

# Cognitive Symptom Trajectories among Forensic Inpatients Diagnosed with Psychotic Disorders

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Patton State Hospital



California State University  
**MONTEREY BAY**

# Disclosures

- ➡ The statements and opinions expressed are those of the authors and do not constitute the official views or the official policy of DSH-Patton, the California Department of State Hospitals, or the State of California.

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- ➡ Undergraduate Research Opportunities Center (UROC)
- ➡ University of Minnesota Press: Test Division

# Overview of Psychotic Disorders

Schizophrenia, Schizoaffective

Characterized by Hallucinations & Delusions

1% of U.S. population

Clinicians need accurate information for:

**Assessment**

**Understanding patient experience**

**Treatment**

# Two-Part Cross-Sectional Study

Overall Cognitive Symptom Trajectory

Impact of Comorbid Mood Disorders

# Cognitive Symptoms

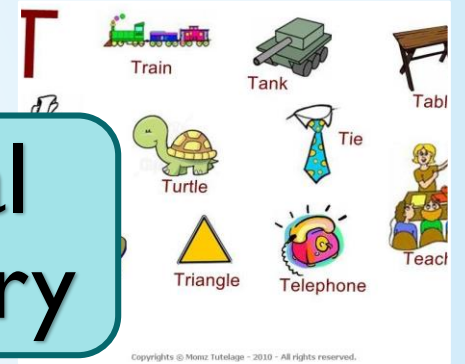
Processing  
Speed



Reasoning



Verbal  
Memory



Working  
Memory



Attention/  
Vigilance



## Research Question 1



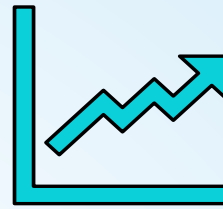
What is the trajectory of cognitive symptoms for patients as they age?

## Research Question 2



How would comorbid mood disorders impact cognitive symptom severity?

# Research So Far



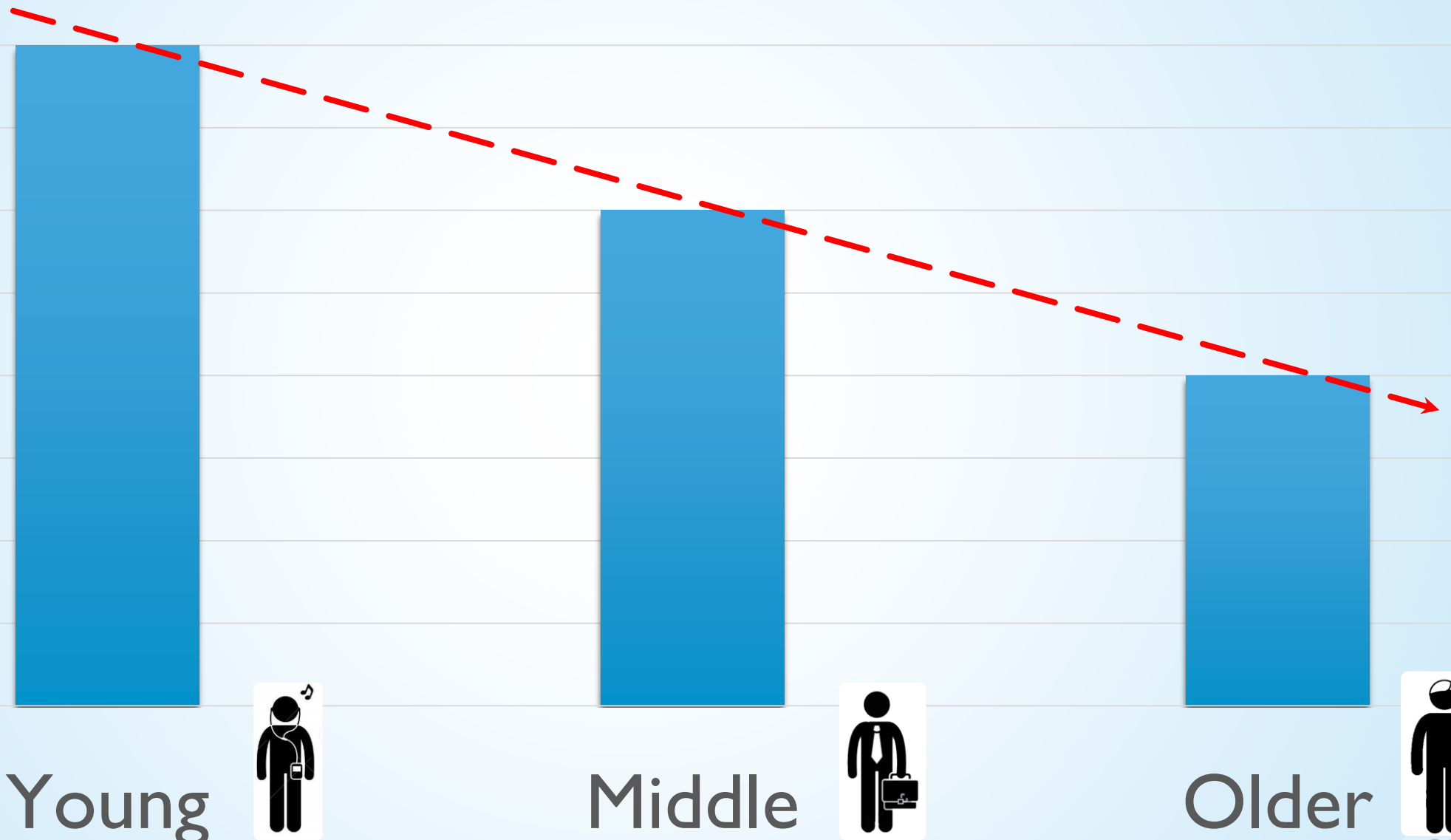
Follow Patients over Time

Compare across Age Groups



# Neurodevelopmental Trajectory Model

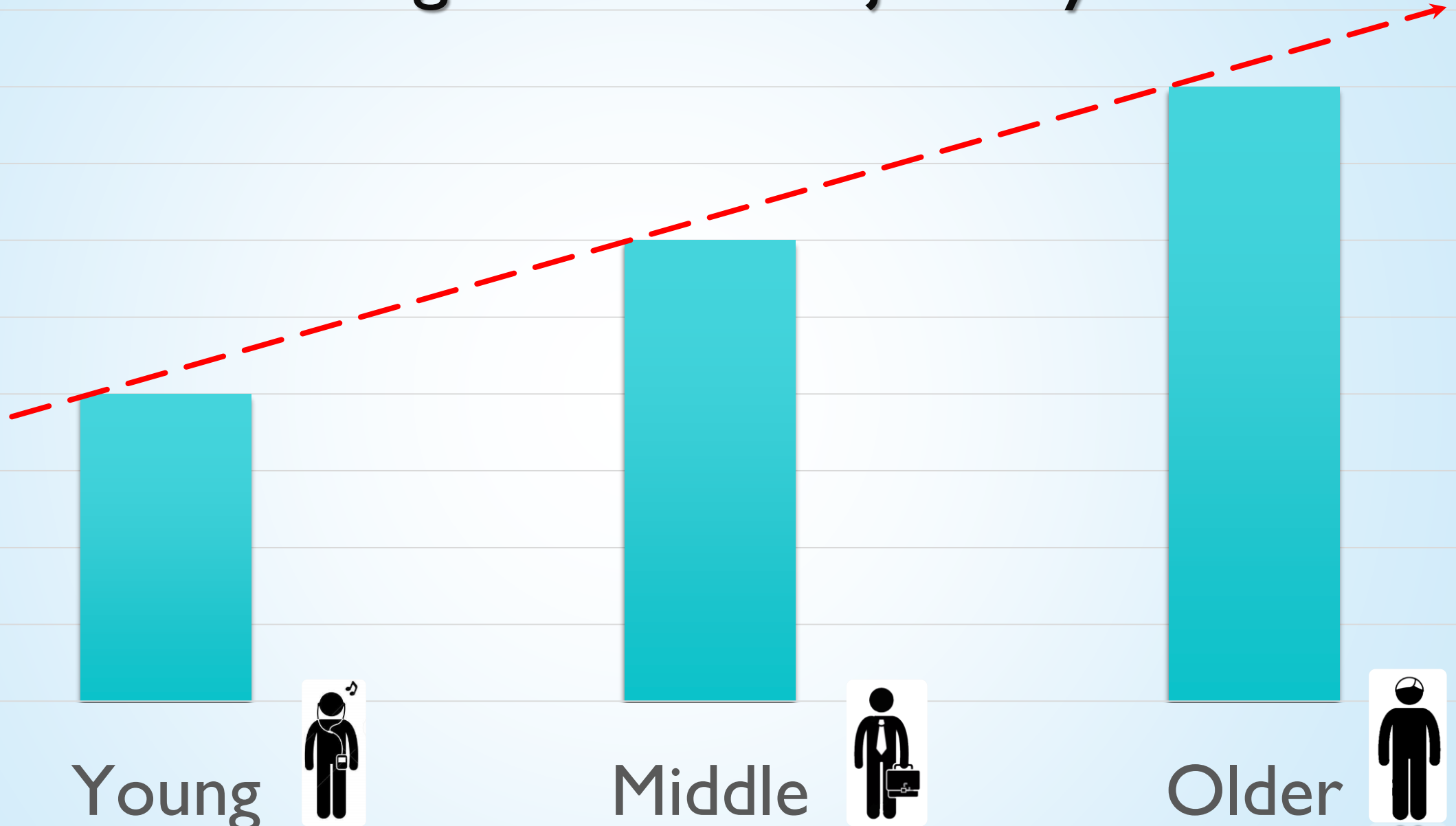
Severity of Symptoms



(Heaton et al., 2001; Kurtz, 2005)

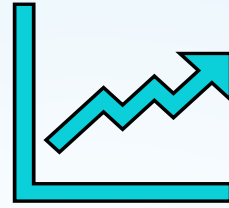
# Neurodegenerative Trajectory Model

Severity of Symptoms

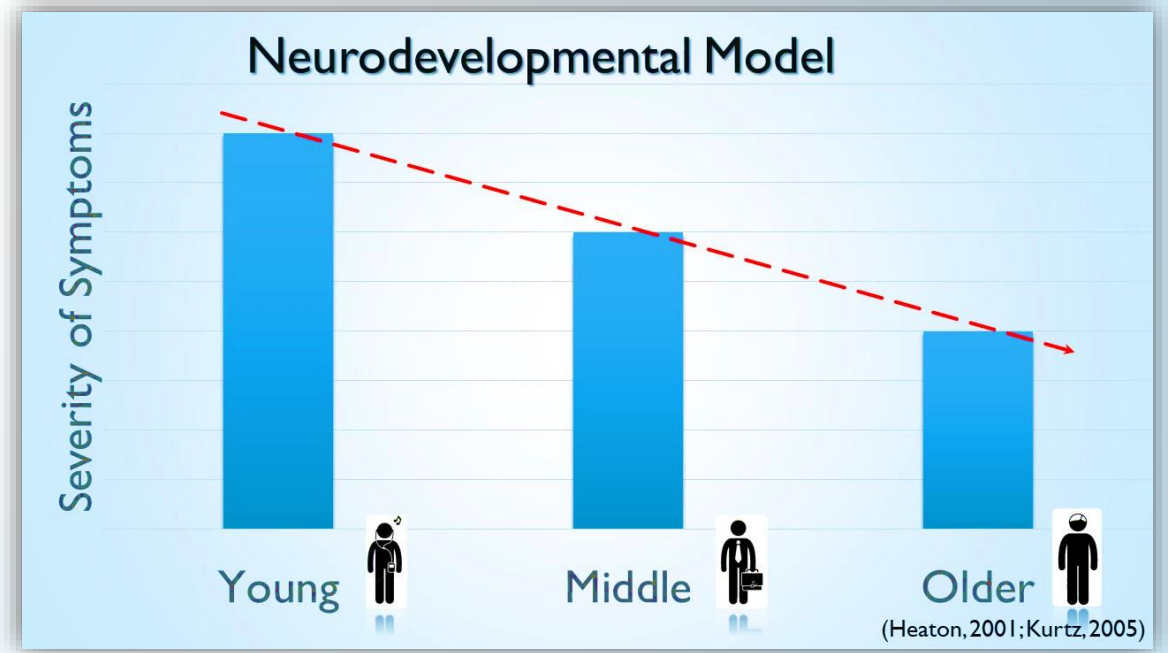
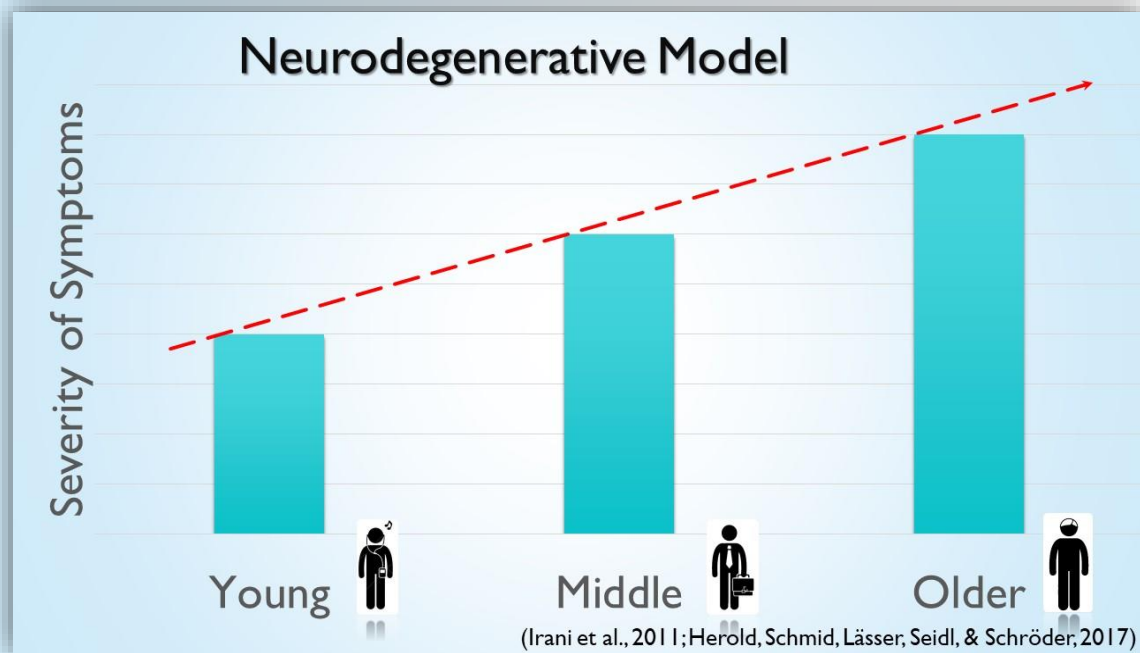


(Irani et al., 2011; Herold, Schmid, Lässer, Seidl, & Schröder, 2017)

# Research Question 1



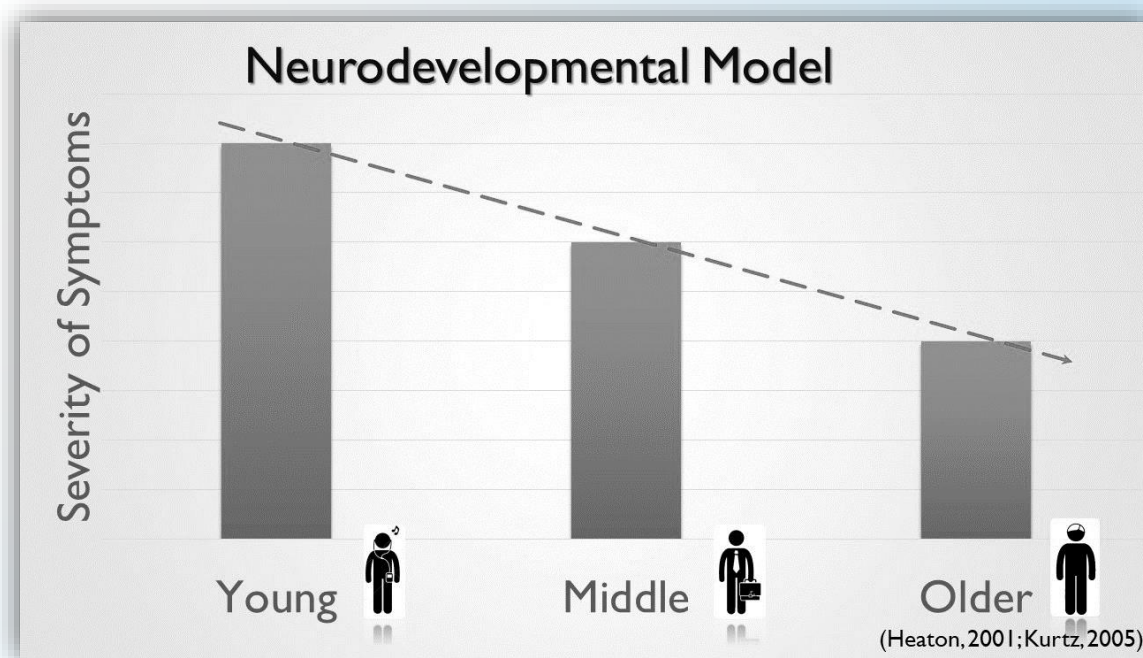
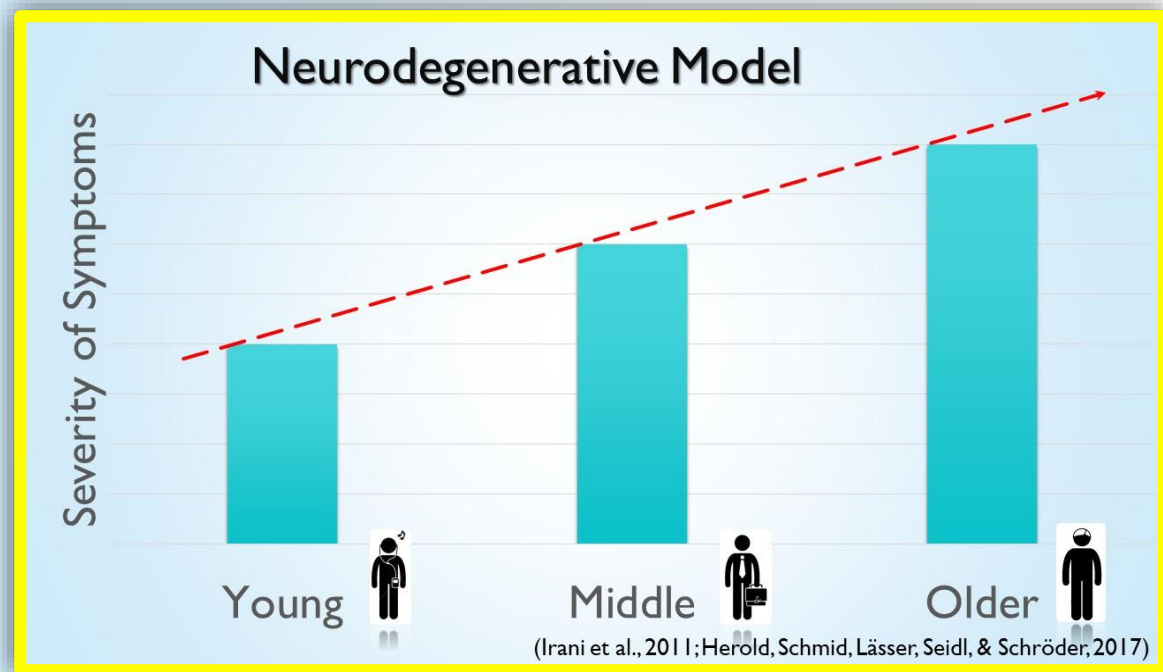
What is the trajectory of cognitive symptoms for patients as they age?



# Research Question 1



## Hypotheses: Neurodegenerative Trajectory



# Mood Disorders



Anxiety

Depression

Mania

## Research Question 2

How would comorbid mood disorders impact cognitive symptom severity?

### **Exploratory Analyses:**

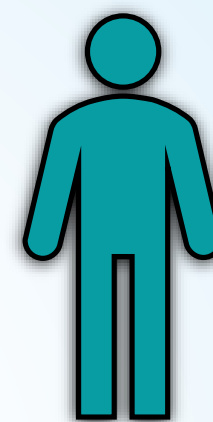
Due to the limited and mixed research, we could not form formal hypotheses



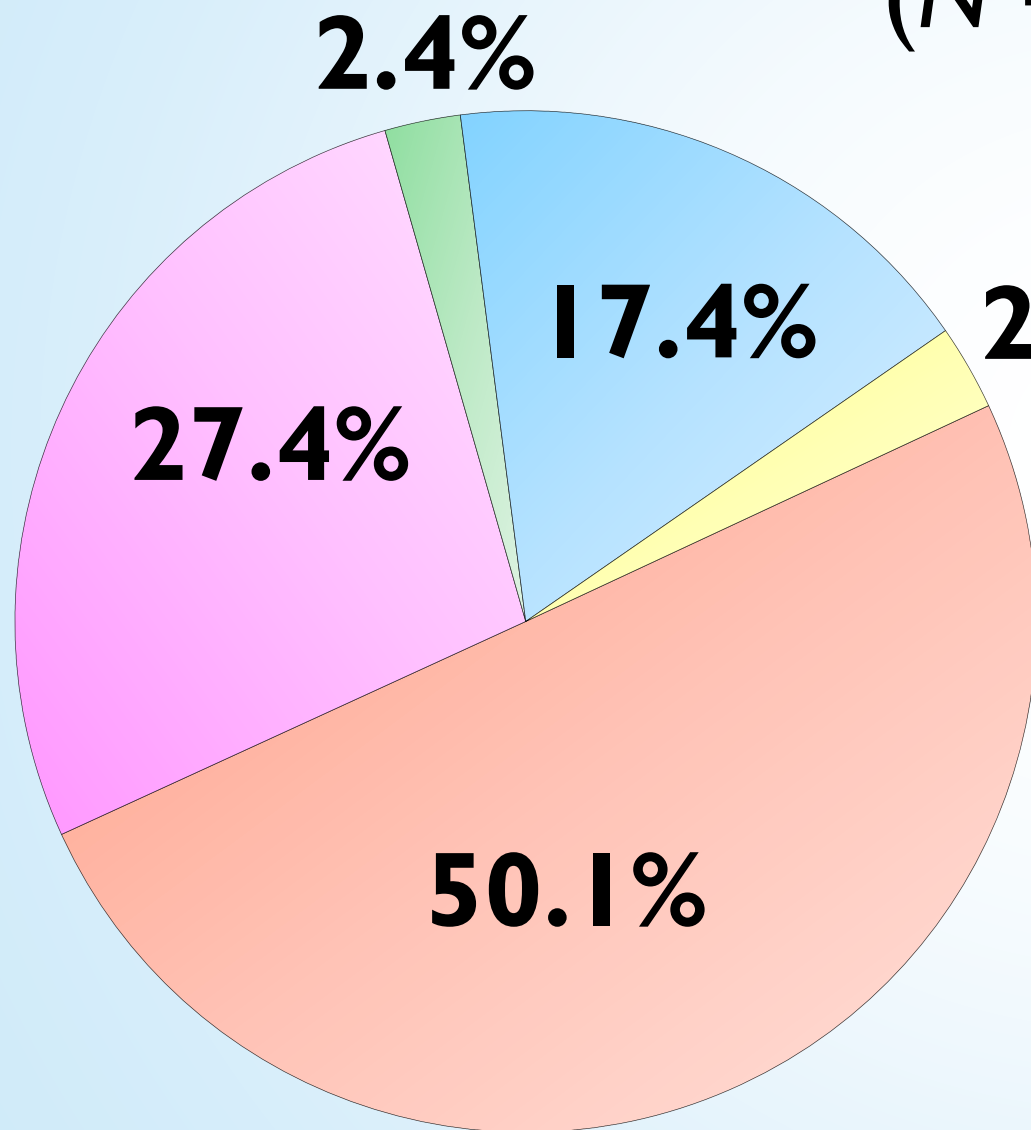
# Method



Sample  
( $N = 708$ )



73.7%  
Male

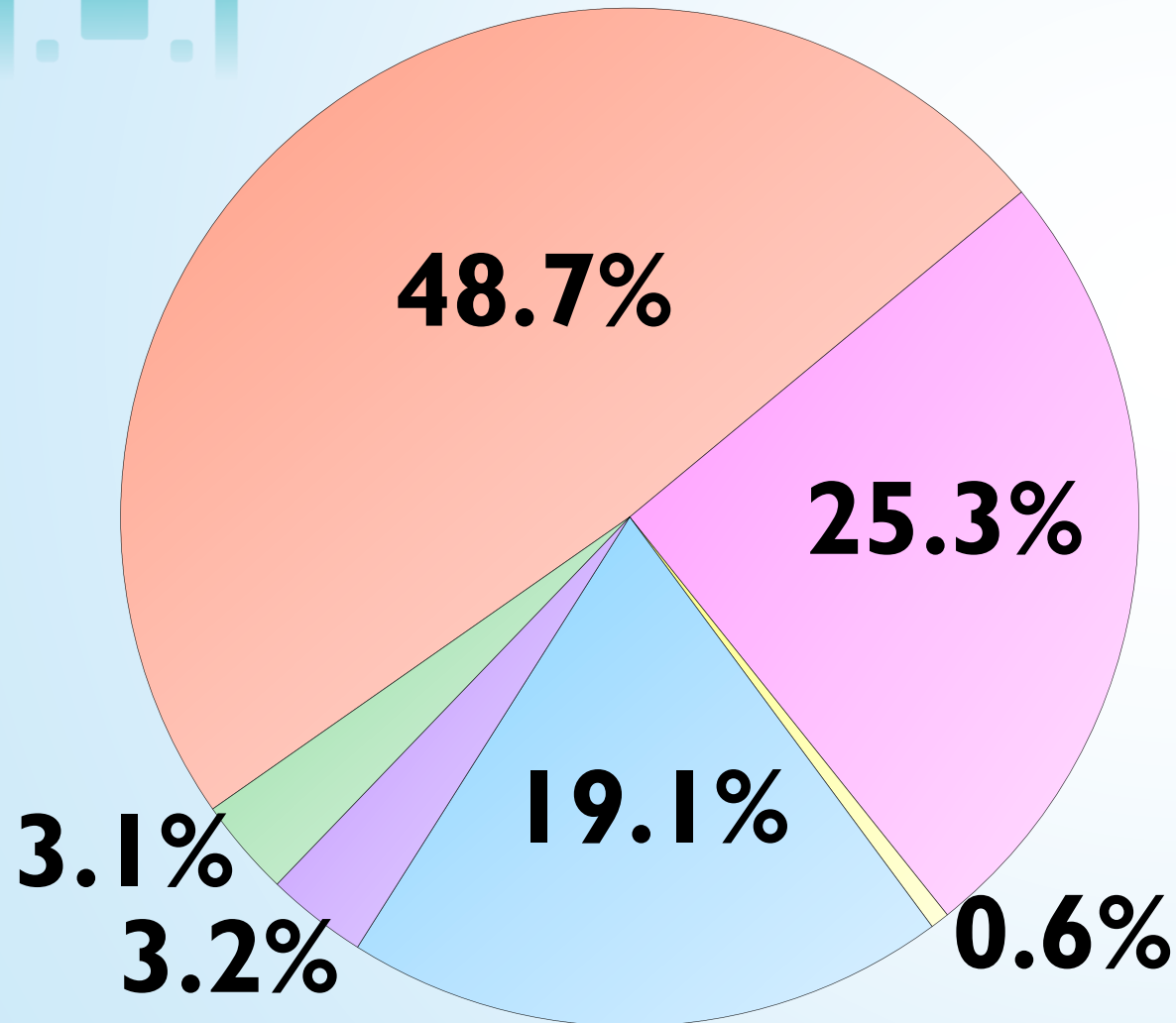


- Caucasian
- African American
- Hispanic
- Asian American
- Other





Years at Hospital  
 $M(SD) = 2.46(4.30)$



- Not Guilty by Reason of Insanity
- Mentally Disordered Offender
- Incompetent to Stand Trial
- Mentally Disordered Sex Offender
- Prison Transfer
- Other

# Measures

## Minnesota Multiphasic Personality Inventory –2 Restructured Form (MMPI-2-RF)

VRIN-r



COG



# Variable Response Inconsistency – Revised (VRIN-r)

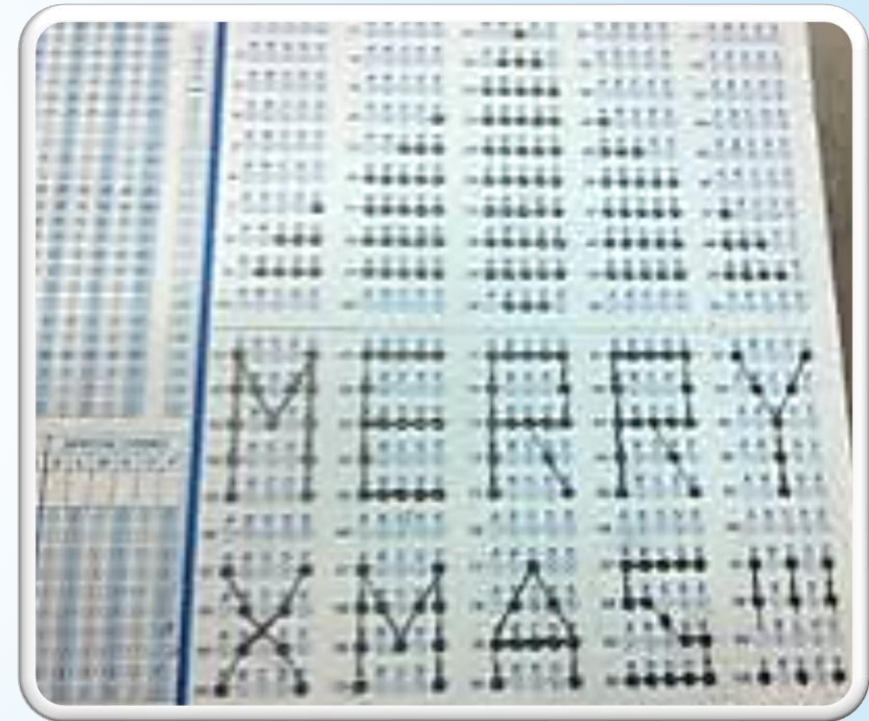
Reading  
Comprehension  
Problems

Uncooperative

VRIN-r

Cognitive  
Problems

Fatigue



# Variable Response Inconsistency – Revised (VRIN-r)

Reading  
Comprehension  
Problems

Uncooperative

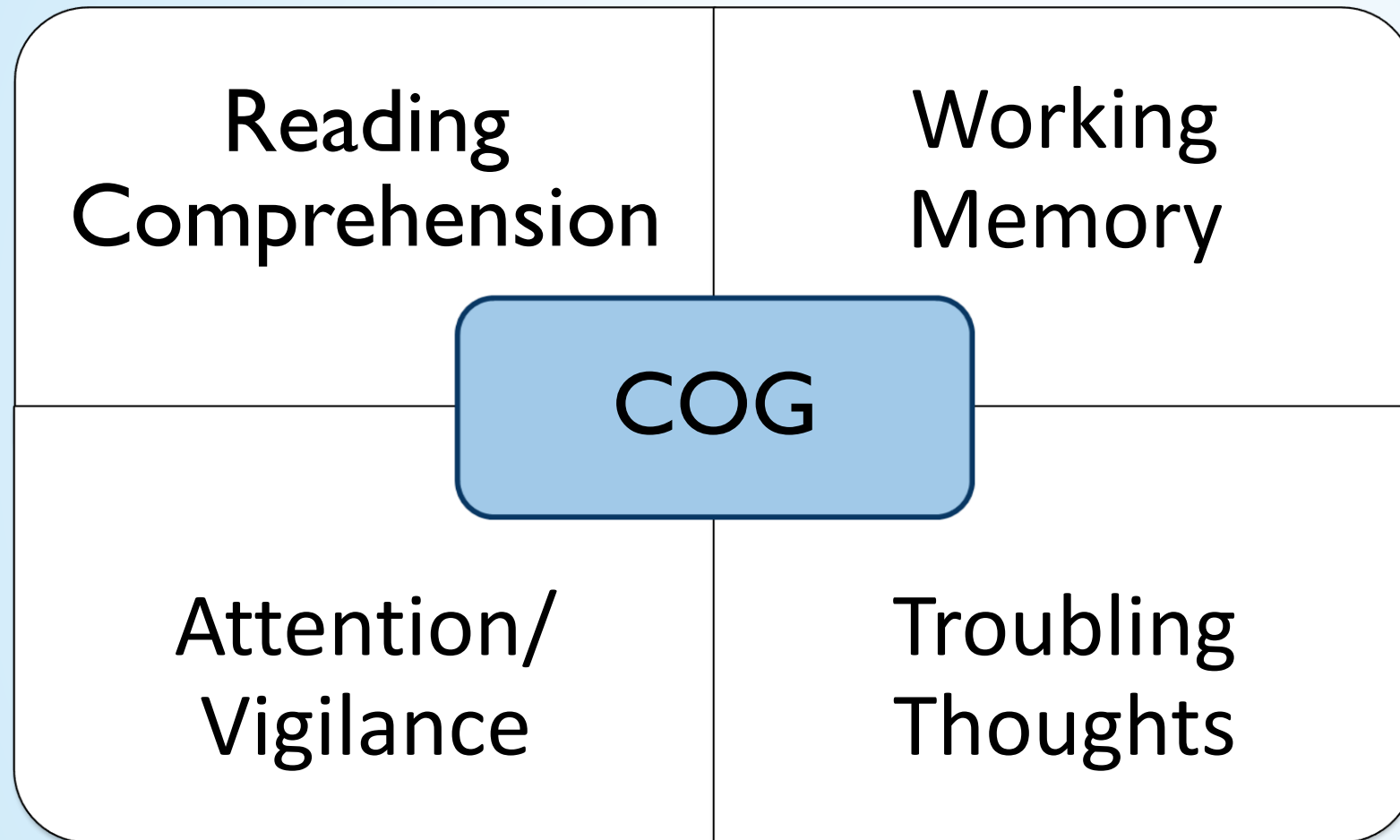
VRIN-r

Cognitive  
Problems

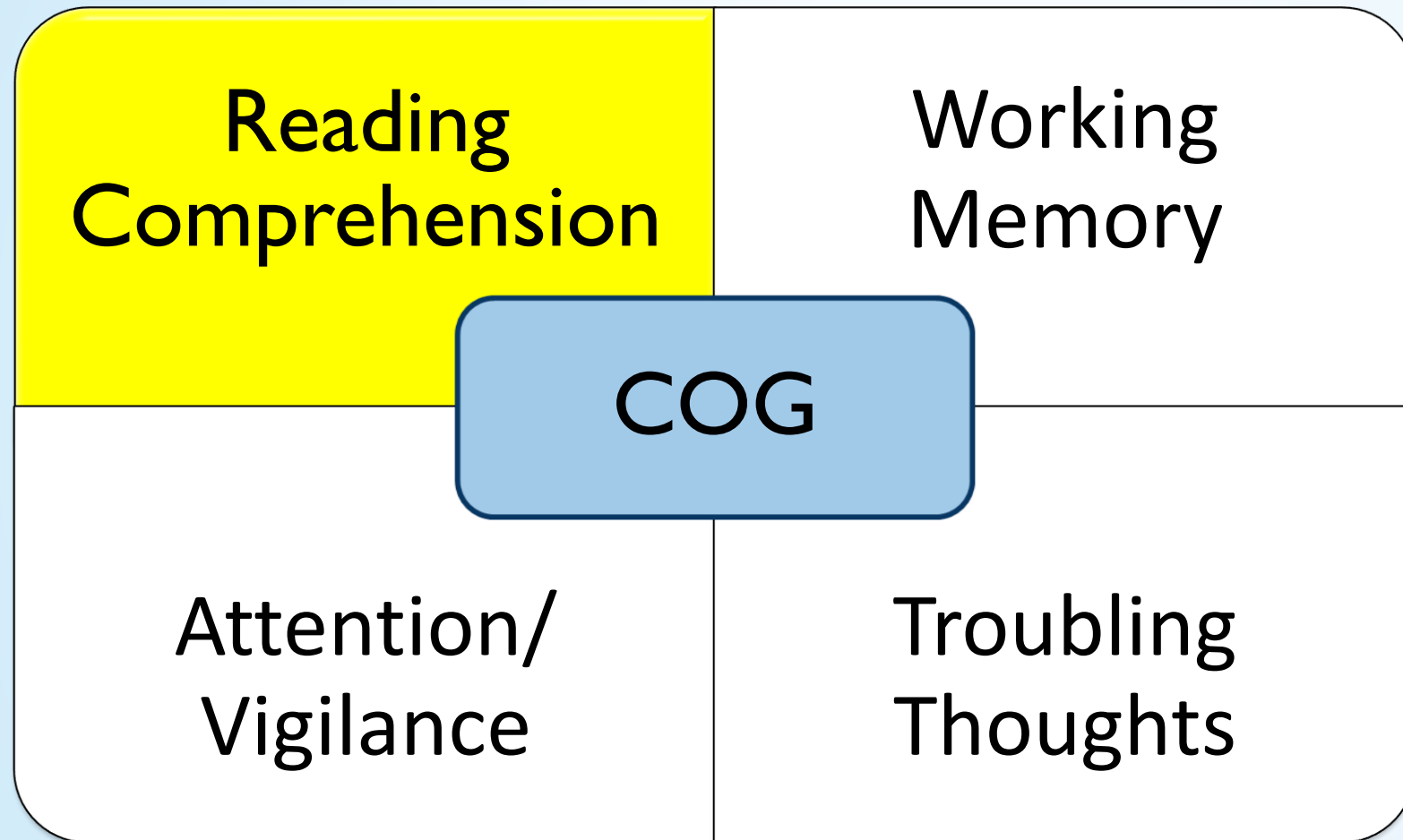
Fatigue



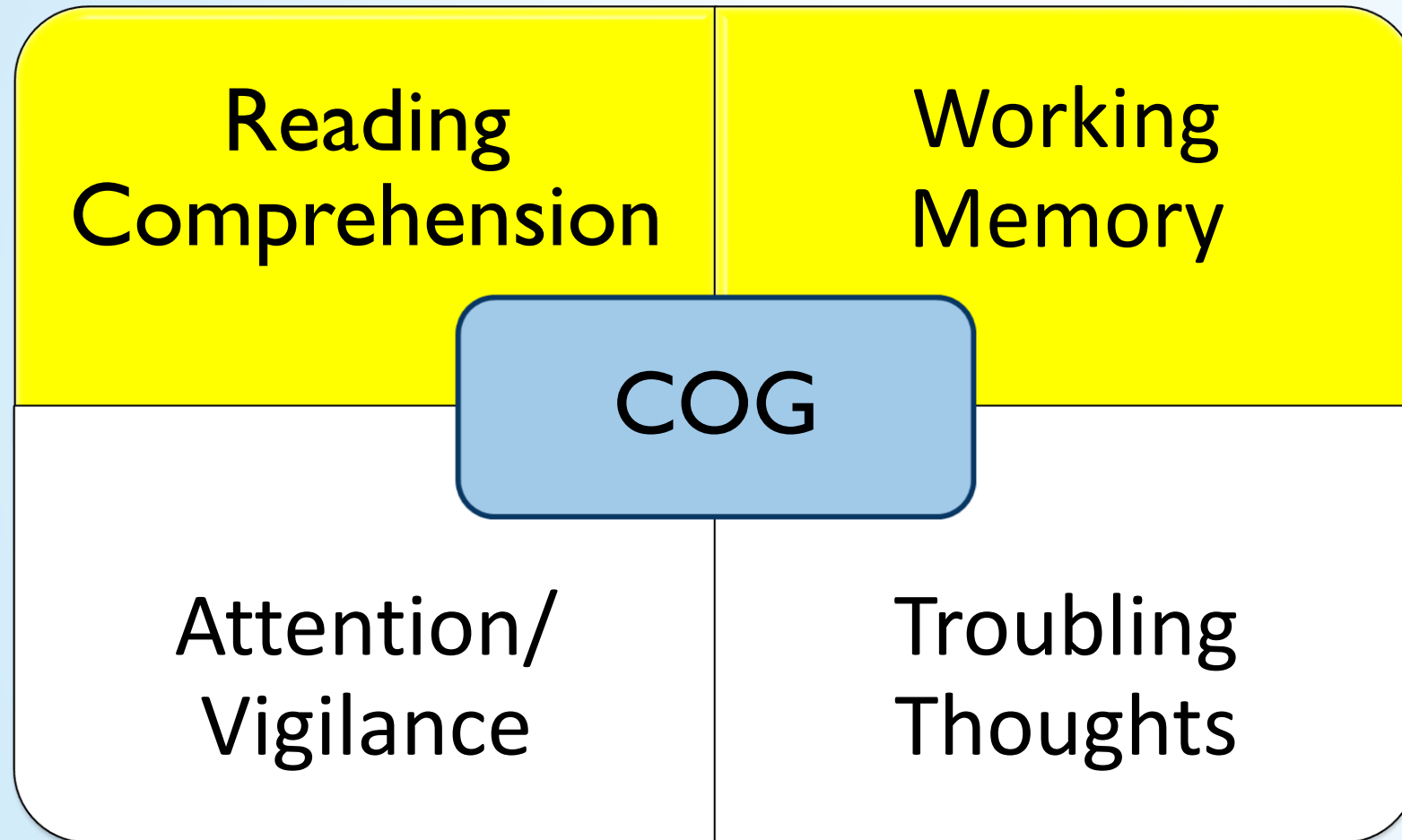
# Cognitive Complaints (COG) Scale



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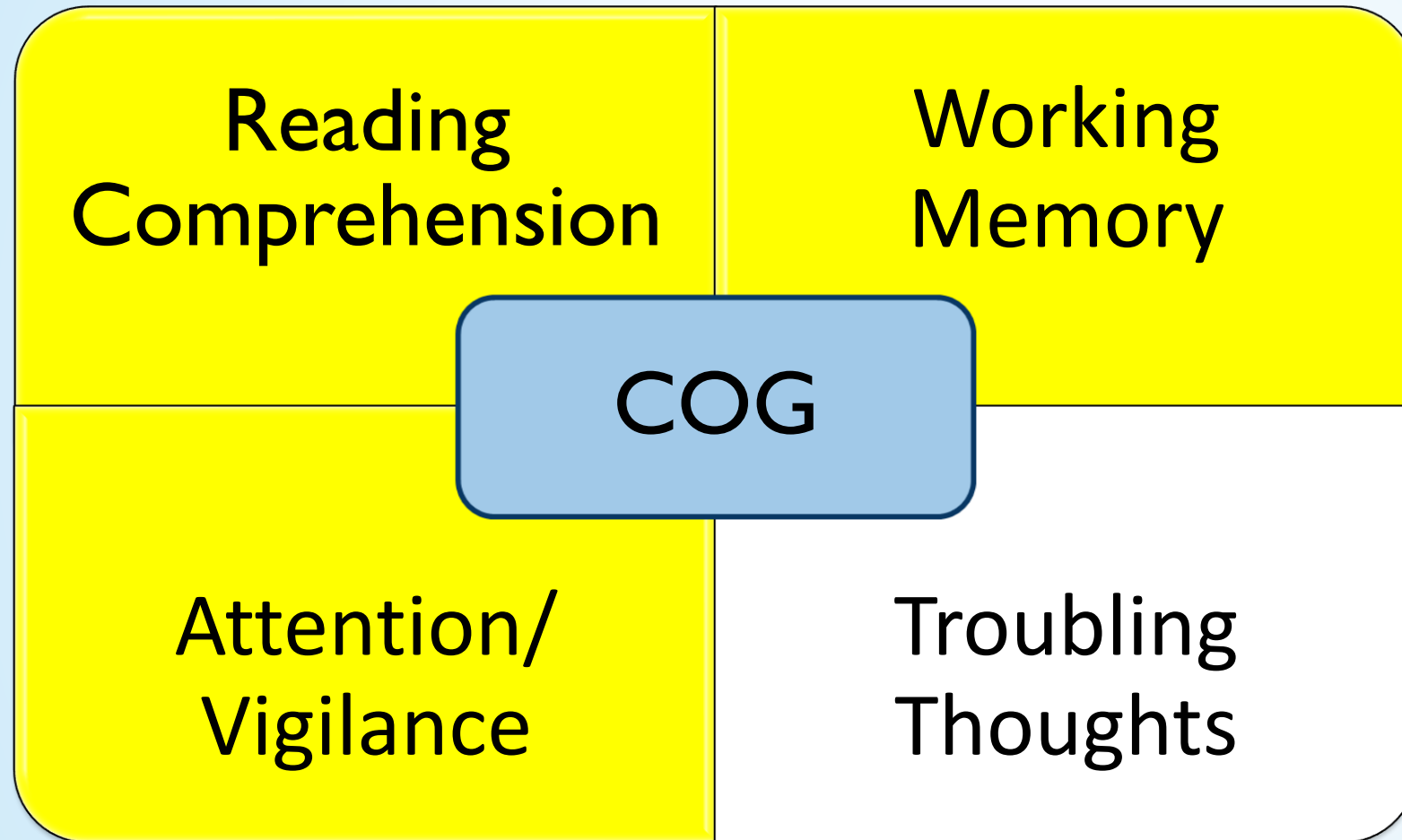


# Cognitive Complaints (COG) Scale



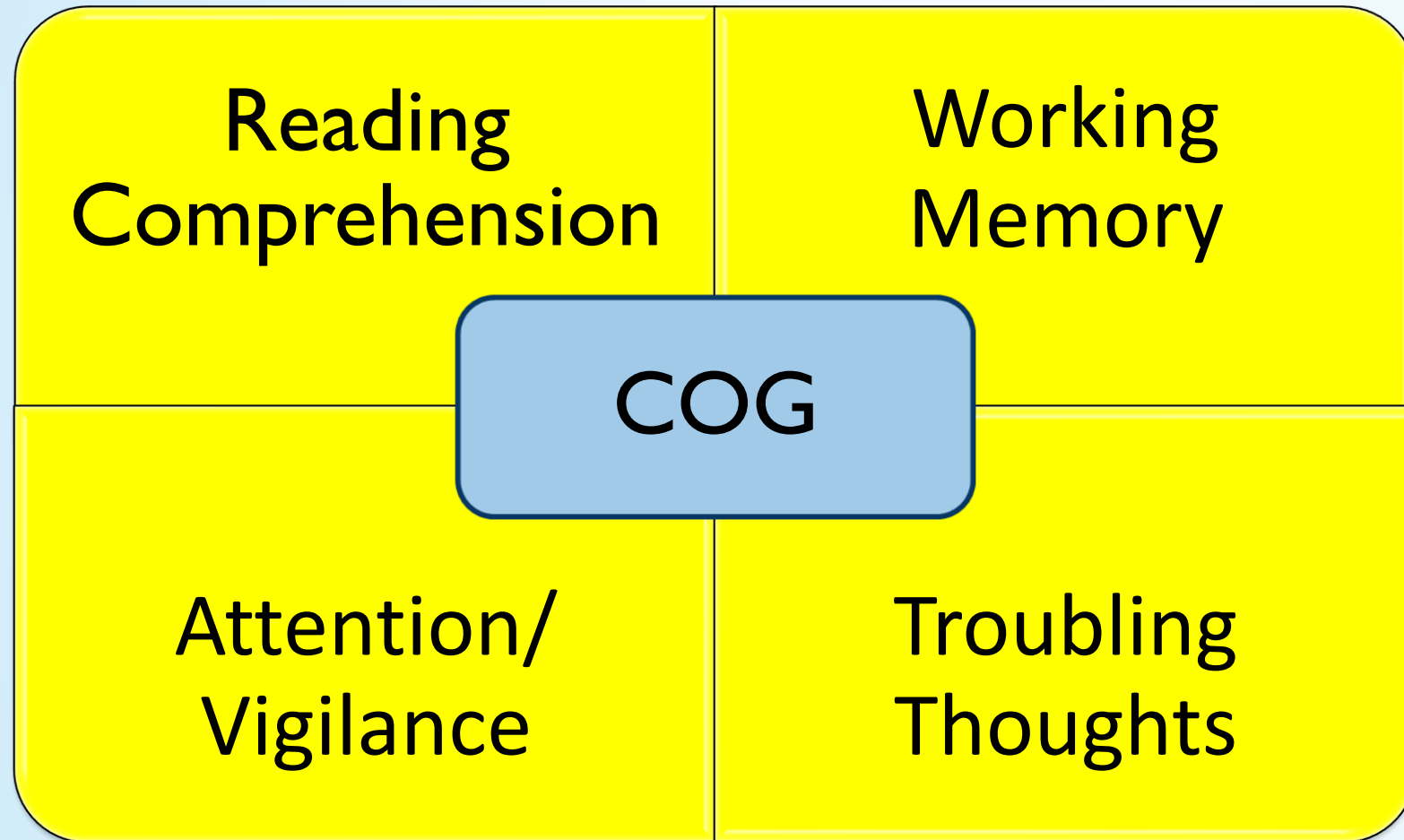


# Cognitive Complaints (COG) Scale





# Cognitive Complaints (COG) Scale



# Procedures: RQ I



Young  
(18-34 years)

Middle  
(35-49 years)

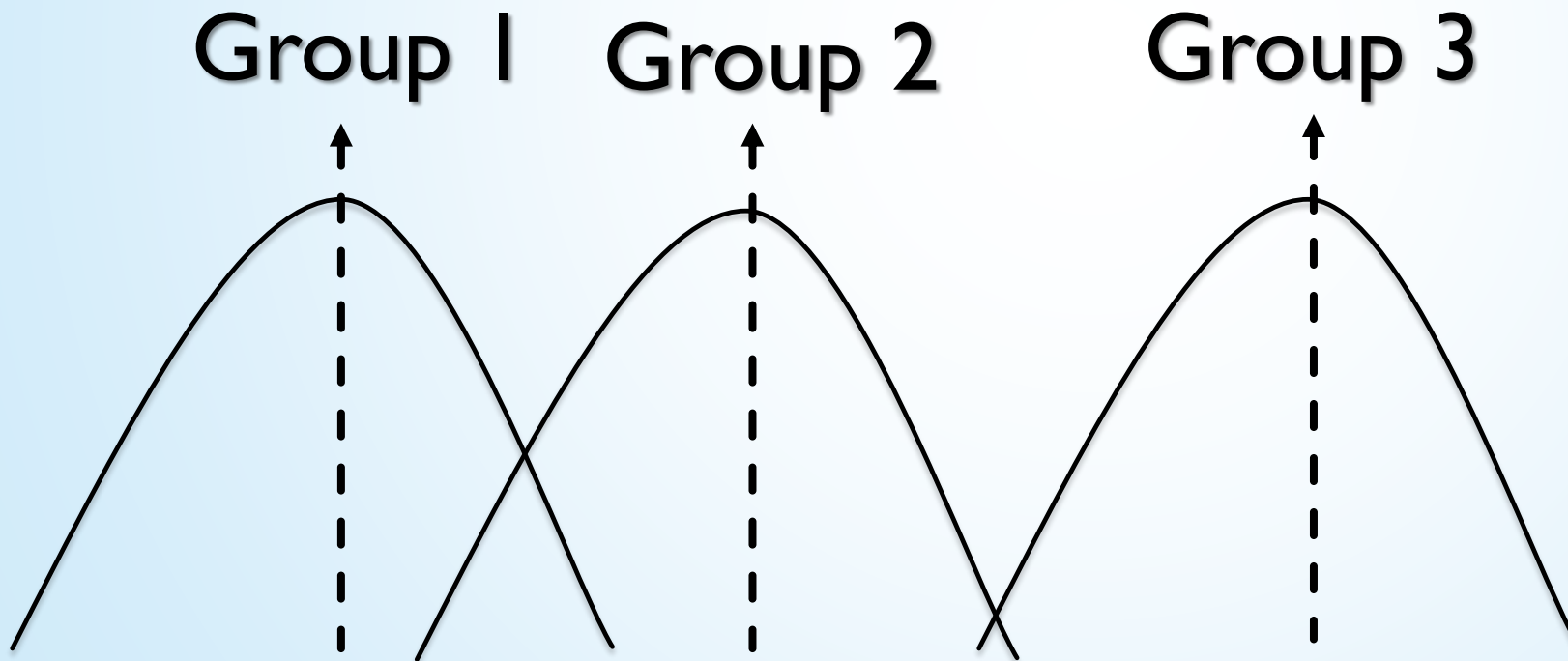
Older  
( $\geq 50$  years)

Removed Invalid Protocols for COG analyses

# Procedures for Research Question 1



- ➔ Analysis of Variance (ANOVA) to compare mean scores across 3 groups



# Procedures: RQ 2



## Schizophrenia (Sz)

Sz Only

Sz + Mood

Young

Young

Middle

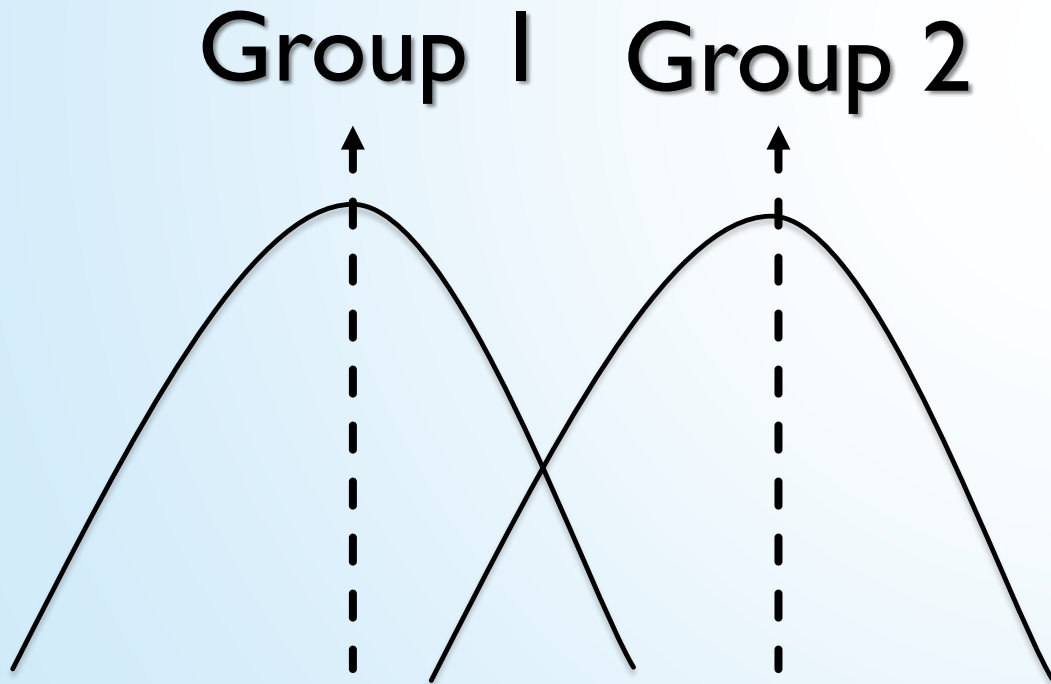
Middle

Older

Older

# Procedures for Research Question 2 🙄

- ➡ Independent Samples  $t$ -tests to compare mean scores across 2 groups



# Procedures for Research Question 2

Sz Only

Sz Mood

Young

Young

Middle

Middle

Older

Older

# Procedures for Research Question 2

Sz Only

Sz Mood

Young

Young

Middle

Middle

Older

Older

# Procedures for Research Question 2

Sz Only

Sz Mood

Young

Young

Middle

Middle

Older

Older



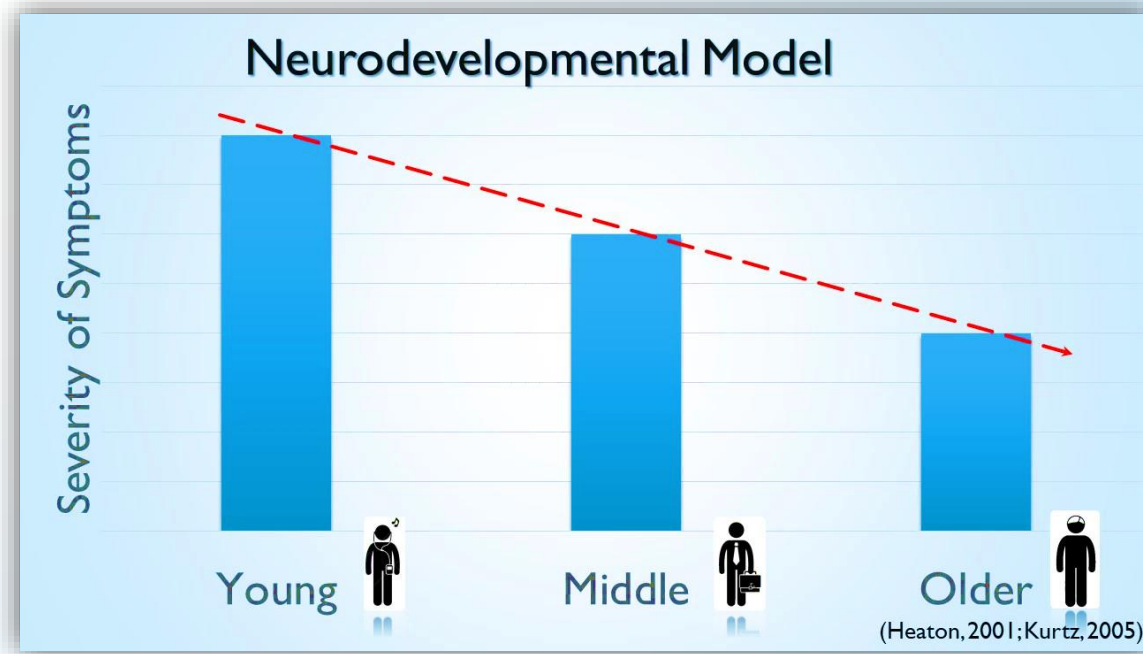
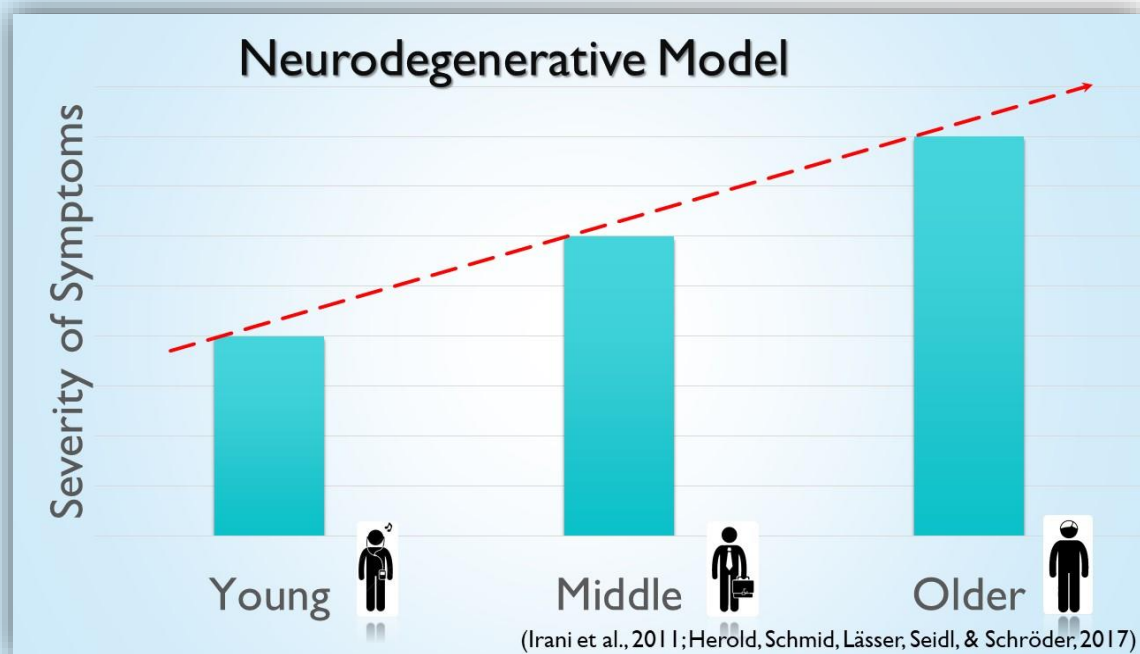


# Results

# Research Question 1



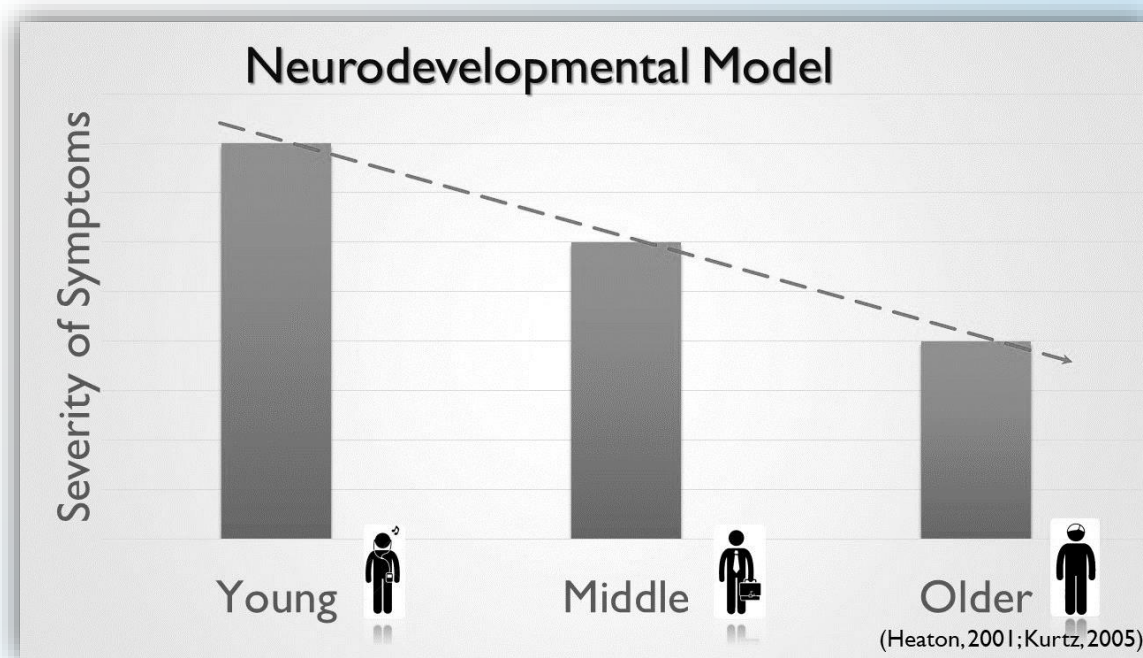
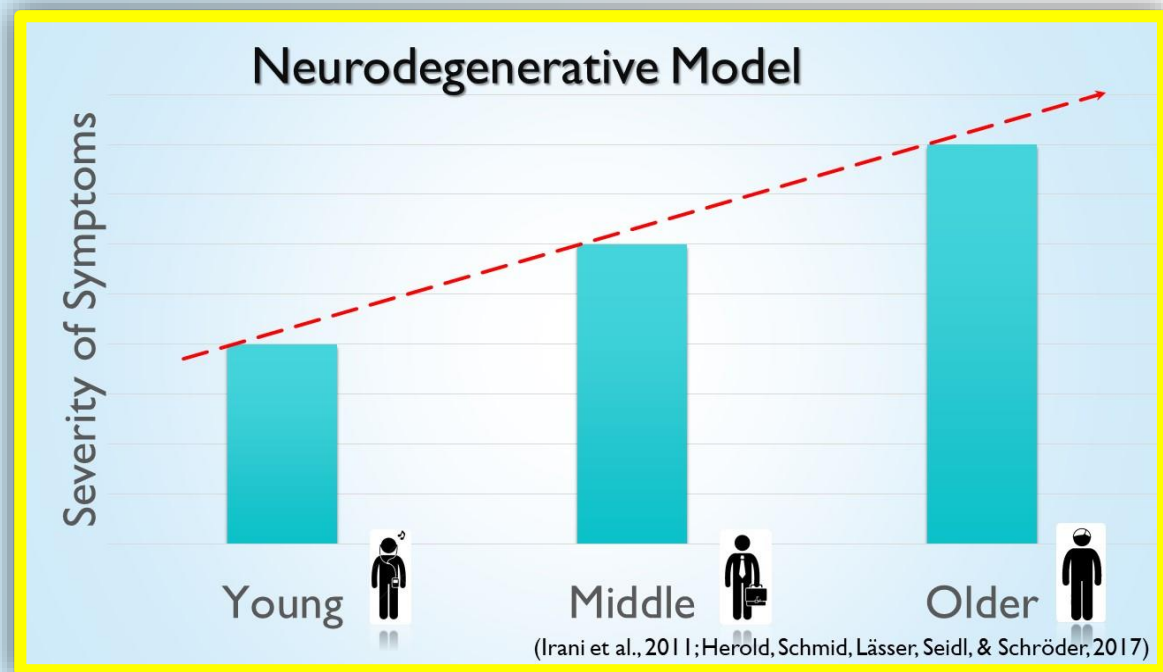
What is the trajectory of cognitive symptoms for patients as they age?



# Research Question 1



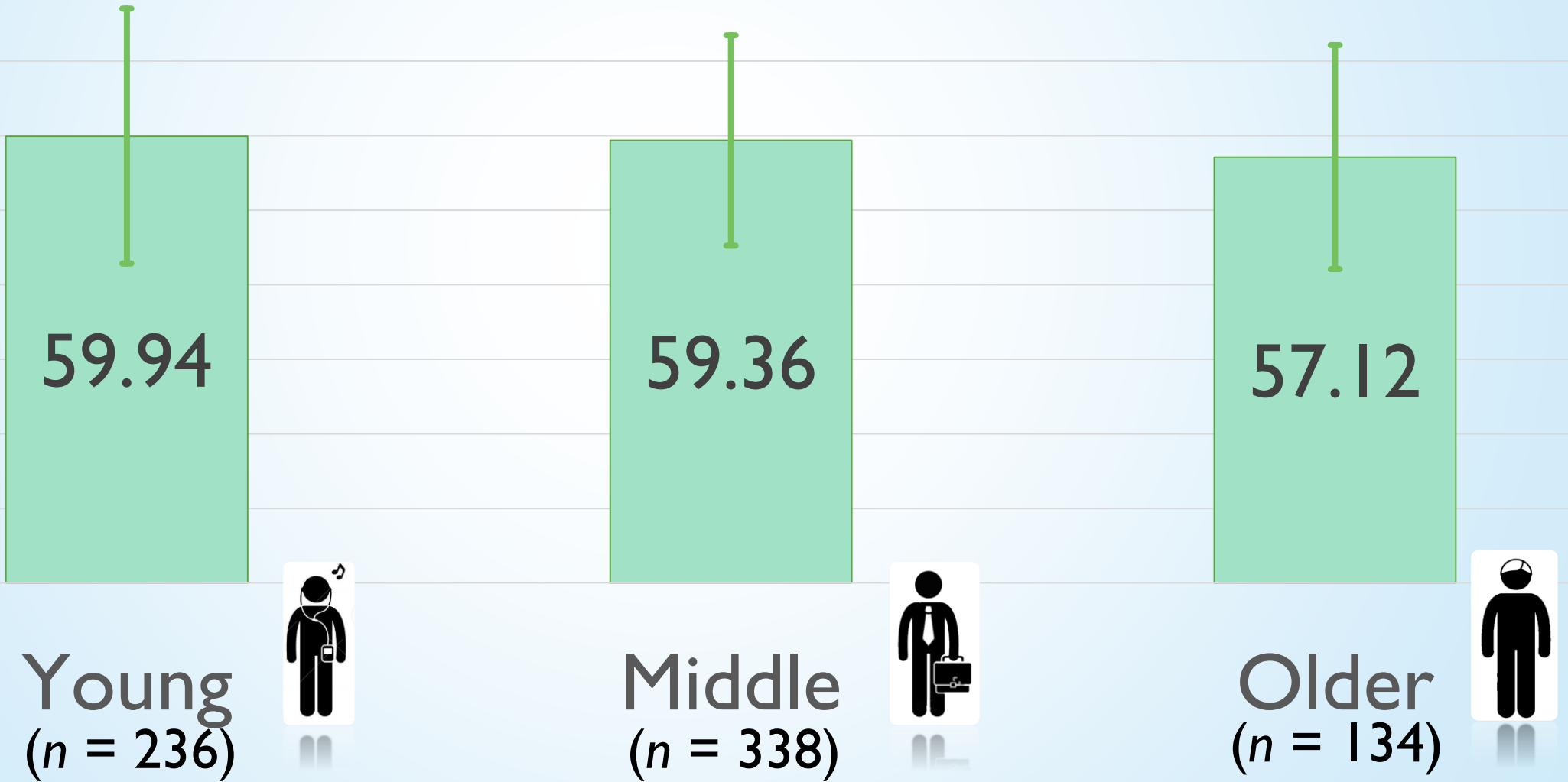
## Hypotheses: Neurodegenerative Trajectory



# VRIN-r ANOVA Results



Severity of Symptoms

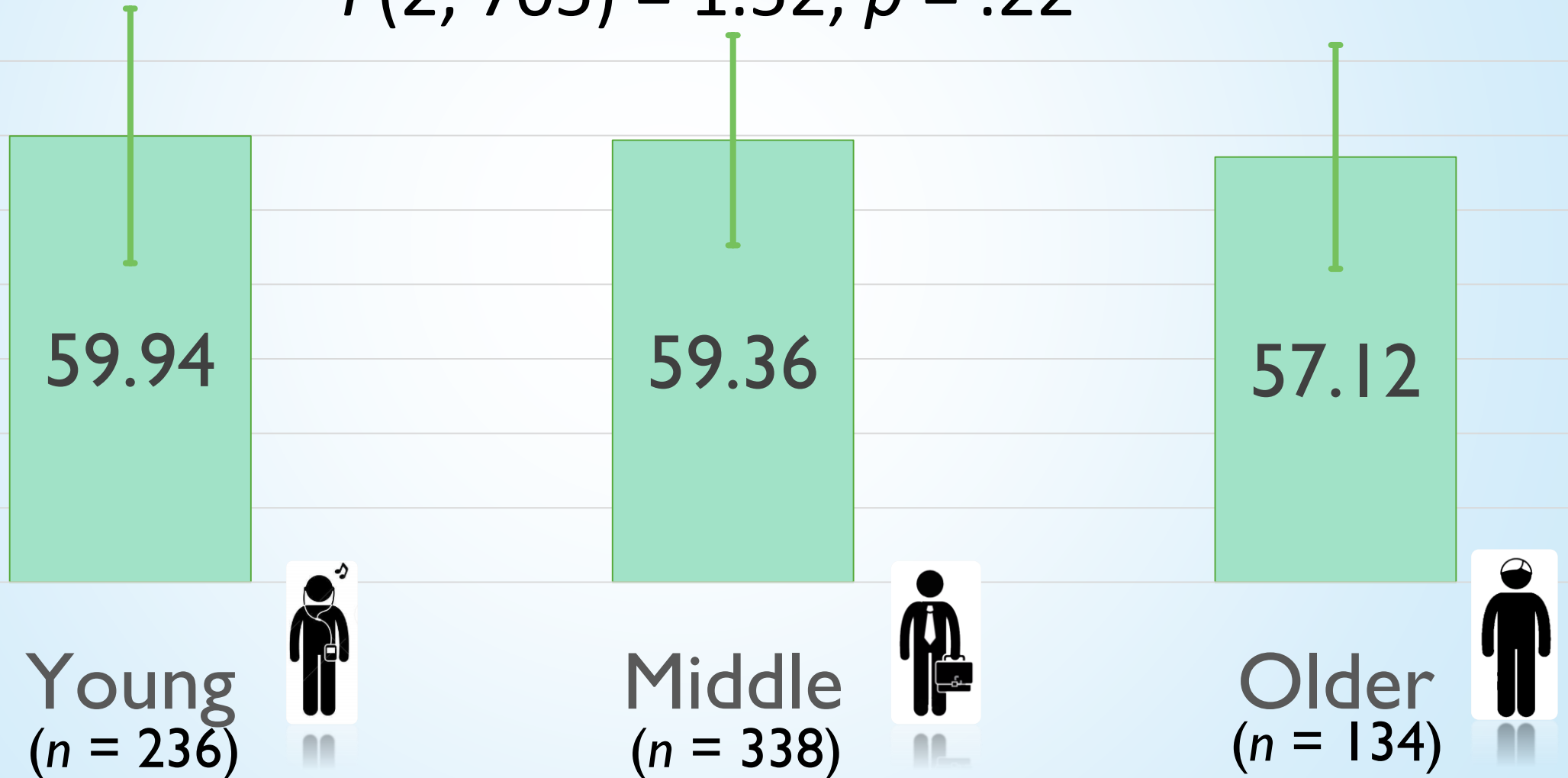


# VRIN-r ANOVA Results

No significant differences were found

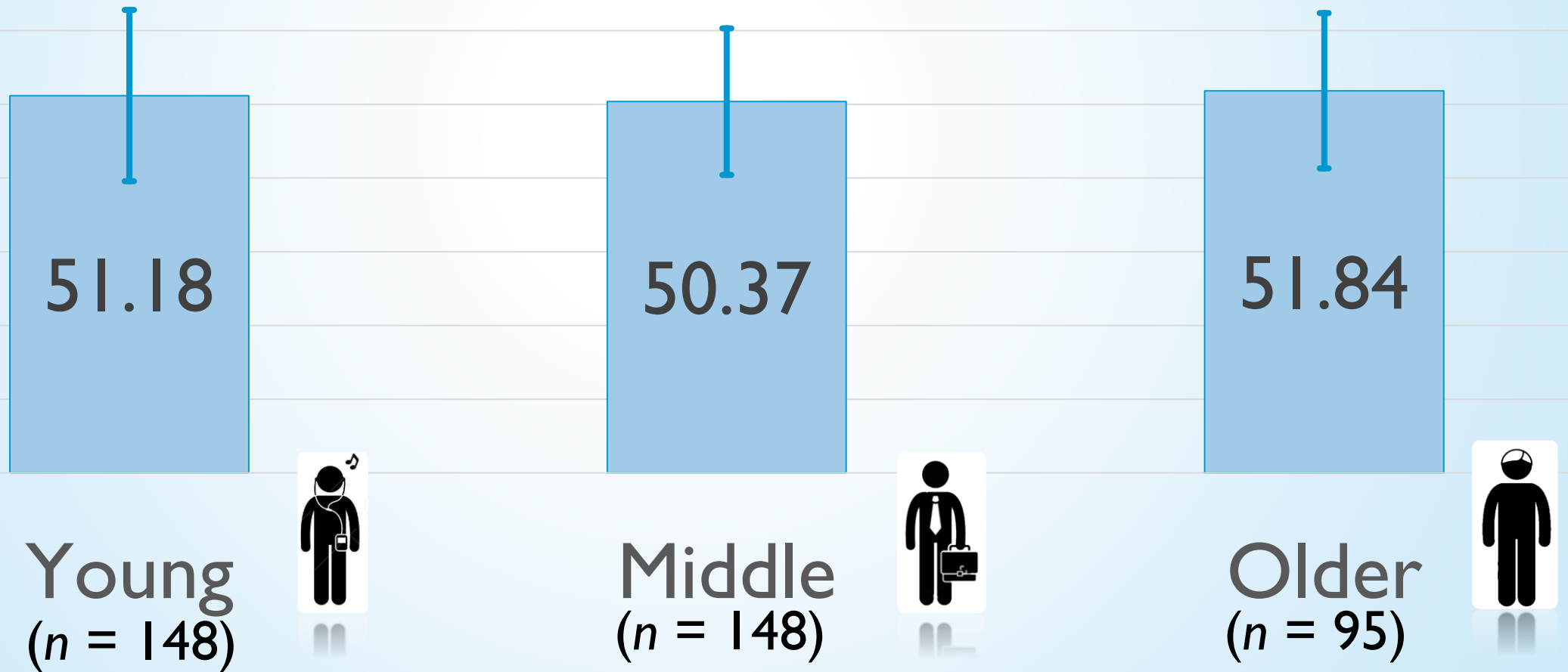
$$F(2, 705) = 1.52, p = .22$$

Severity of Symptoms



# COG ANOVA Results

Severity of Symptoms

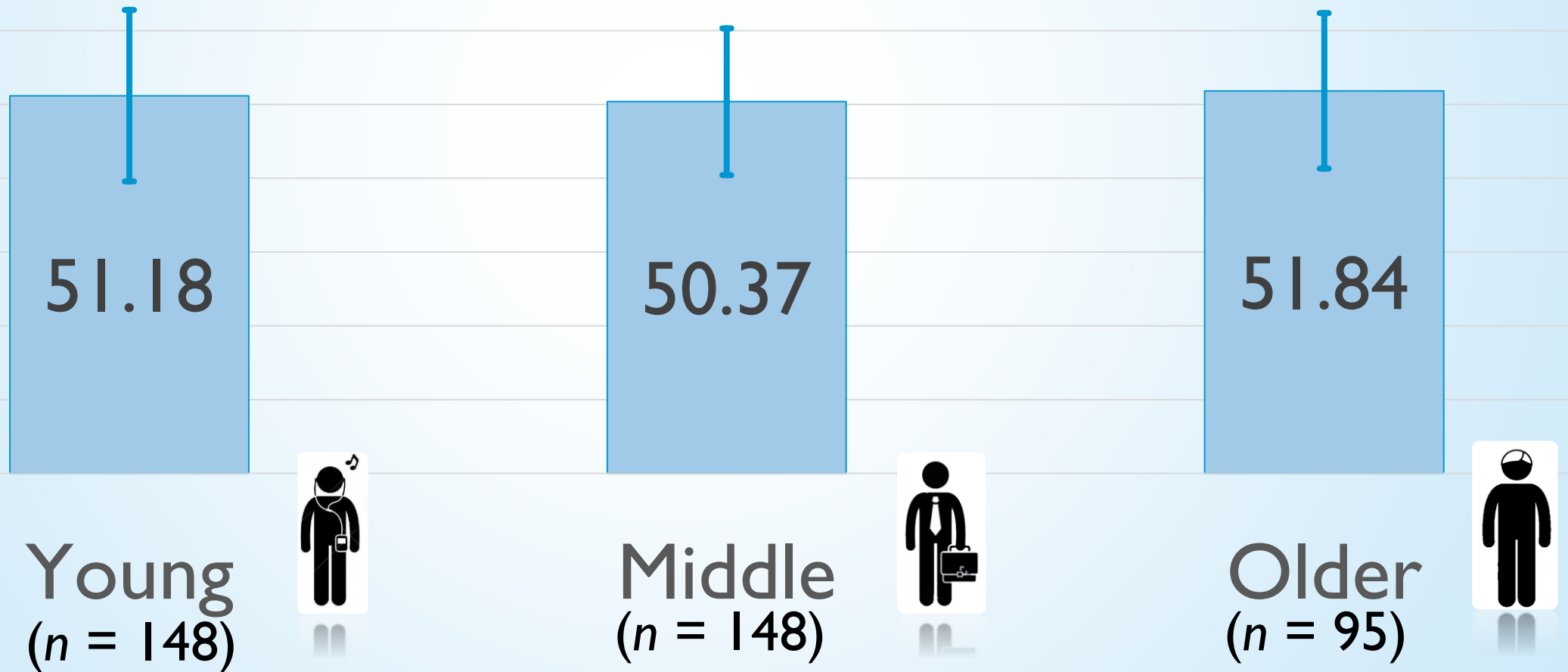


# COG ANOVA Results

No significant differences were found

$$F(2, 456) = .69, p = .51$$

Severity of Symptoms

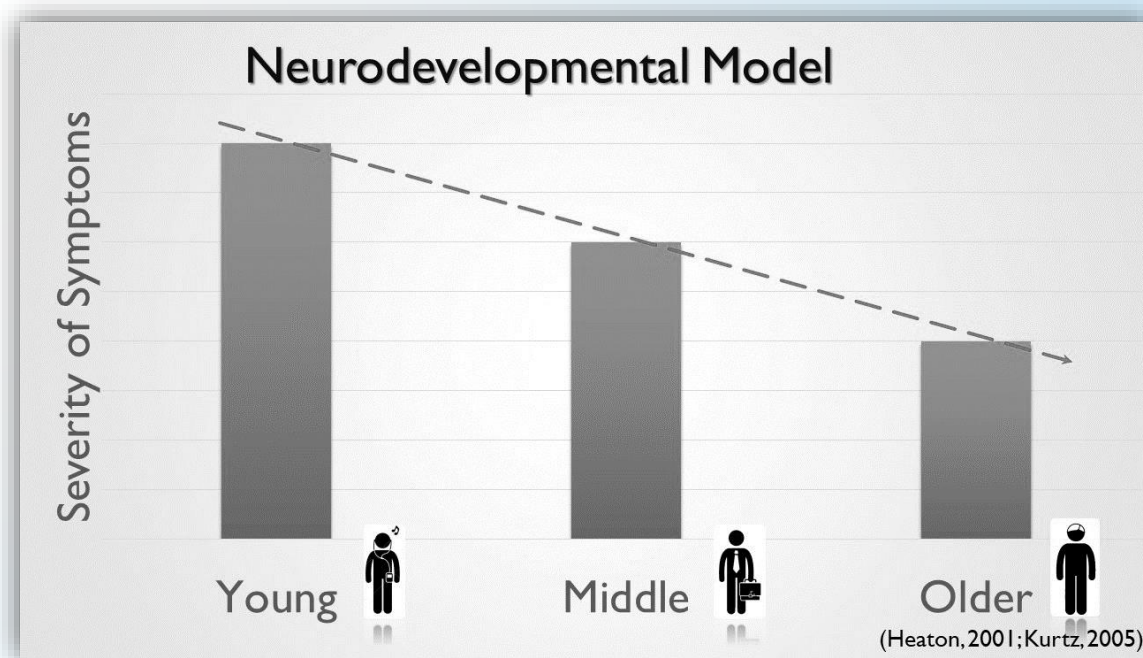
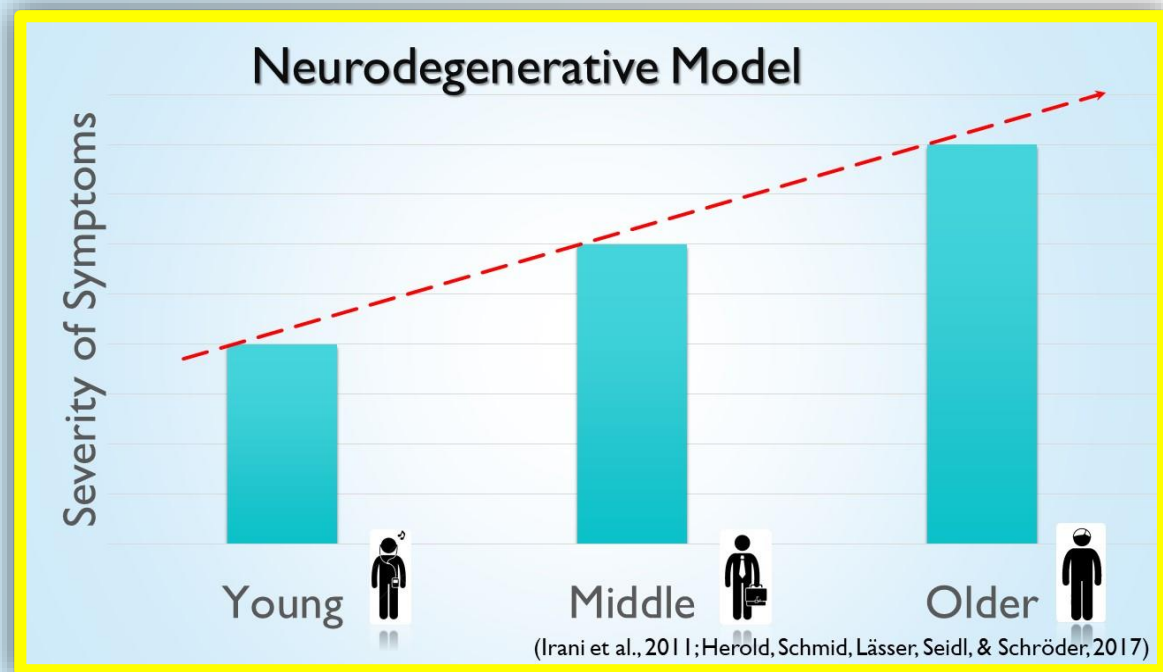




# Research Question 1

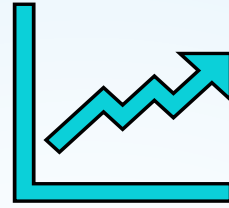


## Hypotheses: Neurodegenerative Trajectory





# Research Question 1



## Results: Neither Trajectory



## Research Question 2

How would comorbid mood disorders impact cognitive symptom severity?

### **Exploratory Analyses:**

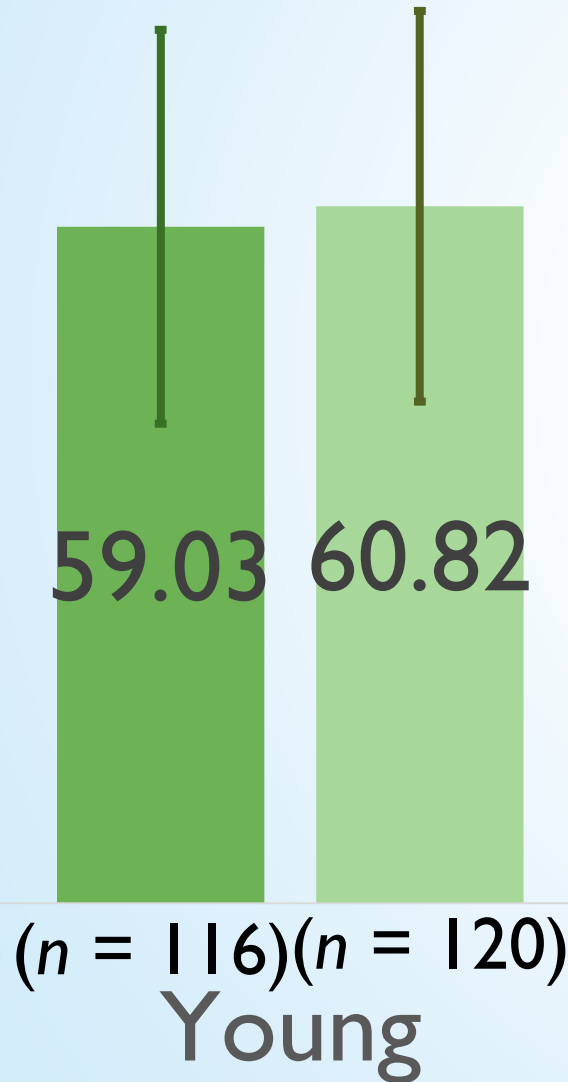
Due to the limited and mixed research, we could not form formal hypotheses

# VRIN-r Independent Samples *t*-test Results



■ Sz Only   ■ Sz + Mood

VRIN-r Mean Scores

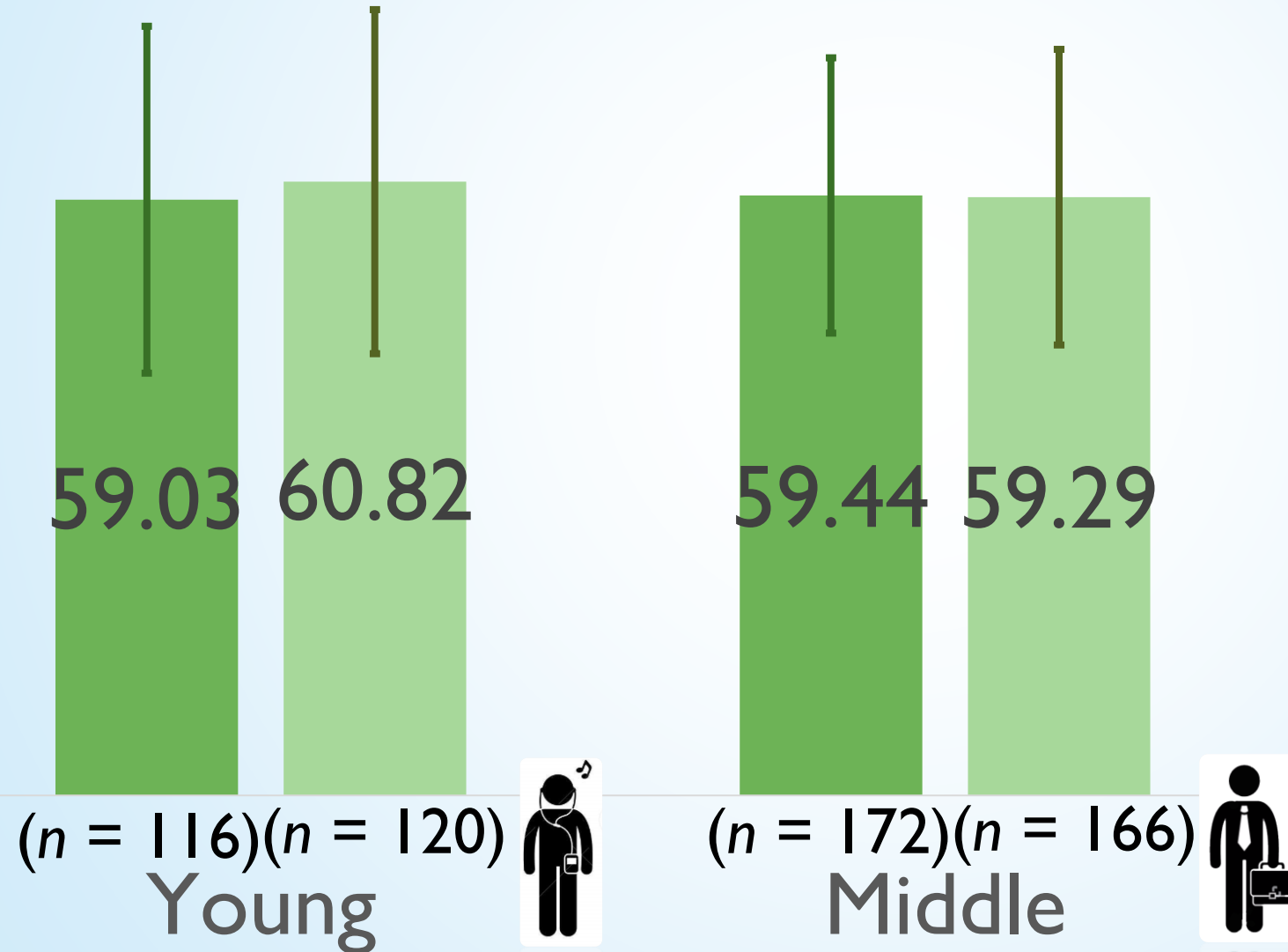


# VRIN-r Independent Samples *t*-test Results



■ Sz Only    ■ Sz + Mood

VRIN-r Mean Scores



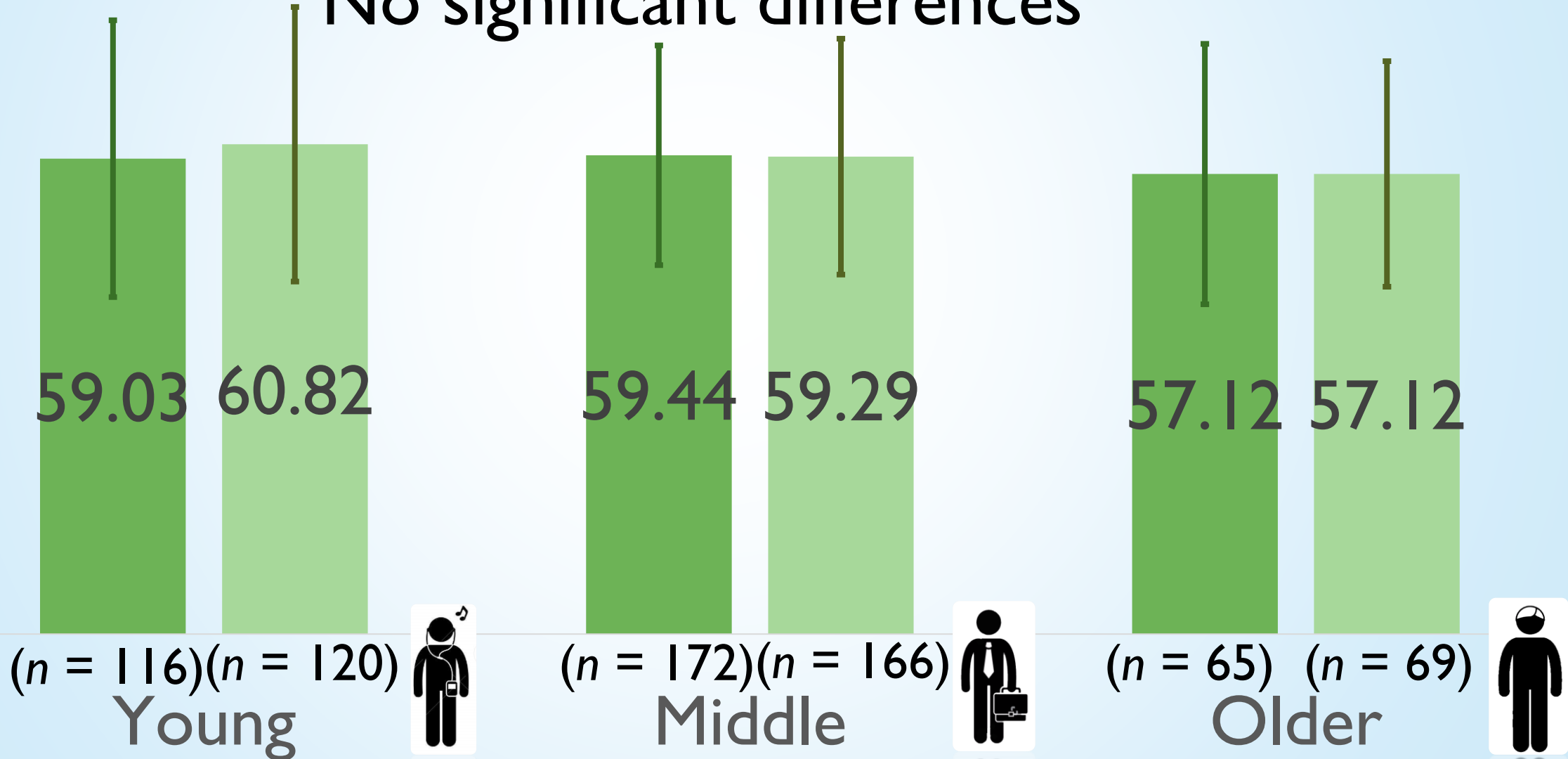
# VRIN-r Independent Samples *t*-test Results



■ Sz Only ■ Sz + Mood

No significant differences

VRIN-r Mean Scores

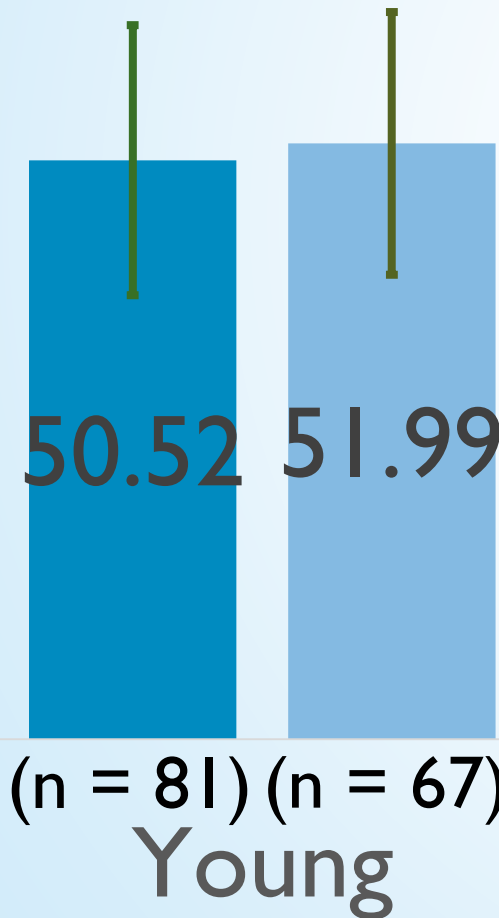


# COG Independent Samples *t*-test Results



■ Sz Only   ■ Sz + Mood

COG Mean Scores



(n = 81) (n = 67)

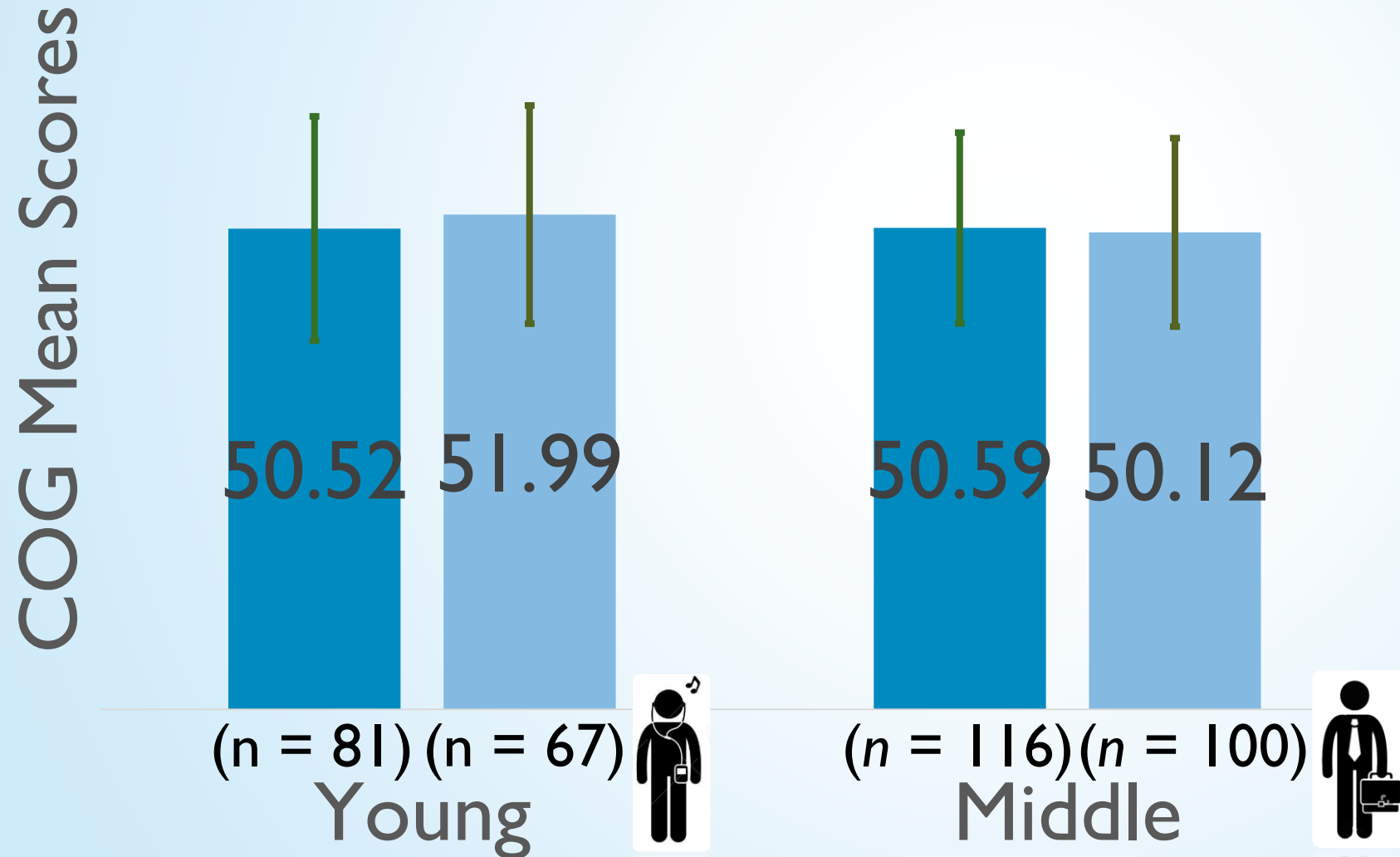
Young



# COG Independent Samples *t*-test Results



■ Sz Only   ■ Sz + Mood





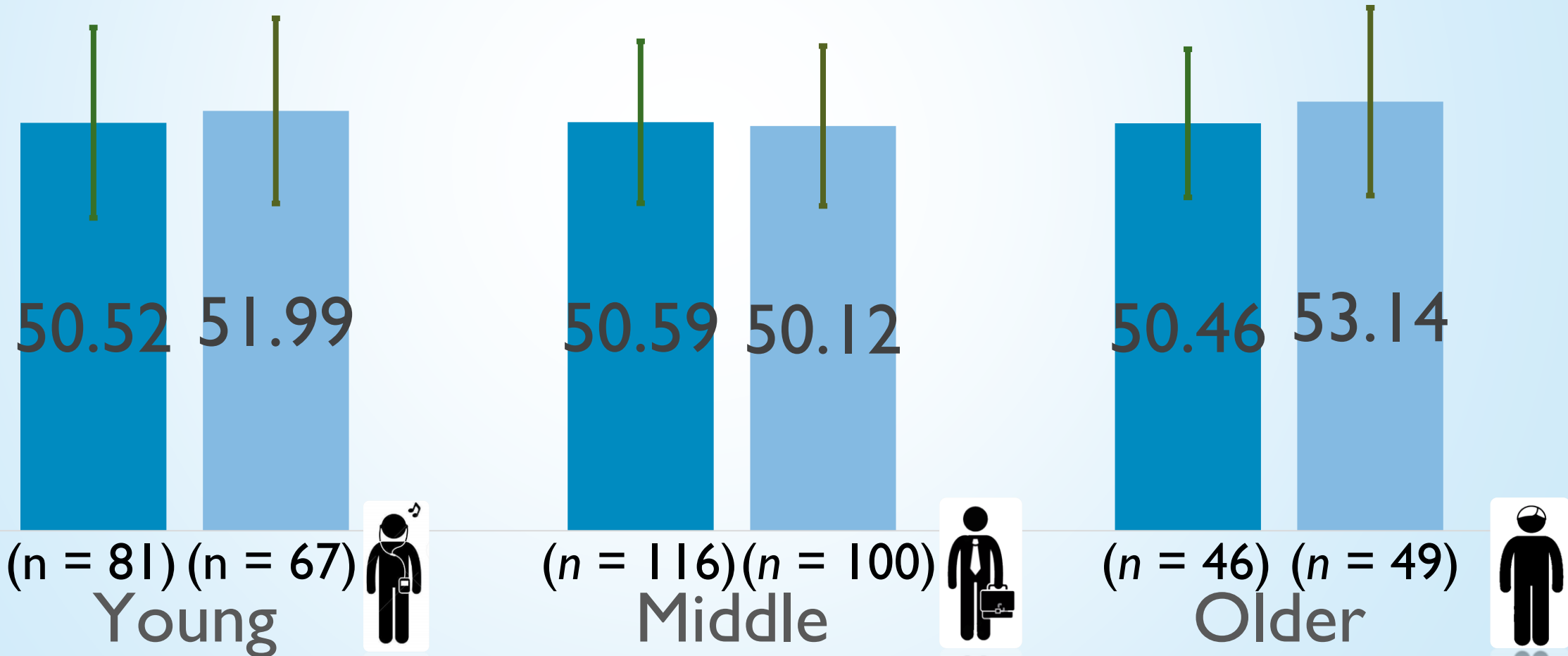
# COG Independent Samples *t*-test Results



■ Sz Only   ■ Sz + Mood

No significant differences

COG Mean Scores





## Research Question 2



### **Results:**

Comorbid mood disorders did not significantly impact cognitive symptom severity.



# Conclusions & Future Directions

## Research Question 1



Patients may not experience increased cognitive symptom severity as they age

## Research Question 2



Having mood disorders may not impact cognitive dysfunction

# How does this inform Clinicians?

Clinicians may not have to worry about cognitive symptoms worsening over time due to age

Comorbid mood disorders may not impact the level of treatment needed for cognitive symptoms

# Future Directions in Research

Use more direct and specific measures of cognitive symptoms

Among larger samples and younger age groups

Controlling for additional variables

# Acknowledgements

- ➡ **Mentor:** Danielle Burchett, PhD  
Department of Psychology
- ➡ **Collaborator:** David M. Glassmire, PhD, APPB



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**Thank you!**

**Questions?**

# DSM-IV-TR Diagnostic Codes

## Schizophrenia Only

**Schizophrenia Disorders:** 295.10, 295.30, 295.40, 295.50, 295.60, 295.90

## Schizophrenia with Mood

**Schizoaffective Disorder:** 295.70, 295.770

**Depressive/Anxiety Disorders:** 296.22, 296.24, 296.30, 296.31, 296.32, 296.34, 296.35

**Bipolar Disorders:** 296.00, 296.40, 296.41, 296.42, 296.43, 296.44, 296.45, 296.46, 296.50, 296.51, 296.52, 296.53, 296.54, 296.55, 296.60, 296.7, 296.70, 296.62, 296.64

## Excluded from Analyses:

**Drug-Induced Psychotic Disorders:** 291.3, 291.50, 292.10, 292.11, 292.12

**Psychotic Disorders due to Medical Condition:** 293.81, 293.82

**Mood Disorders due to Medical Condition:** 293.83

**Delusional Disorders, Brief Psychotic Disorder, Psychotic Disorder NOS:** 297.10, 298.8, 298.9