

## 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
  - Decrease 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

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## Methods, contd.

### Curriculum

Three weekly sessions

#### Session 1: June 24, 2020

- Overview of sleep – What it is? How it works? Why it is so important?
- Bedroom environment modifications that promote sleep

#### Session 2: July 1, 2020

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

#### 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
  - Sleep education sessions occurred Wednesdays from 1 – 2 pm CST, over 3 weeks
  - Information presented in lecture-discussion format through a PowerPoint presentation
  - At the end of the course, participants received a sleep diary via e-mail to help maintain the sleep hygiene techniques taught in the course

### Measures

- Demographics: Age, Race, Gender, Education Level
- Pittsburgh Sleep Quality Index (PSQI): [Global score range: 0-21; 0=no difficulty sleeping, 1-5=good sleep quality, 6-20=poor sleep quality, 21=severe difficulty sleeping]

Selected PSQI Items	Response Type
Hours slept per night in the last month	Free-response
Percent sleep efficiency	Actual hours slept/Hours in bed
Sleep quality	4-point Likert scale: 0=Very good 1=Fairly good 2= Fairly bad 3=Very bad
	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
	Wake up to use the bathroom ≥3 times a week in past month
	Common reasons for mid-night awakening
	[yes/no]

## Results

### Session Attendance

Session Date	Number of Participants
June 24, 2020	12
July 1, 2020	10
July 8, 2020	13
<b>Total</b>	<b>35</b>

### Demographics

	Pre-sleep Hygiene Education (n=11)	Post-sleep Hygiene Education (n=4)
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

	Pre-sleep Hygiene Education (n=11)	Post-sleep Hygiene Education (n=4)
Global PSQI Score (M, [range])	8.6 [2 – 18]	7.25 [2 – 13]
Selected Items:		
Hours slept per night in the last month (M)	5.72	6.75
Percent sleep efficiency (M)	76%	74%
Sleep quality very bad or fairly bad (%)	54%	75%
Wake up to use the bathroom ≥3 times per week in past month (%)	81%	75%
Common reasons for mid-night awakening		
Too Hot	5	1
Pain	4	0
Bad Dreams	3	3

- 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