Stress: Prevalence, Predictors, Association with Medical Conditions and Impact on Productivity

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Background: Stress

- Chronic stress => health implications
- Job stress assoc. w/ abs.
- Greater presenteeism-(on-the-job productivity loss)-5 times greater for stressed vs. non-stressed
Measuring Stress

- Stress is subjective (unlike bodyweight, BP)
- Multi-item tools—respondent burden—esp. when incorporated into larger health assessment
- Score is abstract to organizations and stakeholders

Study Item: Stress to the extent that health is impacted:

“During past year, how much effect has stress had on your health” A lot, Some, Hardly any, None
Study Objectives

- Prevalence
- Comorbidities
- Model Predictors of Stress
- Impact on Productivity
## Sample Characteristics

<table>
<thead>
<tr>
<th>Financial Services Org.</th>
<th>2012 Employee Population</th>
<th>HRA Participants</th>
<th>HRA Non-Participants</th>
<th>2007-2012 HRA Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (Participation)</td>
<td>1,233</td>
<td>1,139 (92%)</td>
<td>94 (8%)</td>
<td>873 (71%)</td>
</tr>
<tr>
<td>Gender: % Male</td>
<td>57.7%</td>
<td>56.4%</td>
<td>60.6%</td>
<td>53.3%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-34</td>
<td>26.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>26.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-55</td>
<td>29.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55-64</td>
<td>10.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+</td>
<td>1.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (Std. Dev.)</td>
<td>43.4 (9.8)</td>
<td>43.5 (9.5)</td>
<td>43.2 (12.0)</td>
<td>45.1 (8.6)</td>
</tr>
<tr>
<td>Percent Exempt</td>
<td>72.6%</td>
<td>72.8%</td>
<td>70.2%</td>
<td>76.1%</td>
</tr>
</tbody>
</table>
Prevalence of Stress

2012 only (N = 1,139) same as cohort
**Comorbidities Associated Stress**

<table>
<thead>
<tr>
<th>Self-Reported Medical Condition</th>
<th>Without Stress Affecting Health (N = 741)</th>
<th>With Stress Affecting Health (N = 398)</th>
<th><strong>Adjusted Odd Ratio</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>2.4%</td>
<td>12.3%</td>
<td>5.5*</td>
</tr>
<tr>
<td>Sleep Disorder</td>
<td>3.4%</td>
<td>10.1%</td>
<td>3.4*</td>
</tr>
<tr>
<td>Migraine Headaches</td>
<td>3.5%</td>
<td>10.8%</td>
<td>3.1*</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>3.1%</td>
<td>7.3%</td>
<td>2.6*</td>
</tr>
<tr>
<td>Diabetes</td>
<td>2.2%</td>
<td>4.5%</td>
<td>2.5*</td>
</tr>
<tr>
<td>Back Pain</td>
<td>10.3%</td>
<td>19.4%</td>
<td>2.2*</td>
</tr>
<tr>
<td>Arthritis</td>
<td>6.6%</td>
<td>11.1%</td>
<td>2.1*</td>
</tr>
<tr>
<td>Other</td>
<td>3.6%</td>
<td>7.5%</td>
<td>2.0*</td>
</tr>
<tr>
<td>Heartburn/Acid Reflux</td>
<td>9.7%</td>
<td>16.1%</td>
<td>1.9*</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>11.7%</td>
<td>16.3%</td>
<td>1.8*</td>
</tr>
<tr>
<td>Avg. # Medical Conditions</td>
<td>1.38</td>
<td>2.09</td>
<td>P &lt; 0.001</td>
</tr>
</tbody>
</table>

**Adjusted for age, gender, education, BMI**
## Conditions Not Associated with Stress

<table>
<thead>
<tr>
<th>Self-Reported Medical Condition</th>
<th>Without Stress Affecting Health (N = 741)</th>
<th>With Stress Affecting Health (N = 398)</th>
<th>Adjusted Odd Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergies</td>
<td>37.9%</td>
<td>43.5%</td>
<td>1.2</td>
</tr>
<tr>
<td>Asthma</td>
<td>5.0%</td>
<td>3.5%</td>
<td>0.7</td>
</tr>
<tr>
<td>Cancer</td>
<td>1.1%</td>
<td>1.3%</td>
<td>1.1</td>
</tr>
<tr>
<td>Heart Problems</td>
<td>1.2%</td>
<td>1.3%</td>
<td>1.2</td>
</tr>
<tr>
<td>High Cholesterol</td>
<td>22.4%</td>
<td>24.9%</td>
<td>1.3</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>1.1%</td>
<td>1.0%</td>
<td>0.9</td>
</tr>
<tr>
<td>Thyroid Disease</td>
<td>4.2%</td>
<td>6.8%</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Theoretical Basis for Predictors of Stress

- Feeling Anxious
- Job Satisfaction
- Physical Activity
- Caregiving
Hypothesized Model for Predictors of Stress and Productivity

- Feeling Anxious
- Job Satisfaction
- Vigorous Physical Activity
- Light Physical Activity
- Caregiving

Control Variables:
- Age, Gender, Education

Stress

Absenteeism

Presenteeism

+ 
- 
+ 
+ 
+ 
- 
+ 
- 
+ 
- 
+ 
+
Final Model for Predictors of Stress and Productivity

Feeling Anxious
Vig. Physical Activity
Job Satisfaction
Light Physical Activity
Caregiving

Stress
Absenteeism
Presenteeism

Control Variables: Age, Gender, Education

Chi sq: 52, df= 17 GFI: 0.99, CFI:0.977 (near 1), RMSEA: 0.04 (<0.05)

R² = 0.15
R² = 0.18

.66
-.20
.36
-.55
.10
.24
.12
.08
Conclusions

- Stress to the extent that it impacts health is prevalent
- Job satisfaction related to stress—risk of burnout
- Stress also impacted job satisfaction
- Sig. economic costs in terms of productivity and health
- PA may be of limited benefit in impacting productivity outcomes in face of persistent stress
Practical Applications

Stress should be prioritized as least equally along with health-behavior programs (impacted health, abs./pres. job satisfaction)

35% have stress that impacts health some or a lot

Ideally, companies should adopt a culture that discourages stress and encourages healthy stress management techniques
Thank You.

Questions?

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HEALTH MANAGEMENT RESEARCH CENTER