity-related behaviors among one’s social group (i.e., descriptive norms) impact an individual’s weight and weight-related behaviors.
Study Design and Sample

- Baseline data from site-randomized trial of a worksite ecological intervention for weight control
- 12 public high schools in central Massachusetts
- Cohort of n=844 employees enrolled (~ 2/3 of all employees)
Measures of Social Norms

Worksite Weight-Related Social Norms (WWSN) Survey

- Descriptive social norms for weight loss, physical activity and eating behaviors at the worksite
- Reliability and validity testing
  - Cognitive pre-testing
  - Principal component analysis
  - Cronbach’s alpha
  - Construct and criterion analysis using correlations and t-tests
- 5-point Likert Scale from strongly disagree to strongly agree
## Principal Component Analysis (PCA) and Internal Consistency

“Most of the people that I work with…”

<table>
<thead>
<tr>
<th>WEIGHT LOSS SOCIAL NORMS SUB-SCALE</th>
<th>Initial PCA loading</th>
<th>Cronbach’s alpha of retained items</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1. Are overweight</td>
<td>.40</td>
<td>0.78</td>
</tr>
<tr>
<td>2. Are concerned about their weight</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>3. Are trying to lose weight</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>4. Discuss their experiences trying to lose weight with each other</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>*5. Make negative comments about overweight employees</td>
<td>.32</td>
<td></td>
</tr>
<tr>
<td>6. Give each other advice on how to manage weight</td>
<td>.71</td>
<td></td>
</tr>
</tbody>
</table>

* Item not retained in final scale because PCA loading < .45
Principal Component Analysis (PCA) and Internal Consistency

"Most of the people that I work with…"

<table>
<thead>
<tr>
<th>PHYSICAL ACTIVITY SOCIAL NORMS SUB-SCALE</th>
<th>Initial PCA loading</th>
<th>Cronbach's alpha of retained items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are physically activity</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>2. Are physically fit</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>3. Are concerned about getting enough exercise</td>
<td>.67</td>
<td></td>
</tr>
<tr>
<td>4. Exercise on school grounds before, during or after work</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>5. Go for a walk during the school day</td>
<td>.48</td>
<td></td>
</tr>
<tr>
<td>6. Do little or no physical activity during the school day</td>
<td>-.46</td>
<td></td>
</tr>
<tr>
<td>7. Encourage co-workers to participate in physical activity with them</td>
<td>.64</td>
<td></td>
</tr>
<tr>
<td>8. Do not pay attention to how physically active they are</td>
<td>-.63</td>
<td></td>
</tr>
<tr>
<td>9. Talk about exercise with each other</td>
<td>.70</td>
<td></td>
</tr>
<tr>
<td>10. Give each other tips on how to be more physically active</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>*11. Make negative comments about employees who exercise at the school</td>
<td>-.12</td>
<td></td>
</tr>
<tr>
<td>*12. Make negative comments about employees who are inactive or sedentary</td>
<td>-.12</td>
<td></td>
</tr>
</tbody>
</table>

* Item not retained in final scale because PCA loading <.45
### Principal Component Analysis (PCA) and Internal Consistency

**“Most of the people that I work with…”**

<table>
<thead>
<tr>
<th>EATING SOCIAL NORMS SUB-SCALE</th>
<th>Initial PCA loading</th>
<th>Cronbach’s alpha of retained items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Eat healthy foods on a regular basis</td>
<td>.80</td>
<td>0.83</td>
</tr>
<tr>
<td>2. Are concerned about eating healthy foods</td>
<td>.72</td>
<td></td>
</tr>
<tr>
<td>3. Eat fruits and vegetables during the school day</td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td>4. Make negative comments about employees who eat healthy foods</td>
<td>-.44</td>
<td></td>
</tr>
<tr>
<td>5. Consciously watch what they eat</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>6. Talk about their eating habits with each other</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td>7. Give each other tips on how to eat healthy</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>8. Make negative comments about employees who eat unhealthy foods</td>
<td>-.40</td>
<td></td>
</tr>
<tr>
<td>9. Eat unhealthy meals during the school day, such as fast food and pizza</td>
<td>-.72</td>
<td></td>
</tr>
<tr>
<td>10. Eat unhealthy snacks at work</td>
<td>-.65</td>
<td></td>
</tr>
<tr>
<td>11. Drink high calorie drinks, like soda, energy drinks and coffee with cream and sugar during the school day</td>
<td>-.50</td>
<td></td>
</tr>
<tr>
<td>12. Eat snacks and desserts that are left out to be shared</td>
<td>-.17</td>
<td></td>
</tr>
</tbody>
</table>

* * Item not retained in final scale because PCA loading < .45
Measures of Behaviors

**Weight Loss Attempts**
- Single item re: whether currently trying to lose weight (yes/no)

**Arizona Physical Activity Questionnaire**
- Assesses 7 domains of physical activity (occupation, sleep, recreation, leisure, home maintenance, chores, personal care)
- MET-hrs per day from walking analyzed

**Eating Behavior Inventory (EBI)**
- 26 item survey assessing adaptive and maladaptive behaviors associated with weight management
- 5-point frequency scale (never to almost always)
- Shown to be sensitive to change in response to obesity treatment
## Study Sample

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age (Y(SD))</td>
<td>43.8 (11.8)</td>
</tr>
<tr>
<td>Female (%)</td>
<td>69</td>
</tr>
<tr>
<td>Non-Latino White (%)</td>
<td>93</td>
</tr>
<tr>
<td>Most common occupations (%)</td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>55</td>
</tr>
<tr>
<td>Administrative Assistants/Support Staff</td>
<td>10</td>
</tr>
<tr>
<td>Teacher Aide</td>
<td>8.4</td>
</tr>
<tr>
<td>Graduate Degree (%)</td>
<td>53</td>
</tr>
<tr>
<td>Average BMI (kg/m² (SD))</td>
<td>27.8 (5.7)</td>
</tr>
</tbody>
</table>
## Multivariate Regression Models

**Association of weight loss social norms sub-scale with “Currently trying to lose weight”**<sup>*</sup>

<table>
<thead>
<tr>
<th></th>
<th>OR (95% CI) [P-value]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight loss social norms</td>
<td>1.13 (1.06, 1.20) [&lt;0.001]</td>
</tr>
<tr>
<td>Co-worker social support for exercise</td>
<td>1.01 (0.99, 1.04) [0.30]</td>
</tr>
<tr>
<td>Co-worker social support for eating</td>
<td>0.99 (0.96, 1.04) [0.87]</td>
</tr>
</tbody>
</table>

**Association of physical activity social norms sub-scale with walking MET-hrs/day**<sup>*</sup>

<table>
<thead>
<tr>
<th></th>
<th>OR (95% CI) [P-value]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity social norms</td>
<td>0.004 (-0.004, 0.012) [0.33]</td>
</tr>
<tr>
<td>Co-worker social support for physical activity</td>
<td>0.003 (-0.003, 0.009) [0.28]</td>
</tr>
</tbody>
</table>

**Association of eating social norms sub-scale with the Eating Behavior Index**<sup>*</sup>

<table>
<thead>
<tr>
<th></th>
<th>β (95% CI) [P-value]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating social norms</td>
<td>0.25 (0.07, 0.44) [.008]</td>
</tr>
<tr>
<td>Co-worker social support for eating</td>
<td>-0.09 (-0.28, 0.11) [0.40]</td>
</tr>
</tbody>
</table>

* Adjusts for gender and age
Study Limitations

- Limited generalizability
- Can’t assess causality
- Social desirability bias
Conclusions

- Associations of weight loss and eating social norms with behavior
  - Unique from social support
- No association of physical activity social norms with physical activity
  - May be little opportunity for and therefore little exposure to physical activity during the workday
- Results support the development of weight loss interventions that address social norms for weight loss and eating behaviors at work