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## Preserving Cognition in Older African Americans with Mild Cognitive Impairment.

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1 **Preserving Cognition in Older African Americans with Mild Cognitive Impairment**

2 **Abbreviated Title: Cognition in Older African Americans**

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29 **Key Words:** African American, Diabetes, Cognitive Impairment

30

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33

34 **To the Editor:**

35

36 Twenty five percent of older adults in the U.S. have type 2 diabetes, which increases  
37 their risk for cognitive decline.<sup>1, 2</sup> This risk disproportionately affects African Americans  
38 because they have higher rates of diabetes than Whites and worse glycemic control,  
39 which magnifies their risk.<sup>3</sup> These disparities contribute to why African Americans have  
40 twice the rate of Alzheimer's disease as Whites.<sup>4</sup> There are now 1 million older African  
41 Americans with diabetes in the U.S. and their number will double by 2030.<sup>5</sup> This will  
42 multiply the burden of cognitive impairment in older African Americans and necessitates  
43 preventive interventions.

44

45 We are conducting an ongoing randomized controlled trial to test the efficacy of  
46 Behavioral Activation to reduce cognitive decline in African Americans with Mild  
47 Cognitive Impairment. Behavioral Activation is a standardized, evidence-based  
48 treatment that is often used to treat depression.<sup>6</sup> We have uniquely applied this  
49 approach to increase participation in physical, cognitive, and social activities in order to  
50 preserve cognition. The attention control treatment is Supportive Therapy, which  
51 facilitates personal expression but contains no other active elements. Race-concordant  
52 community health workers deliver 6 in-home treatment sessions of both interventions.  
53 Because of our interest in diabetes and cognition, we examined treatment effects on the  
54 subgroup of participants with diabetes who have had 12 month assessments (n = 35).

55

56 **Methods:**

57 At baseline and 12 months (masked to treatment assignment), we administered the  
58 Hopkins Verbal Learning Test-Revised Delayed Recall (HVLT) and the Uniform Data  
59 Set (UDS) Neuropsychological Battery, which includes tests assessing verbal memory,  
60 attention, semantic memory, language, processing speed, visuospatial ability, and  
61 executive function. Standardized z scores from the component UDS tests yield the  
62 UDS-Composite Score (UDS-CS), which reflects global cognition. Our pilot data  
63 indicate that a decrement of 0.45 UDS-CS points translates clinically to the inability to  
64 balance a checkbook, do laundry, shop, or prepare meals.

65

66 **Results:** The average age of participants was 75.1 years (SD 6.8); 28 (80%) were  
67 women. The Table shows that participants who received Behavioral Activation had  
68 improved scores over 12 months in 2 cognitive domains: episodic memory (HVLT  
69 score) and executive function/processing speed [Digit Symbol Substitution Test  
70 (DSST)]. Supportive Therapy controls had no comparable improvements. On the UDS-  
71 CS, a greater proportion of participants who received Behavioral Activation compared to  
72 Supportive Therapy improved by  $\geq 0.45$  points [40.0% vs. 21.1%; OR: 2.50 (.55 -  
73 11.33)], and fewer declined by  $\geq 0.45$  points [6.7% vs. 21.1%; OR: 0.27 (.03 - 2.70)].  
74 There were no significant changes in other neuropsychological test scores.

75

76 **Discussion:**

77 The treatment trends observed across three different cognitive measures in this sample  
78 of older African Americans with diabetes and Mild Cognitive Impairment suggest that  
79 Behavioral Activation may preserve cognition in this high risk group. The sample is  
80 small, however, and the analysis is underpowered to detect treatment group  
81 differences. Nevertheless, these preliminary findings concur with the results of previous  
82 studies indicating that physical, cognitive, and social activity may prevent cognitive  
83 decline, and extend these findings now to older African Americans with diabetes.<sup>7</sup> The  
84 latter finding is important because the number and longevity of this population, and their  
85 risk for progressive cognitive decline and dementia, are increasing.

86

87 The Behavioral Activation treatment approach simultaneously targets two entrenched  
88 health problems in older African Americans (i.e., diabetes and impaired cognition), and  
89 may prevent cognitive decline by increasing cognitive (e.g., problem-solving) and  
90 physical (e.g., exercise) activities and perhaps by improving glycemic control. These  
91 two mechanisms are plausible because physical and cognitive inactivity, as well as poor  
92 glycemic control, increase the risk of cognitive decline.<sup>8,9</sup> Because no disease-  
93 modifying treatment for Alzheimer's disease now exists, if an early nonpharmacologic  
94 treatment like Behavioral Activation prevents cognitive decline even by one year, it will  
95 greatly reduce the personal and societal costs of Alzheimer's disease in older African  
96 Americans.<sup>10</sup>

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98 **Conflict of Interest Disclosures:**

Elements of Financial/Personal Conflicts	BWR		RJC	
	None	No	None	No
<b>Employment or Affiliation</b>				
<b>Grants/Funds</b>				
<b>Honoraria</b>				
<b>Speaker Forum</b>				
<b>Consultant</b>				
<b>Stocks</b>				
<b>Royalties</b>				
<b>Expert Testimony</b>				
<b>Board Member</b>				
<b>Patents</b>				



<b>Personal Relationship</b>					
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100 **Author Contributions**

101 **BWR:** Study concept and design; analysis and interpretation of data; and preparation  
102 of the manuscript.

103 **RJC:** Study concept and design; analysis and interpretation of data; and preparation of  
104 the manuscript.

105

106 **Sponsor's Role**

107 None.

108

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143 Alzheimer's disease in the United States. *Alzheimers Dement*. 2011;7(1):61-73.

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145 **Table: Cognitive Scores at Baseline and 12 Months by Treatment Group**

146

147 **Behavioral Activation**                      **Baseline**    **Month 12**    **paired t**    **df**    **p-value**

148 **(n=16)**

149

150 HVLТ \*                                      1.1 (1.7)    2.9 (2.9)    -2.56    15    .022

151

152 DSST                                      24.2 (11.7)    29.6 (11.3)    -2.20    13    .047

153

154

155 **Supportive Therapy**

156 **(n=19)**

157

158 HVLТ                                      1.6 (2.0)    2.6 (2.9)    -1.62    18    .122

159

160 DSST                                      28.2 (11.5)    28.8 (12.1)    -.38    15    .708

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162

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163 HVLТ = Hopkins Verbal Learning Test

164 DSST = Digit Symbol Substitution Test

165 \* mean; (SD); higher scores indicate better cognitive function.

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