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


Lori Pbert

*University of Massachusetts Medical School, lori.pbert@umassmed.edu*

Stephenie C. Lemon

*University of Massachusetts Medical School, Stephenie.Lemon@umassmed.edu*

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Lori Pbert, PhD

Stephenie Lemon, PhD

Division of Preventive and Behavioral Medicine

University of Massachusetts Medical School

# Disclosure

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- We have no actual or potential conflict of interest in relation to this program or presentation.
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# Collaborators

Qin Liu, PhD

Barbara Estabrook, MSPH, CHES

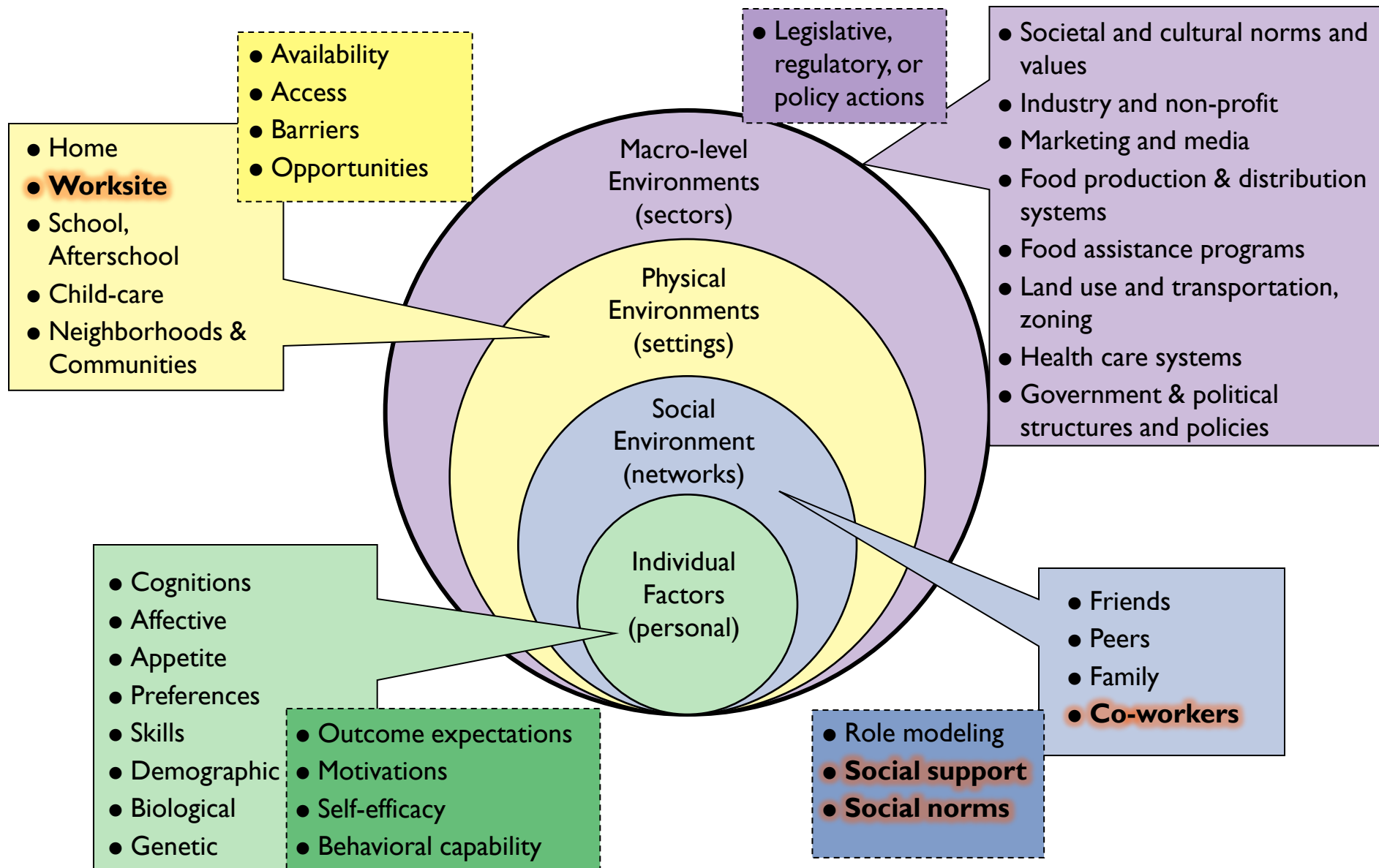
Susan Druker, MA

Karen Ronayne

Susan M. Garland

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# An Ecological Framework : Multiple Influences on Physical Activity and Eating Behaviors



# Social Context

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- ▶ 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

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*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.
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# Social Norms and Obesity – Related Behaviors

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- ▶ 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

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- ▶ 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

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- ▶ 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 ( $\sim 2/3$  of all employees)



# Measures of Social Norms

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## 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
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# Principal Component Analysis (PCA) and Internal Consistency

<i>“Most of the people that I work with...”</i>	<b>Initial PCA loading</b>	<b>Cronbach’s alpha of retained items</b>
<b>WEIGHT LOSS SOCIAL NORMS SUB-SCALE</b>		0.78
*1. Are overweight	.40	
2. Are concerned about their weight	.73	
3. Are trying to lose weight	.79	
4. Discuss their experiences trying to lose weight with each other	.79	
*5. Make negative comments about overweight employees	.32	
6. Give each other advice on how to manage weight	.71	

\* Item not retained in final scale because PCA loading <.45

# Principal Component Analysis (PCA) and Internal Consistency

<i>“Most of the people that I work with...”</i>	Initial PCA loading	Cronbach’s alpha of retained items
<b>PHYSICAL ACTIVITY SOCIAL NORMS SUB-SCALE</b>		0.83
1. Are physically activity	.68	
2. Are physically fit	.66	
3. Are concerned about getting enough exercise	.67	
4. Exercise on school grounds before, during or after work	.66	
5. Go for a walk during the school day	.48	
6. Do little or no physical activity during the school day	-.46	
7. Encourage co-workers to participate in physical activity with them	.64	
8. Do not pay attention to how physically active they are	-.63	
9. Talk about exercise with each other	.70	
10. Give each other tips on how to be more physically active	.66	
*11. Make negative comments about employees who exercise at the school	-.12	
*12. Make negative comments about employees who are inactive or sedentary	-.12	

\* Item not retained in final scale because PCA loading <.45

# Principal Component Analysis (PCA) and Internal Consistency

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

\* Item not retained in final scale because PCA loading <.45

# Measures of Behaviors

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## 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
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# Study Sample

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Average Age (Y(SD))	43.8 (11.8)
Female (%)	69
Non-Latino White (%)	93
Most common occupations (%)	
Teacher	55
Administrative Assistants/Support Staff	10
Teacher Aide	8.4
Graduate Degree (%)	53
Average BMI (kg/m <sup>2</sup> (SD))	27.8 (5.7)

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# Multivariate Regression Models

<b>Association of weight loss social norms sub-scale with “Currently trying to lose weight”*</b>	<b>OR (95% CI) [P-value]</b>
Weight loss social norms	1.13 (1.06, 1.20) [ $<0.001$ ]
Co-worker social support for exercise	1.01 (0.99, 1.04) [0.30]
Co-worker social support for eating	0.99 (0.96, 1.04) [0.87]
<b>Association of physical activity social norms sub-scale with walking MET-hrs/day*</b>	<b>OR (95% CI) [P-value]</b>
Physical activity social norms	0.004 (-0.004, 0.012) [0.33]
Co-worker social support for physical activity	0.003 (-0.003, 0.009) [0.28]
<b>Association of eating social norms sub-scale with the Eating Behavior Index*</b>	<b><math>\beta</math> (95% CI) [P-value]</b>
Eating social norms	0.25 (0.07, 0.44) [.008]
Co-worker social support for eating	-0.09 (-0.28, 0.11) [0.40]

\* Adjusts for gender and age

# Study Limitations

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- ▶ Limited generalizability
- ▶ Can't assess causality
- ▶ Social desirability bias



# Conclusions

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- ▶ 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
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