Personality Change in Alzheimer’s Disease

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Five Factor Model of Personality

- Neuroticism
- Extraversion
- Openness to Experience
- Agreeableness
- Conscientiousness

NEO Personality Profile
Evidence of Heritability

- MZ twins reared together:
  - Height 0.95
  - Neuroticism 0.46

- DZ twins reared together:
  - Height 0.52
  - Neuroticism 0.22

- MZ twins reared apart:
  - Height 0.92
  - Neuroticism 0.41

- DZ twins reared apart:
  - Height 0.67
  - Neuroticism 0.23

Normal Older People

• Personality function is relatively stable over the adult lifespan (after the age of 30 years)

• Score lower on Neuroticism, Extraversion & Openness in comparison with younger adults

• Score higher on Agreeableness & Conscientiousness in comparison with younger adults
Typical Onset Sequence in AD

- Personality change
- Mood change
- Memory change
- Executive dysfunction
- IADL impairment
- Aphasia, Agnosia, Apraxia
- ADL impairment
- Challenging behaviours
Search Strategy

• (Alzheimer’s disease OR dementia) AND (personality OR behaviour OR psychological symptoms)
• (Alzheimer’s disease OR dementia) AND (neuroticism OR extraversion OR openness OR agreeableness OR conscientiousness)
• psycINFO, PubMed, Medline, CINAHL
• Inception to November 2009
Rating Personality in Dementia

• People with dementia usually have poor memory function & poor executive function, with impaired insight, judgment & self-reflective capacity

• Thus, people with dementia are not in a good position to judge their own personality, either cross-sectionally or retrospectively
Reliability of Informant Ratings


• Inter-rater reliability 0.68 – 0.78 (mean ICC)

• Test-retest reliability 0.84 – 0.96 (mean ICC)
NEO Five-Factor Model

• Most of the publications employed the 240-item NEO PI-R or the 60-item NEO-FFI informant-rated instruments
• The NEO-FFI has been shown to be a reliable measure of personality in people with AD
• Neuroticism, Extraversion, Openness, Agreeableness, Conscientiousness
Selection of Studies

- 233 unique research articles identified
- 153 not relevant to the topic
- 38 on other specific causes of dementia
- 17 investigated other issues
- This left 25 studies that investigated premorbid personality in AD or dementia, of which 15 had used the NEO PI-R or NEO-FFI instruments
- 5 of these did not investigate change over time
- 1 reported a single domain (Conscientiousness)
- Thus, there were 9 studies with informant-rated estimates of premorbid & current personality in AD using the NEO instruments
Main Findings

Change Scores (T distribution)

N: neuroticism; E: extraversion; O: openness; A: agreeableness; C: conscientiousness
T distribution: Mean of 50 & SD of 10
Main Findings

Change Scores (T)

N: neuroticism; E: extraversion; O: openness; A: agreeableness; C: conscientiousness

Green: change in same direction as in normal ageing; Orange: change in opposite direction to normal ageing
Some Implications

• Large decrease in Conscientiousness
  – In combination with memory & executive dysfunction likely to lead to functional decline

• Moderate decrease in Extraversion
  – Likely to be associated with apathy

• Moderate increase in Neuroticism
  – Likely to be associated with anxiety & depression
Further Thoughts

• Our findings were homogeneous across the nine studies analysed in terms of both direction & relative magnitude

• This suggests a typical pattern of personality change in AD rather than a personal pattern (e.g. exaggeration of individual pre-morbid traits)

• Perhaps we should be asking more about personality change during initial assessment interviews of people who might have dementia
Robins Wahlin T-B, Byrne GJ.
Personality change in Alzheimer’s disease: A systematic review.