IS SITTING TIME ASSOCIATED WITH INCREASED HEALTH RISKS IN NURSES?

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BACKGROUND AND SIGNIFICANCE

- There is a distinction between having a lack of exercise and being sedentary[1-2]
- Physical activity guidelines do not prevent one from being sedentary[3]
  - Sedentary activities
    - Require a low level of energy expenditure
    - Typically between 1.0 and 1.5 metabolic equivalent of task (METS)[1]

[1] Owen et al., 2010

[2] Owen et al., 2011

[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]
  - Type II Diabetes
  - Cardiovascular disease
  - All-cause mortality

[4] Peddie eta 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[6]

[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

WORKFORCE SITTING QUESTIONNAIRE[9]

	WORKING day Hours	WORKING day Minutes	NON-WORKING day Hours	NON-WORKING day Minutes
For TRANSPORT				
At WORK				
Watching TV				
Using a computer at home				
Other leisure activities				

[9]Chau 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

RESULTS

PARTICIPANT CHARACTERISTICS (N=79)

Age, (AVG ± SD)	47.4 ± 13.8
Gender, n (%) Female	 72 (91.1)
Marital status, n (%) Married Never Married	 48 (60.7) 18 (22.7)
Employment status as Nurse Educator, n (%) Full-time Part-time N/A	 49 (62.0) 7 (8.9) 22 (27.8)

PARTICIPANT CHARACTERISTICS (N=79)

Days Worked in the Last Week, (AVG ± SD)	4.7 ± 1.1
Self-reported general health, n (%) Excellent Very Good	 28 (35.4) 32 (40.5)
Self-Reported Physical Activity Restriction, n (%) None of the Time Some of the Time	 38 (48.1) 24 (30.4)
Cigarette Use, n (%) Ex-Smoker Nonsmoker	 10 (12.7) 68 (86.1)

PARTICIPANT CHARACTERISTICS (N=79)

Self-Reported BMI, (AVG ± SD)	26.6 ± 5.0
BMI Classification, n (%)	
Underweight or normal weight (<25)	33 (41.8)
Overweight (25-30)	27 (34.2)
Obese (>30)	16 (20.2)
Hypertensive Medication, n (%)	20 (25.3)
Hypercholesterolemia Medication, n (%)	14 (17.7)
Type II Diabetes Medication, n (%)	3 (3.8)

ST IN EACH DOMAIN FOR WORK AND NON-WORK DAYS

SITTING DOMAIN	WORKING DAY minutes (hours) AVG ± SD	NON-WORKING DAY minutes (hours) AVG ± SD
For transport	79.3 ± 78.7 (1.3 ± 1.3)	48.6 ± 43.8 (0.8 ± 0.7)
At work	332.0 ± 134.3 (5.5 ± 2.2)	177.3 ± 144.0 (3.0 ± 2.4)
Watching TV	76.2 ± 61.9 (1.3 ± 1.0)	149.8 ± 85.5 (2.5 ± 1.4)
Using a computer at home	117.0 ± 105.1 (2.0 ± 1.8)	166.2 ± 120.1 (2.8 ± 2.0)
Other leisure activities	55.9 ± 49.6 (0.9 ± 0.8)	147.5 ± 103.5 (2.5 ± 1.7)
TOTAL, ALL DOMAINS	632.9 ± 224.7 (10.5 ± 3.7)	618.4 ± 295.2 (10.3 ± 4.9)

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

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QUESTIONS