The Effects of an Online Educational Program on Nurse Practitioners’ Knowledge of Obstructive Sleep Apnea in Adults

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Introduction
Obstructive Sleep Apnea (OSA) in adults:
- Prevalent - 26%1 to 35.8%2 at-risk,
- Undiagnosed & untreated in 80-90%3,
- Limited sleep education of professionals.

Significant health consequences are associated with untreated OSA;1 mortality rate4, hypertension5, coronary artery disease6, stroke7, obesity8, & others.

OSA symptoms are often unrecognized by patients; snoring, drowsy driving, fatigue, sleepiness9, 10.

Few primary care providers (PCPs) ask essential questions to identify OSA; often use limited & out-of-date patient type11, 12.

PCPs have limited sleep education in schooling, average 2.1 hours13, 14.

Few studies have evaluated effectiveness of sleep educational programs on medical students’ & physicians’ knowledge of sleep15, 16; none for nurse practitioners (NPs).

This study evaluated the effects of an online educational program on NPs’ knowledge of OSA in adults.

Methods
Convenience sample of NPs in Illinois recruited via email invitation (N = 54).

Knowledge changed assessed by 15 case-study based pre-test/post-test questions.

A 53 minute online narrated PowerPoint educational intervention utilized guidelines from the American Academy of Sleep Medicine Adult OSA Task Force17.

Effectiveness measured by paired samples t-test.

Results
54 NPs entered, 38 (70.4%) completed study.

Typical participant: 50-51 years old, married, female, 11 years of NP experience.

Previous sleep education - mean of 1.97 hours (SD = 3.93 hours).

OSA personal/family experience – 36.8%.

Likelihood to evaluate for OSA:
- Pre-intervention 71.1% “selected” patient,
- Post-intervention 76.3% “very likely” & 21.1% “likely”.

Significant improvement in post-test scores as compared to pre-test scores (p < .001, t(37) = -5.024).

<table>
<thead>
<tr>
<th>Knowledge change in recognizing and evaluating adults at-risk for OSA (Q-question)</th>
<th>p = .05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. Clinical prevalence</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Q2. Signs &amp; symptoms – obesity</td>
<td>.324</td>
</tr>
<tr>
<td>Q3. Health consequences – hypertension</td>
<td>.711</td>
</tr>
<tr>
<td>Q4. High risk – motor vehicle crash</td>
<td>.422</td>
</tr>
<tr>
<td>Q5. Signs &amp; symptoms – excessive sleepiness</td>
<td>.160</td>
</tr>
<tr>
<td>Q6. Signs &amp; symptoms – snoring, witnessed apnea</td>
<td>1.000</td>
</tr>
<tr>
<td>Q7. Clinical evaluation – menopause</td>
<td>.001</td>
</tr>
<tr>
<td>Q8. Signs &amp; symptoms – nocturia</td>
<td>.031</td>
</tr>
<tr>
<td>Q9. Signs &amp; symptoms – retrognathia</td>
<td>.003</td>
</tr>
<tr>
<td>Q10. Clinical evaluation – pre-surgery</td>
<td>.023</td>
</tr>
<tr>
<td>Q11. Clinical evaluation – fatigue, frequent awakenings</td>
<td>.058</td>
</tr>
<tr>
<td>Q12. Clinical evaluation – reduced concentration</td>
<td>.744</td>
</tr>
<tr>
<td>Q13. Signs &amp; symptoms – Mallampati classification</td>
<td>.023</td>
</tr>
<tr>
<td>Q14. Clinical evaluation – screening tools</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Q15. Clinical evaluation – hypertension, Type 2 Diabetes Mellitus</td>
<td>.210</td>
</tr>
</tbody>
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Conclusions
NPs, as other PCPs, have limited formal sleep education & are in a key position to identify OSA; fastest growing PCP group.

More current & broader knowledge of evaluating for OSA found post-intervention.

Online OSA education program improved NP knowledge, recognition & evaluation of case-study based adults at-risk for OSA; which was consistent with other studies.

OSA knowledge could lead to higher rates of diagnosis/treatment & reduced associated chronic health problems as envisioned in Healthy People 2020.

Limitations; small sample, single PCP group, self-report, attrition (length, computer).

Future study; evaluate tool content, length & delivery; screening tool use; pre/post measure of diagnosis & treatment adherence; long-term effectiveness.

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References