IS SITTING TIME ASSOCIATED WITH INCREASED HEALTH RISKS IN NURSES?

Lizbeth Price Sturgeon PhD, RN, CNE
Dawn Garrett-Wright PhD, PMHNP, CNE
Eve Main DNP, FNP-BC
Donna Blackburn PhD, RN
M. Susan Jones PhD, RN, CNE, ANEF
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There is a distinction between having a lack of exercise and being sedentary\textsuperscript{1-2}

Physical activity guidelines do not prevent one from being sedentary\textsuperscript{3}

- Sedentary activities
  - Require a low level of energy expenditure
  - Typically between 1.0 and 1.5 metabolic equivalent of task (METS)\textsuperscript{1}

\textsuperscript{1} Owen et al., 2010
\textsuperscript{2} Owen et al., 2011
\textsuperscript{3} Vandelanotte et al., 2013
BACKGROUND AND SIGNIFICANCE

• “Sitting Time” (ST) describes the primary position used in sedentary activities\(^1\)
  • Working on a computer
  • Traveling in a car
  • Reading
  • Playing video games

\(^1\) Owen et al., 2010
BACKGROUND AND SIGNIFICANCE

- There is a link between sedentary behaviors and health conditions$^{4-5}$$\cdot$
  - Type II Diabetes
  - Cardiovascular disease
  - All-cause mortality

$^4$ Peddie et al., 2013
$^5$ Proper et al., 2011
BACKGROUND AND SIGNIFICANCE

• ST has also been associated with:
  • BMI
  • Waist circumference
  • Triglycerides
  • HDL-C
  • Measures of insulin resistance\textsuperscript{6}

\textsuperscript{6} Staiano et al., 2013
BACKGROUND AND SIGNIFICANCE

• To understand the full impact of ST, occupational and leisure activities must be examined
  • Television viewing time\(^7\)
  • Adults spend much of their work day doing other sedentary activities\(^3,8\)

\(^7\) Veerman et al., 2011
\(^3\) Vandelotte et al., 2013
\(^8\) Thorp et al., 2011
BACKGROUND AND SIGNIFICANCE

• Nurses are an occupational population of interest because of the changing work environment:
  • At the bedside and in educational and research settings
    • Increase in computer use and other work saving devices
  • There are no current studies examining the effect of ST on self-reported health ratings and health indicators in nurses
PURPOSE

• Exploration of ST of nurses in the United States in relation to self-reported health status and general health indicators
SPECIFIC AIM 1

• To determine if total ST on work and non-work days was associated with self-reported elevated:
  • BMI
  • Hypertension
  • Hypercholesteremia
  • Type II Diabetes
SPECIFIC AIM 2

- To determine which ST domains on work days and non-work days were associated with:
  - BMI
  - Hypertension
  - Hypercholesteremia
  - Type II Diabetes
METHODS
RESEARCH DESIGN, PARTICIPANTS, & SETTING

• Descriptive, correlational design

• Non-probability sample
  • 79 nurses attending a national research conference in the southern United States
MEASUREMENTS

• Demographic Variables
  • Age, gender, marital status, employment status, average days worked in last week

• Self-Reported Health-Related Variables
  • Weight, height, general health, physical activity restriction, cigarette use
  • Diagnosis of hypertension, hypercholesterolemia, AND/OR type II diabetes AND taking medication
<table>
<thead>
<tr>
<th>Activity</th>
<th>WORKING day Hours</th>
<th>WORKING day Minutes</th>
<th>NON-WORKING day Hours</th>
<th>NON-WORKING day Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>For TRANSPORT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At WORK</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching TV</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Using a computer at home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other leisure activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⁹Chau et al., 2011
DATA ANALYSES

• Descriptive statistics used to characterize the sample
• Correlational statistics used to identify associations between general health and ST
• Alpha levels set *a priori* at 0.05
• IBM SPSS Statistics version 21 used to perform statistical tests
## PARTICIPANT CHARACTERISTICS (N=79)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, (AVG ± SD)</td>
<td>47.4 ± 13.8</td>
</tr>
<tr>
<td>Gender, n (%)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>72 (91.1)</td>
</tr>
<tr>
<td>Marital status, n (%)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>48 (60.7)</td>
</tr>
<tr>
<td>Never Married</td>
<td>18 (22.7)</td>
</tr>
<tr>
<td>Employment status as Nurse Educator, n (%)</td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>49 (62.0)</td>
</tr>
<tr>
<td>Part-time</td>
<td>7 (8.9)</td>
</tr>
<tr>
<td>N/A</td>
<td>22 (27.8)</td>
</tr>
</tbody>
</table>
### PARTICIPANT CHARACTERISTICS (N=79)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Days Worked in the Last Week, (AVG ± SD)</strong></td>
<td><strong>4.7 ± 1.1</strong></td>
</tr>
<tr>
<td><strong>Self-reported general health, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>28 (35.4)</td>
</tr>
<tr>
<td>Very Good</td>
<td>32 (40.5)</td>
</tr>
<tr>
<td><strong>Self-Reported Physical Activity Restriction, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>None of the Time</td>
<td>38 (48.1)</td>
</tr>
<tr>
<td>Some of the Time</td>
<td>24 (30.4)</td>
</tr>
<tr>
<td><strong>Cigarette Use, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Ex-Smoker</td>
<td>10 (12.7)</td>
</tr>
<tr>
<td>Nonsmoker</td>
<td>68 (86.1)</td>
</tr>
</tbody>
</table>
## PARTICIPANT CHARACTERISTICS (N=79)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Reported BMI, (AVG ± SD)</td>
<td>26.6 ± 5.0</td>
<td></td>
</tr>
<tr>
<td>BMI Classification, n (%)</td>
<td></td>
<td>33 (41.8)</td>
</tr>
<tr>
<td>Underweight or normal weight (&lt;25)</td>
<td></td>
<td>33 (41.8)</td>
</tr>
<tr>
<td>Overweight (25-30)</td>
<td></td>
<td>27 (34.2)</td>
</tr>
<tr>
<td>Obese (&gt;30)</td>
<td></td>
<td>16 (20.2)</td>
</tr>
<tr>
<td>Hypertensive Medication, n (%)</td>
<td>20 (25.3)</td>
<td></td>
</tr>
<tr>
<td>Hypercholesterolemia Medication, n (%)</td>
<td>14 (17.7)</td>
<td></td>
</tr>
<tr>
<td>Type II Diabetes Medication, n (%)</td>
<td>3 (3.8)</td>
<td></td>
</tr>
</tbody>
</table>
### ST in Each Domain for Work and Non-Work Days

<table>
<thead>
<tr>
<th>Sitting Domain</th>
<th>Working Day</th>
<th>Non-Working Day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>minutes (hours) AVG ± SD</td>
<td>minutes (hours) AVG ± SD</td>
</tr>
<tr>
<td>For transport</td>
<td>79.3 ± 78.7 (1.3 ± 1.3)</td>
<td>48.6 ± 43.8 (0.8 ± 0.7)</td>
</tr>
<tr>
<td>At work</td>
<td>332.0 ± 134.3 (5.5 ± 2.2)</td>
<td>177.3 ± 144.0 (3.0 ± 2.4)</td>
</tr>
<tr>
<td>Watching TV</td>
<td>76.2 ± 61.9 (1.3 ± 1.0)</td>
<td>149.8 ± 85.5 (2.5 ± 1.4)</td>
</tr>
<tr>
<td>Using a computer at home</td>
<td>117.0 ± 105.1 (2.0 ± 1.8)</td>
<td>166.2 ± 120.1 (2.8 ± 2.0)</td>
</tr>
<tr>
<td>Other leisure activities</td>
<td>55.9 ± 49.6 (0.9 ± 0.8)</td>
<td>147.5 ± 103.5 (2.5 ± 1.7)</td>
</tr>
<tr>
<td><strong>Total, All Domains</strong></td>
<td>632.9 ± 224.7 (10.5 ± 3.7)</td>
<td>618.4 ± 295.2 (10.3 ± 4.9)</td>
</tr>
</tbody>
</table>
FINDINGS

• Specific Aim I

  • Total ST on work and non-work days was not associated with self-reported elevated BMI, hypertension, hypercholesteremia, or type I diabetes
FINDINGS

• Specific Aim 2
  • Average ST domain for WORKING ON A NON-WORK DAY was associated with:
    • BMI ($r = -.26$)
    • Hypertension ($r = -.44$)
CONCLUSIONS

- Nurses in this study did not exhibit increased cardio-metabolic risk or chronic disease with increased ST as found in the current literature
  - Age
  - Gender
  - Non-smokers
CONCLUSIONS

• Working on a NON-WORKING DAY was negatively correlated with:
  
  • **BMI**
    
    • Younger than average age
    
    • Bedside nurses working on advanced degrees
  
  • **Use of anti-hypertensive medications**
    
    • Prescribed to 83% of men in the study
    
    • Older than average age
LIMITATIONS

• Number of participants compared to the referenced studies
• Self-reported data
• Undiagnosed chronic disease
• Sample composed of primarily full-time or part-time nurse educators with ST that likely differs from ST in practice and research settings
IMPLICATIONS FOR NURSING

• Higher levels of ST are associated with risk of diabetes and cardiovascular incidence and mortality

• ST of nurses has been influenced by technology, computer use, and other work saving devices

• Future studies should be conducted on specific nursing populations collecting empirical data

• In light of current evidence, interventions to decrease ST should be further investigated to promote the health of nurses
REFERENCES


QUESTIONS