Understanding Disrupted Sleep and its Implications on Symptoms for Older Adults Living with HIV

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Background

• More than 70% of Older Adults reported sleep problems
• Sleep problems are largely undiagnosed
• Sleep problems are not treated
• Sleep problems have been linked to poorer prognosis, faster disease progression and increased mortality
New HIV Diagnoses in U.S. By Age (CDC for 2016)
Population Examined: Older Adults Living with HIV

- In about 10 years 70% of all persons living with HIV will be over the age of 50
- People over 50 have 17% of new HIV diagnoses
- Among those, 42% were black/African American
- 37% were Whites
- 18% were Hispanic/Latinos
- 49% were among gays and bisexuals, 15% heterosexual men, 24% heterosexual women
Theory of Unpleasant Symptoms

• Uses subjective symptom experience while:
  • Examining symptoms individually
  • Examining the catalyzing effect of two or more symptoms together:
    – Creates more intense experience than simply the additive effect of the symptoms
    – Can provide ideas for new ways of intervening
Demographics

• 43 Participants completed the study
• Mean age was 57 ± 5.8
• 63% identified as male
• 72% Black, 26% White, 2% Other
• Mean years of education was 13.2 ± 2.6
• 23% Employed full time, 20% Unemployed
• 30% Disabled, 14% Retired
• 54% Lived alone
Demographics

- 65% Currently drank alcohol
- 23% drank in the past but no longer drank
- 23% used non-prescribed medications/drugs
- 51% used previously, but no longer
- 49% smoked cigarettes
- 28% smoked in the past but had quit
Health Demographics

• Mean CD4 Count 642 ± 344 (Range 59-1252)
• Nadir CD4 Count 218 ± 208 (Range 3-780)
• 73% had undetectable VL (Range 0-56)
• Mean # of years on HIV meds was 19.6 ± 16
Methods

This study used both subjective and objective tools to measure sleep:

Subjective

• Pittsburgh Sleep Quality Index (PSQI)
• Epworth Sleepiness Scale (ESS)
• Sleep Diary

Objective

• Wrist Actigraphy
Methods

This study used both subjective and objective tools to measure other variables:

Subjective

• Epworth Sleepiness Scale (ESS)
• Fatigue Scale
• Symptom List

Objective

• NIH Toolbox Cognition Battery
• Montreal Cognitive Assessment (MoCA)
Sleep

• Best practice for older adults is to include both subjective and objective sleep measures when assessing sleep in older adults
• This study supports previous studies that have shown perceived sleep significantly different from objective sleep data
• While using the sleep lab is considered the gold standard, it is expensive and difficult for participants
Comparison of PSQI to Actigraphy

PSQI Sleep

Actigraphy Sleep

Sleep Measured Using PSQI
Mean = 6.07
Std. Dev. = 1.591
N = 42

Sleep Measured Using Actigraphy
Mean = 4.57
Std. Dev. = 1.151
N = 33
Sleep Measured Using PSQI

Mean = 6.07
Std. Dev. = 1.591
N = 42
Sleep Measured Using Actigraphy

- Mean = 4.57
- Std Dev. = 1.151
- N = 33

![Graph showing distribution of average hours of sleep per night with a normal distribution curve, peak at 4.57 hours, and standard deviation of 1.151 hours. The number of participants is 33.]
## Symptom Severity and Global Sleep

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Pearson Correlation</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain, Numbness, Tingling</td>
<td>.359</td>
<td>.040</td>
</tr>
<tr>
<td>Cough/Trouble Catching Breath</td>
<td>.421</td>
<td>.015</td>
</tr>
<tr>
<td>Loss of Appetite/Taste Changes</td>
<td>.513</td>
<td>.002</td>
</tr>
<tr>
<td>Weight Loss/Wasting</td>
<td>.446</td>
<td>.009</td>
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<tr>
<td>Hair Loss/Changes</td>
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<td>.050</td>
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<td>Total Symptom Severity</td>
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</table>
### Symptom Severity and Sleep Duration

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<tr>
<td>Loss of Appetite/Taste Changes</td>
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### Symptom Severity and Sleep Efficiency

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<td>Diarrhea</td>
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<tr>
<td>Loss of Appetite/Taste Changes</td>
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<td>.059</td>
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</table>
Symptom Severity and Sleep Duration (Actigraphy)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Pearson Correlation</th>
<th>P Value</th>
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</thead>
<tbody>
<tr>
<td>Cough/Trouble Breathing</td>
<td>-.448*</td>
<td>.025</td>
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</table>
## Cognition and Subjective Sleep Correlations

<table>
<thead>
<tr>
<th></th>
<th>Sleep Duration</th>
<th>Sleep Efficiency</th>
<th>MoCA</th>
<th>Toolbox Cognition</th>
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<tbody>
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<td>.380*</td>
<td>.375*</td>
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<tr>
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<tr>
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<tr>
<td>Toolbox Cognition</td>
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</tbody>
</table>
Conclusions

• It seems important to collect more than one measure of sleep for older adults living with HIV

• Subjectively or objectively sleep is very poor for this population and it is negatively affecting many aspects of life

• Finding methods of improving sleep would enhance quality of life and may reduce morbidity and mortality
Next Steps

• Increase number of participants
• Increase length of actigraphy measurement
• Introduce sleep intervention (RCT)
• Substudy with qualitative sleep measure
• Add adherence data to study