Cognitive Outcomes after Psychotherapeutic Interventions for Major Depression in Older Adults with Executive Dysfunction

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Objective: *The purpose of this study was to determine the impact of psychotherapy on cognitive functioning in older adults with late-life depression (LLD) and executive dysfunction.* **Methods:** *Two hundred twenty-one adults aged 60 years and older participated in a randomized clinical trial comparing the efficacy of Problem Solving Therapy (PST) and Supportive Therapy (ST) for LLD. Cognitive performance on seven tests of executive functioning, verbal learning, and memory was evaluated at baseline, after 12 weeks of treatment, and at 24 weeks after the completion of treatment.* **Results:** *Performance on a measure of executive functioning with a significant information processing speed component (Stroop Color and Word Test) improved after treatment, $F(1, 312) = 8.50$, $p = 0.002$, and improved performance was associated with a reduction in depressive symptoms but not treatment type. Performance on other measures of executive functioning, verbal learning, and memory did not change significantly after 12 weeks of psychotherapy treatment.* **Conclusion:** *Our results suggest that improvements in cognitive functioning after psychotherapy treatment for depression in older adults with executive dysfunction are likely focal and not distributed across all cognitive domains. Although previous analyses reported that PST was superior to ST in the treatment of depression, this analysis indicated no difference between the two treatments with regard to improvements in cognitive functioning.* (Am J Geriatr Psychiatry 2013; ■:■−■)

Key Words: Cognitive functioning, psychotherapy, late-life depression, mild cognitive impairment, memory, executive dysfunction, learning, information processing speed

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INTRODUCTION

Late-life depression (LLD) is a disabling illness associated with significant economic and societal costs,[1] and cognitive dysfunction represents a concurrent and debilitating aspect of this disorder. Mild cognitive impairments have consistently been documented in up to 60% of individuals with LLD,[2–5] and these cognitive impairments contribute to increased mental healthcare costs,[6] disability,[7] and poor treatment outcomes.[8] Executive dysfunction and information processing speed deficits are often considered to be hallmark cognitive features of LLD;[2,9] however, impairments of memory and verbal learning are also frequently reported.[2,10,11] Given the heterogeneity of cognitive impairments exhibited by individuals with LLD, differentiating the direct impact of LLD on cognition from the effects of other concurrent conditions, such as neurodegenerative disease, represents a significant challenge in older adults. One underused avenue to clarify this relationship is the evaluation of cognitive functioning after treatment for depression.

Both antidepressant medication treatments and psychotherapeutic interventions have been shown to be effective in treating LLD mood symptoms,[12,13] but their impact on cognition has not been evaluated sufficiently. Despite the efficacy of treatments, few studies have been conducted to evaluate cognitive outcomes after treatment using standardized neuropsychological measures, and these studies have focused exclusively on outcomes after antidepressant medication treatments.[14–19] This existing literature largely suggests that positive antidepressant treatment response is associated with relatively focal improvements on measures of executive functioning with a significant information processing speed component,[14,17–19] whereas memory and verbal learning performance typically remain unchanged.[14,17] However, these findings are not always consistent, and some previous studies have also found that antidepressant medication treatments are associated with improved verbal learning and memory performance,[16] widely distributed improvements across several cognitive domains,[11] or no significant changes in cognition across any cognitive domain.[15] Further, nonresponse to antidepressant medication treatments has been linked to decreases in verbal learning performance[19] and short memory performance,[18] with these decrements attributed in part to anticholinergic antidepressant effects.

The efficacy of psychotherapeutic interventions for the treatment of LLD are well recognized[20–25] and have been shown to be effective in reducing depressive symptoms[12] and disability[26] in older adults with executive dysfunction. However, to date, no published studies have investigated the impact of psychotherapy on cognitive outcomes in older adults as has been done with antidepressant medication investigations. There are a number of advantages to studying the impact of psychotherapy on cognitive functions in this context. First, such an investigation may clarify if changes in cognitive functioning after treatment are similar across treatment modalities and are primarily a function of improvement in depressive symptoms. Second, psychotherapies, particularly those that provide cognitive skill building, may provide a compensatory framework for cognitive deficits associated with LLD and, as a result, improve cognitive functioning. Third, no known anticholinergic effects of psychotherapy treatments have been associated with worsening of cognitive functioning in previous medication studies.

The present study was a secondary data analysis of archived data from a randomized clinical trial of evidence-based psychotherapy for LLD[12] that used Problem Solving Therapy (PST)[27] in comparison with a psychotherapy control condition, Supportive Therapy (ST).[28] The present study was conducted to evaluate the impact of psychotherapeutic treatment for depression on memory, learning, and executive functioning for older adults. Based on the existing literature evaluating cognitive functioning after antidepressant treatment,[14,17–19] we hypothesized that (1) measures of executive functioning with a significant information processing speed component would show improvement after treatment of depression; (2) these cognitive improvements would be associated with improvements in depression severity over time; (3) performance on measures of memory, verbal learning, and tests of executive functioning without an information processing speed component would not show significant improvement; and (4) there would not be significant worsening of cognitive performance across any cognitive domain after 12 weeks of treatment, which was previously shown in antidepressant studies due to a lack of anticholinergic