May 10, 2019

Exploring Cognitive Function in Older Adults Living with HIV

Judy Frain PhD, RN
Methods

- 46 older adults living with HIV
- Complete sleep, fatigue, QOL surveys
- Wear actigraph for 1 week, completing Epworth Sleepiness Scale, Fatigue Scale, and Subjective Sleep Quality scale each day
- Cognitive testing using MoCA and NIH Toolbox Cognitive Battery
The Study

• Describe subjective and objective sleep patterns in older adults living with HIV

• Determine the relationships among sleep measures and cognitive function

• Examine these associations with levels of cognitive function, fatigue, daytime sleepiness, depression and quality of life measures
Preliminary Results

- Correlation between self-reported sleep duration and sleep measured objectively with actigraphy:
  - \( r = 0.405, n = 41, p = 0.012 \)
- Subjective sleep measures significantly overestimated total sleep time
  - 6 hours 40 minutes vs 4 hours 55 minutes
- Subjective measures also overestimated sleep efficiency compared to actigraphy:
  - 78% vs 64%
Fluid Cognition: Fully Corrected Scores

- 74% of study participants scored below the normative mean of 50
- 23% were at least one SD below the mean
- 16% scored at least 2 SD below the mean
- Mean score was 43.2 (SD 11.2)
Fluid Cognition-Fully Corrected
Correlation with Sleep and Cognition:

- Objective and subjective sleep scores were correlated with lower scores on fluid cognition measures ($r = .305, n = 43, p = .049$)
- Fluid cognition measures the capacity to reason and solve new problems
- Less dependent on past education and more susceptible to environmental factors such as sleep and fatigue
Fluid Cognition-Age Corrected (Standard Scores)

- About a third of participants were at least 1 SD below national average
- 12% 2 SD or more below national average
- 12% 1 SD above national average
- No participants more than 1 SD above NA
Fluid Cognition-Age-Corrected
(Standard Score)

Mean = 92.07
Std. Dev. = 17.557
N = 43
56% of study participants scored below the normative mean of 50
26% were at least one SD below the mean
7% scored at least 2 SD below the mean
Mean score was 47.9 (SD 12.15)
Crystallized Cognition—Fully Corrected

Mean = 47.88
Std. Dev. = 12.146
N = 43
Crystallized Cognition- Age-Corrected (Standard Score)

- About a third of participants were at least 1 SD below national average
- 12% 2 SD or more below national average
- 12% 1 SD above national average
- No participants more than 1 SD above NA
Crystallized Cognition-Age-Corrected (Standard Score)
Total Cognition- Fully Corrected

- Mean score was 49.86
- 13% 1 or more SD below national average
- Half of those were 2 SD below
- 19% 1 SD above national average
- No participants more than 1 SD above NA
Total Cognition-Fully Corrected

Mean = 49.86
Std. Dev. = 11.006
N = 43
Conclusions

• Fluid cognition was the cognitive measure where study participants fell below the norm the most

• Cognitive interventions have the greatest chance of impacting this measure

• Developing effective cognitive interventions could positively impact life for older adults living with HIV
Life Satisfaction Correlations

- Age was associated with Life Satisfaction:
  - $r = 0.311$, $p = 0.045$
- Global Sleep (from PSQI) was associated with Life Satisfaction:
  - $r = 0.384$, $p = 0.014$
Symptom Distress Associations

- Symptom Distress was associated with:
  - Fatigue (Promis) $r = .429$, $p = .011$
  - Depression (Promis) $r = .483$, $p = .004$
  - Global Sleep (PSQI) $r = .432$, $p = .011$
Sleep Problems were Significant:

• Total sleep time was significantly less than that of similarly aged persons that do not have HIV
  • 274 minutes (4 h 34 minutes) vs 358 minutes (5 h 58 minutes)

• Sleep efficiency was also worse than age-adjusted norms
  • 63.83% vs 79.2%
The End

Thank you for listening!