Background

- Approximately 40-70% of older adults have chronic sleep problems.
- Poor sleep quality in older adults is associated with depression, functional decline and increased risk of heart disease, obesity and diabetes.
- Natural changes in sleep architecture with age:
  - Increased fragmented sleep
  - Decreased total sleep time
  - Decreased stage 3 sleep (deep sleep) and Rapid Eye Movement sleep (REM)
  - Decrease in sleep efficiency
- Physical and environmental factors influencing sleep quality in older adults:
  - Comorbid conditions: osteoarthritis, heart failure and diabetes
  - Sleep disorders: insomnia, sleep disordered breathing, and restless leg syndrome
  - Medications: polypharmacy, sleep medications, opioids, and benzodiazepines
  - Social & environmental changes: retired lifestyle, loss of loved ones, new care facilities create new sleep-wake routines
- A community organization’s existing health education program for the older adults noted the need for sleep hygiene education

Purpose

- Deliver an evidence-based sleep hygiene education course to a community-based older adult population
- Evaluate participants’ sleep quality after the education course

Theoretical Model

Social Cognitive Theory: Five components for behavior change: (1) Knowledge (2) Perceived Self Efficacy (3) Outcome Expectations (4) Goals (5) Perceived Facilitators

Methods

Design

Pre-post evidence-based project

Setting

Community center for a not-for-profit organization offering integrative community-based programs for adults ≥55

Participants

Residents of the same not-for-profit organization receiving services in:
- Independent living apartments
- Assisted living facility
- Skilled nursing facility
- Adult daycare
- Community at large

Acknowledgements:
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Curriculum, contd.

Three weekly sessions

Session 1: June 24, 2020

- Overview of sleep – What is it? How it works? Why it is so important?
- Sleep education topics: Importance of sleep, Stages of sleep, sleep hygiene, barriers to sleep
- Participants had poor sleep quality, both self rated and as assessed by the PSQI global score

Session 2: July 1, 2020

- Lifestyle factors that influence sleep (i.e. diet, exercise, and pain)
- Lifestyle practices that influence sleep

Session 3: July 8, 2020

- Exposure to natural light
- Daytime activity and routine schedule
- Bed-time wind-down activities

Implementation

- Community center’s “For the Health of It” online platform was used to deliver the live sleep hygiene education sessions
- Delivered through a password-secured online platform for community members
- Education and resources to improve their sleep

Measures

- Demographics: Age, Race, Gender, Education Level
- Pittsburgh Sleep Quality Index (PSQI): Global score range: 0-21; 0=no mid-night awakening
- Too Hot
- Bad Dreams

Selected Items:

<table>
<thead>
<tr>
<th>Selected PSQI Items</th>
<th>Response Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours slept per night in the last month</td>
<td>Free-response</td>
</tr>
<tr>
<td>Percent sleep efficiency</td>
<td>Actual hours slept/Hours in bed</td>
</tr>
<tr>
<td>Sleep quality</td>
<td>4-point Likert scale: 0 = Very good 1 = Fairly good 2 = Fairly bad 3 = Very bad</td>
</tr>
<tr>
<td>Wake up to use the bathroom ≥3 times a week in past month</td>
<td>4-point Likert scale: 0 = Not during the past month 1 = Once a week 2 = Once or twice a week 3 = ≥3 times per week</td>
</tr>
<tr>
<td>Common reasons for mid-night awakening</td>
<td>[yes/no]</td>
</tr>
</tbody>
</table>

Results

<table>
<thead>
<tr>
<th>Session Date</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 24, 2020</td>
<td>12</td>
</tr>
<tr>
<td>July 1, 2020</td>
<td>10</td>
</tr>
<tr>
<td>July 8, 2020</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
</tr>
</tbody>
</table>

Demographics

- Age, years (M) 78.8 76.7
- Race
  - Caucasian 11 4
- Gender
  - Female 10 3
  - Male 1 1
- Education
  - Trade/technical/vocational training 1 0
  - Associate’s degree 1 0
  - Bachelor’s degree 6 3
  - Graduate/professional degree 2 1
  - Doctoral degree 1 0

PSQI Results

<table>
<thead>
<tr>
<th>Selected Items</th>
<th>Pre-sleep Hygiene Education (n=11)</th>
<th>Post-sleep Hygiene Education (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours slept per night in the last month (M)</td>
<td>8.6 [2 – 18]</td>
<td>7.25 [2 – 13]</td>
</tr>
<tr>
<td>Percent sleep efficiency (M)</td>
<td>76%</td>
<td>74%</td>
</tr>
<tr>
<td>Sleep quality very bad or fairly bad (%)</td>
<td>54% 75%</td>
<td></td>
</tr>
<tr>
<td>Wake up to use the bathroom ≥3 times per week in past month (%)</td>
<td>81% 75%</td>
<td></td>
</tr>
<tr>
<td>Too Hot</td>
<td>5 1</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>4 0</td>
<td></td>
</tr>
<tr>
<td>Bad Dreams</td>
<td>3 3</td>
<td></td>
</tr>
</tbody>
</table>

- Participants had poor sleep quality, both self rated and as assessed by the PSQI global score

Conclusion

- Study results inconclusive
  - Small sample size
  - Inability to control for consistent participant attendance
- Project was feasible for an online delivery program to engage older adults in examining their sleep patterns and explore strategies to improve it
- Project results support previous literature on older adults and poor sleep quality
- Recommendation: Older adults should be periodically evaluated for sleep quality and provided health education and resources to improve their sleep