Registered Nurses' Diet Quality and Overall Health during the SARS-CoV-2 Pandemic

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Providence Research Conference
Purpose

To determine relationships between nursing demographics, sleep, mood, exercise habits, and reported diet quality changes during the SARS-CoV-2 pandemic among acute care Registered Nurses working full-time, 12-hour shifts.
Orem’s Self-Care Theory
Conceptual Framework

- **SELF-CARE**
- **SELF-CARE AGENCY**
- **SELF-CARE DEMANDS**
- **NURSING AGENCY**

DEFICIT
Background

• Lack of self-care in the long-term (adequate sleep, healthy diet quality, regular exercise) may lead to negative health outcomes
Background

• Adequate sleep, diet, and exercise can mitigate health risks like metabolic syndrome (MetS)
  • Stress may negatively impact health habits and emotional well-being
Methods - Study Overview

- Observational, descriptive study
- Health habits tracked for 7 days
Methods - Recruitment

- Registered Nurses (RN’s) recruited with flyers posted in break rooms, email, or social media platforms
- Phased recruitment efforts included RN’s working in WA, then CA, then TX and NM
- RNs completed an electronic eligibility screening form
- Invited to e-consent if eligible

Are you a Registered Nurse who works full-time, 12-hour shifts?
Would you like to provide information about your nutrition, exercise, and sleep habits?

If you answered YES to these questions, you may be eligible to participate in a study to explore relationships between nutrition, sleep, and exercise habits of Registered Nurses working 12-hour shifts.

The study will invite you to:
- Complete surveys that describing your general health characteristics
- Log the foods you normally eat for one week
- Wear a sleep tracker for 10 days
- Complete questionnaires following 12-hour shifts
- Optionally provide two stool samples
- Earn up to $75 in gift cards upon study completion
Methods-Onboarding and Measures

- Baseline Survey
  - Demographics
  - Perceived Stress Scale 4
- Exercise Habits
  - Pedometer - number of steps per day
- Diet Quality
  - Since the COVID-19 pandemic, my diet has:
    - Gotten worse (more fast foods and processed foods)
    - Stayed the same
    - Improved (more fruits and vegetables, more whole foods)
Data Analysis

• Compared demographics (gender, age, body mass index, waist circumference) and work shift between those with worse diet since COVID and those with better/same diet
  • Chi-tests or Fisher's exact tests for categorical data
  • t-test or Mann-Whitney U for continuous
  • Effect sizes calculated to demonstrate magnitude of group differences
    • Cohen's d for continuous and phi for categorical

• Compared ability to walk at least 10,000 steps on average per day by diet changes since COVID
  • Risk ratio with 95% confidence interval
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Improved diet (n=14)</th>
<th>Same diet (n=19)</th>
<th>Worsened diet (n=24)</th>
<th>p</th>
<th>Phi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0 (0)</td>
<td>4 (21)</td>
<td>6 (25)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>3 (21)</td>
<td>6 (32)</td>
<td>9 (38)</td>
<td>0.46</td>
<td>0.25</td>
</tr>
<tr>
<td>31-40</td>
<td>5 (36)</td>
<td>9 (47)</td>
<td>10 (42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 +</td>
<td>6 (43)</td>
<td>3 (16)</td>
<td>5 (21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td>12 (86)</td>
<td>11 (58)</td>
<td>11 (46)</td>
<td>0.05</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>24.1 (7.4)</td>
<td>23.5 (6.7)</td>
<td>29.6 (8.6)</td>
<td>&lt;0.001</td>
<td>0.71*</td>
</tr>
<tr>
<td>Waist Circumference</td>
<td>31.3 (4.9)</td>
<td>31.6 (4.9)</td>
<td>36.7 (6.4)</td>
<td>&lt;0.01</td>
<td>0.93*</td>
</tr>
<tr>
<td>(inches)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Daily Steps</td>
<td>8540 (3040)</td>
<td>10352 (5953)</td>
<td>6808 (2403)</td>
<td>&lt;0.01</td>
<td>0.76*</td>
</tr>
<tr>
<td>Perceived Stress</td>
<td>4.9 (2.9)</td>
<td>6.1 (3.1)</td>
<td>6.6 (3.0)</td>
<td>0.06</td>
<td>0.37*</td>
</tr>
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</table>
### Results

<table>
<thead>
<tr>
<th>Diet since COVID-19</th>
<th>RNs with Average Steps &lt;10K</th>
<th>RNs with Average Steps &gt;=10K</th>
<th>Total nurses</th>
<th>Risk</th>
<th>Relative Risk</th>
<th>95% Confidence interval</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Worse</td>
<td>19</td>
<td>2</td>
<td>21</td>
<td>0.90</td>
<td>1.66</td>
<td>1.18-2.33</td>
<td>0.004</td>
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<tr>
<td>Same/Better</td>
<td>18</td>
<td>15</td>
<td>33</td>
<td>0.54</td>
<td></td>
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Anthropometric Differences

• Waist circumference
  • Women target: less than 35 in
  • Men target: less than 40 in
  • Nurses reporting worse diet since COVID also reported waist circumference surpassing the target, increasing risk for MetS

• Body Mass index
  • Healthy range from 18.5 - 24.9
  • Overweight range 25-29.9
  • Obese range 30+
  • Nurses reporting worse diet on average in overweight range though should be interpreted with caution
Diet quality, anthropometrics, and stress

- Evidence supports that adults with a poor diet quality are more likely to have an elevated BMI compared to those with a high diet quality

- When exposed to stress, diet quality may suffer
Discussion

Orem's Self-Care Theory
Conceptual Framework

- Poor diet quality
- Reduced exercise capacity
- Worsened stress
- Fatigue
Conclusions

• RNs with worse diet quality may have worse exercise habits and anthropometrics especially if working night shift.

• Future work should focus on interventions to support nursing self-care practices, especially during times of increased occupational stressors.
Implications for Practice

- The health of the nursing workforce is crucial to ensure adequate care for healthy communities.

- Future studies should explore relationships between health habits and physical/emotional health over time in this population.

- Next steps include calculating a healthy eating index and investigating the macronutrient profile of the sample.
Questions?

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Select References:


