Differential Predictors of Self and Informant-Assessed Subjective Cognition in Late Life Depression

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Background

Late life depression (LLD) is a common and debilitating psychiatric disorder affecting an estimated 8-16% of the population. Often implicated as a risk factor for dementia, an estimated 25-60% of individuals with LLD present with significant cognitive impairment [1,2] and report greater subjective cognitive complaints (SCCs) compared to older adults without depression [3]. However, SCCs are shown to be a function of depressive symptoms and anxiety rather than objective cognition in older adults [4,5] and remains under-researched in the context of LLD. Recent work has contrastingly shown that study partner ratings of participant cognition are associated with objective cognition in non-depressed samples [6]. Whether study partners can better evaluate objective cognition relative to their LLD participant counterparts has still to be sufficiently examined and, more specifically, the impact of participant race, gender, clinical status, stress, and social support is not yet clarified in LLD. This study was conducted to determine how patients' clinical status impacts both self and study partner judgement of participant cognition. We hypothesize that 1) anxiety and depression rather than objective cognition will be associated with self-reported cognitive complaints in participants with LLD and 2) there will be poor agreement between self and study partner ratings.

Methods

Participants: This study utilized data from community-dwelling older adults (age >=65 years) with LLD (n=64) and their study partners (n=48). Diagnosis of depression was determined via Structured Clinical Interview for Diagnosis (SCID) of DSM-IV Axis I Disorders and depression severity (17-item Hamilton Depression Rating Scale; HDRS-17 >=15). Diagnosis of other Axis 1 disorders and/or Mini Mental State Exam score indicating possible dementia (MMSE <25) were excluded. See Table 1 for sample overview.

Table 1: Demographic and Clinical Characteristics of Participants with Self-Rated Subjective Cognition Scores (n=64)

	Self-ECog >= 1.81 (n=26)	Self-ECog < 1.81 (n=38)
Age (SD)	70.2 (5.7)	70.2 (4.4)
Female (%)	15 (58%)	26 (68%)
Education (SD)	18.9 (4.7)	18.7 (4.7)
White (%)	23 (88%)	30 (79%)
HDRS-17 (SD)	21.1 (4.3)	19.3 (4.1)
GAD-7 (SD)	12.6 (4.6)	8.9 (3.9)
PSS (SD)	24.8 (3.6)	21.4 (5.6)
DSSI (SD)	36.7 (11.6)	37.2 (12.6)

HDRS-17= Hamilton Depression Severity Scale 17-item, GAD-7 = General Anxiety Disorder Scale 7-Item, PSS = Perceived Stress Scale, DSSI = Duke Social Support Index, SD = Standard Deviation.

Methods (Cont.)

Measures: In addition to reporting gender and race, the 64 eligible participants completed measures of subjective cognition (Everyday Cognition Scale; Self-ECog), depression severity (Hamilton Depression Rating Scale 17-Item; HDRS-17), anxiety (Generalized Anxiety Disorder Scale 7-Item; GAD-7), perceived stress (Perceived Stress Scale; PSS), and perceived social support (Duke Social Support Index; DSSI). Forty-eight participants had study partner-rated subjective cognition data (Informant Everyday Cognition Scale; SP-ECog) available. Participants also completed a comprehensive neurocognitive battery assessing domains of executive functioning, visual perception, verbal and visual learning and memory, language, working memory, and information processing speed. Scores one standard deviation below published normative data for each cognitive test were classified as impaired performance. The sum of impaired tests across all domains represented overall objective cognition.

Analysis: Statistical analyses were run in R version 1.4.1103. Sample cognitive, clinical, and demographic characteristics were obtained. ANOVA models were used to determine group differences between Self-ECog and SP-ECog ratings of impairment. Multiple linear regression with hierarchical entry examined effects of gender, race, depression severity, anxiety, objective cognition, stress, and social support on self and study partner subjective cognitive complaints.

Results

Sample Characteristics: Forty-four percent of participants showed impairment across one or more cognitive test. Participant subjective cognitive impairment (ECog >=1.81) was reported by 41% of participants and 23% of study partners. On average, participants with impaired Self-ECog scores reported significantly greater levels of anxiety and stress than those with non-impaired Self-ECog scores ($p<.05$). No significant differences were found between participants with impaired and non-impaired SP-ECog scores ($p>.05$).

Regression Results: Multiple regression analyses found higher GAD-7 scores (ß = .39, t = 4.03, p = 0.00) and higher HDRS-17 scores (ß = .24, t = 2.40, p = 0.02) were significantly associated with higher Self-ECog scores, with the model explaining 27% of variance in subjective cognition. Male gender (ß = -0.54, t = -2.31, p = 0.03), white race (ß = -1.11, t = -3.46, p < 0.01), higher PSS scores (ß = 0.48, t = 4.41, p < 0.01), and higher DSSI scores (ß = 0.35, t = 3.00, p < 0.01) were significantly associated with higher SP-ECog scores. Objective cognition was not significantly associated with either Self or SP-ECog scores ($p>.05$).

Conclusion

Subjective cognitive concerns are common in LLD. Although study partner ratings of participant cognition may be a valid marker of objective cognitive dysfunction in other samples, our findings indicate no significant association between objective cognition and self (cont.)

Figure 1: Scatterplots of depression severity and anxiety against subjective cognition

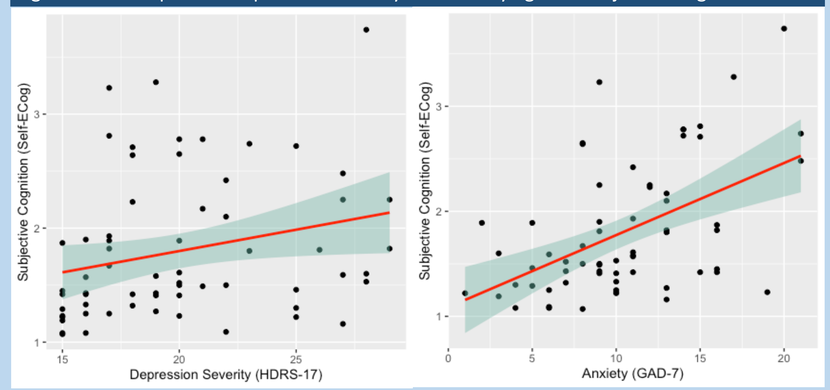
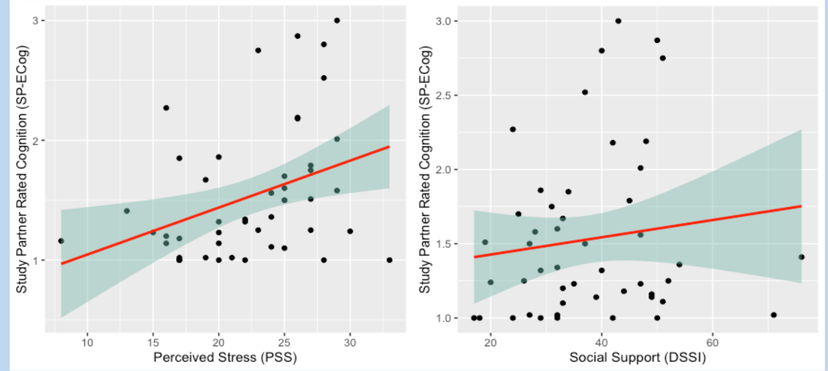


Figure 2: Scatterplots of stress and social support against study partner-rated cognition



Conclusion (Cont.)

(cont.) or study partner SCCs in an LLD specific sample. Anxiety and depression were, however, associated with participant SCCs and participant race, gender, stress, and social support were associated with study partner ratings of participant cognition. These findings suggest that subjective cognition as rated by either participant or study partner may not be an accurate indicator of objective cognitive decline within a clinical sample. The divergence between Self and SP-ECog determinants further underscores the need for additional research within the context of LLD.

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