

Supplementary Table 1 Comparison of MBI-C total and subdomains scores between HOA and MCI groups with MBI symptoms

	MBI+		<i>K-W</i>	<i>P</i>
	HOA (<i>n</i> = 6)	MCI (<i>n</i> = 16)		
MBI total score M (P ₂₅ , P ₇₅)	7 (1.8,7.3)	9.5 (7.5,12.8)	2.459	0.014
Decreased motivation M (P ₂₅ , P ₇₅)	0 (0,1.3)	2 (0,3)	1.598	0.110
Emotional dysregulation M (P ₂₅ , P ₇₅)	0 (0,1.5)	2 (0,5)	1.592	0.111
Impulse dyscontrol M (P ₂₅ , P ₇₅)	4.5 (1.8,6.3)	4 (1.3,7.5)	0.037	0.970
Social inappropriateness M (P ₂₅ , P ₇₅)	0 (0,0)	0 (0,1)	1.522	0.128
Abnormal perception or thought content M (P ₂₅ , P ₇₅)	-	-	-	-

Note: HOA: Health Old Adults; MBI: Mild Behavioral Impairment; MCI: Mild Cognitive Impairment; M (P₂₅, P₇₅): median (lower quartile, upper quartile). *P* values were calculated using Mann Whitney *U* Test.

Supplementary Table 2 Comparison of MBI-C total and subdomains score between both genders

(score, Mean ± SD)	Male (<i>n</i> = 85)	Female (<i>n</i> = 156)	<i>t</i>	<i>P</i>
MBI-C total score	1.87±3.89	1.61±.2.71	0.616	0.538
Decreased motivation	0.31±1.01	0.39±1.35	0.490	0.624

Emotional dysregulation	0.28±1.00	0.41±1.07	0.927	0.355
Impulse dyscontrol	1.24±2.43	0.82±1.52	1.647	0.101
Social inappropriateness	0.05±0.21	0.01±0.11	1.669	0.097
Abnormal perception or thought content	-	-	-	-

Note: MBI: Mild Behavioral Impairment; SD: Standard Deviation. *P* values were calculated using independent sample *t*-test.

Supplementary Table 3 Correlations between MBI-C total score and demographic characteristics, cognitive status, and daily living function scores

	Age	Education years	Hypertension	Diabetes	MMSE	MoCA	CDT	BNT	DST	FAQ	MBI-C
Age	1										
Education years	-0.005	1									
Hypertension	-0.155	-0.127	1								
Diabetes	-0.005	-0.012	0.174	1							
MMSE	-0.384*	0.369*	0.278*	-0.019	1						
MoCA	-0.335*	0.361*	0.211*	0.101	0.809*	1					

CDT	-	0.451*	0.164	-0.073	0.694*	0.639*	1				
		0.310*									
BNT	-	0.373*	0.119	0.266*	0.518*	0.615*	0.504*	1			
		0.265*									
DST	-0.184	0.201*	0.108	0.133	0.437*	0.477*	0.388*	0.278*	1		
FAQ	0.310*	-0.162	-0.244*	-0.154	-0.408*	-0.396	-	-	-	1	
							0.299*	0.367*	0.274		
MBI-C	0.017	0.093	-0.188	-0.234*	-0.059	-0.093	0.023	-0.038	-	0.402*	1
									0.106		

Note: MBI-C: Mild Behavioral Impairment-Checklist; MMSE: Mini-Mental State Examination; MoCA: Montreal Cognitive Assessment; CDT: Clock Drawing Test; BNT: Boston Naming Test; DST: Digit Span Test; FAQ: Functional Activities Questionnaire. Significance star for the Spearman's correlation analysis: * represents $P < 0.05$.

Supplementary Table 4 Comparison of p-tau217, A β 40, A β 42, A β 42/A β 40 levels in MCI patients of different genders

(score, Mean $\pm$ SD)	Male ($n = 31$)	Female ($n = 39$)	t	P
p-tau217	870.46 $\pm$ 325.64	794.71 $\pm$ 325.71	0.967	0.337
A β 40	217.95 $\pm$ 68.66	206.05 $\pm$ 79.05	0.662	0.510

A β 42	131.48 $\pm$ 47.72	124.84 $\pm$ 38.13	0.647	0.520
A β 42/ A β 40	0.63 $\pm$ 0.20	0.63 $\pm$ 0.17	-0.263	0.794

Note: MBI: Mild Behavioral Impairment; SD: Standard Deviation. P values were calculated using independent sample t-test.

Supplementary Table 5 Correlation between MBI-C total and subdomains score, and AD plasma biomarkers in the MCI group

	A β 40		A β 42		p-tau217		A β 42/40	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>
MBI-C total score	-0.206	0.221	-0.385*	0.019	-0.330*	0.041	0.165	0.330
Decreased motivation	-0.115	0.538	-0.125	0.504	-0.166	0.371	0.016	0.932
Emotional dysregulation	-0.210	0.256	-0.248	0.178	-0.317	0.082	-0.019	0.919
Impulse dyscontrol	-0.315	0.084	-0.401*	0.025	-0.347	0.056	-0.002	0.993
Social inappropriateness	-0.201	0.279	-0.203	0.273	-0.166	0.373	0.040	0.831

Note: MBI-C: Mild Behavioral Impairment-Checklist; AD: Alzheimer's disease; MCI: Mild Cognitive Impairment. Significance star for the correlation analysis: * represents $P < 0.05$.