



# Personality Changes with Dementia From The Informant Perspective: New Data and Meta-analysis

Maheen Islam, M.S.  
Mridul Mazumder, M.D.  
Derek Schwabe-Warf, M.S.  
Yannick Stephan, Ph.D.  
Angelina R. Sutin, Ph.D.  
Antonio Terracciano, Ph.D.

# Purpose

- Examine changes in personality in individuals with mild cognitive impairment (MCI) or dementia.
  - Changes observed by family members (informants)
- Used new data and a meta-analysis with the published literature.
- New data: To what extent cognitive scores and cognition enhancing medications (e.g. Cholinesterase inhibitors) moderate the level of personality change?
- Meta-analysis: Do personality changes differ across MCI, Alzheimer's disease (AD), and related dementias?

# Five Factor Model

## EXTRAVERSION

- Friendliness, Gregariousness, Assertiveness, Activity Level, Excitement-Seeking, Cheerfulness

## AGREEABLENESS

- Trust, Morality, Altruism, Cooperation, Modesty, Sympathy

## CONSCIENTIOUSNESS

- Self-efficacy, Orderliness, Dutifulness, Achievement-striving, Self-discipline, Cautiousness

## NEUROTICISM

- Anxiety, Anger, Depression, Self-consciousness, Immoderation, Vulnerability

## OPENNESS TO EXPERIENCE

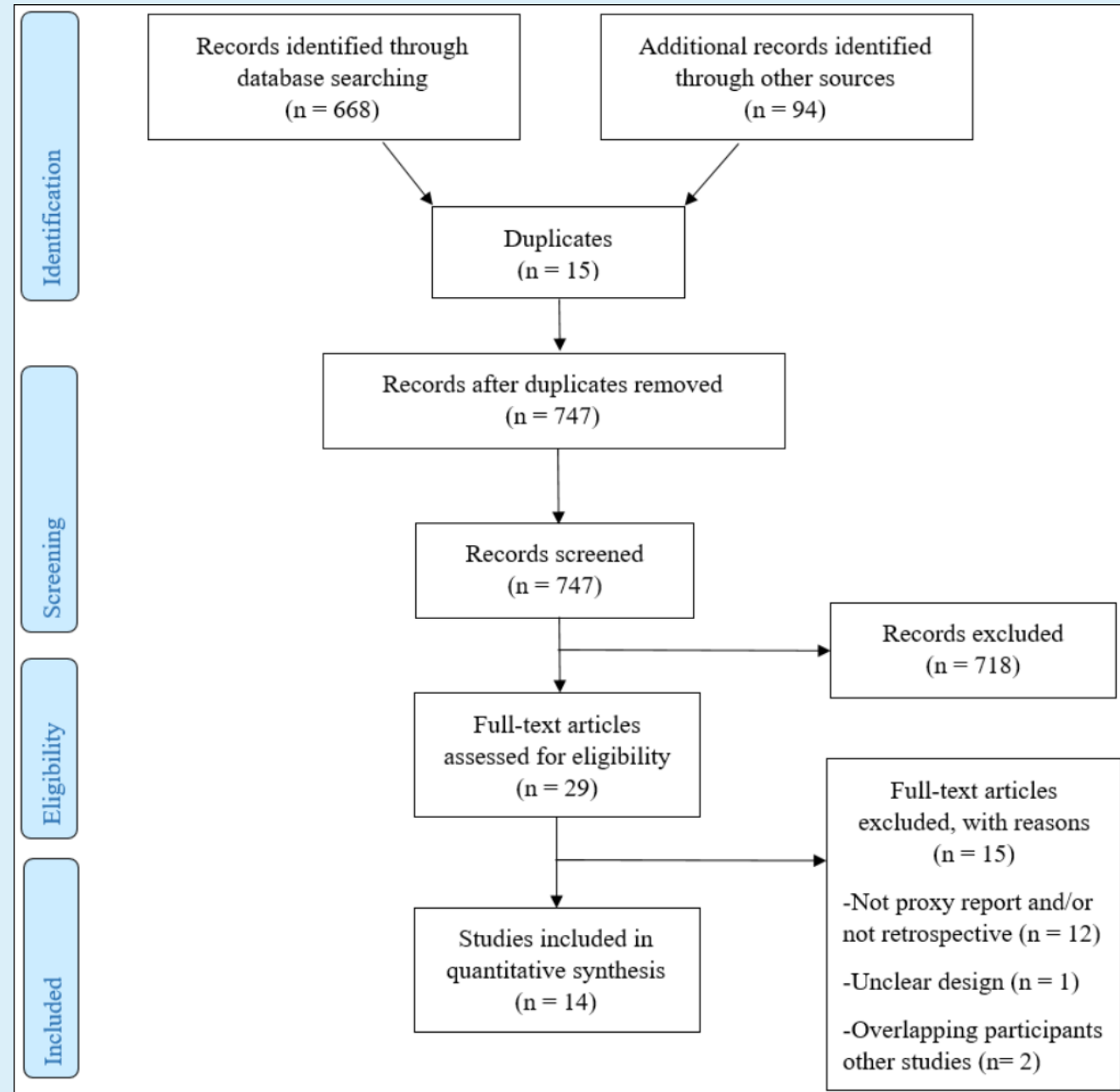
- Imagination, Artistic Interests, Emotionality, Adventurousness, Intellect, Liberalism

# Methods: New data

Descriptive Statistics	New Data
Sample	N= 50
Age	M=79, Range= 64-95
Female	48%
Race/Ethnicity	12% African American, 8% Latino
Education	36% - College degree or higher
Cognition Enhancing Medication (Anti-cholinesterase, Memantine, or both)	60% took at least one medication
MoCA	M=12, SD = 7, Range= 0-25
Informant relationship to patient	52% spouses, 44% children

# Methods

Descriptive Statistics	Meta-Analysis
Samples:	N=18
Patients:	N= 542



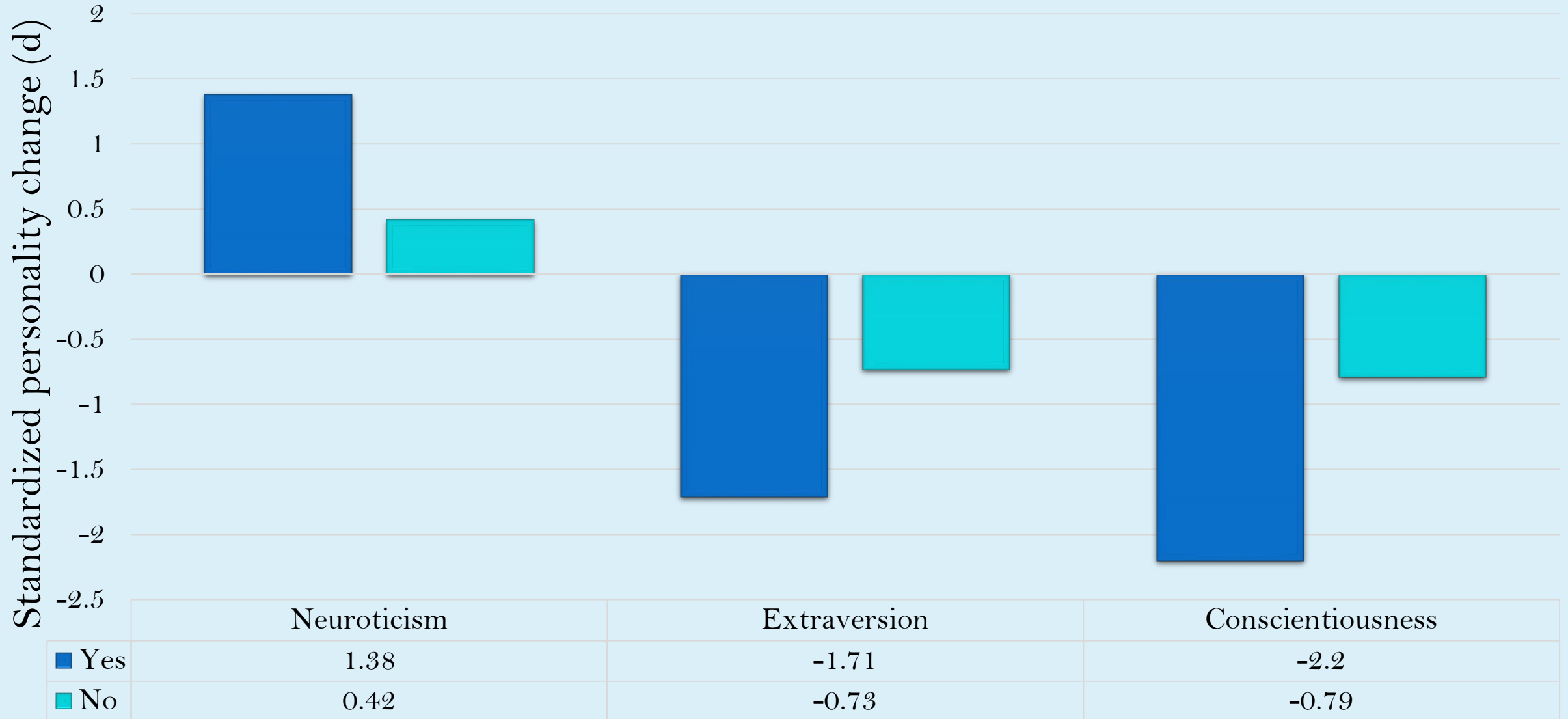
# Results: New Data

Personality traits	Retrospective	Current	<i>r</i>	<i>d</i>	<i>d</i> fish plot
	Mean (SD)	Mean (SD)			
Neuroticism	46.18 (14.01)	59.06 (14.42)	0.71	0.91**	
Extraversion	48.50 (14.75)	31.39 (12.29)	0.52	-1.27**	
Openness	46.43 (14.39)	40.87 (12.68)	0.75	-0.41**	
Agreeableness	46.52 (13.52)	45.12 (13.27)	0.84	-0.10	
Conscientiousness	50.92 (12.94)	31.68 (12.78)	0.52	-1.50**	

## Notable facets

- Neuroticism – Depression and Vulnerability
- Extraversion – Assertiveness and Activity
- Conscientiousness – Competence, Dutifulness, Achievement striving, and Self-discipline

# Personality Change and Cognition Enhancing Medications



# New Data Results Cont'd

Predictor	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Sex	.07	-.03	.04	.13	-.15
Age	-.10	.02	-.12	-.07	-.01
Neuroticism	.77**	-	-	-	-
Extraversion	-	.54**	-	-	-
Openness	-	-	.74**	-	-
Agreeableness	-	-	-	.82	-
Conscientiousness	-	-	-	-	.66**
MOCA	.13	-.11	.14	.11	.06
Psychotropic	-.01	-.15	.00	-.05	-.14
AD drugs	.33**	-.32*	-.04	.10	-.39**

*Note.*  $N=49$ . Coefficients are standardized beta coefficients.

Sex is 0 for male and 1 for female. Psychotropic include benzodiazepines, selective serotonin reuptake inhibitors, and antipsychotics. AD drugs include cholinesterase inhibitors and memantine. MoCA = Montreal Cognitive Assessment

\* $p < .05$ . \*\* $p < .01$ .



# Meta-Analysis Results

## Notable facets

- Neuroticism
  - Depression
  - Vulnerability
- Extraversion
  - Assertiveness
  - Activity
- Conscientiousness
  - Competence
  - Dutifulness

Literature	n	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
<u>Siegler 1991</u>	35	1.19	-1.43	-0.35	-0.37	-2.36
<u>Chatterjee 1992</u>	38	1.27	-1.25	-0.42	-0.38	-1.9
<u>Strauss<sup>a</sup> 1993</u>	22	1.78	-1.13	-0.47	-0.30	-2.00
<u>Strauss<sup>b</sup> 1994</u>	29	1.29	-1.20	-0.48	-0.20	-1.83
<u>Siegler 1994</u>	26	1.48	-1.26	-0.45	-0.32	-2.05
<u>Williams 1995</u>	36	1.30	-1.80	-0.3	-0.20	-2.70
<u>Welleford 1995</u>	36	1.41	-1.24	-0.43	-0.36	-1.76
<u>Kolanowski 1997</u>	19	0.29	-0.59	-0.82	-0.01	-3.15
<u>Dawson 2000</u>	50	1.42	-1.36	-0.40	0.00	-2.32
<u>Pocnet 2011</u>	54	1.33	-1.30	-1.00	-0.28	-2.48
<u>Lykous 2013 (AD)</u>	17	0.78	-1.27	-0.06	-0.46	-1.63
<u>Lykous 2013 (FTD)</u>	8	-0.58	-1.68	0.06	-0.42	-2.20
<u>Lykous 2013 (MCI)</u>	17	0.71	-0.70	-0.11	-0.22	-0.77
<u>Donati 2013 (MCI)</u>	55	0.22	-0.25	-0.06	-0.01	-0.28
<u>Torrente 2014 (AD)</u>	19	0.87	-0.53	0.00	-0.04	-1.49
<u>Torrente 2014 (FTD)</u>	16	0.46	-0.73	-0.67	0.20	-1.38
<u>Torrente 2014 (PPA)</u>	15	1.05	-0.96	-0.77	-0.13	-1.10
<u>Islam<sup>c</sup></u>	50	0.91	-1.27	-0.40	-0.10	-1.50
<b>Meta-Analysis</b>	<b>542</b>	<b>1.01</b>	<b>-1.09</b>	<b>-0.41</b>	<b>-0.19</b>	<b>-1.77</b>
Z		9.24	-11.09	-4.53	-2.02	-10.47
p-value		0.00	0.00	0.00	0.04	0.00
Q		21.35	17.91	8.89	3.16	43.15
p-value		0.21	0.39	0.94	1.00	0.00
I <sup>2</sup>		20.37	5.06	0.00	0.00	60.61

# Overall Results

- The largest increase was neuroticism
- The largest declines were conscientiousness and extraversion
- Results were similar in the new study and the meta analysis
- Changes were larger among patients taking cognition enhancing medication
- Changes were smaller in patients with MCI than in patients with dementia
- Limitations
  - Not enough data to inform differential diagnosis
  - Retrospective design

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