

Supplementary

Supplementary Table S1. Self-reported fatigue, affective symptoms, and somatic complaints in PCS and HC participants, with Bayesian inference. Comparison of symptom severity between individuals with Post-COVID-19 Syndrome (PCS) and matched healthy controls (HC) across domains including fatigue (VAS, MFI), sleep (PSQI), autonomic function (COMPASS-31), post-exertional malaise, mood (HADS), PTSD, and fibromyalgia-related symptoms. Values are shown as mean (standard deviation), and group comparisons were conducted using independent samples t-tests or chi-squared tests, as appropriate. The Bayesian factor (BF_{10}) is reported for each comparison, quantifying the strength of evidence in favor of the alternative hypothesis. Asterisks (*) denote statistically significant differences at $p < 0.05$ or $BF_{10} > 1$.

Variable	PCS Mean (std)	HC Mean (std)	Statistics	P-value	B_{10}
Fatigue VAS	5.500 (1.606)	1.850 (1.663)	T(38)=7.061	2.036x10 ^{-8*}	876.874*
Multidimensional fatigue	15.200 (3.205)	6.684 (2.212)	T(38)=47.68	1.355x10 ^{-11*}	1332.772*
General Physical	14.600 (2.998)	5.737 (2.884)	T(38)=43.19	2.408x10 ^{-11*}	4158.129*
Reduced activity	12.150 (3.703)	5.444 (2.307)	T(38)=15.09	1.072x10 ^{-7*}	650.746*
Reduced motivation	8.600 (3.393)	4.895 (2.378)	T(38)=9.59	3.589x10 ^{-4*}	34.338*
Mental fatigue	12.850 (3.843)	6.053 (3.027)	T(38)=21.41	4.391x10 ^{-7*}	767.860*
ESS	12.400 (5.548)	6.474 (4.234)	T(37)=3.735	6.304x10 ^{-4*}	24.874*
HADS Depression	8.900 (2.954)	4.053 (2.345)	T(37)=5.657	1.833x10 ^{-6*}	153.950*
HADS Anxiety	7.550 (3.790)	5.368 (2.477)	T(37)=2.116	0.041*	1.287*
PTSD total score	19.750 (10.208)	6.105 (8.185)	T(37)=4.590	4.964x10 ^{-5*}	59.715*
De Paul's PEM	2.950 (0.945)	0.421 (0.449)	T(37)=10.584	9.541x10 ^{-13*}	64546.865*
De Paul's Unrefreshing sleep	3.400 (0.821)	1.316 (0.749)	T(37)=8.269	6.229x10 ^{-10*}	1547.301*
De Paul's Autonomic symptoms	1.775 (0.881)	0.553 (0.550)	T(37)=5.166	8.438x10 ^{-6*}	73.625*
De Paul's Neurocognitive	1.775 (0.910)	0.474 (0.612)	T(37)=5.212	7.316x10 ^{-6*}	401.197*
De Paul's Immune	2.250 (0.993)	0.658 (0.834)	T(37)=5.405	4.010x10 ^{-6*}	381.905*
COMPASS total score	62.413 (19.629)	30.666 (19.158)	T(37)=5.108	1.011x10 ^{-5*}	569.590*
Global PSQI	15.200 (6.542)	9.263 (5.791)	T(37)=2.995	0.005*	15.254*
MRC	Stage 1: 9	19			N/A
Dyspnea	Stage 2: 9	1			
Scale	Stage 3: 2	0	$\chi^2(5)=11.971$	0.003*	
MoCA	26.8 (2.55)	26.5 (1.54)	T(37)=0.430	0.668	0.420
Pain detect	9.00(6.53)	1.7 (1.84)	T(37)= 4.813	<0.001*	1315.956*
WPI	5.45 (4.07)	1.00 (1.62)	T(37)=4.541	<0.001*	119.442*
SS	8.55 (1.88)	1.75 (1.68)	T(37)=12.066	<0.001*	13663.606*
Fibromyalgia diagnostic criteria	Yes: 8 No: 12	Yes:0 No:20	$\chi^2(2)=10.581$	0.005*	N/A

Supplementary Table S2. Comparison of standard blood parameters between PCS and healthy control participants. Descriptive statistics and group comparisons for hematological, biochemical, and inflammatory markers in individuals with Post-COVID-19 Syndrome (PCS) and matched healthy controls (HC). Results are reported as mean (standard deviation). Between-group comparisons were conducted using the Mann–Whitney U test (W), with corresponding p-values and Bayesian factors (BF₁₀) reported for each variable. Asterisks (*) denote statistically significant differences at $p < 0.05$ or $BF_{10} > 1$.

Variable	PCS Mean (SD)	HC Mean (SD)	Statistics W	P-value	B ₁₀
Sodium	140.118 (2.619)	140.474 (2.091)	161.00	1.00	0.369
Potassium	3.965 (0.237)	4.000 (0.252)	126.00	0.53	0.334
Urea	4.135 (1.346)	4.337 (0.942)	158.50	0.94	0.359
Creatinine	61.235 (8.318)	68.632 (11.847)	101.50	0.06	1.232*
Glucose	4.871 (0.819)	4.968 (1.106)	157.00	0.90	0.329
Calcium_corrected	2.268 (0.059)	2.288 (0.109)	159.00	0.95	0.341
Phosphatase	1.088 (0.166)	1.171 (0.163)	106.00	0.08	0.749
Proteins_total	71.000 (3.691)	71.526 (3.878)	148.50	0.69	0.337
Albumin	47.000 (1.969)	47.000 (2.749)	154.50	0.83	0.326
Bilirubin_total	10.125 (6.672)	9.824 (7.170)	116.00	0.48	0.370
ALP	64.176 (15.204)	63.947 (23.710)	145.50	0.62	0.362
AST	23.353 (6.441)	22.316 (7.521)	131.00	0.34	0.420
Gamma_GT	13.059 (3.508)	31.632 (47.978)	97.50	0.04	1.735*
Magnesium	0.859 (0.043)	0.872 (0.054)	151.50	0.76	0.347
CRP_recoded	1.353 (0.606)	1.368 (0.597)	158.50	0.92	0.397
Globulin	23.529 (3.875)	24.526 (2.674)	138.50	0.47	0.497
Ferritin	108.353 (103.511)	99.789 (84.020)	156.50	0.89	0.307
WCC	6.629 (1.662)	6.501 (1.803)	156.50	0.89	0.336
RCC	4.385 (0.457)	4.561 (0.386)	112.50	0.12	0.843
Hemoglobin	134.000 (13.224)	137.263 (10.514)	138.50	0.48	0.426
Haematocrit	0.403 (0.036)	0.417 (0.029)	120.00	0.19	0.739
MCV	91.988 (4.276)	91.679 (5.684)	159.00	0.95	0.329
MCH	30.624 (1.719)	30.200 (2.149)	151.00	0.75	0.348
MCHC	332.882 (11.931)	329.158 (8.662)	128.50	0.30	0.504
RDW	12.406 (0.599)	12.474 (0.726)	154.50	0.84	0.329
Platelet_count	267.118 (42.355)	289.789 (45.281)	105.00	0.08	1.123*
MPV	10.988 (0.834)	10.716 (0.727)	121.00	0.20	0.463
Neutrophils	4.142 (1.178)	3.773 (1.409)	135.50	0.42	0.414
Lymphocytes	1.934 (0.550)	2.029 (0.650)	144.50	0.60	0.334
Monocytes	0.441 (0.102)	0.441 (0.127)	155.00	0.85	0.319
Eosinophils	0.141 (0.100)	0.214 (0.243)	147.50	0.67	0.365
Basophils	0.052 (0.030)	0.042 (0.018)	136.00	0.42	0.486
Immature_Granulocyte_Count	0.022 (0.016)	0.022 (0.012)	141.50	0.51	0.327
ESR	7.588 (6.662)	8.278 (8.072)	139.50	0.67	0.354
TSH	1.819 (0.630)	1.633 (0.658)	124.50	0.25	0.423

T4_free	15.124 (1.759)	15.042 (1.624)	156.00	0.87	0.321
NLR	2.209 (0.594)	2.038 (1.137)	125.50	0.26	0.540
MLR	0.234 (0.041)	0.230 (0.072)	156.00	0.87	0.346

Supplementary Table S3. Serum cytokines and glial biomarkers in PCS and healthy control participants. Group comparisons for circulating immune markers (interleukins, interferon- γ , TNF- α) and glial markers (S100 β , GFAP) measured in serum samples from individuals with Post-COVID-19 Syndrome (PCS) and healthy controls (HC). Data are reported as mean (standard deviation). Concentrations are in pg/mL. Between-group differences were evaluated using the Mann-Whitney U test (W), with corresponding p-values and Bayes Factors (BF₁₀). Asterisks (*) indicate statistically suggestive effects (BF₁₀ > 1)

Variable	PCS Mean (SD)	HC Mean (SD)	Statistics W	P-value	B ₁₀
IFNγ	4.639 (8.032)	4.182 (8.177)	151.000	0.789	0.345
IL1b	0.345 (0.745)	0.094 (0.061)	195.000	0.300	0.573
IL6	1.197 (2.795)	0.418 (0.205)	194.000	0.478	0.431
TNFα	1.164 (1.799)	0.980 (0.316)	110.000	0.116	1.094*
IL10	0.576 (1.145)	0.229 (0.141)	171.000	0.449	0.365
IL13	0.998 (0.889)	1.228 (0.894)	127.000	0.563	0.398
IL8	6.106 (4.671)	6.581 (2.791)	126.000	0.289	0.460
s100b	3.908 (2.192)	5.165 (2.558)	130.000	0.149	1.025*
GFAP	14.62 (4.79)	13.78 (5.32)	157.000	0.515	0.406

Supplementary Table S4. Performance on computerized cognitive tasks in PCS and healthy control participants. Comparison of standardized deviation-from-expected (DFE) scores derived from the Cognitron cognitive task battery, assessing domains such as spatial reasoning, memory, motor control, and sustained attention. Scores represent z-standardized residuals relative to normative models controlling for age, sex, handedness, and ethnicity. Between-group differences were tested using independent samples t-tests, with corresponding p-values and Bayes Factors (BF₁₀). Asterisks (*) indicate results meeting the threshold for statistical significance (p < 0.05) or anecdotal Bayesian evidence (BF₁₀ > 1).

Variable	PCS Mean (SD)	HC Mean (SD)	Statistics	P-value	B ₁₀
Blocks_RT_DFE	0.136 (0.613)	-0.043 (0.539)	T(38)=0.981	0.33	0.452
BlocksSummaryScore_DFE	-0.706 (1.069)	-0.301 (1.011)	T(38)=-1.231	0.23	0.563
Lead_Balloon_SummaryScore_DFE	0.576 (1.254)	-0.038 (0.658)	T(38)=1.939	0.06	1.330*
2D_Manipulations_RT_DFE	-0.006 (0.741)	0.599 (1.892)	T(38)=-1.332	0.20	0.621
2D_Manipulations_SummaryScore_DFE	1.573 (1.484)	1.236 (1.711)	T(38)=0.665	0.51	0.369
Motor_control_RT_DFE	-0.097 (0.740)	-0.148 (0.766)	T(38)=0.214	0.83	0.314
Motor_Control_SummaryScore_DFE	-0.012 (0.772)	-0.122 (0.764)	T(38)=0.453	0.65	0.335
Objects_memory_delayed_RT_DFE	0.416 (1.384)	-0.458 (0.898)	T(38)=2.369	0.02*	2.653*
Objects_memory_delayed_SummaryScore_DFE	0.073 (1.025)	-0.386 (1.866)	T(38)=0.964	0.34	0.446
Objects_memory_immediate_RT_DFE	-0.106 (0.757)	-0.433 (0.840)	T(38)=1.293	0.20	0.596
Objects_memory_immediate_SummaryScore_DFE	0.023 (0.845)	-0.006 (1.268)	T(38)=0.085	0.93	0.310
Spotter_RT_DFE	0.360 (1.302)	-0.308 (0.841)	T(38)=1.927	0.06	1.303*

Spotter_SummaryScore_DFE	0.093 (0.175)	0.120 (0.361)	T(38)=-0.301	0.77	0.320
Verbal_analogies_RT_DFE	0.116 (0.743)	-0.027 (0.916)	T(38)=-0.542	0.59	0.347
Verbal_analogies_SummaryScore_DFE	-0.852 (1.355)	-0.592 (1.163)	T(38)=-0.651	0.52	0.366