

# Personality and its Effect on Cognition at an Older Age

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# Overview and Significance

- **Aging population**

Cognitive decline affects millions of people in the growing elderly population

- **Relational Burden**

- Can be extremely debilitating and emotional for individual, family, and caregiving relationships
- 60% of dementia caregivers rate emotional stress as high or very high
- One-third report symptoms of depression

- **Types**

- Mild Cognitive Impairment
- Dementia and mixed Dementia
- Alzheimer's

- **Economic Burden**

- Cost of care to healthcare system, families, and federal budget.
- Unpaid care from families valued at \$210 billion dollars in 2011
- Medicare costs for those with dementia are three times higher than those without

**There are no effective treatments for cognitive decline and often only slow the process**

# Aims of Project

## Known Risk Factors

Research already suggests lifestyle and environmental risk factors such as:

- Family History
- Smoking and Alcohol Use
- Physical Inactivity
- High Blood Pressure

## Proposed Risk Factor: Personality

Investigate personality as a risk factor:

- Neither lifestyle or environmental
- Different personality components
- How it may indicate future cognitive decline

## Understand and Inform

Understanding risk factors for cognitive decline and impairment can be used to:

- Better inform treatment practices
- Identify risk early on
- Minimize decline

## Split personality into the 5 factor model (FFM)

### Personality Measures

- Neuroticism
- Conscientiousness
- Openness
- Agreeableness
- Extraversion

Inventories and questionnaires assign numerical values to the degrees of personality traits demonstrated

# Secondary data from the Midlife in the United States dataset (MIDUS)

- Longitudinal Study of Health and Well-Being at midlife
- Wave 1: includes personality measures
- Subset for individuals aged 50+ and merge waves 1 and 2 (n = 1549)
- Wave 2 (10 years after): cognition measures

# Cognition Domains

MIDUS measures the following:

Immediate Memory

Delayed Memory

Digit Score (measure of working memory)

Backward Counting Score (measure of speed)

Number Series Score (measure of fluid intelligence)

Verbal Score

**We created:**

Total BTACT and Summed Memory



# Findings

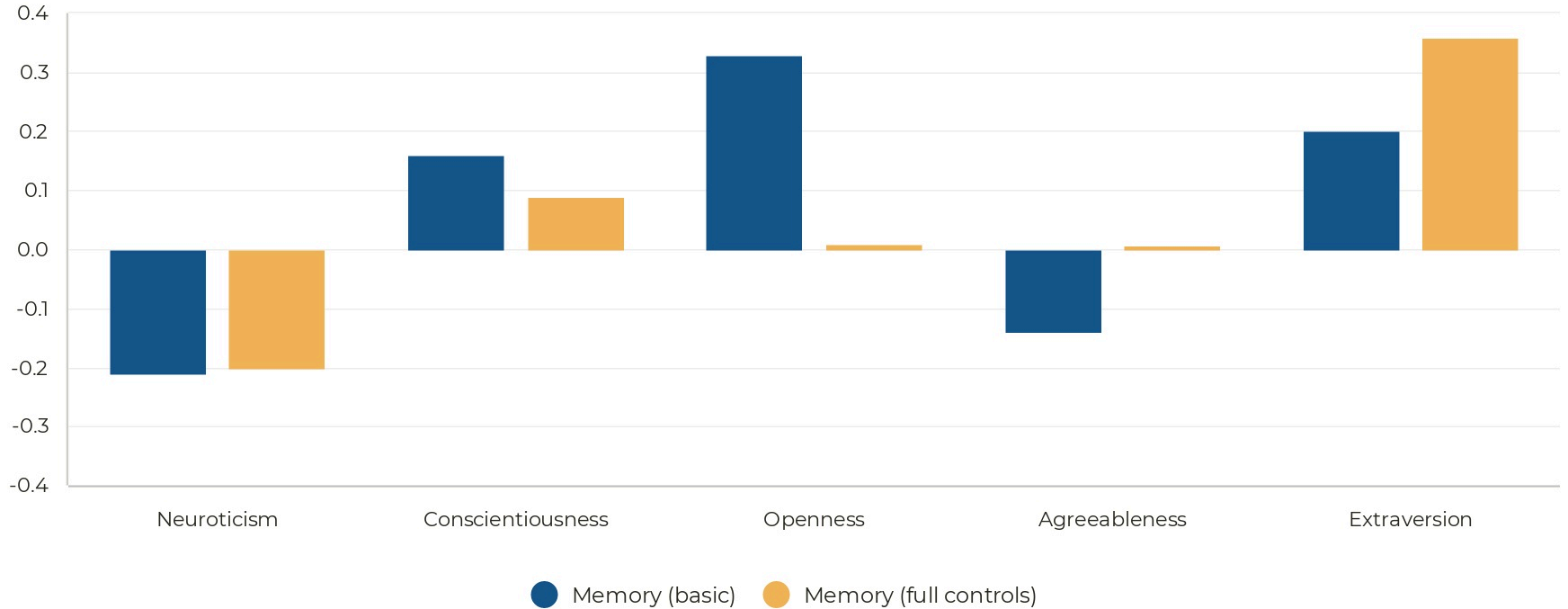
Coefficients for Standard Regression Analysis

	Memory (basic controls)	Memory (full controls)	Total Cognition (basic)	Total Cognition (full controls)
Neuroticism	-0.21*	-0.2*	-0.74*	-0.4
Conscientiousness	0.16	0.09	0.84*	0.42
Openness	0.33*	0.01	2.02*	0.25
Agreeableness	-0.14	0.01	-1.86*	-0.93*
Extraversion	0.2	0.36*	0.3	1.02*

Variables Standardized (z-score), \*Statistically significant

# Findings

Graphical Representation





# Findings

## Other Notable Results

- Agreeableness displays inconsistent relation across domains
- Openness is the most significant trait for verbal score
- Extraversion surprisingly significant for certain outcomes
- When comparing to subset of 25-49, magnitudes and significance tend to be often similar

# Further Work to be Done

While we may be able to understand the onset and risk factors of cognitive decline...

## 1 Disparities in those Affected

- Disproportionately prevalent in African American, Hispanic, and uneducated populations

## 2 Historically Excluded Groups

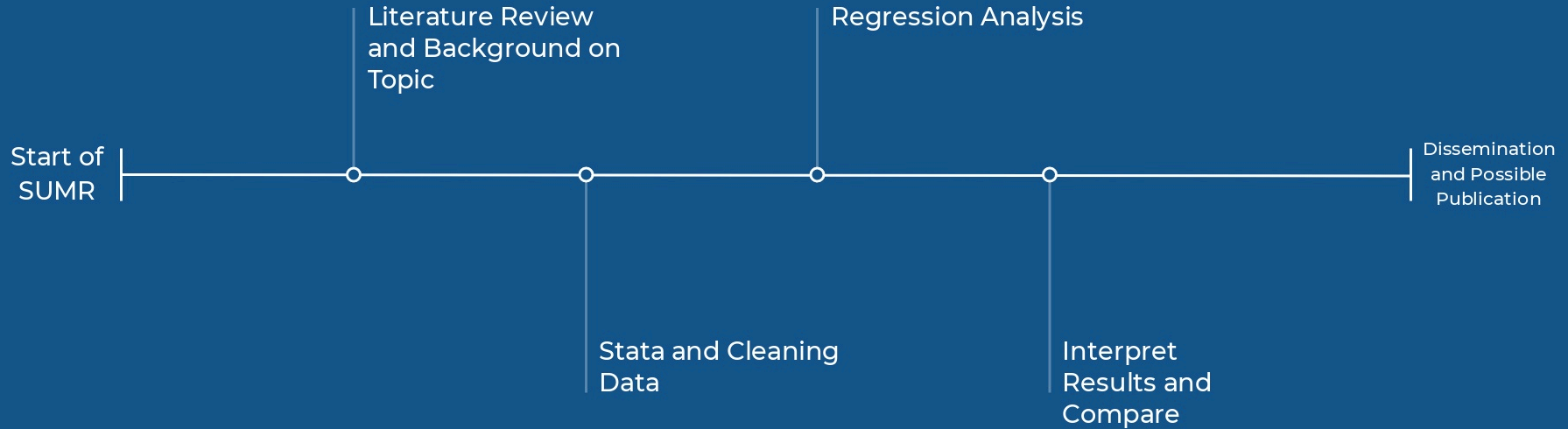
- Research focuses primarily on White and college educated individuals

## 3 Access to Long Term Care

- Reduce cost and who can access treatment

## 4 Develop and Implement More Effective Treatments

# My Role this Summer



# Lessons Learned



You Get Rusty!



The Value in Being Careful and Meticulous



Passion for Long Term Care

## Acknowledgements

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Questions

# Background

Immediate Memory: recall words from a list immediately after hearing

Delayed Memory: recall words after a delay

Digit Score (measure of working memory): Repeat numbers from a list

Backward Counting Score (measure of speed): Subtracting numbers

Number Series Score (measure of fluid intelligence): Identifying patterns in numbers

Verbal Score: Comprehend a passage of text

# Background

Basic Controls: age, sex, race

Social Controls: marriage status, years of schooling

Health Controls: self rated health, bmi, physical activity,  
number of chronic diseases, smoking status