Impulsivity and Executive Functions in Older Adults with Personality Disorders: A Narrative Review

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BACKGROUND

Personality Disorders

- Personality disorder (PD) prevalence declines with age, particularly those with prominent impulsivity, i.e., Antisocial (ASPD) and Borderline (BPD)

Executive Functions (EF)

- Cognitive skills which enable higher-order, goal-directed behaviors
- EF display age-related decline across the lifecycle

Impulsivity

- Spontaneous reactions to internal/external stimuli without planning, consideration, or judgement regarding potential consequences
- Components of EF related to impulsivity include stimulus interference, proactive interference**,** response inhibition**,** and decision-making (e.g., delay discounting – difficulty with delayed gratification and tendency to discount value of delayed over immediate rewards)

Research Question:

- A contradiction emerges in disparate bodies of research: How to reconcile aging-related declines in EF with evidence of decline in impulsivity and impulsivity-related PDs across the life cycle?

METHODS

Databases:

- Google Scholar, PubMed, PsycINFO. *Keywords:* Impulsivity, executive function, aging, ASPD/BPD, personality traits, response inhibition, planning, delay discounting

Data Selection:

- A total of 19 cross-sectional, longitudinal, and meta-analytic studies (1997-2021) spanning a) self-reported/trait impulsivity in ASPD/BPD, b) impulsivity-related EF in ASPD/BPD, c) impulsivity/EF in normal aging, and d) ASPD/BPD in older adulthood were informally extracted.

Inclusion Criteria:

- EF studies incorporated measures of inhibition, delay discounting, and/or planning included. Studies limited to other EF excluded.

RESULTS

Measurement differences across studies

- EF – broad vs. narrow-band measurement of diverse skills (e.g., working memory, organization planning, inhibition, set-shifting)
- Self-report vs. performance-based measurement of impulsivity and EF in BPD and ASPD
- Impulsivity- variably assessed via self-report, clinician report, semi-structured interview

Aging-related effects of EF in ASPD/BPD

- EF, including response inhibition and delay discounting, generally impaired compared to controls in younger PD samples (see table below)
- Overall EF generally impaired in older PD groups
- FFM personality trait correlates of ASPD, BPD (i.e., high N, low C, low A), generally associated with weaker EF overall

Gap in the literature

- Lack of studies of purely impulsivity-related EF in older groups with ASPD/BPD, or in groups with FFM personality trait correlates (i.e., high N, low C, low A)

Study	Age of Participants	Design	EF Measure(s)	Findings
McClure et al. (2015)	M = 24.6-34.6	Meta-analysis of 12 cross-sectional studies	Several EF measures, including those outlined in Morgan & Lilienfeld (2000)	BPD groups demonstrated significantly worse planning, set-shifting, and cognitive inhibition than comparison groups. However, no single executive skill was consistently impaired in BPD groups.
Morgan & Lilienfeld (2000)	M = 13-40.2	Meta-analysis of 39 cross-sectional studies	Halstead-Reitan Category Test, Porteus Mazes, Stroop Color Word Test, Trail Making Test Part B, Wisconsin Card Sorting Test, Verbal Fluency Tests	Antisocial groups performed .62 standard deviations worse on executive tasks compared to controls. No significant correlation between age and effect size.
Ogilvie et al. (2011)	M = 24.8	Meta-analysis of 126 cross-sectional studies	Numerous, included in analyses if explicitly used to measure impulsivity-relevant EF	Antisocial groups performed significantly worse compared to controls. Significant variability in effect sizes across studies, with the largest seen in criminality group (d=.61) and smallest in ASPD group (d=.19)
Ruocco et al. (2005)	M = 29.4-31.9	Meta-analysis of 10 cross-sectional studies	Several measures of attention, cognitive flexibility, learning and memory, planning, processing speed, and visuospatial skills	Deficits in planning and cognitive flexibility for BPD groups compared to controls.

Table 1. Meta-analytic findings of EF in ASPD and BPD

METHODOLOGICAL FINDINGS

- Limitations of current studies include:
  - Restricted age range of participants
  - Uncontrolled confounding of diagnostic groups (e.g., ADHD, SUDs)
  - Differing definitions related to ASPD (e.g., antisocial behavior, psychopathy, etc.)
  - Lack of control for age-related declines in processing speed

CLINICAL IMPLICATIONS

Functional Impairment:

- EF impairments associated with functional impairment, including in PDs
- In older adults, may impact basic and instrumental activities of daily living
- Additional exploration may assist clinicians in detecting/treating those with greatest risk of decline

Diagnostic Complications:

- EF deficits associated with PDs may complicated detection of neurodegenerative conditions characterized by these cognitive changes in this group

FUTURE DIRECTIONS

Neuropsychological measurement of impulsivity-related EF in older adults with ASPD/BPD

Investigation of the relationship between personality traits and impulsivity-related EF in older adults

Longitudinal studies incorporating broader age ranges

Account for comorbid conditions (e.g., ADHD, SUDs) across younger and older samples, as well as age-related declines in processing speed