The Association between Worksite Social Support, Diet, Physical Activity, and Body Mass Index.

Sara L. Tamers1,3, Shirley A.A. Beresford2,3, Sonia Bishop1, Bonnie A. McGregor1,3, Barbara Bruemmer1,3, Glen E. Duncan2, and Beti Thompson1,3

1University of Washington, Department of Health Services, Seattle, WA; 2University of Washington, Department of Epidemiology, Seattle, WA; 3Fred Hutchinson Cancer Research Center, Cancer Prevention Program, Seattle, WA

Background
- 30% of Americans are obese (BMI ≥ 30 kg/m2).
- Only 10% of Americans eat 5 or more daily servings of fruits and vegetables.
- Most adults do not engage in the minimum recommended level of physical activity each day (i.e., 30 minutes/day).
- Worksites are important venues to influence health behaviors:
  - Over 60% of the U.S. adult population is employed.
  - Worksites may be considered communities where individuals interact.
  - Social support can be provided through co-workers.

Aim
- To evaluate the association between worksite social support, dietary and physical activity behaviors, and Body Mass Index (BMI).

Materials and Methods
- The Physical Activity and Changes in Eating (PACE) worksite study is a group randomized trial.
- 34 worksites from the Seattle area were recruited and randomized.
- Baseline surveys were collected from 2,878 employees.
- Participating worksites have 40-350 employees, and include:
  - White collar personal services
  - Other personal services
  - Manufacturing
  - Transportation
  - Wholesale/trade
- Baseline surveys administered to:
  - 100% employees for worksites with 40-125 employees,
  - Random sample of 100 employees for worksites with 126-350 employees.
- BMI was computed using self-reported weight (kg) and height (meters).
- Dietary behaviors associated with high energy intake and physical activity assessed via 5 questions and 2 questions, respectively (figure 1).

Analytic Methods
- 514 persons excluded due to missing values (n = 2,364) (table 1).
- Principal components analysis applied to employee workgroup questions.
- Variables created by averaging high loading questions on each factor.
- Linear mixed models were executed using STATA v. 10.

Results
- Worksite social support scale created from three employee workgroup questions.
- One principal component characterized three high loading worksite social support questions (1, 3, 5 in table 2):
  - Mean value of 2.04
  - Cronbach's alpha of 0.77
- Mean BMI was 27.4 (kg/m2).
- Forty-six percent of participants engaged in daily strenuous physical activity.
- Forty-six percent of participants consumed 2 or fewer servings of fruits and vegetables per day.
- Roughly 12 percent of participants consumed 2 or more soft drinks per day.
- Higher worksite social support was associated with higher fruit and vegetable intake (p = 0.03).
- Higher worksite social support was associated with greater physical activity (p = 0.009).

Conclusions
- Higher fruit and vegetable consumption is associated with higher worksite social support.
- Higher physical activity scores are associated with higher worksite social support.

Future Directions
- The relationship between worksite social support, dietary behaviors and physical activity should be examined in longitudinal studies.
- Worksite intervention studies should include an emphasis on the role of social support among co-workers as a way of enhancing its impact on dietary and physical activity behaviors.

Table 1. Baseline demographic characteristics of employees at PACE workplaces

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1,182</td>
<td>4,370</td>
<td>5,552</td>
</tr>
<tr>
<td>Sex</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>42.4 (11.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Baseline questions related to employee workgroup at PACE workplaces

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you eat...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How often do you exercise...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How often do you drink...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. How often do you smoke...</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research efforts were supported by the NCI Biobehavioral Cancer Prevention and Control Training Program (R25CA092408) and by NHLBI R01 HL74841.