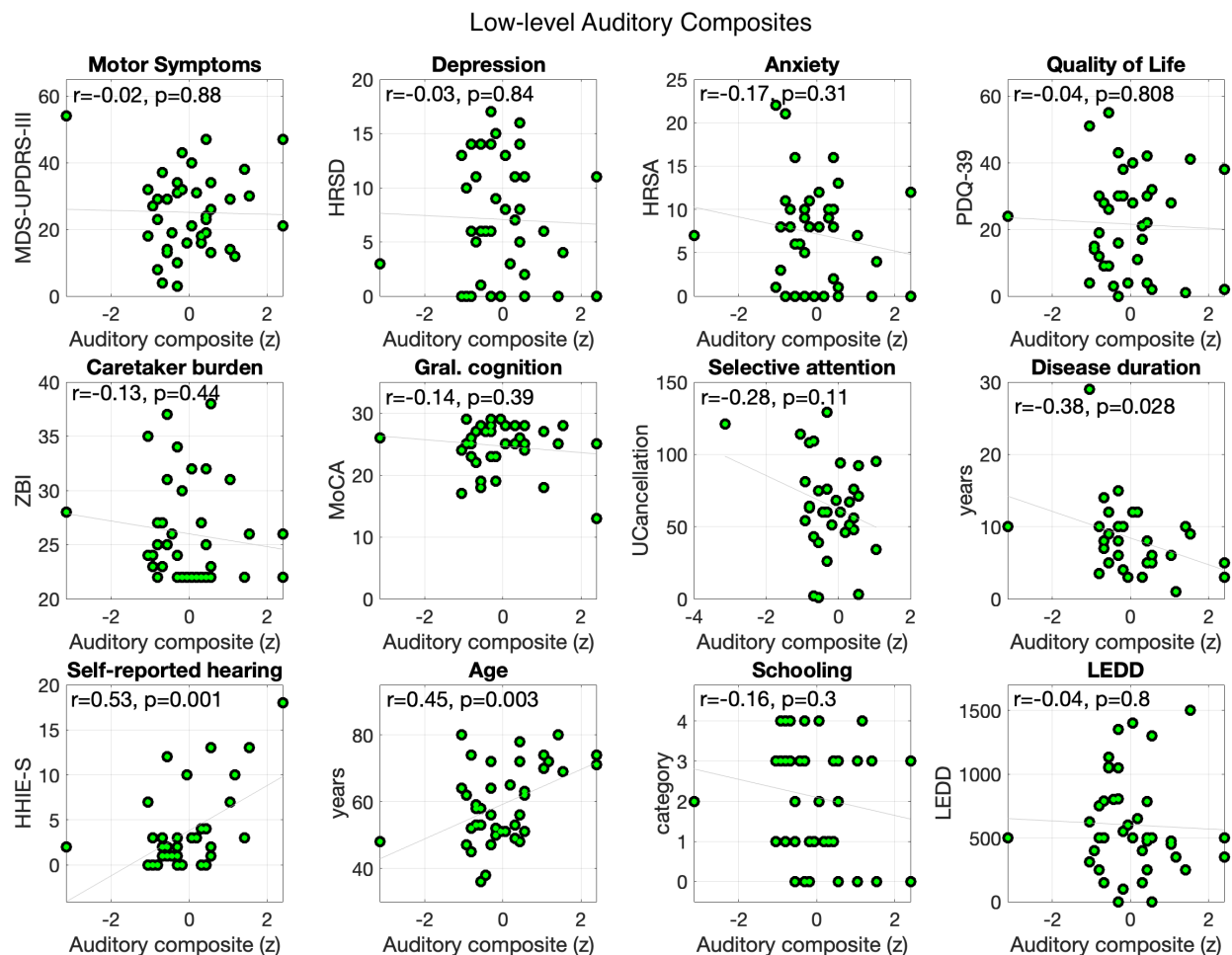


Supplementary Material

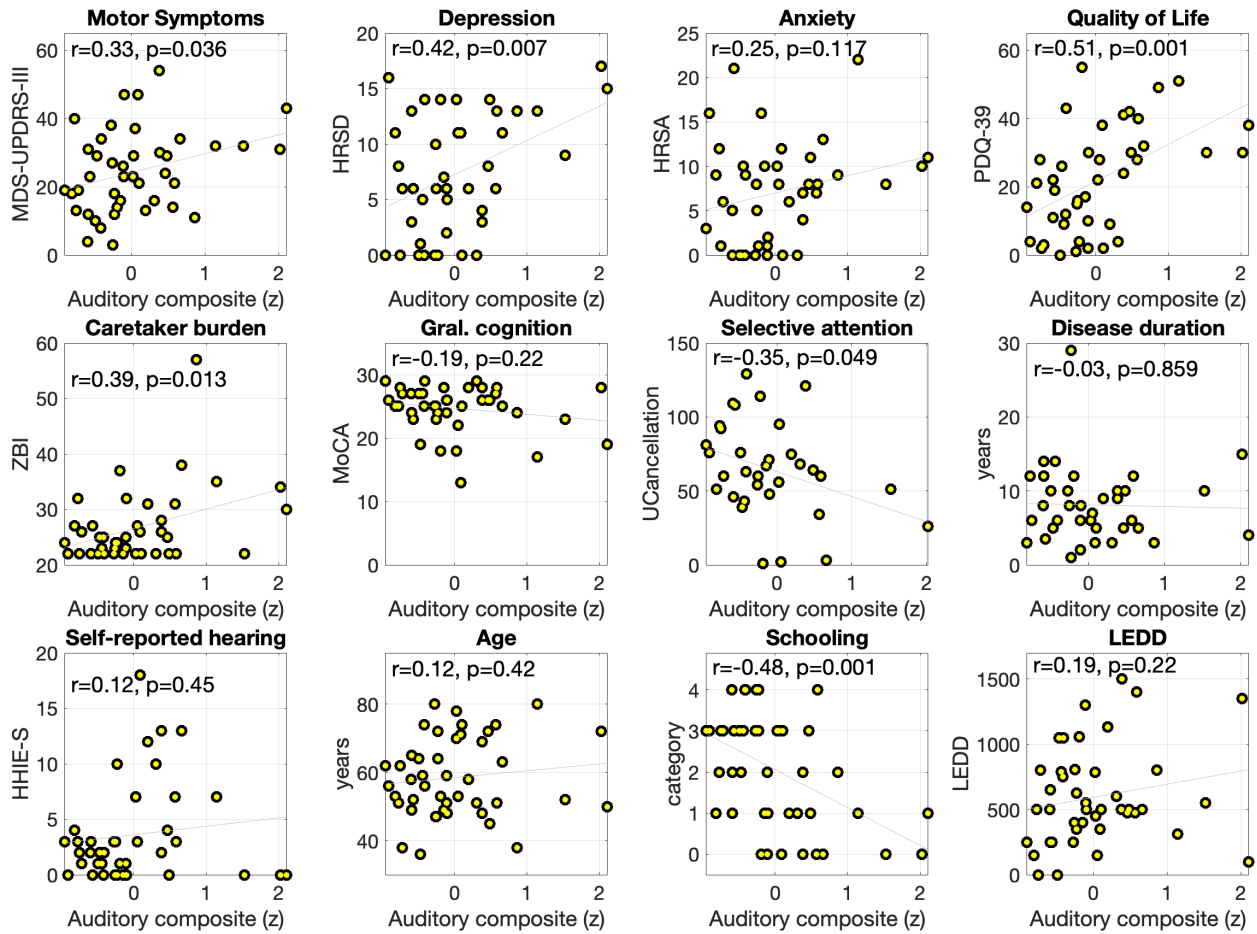
A Characterization of Central Auditory Processing in Parkinson's Disease

To further characterize the relationship between auditory measures and clinical variables in PD, and considering that the general auditory composite reported in the main manuscript aggregates measures that are sensitive to different levels of processing in the auditory pathway, we computed three different composite scores with sub-groups of assessments: 1) low-level (four-frequency (.5, 1, 2, 4 kHz) pure tone detection thresholds); 2) mid-level (Gap, dichotic FM, diotic FM, TM, SM, and STM); 3) high-level (SRM colocated, SRM separated, and DSI). Supplementary Figures 1-3 show correlations between these composite scores and variables indicating cognitive performance and clinical scales collected from people with PD.



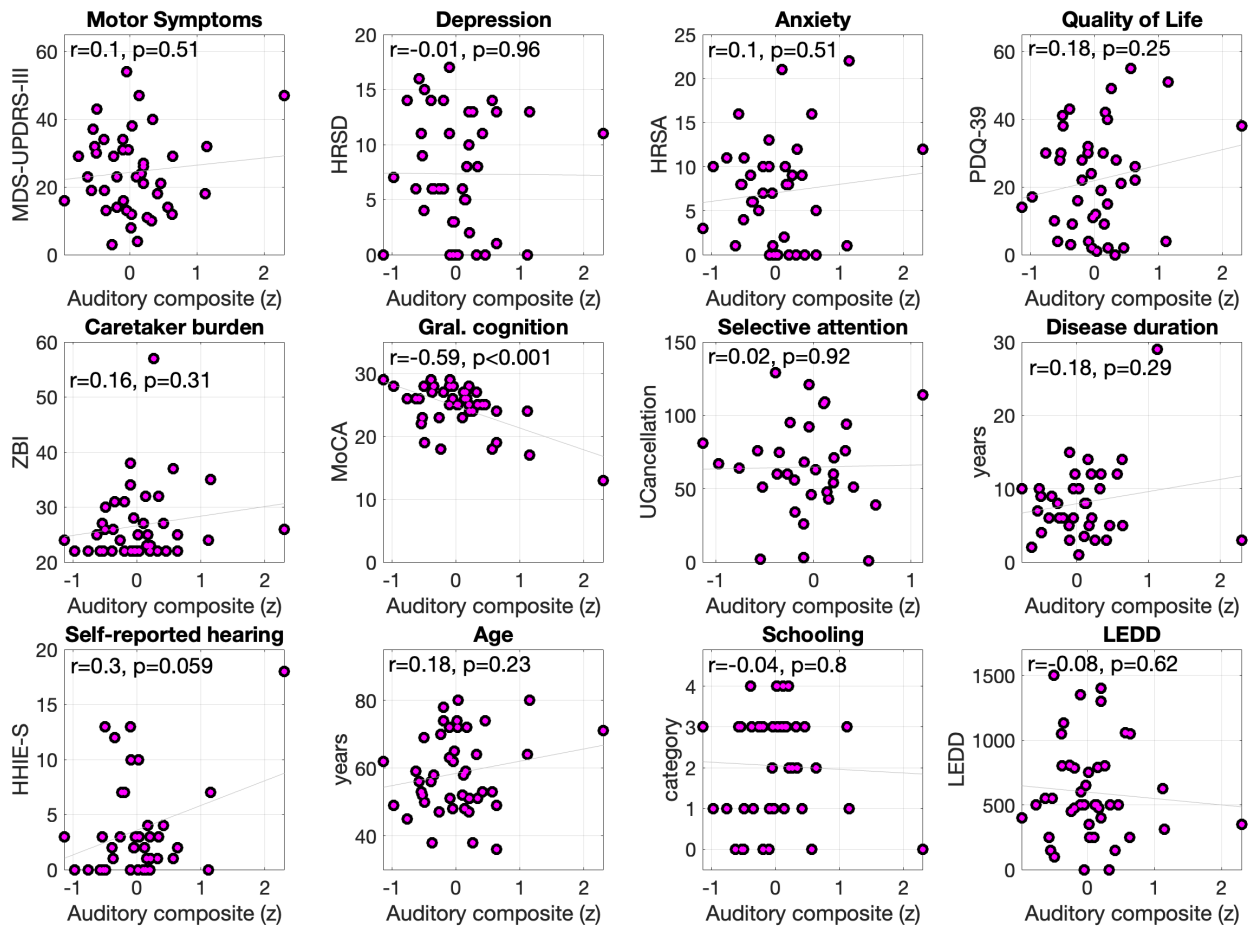
Supplementary Figure 1. Scatter plots and Pearson correlations showing clinical, cognitive, and demographic measures as a function of the low-level auditory processing composite score within the PD group. The categories for the schooling variable are: 0 = elementary; 1 = middle-school; 2 = high-school; 3 = university; 4 = graduate school. LEDD, L-Dopa Equivalent Daily Dosage.

Mid-level Auditory Composites



Supplementary Figure 2. Scatter plots and Pearson correlations showing clinical, cognitive, and demographic measures as a function of the mid-level auditory processing composite score within the PD group. The categories for the schooling variable are: 0 = elementary; 1 = middle-school; 2 = high-school; 3 = university; 4 = graduate school. LEDD, L-Dopa Equivalent Daily Dosage.

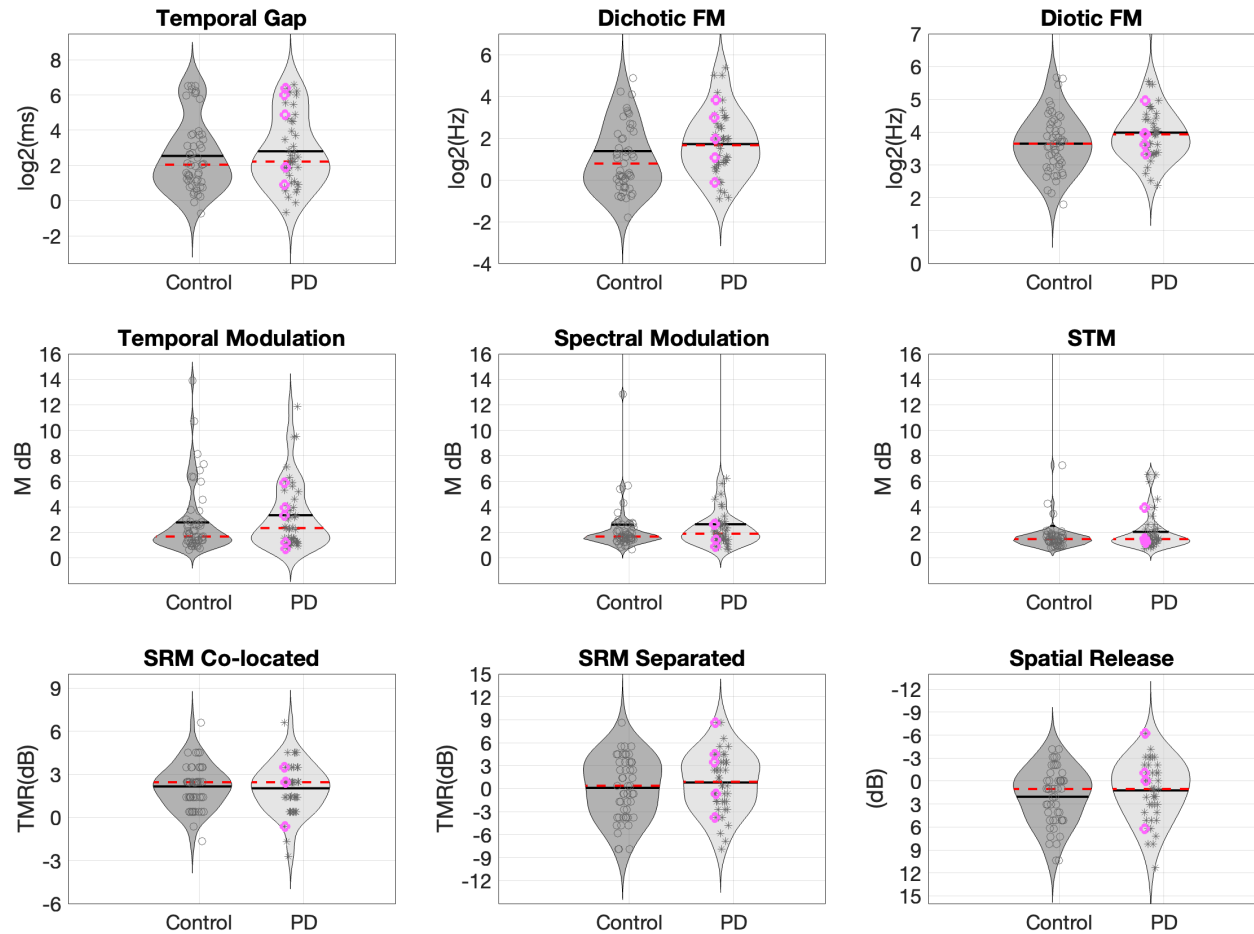
High-level Auditory Composites



Supplementary Figure 3. Scatter plots and Pearson correlations showing clinical, cognitive, and demographic measures as a function of the high-level auditory processing composite score within the PD group. The categories for the schooling variable are: 0 = elementary; 1 = middle-school; 2 = high-school; 3 = university; 4 = graduate school. LEDD, L-Dopa Equivalent Daily Dosage.

Deep brain stimulation (DBS)

Lastly, we wanted to show the performance scores of the people with PD that had deep brain stimulation (DBS) relative to the rest of the sample. To this end we reconstructed Figure 2 in the main manuscript including open circle markers to indicate patients with DBS (5 cases).



Supplementary Figure 4. Deep-brain stimulation (DBS) patients. Violin plots showing probability density functions to compare control and PD distributions of threshold values across the set of 8 auditory processing measures taken and the spatial release from masking metric. Open magenta circle markers indicate DBS in the Red dotted lines inside the violins indicate median and solid black lines the mean of each distribution. Each assessment includes the result of an independent samples t-test calculated for descriptive purposes only and are not corrected for multiple comparisons. FM, frequency modulation; SRM, spatial release from masking; STM, spectrotemporal modulation.