**Supplementary Materials**

1. **eMethods**

**1.1 Clinical Assessment instruments**

1. Montreal Cognitive Assessment (MoCA): The MoCA is a short screening tool developed for the detection of mild cognitive impairment1 It examines six different cognitive domains (executive functions, visuospatial abilities, attention, verbal fluency, memory, and spatio-temporal orientation), thus the total score of the MoCA, which varies from 0 to 30, provides a global assessment of the cognitive performance of the subject. MoCA scores, assessed both at baseline and at follow-up, were corrected and broken down into MoCA subdomains, according to the most recent normative data available for Northern Italy population2.
2. Depression Anxiety Stress Scales (DASS-21): the original Depression Anxiety Stress Scales-42 (DASS-42) was developed by Lovibond and Lovibond3 to maximize discrimination between self-reported anxiety and depression while assessing the full range of these disorders’ core symptoms. Antony et al.4 subsequently confirmed that the shorter version, the DASS-21, provides a relevant measure of negative emotions that include mixed symptoms of depression, anxiety, and stress5. Employed cut-offs were respectively ≥ 14 for depression, ≥ 10 for anxiety and ≥ 19 for stress, according to validated norms6.
3. Impact of Event Scale-Revised (IES-R): the IES-R was used to assess PTSD symptoms7. It consists of 22 items, scoring on a five-point Likert scale, and divided in three subscales (respectively investigating intrusion, avoidance and hyperarousal symptoms in the last 15 days). A score of 33 or higher (i.e., the cut-off employed in our study) on the IES-R is suggestive for a provisional diagnosis of PTSD, while a score of 24 or higher has been used to indicate partial PTSD8,9. Both the original and the Italian IES-R version have been extensively validated and have shown good psychometric properties10.
4. Insomnia Severity Index (ISI) is a qualitative scale used to detect and quantify the patient's perception of insomnia severity, assess its impact on daytime functioning, and monitor treatment response in adults. We considered, according to validate norms, a cut-off of ≥ 15 for clinically relevant insomnia11.
5. 5-level EuroQol 5-dimensional questionnaire (EQ-5D-5L)12
6. Sheehan Disability Scale (SDS)13

**1.2 Statistical analyses (extended version)**

Data collection for these analyses was stopped on September 30th, 2022; all cross-sectional data available were included in the current analyses. Descriptive statistics were computed for sociodemographic variables, cognitive scores (continuous and dichotomized according to ES), and psychiatric scores (continuous and dichotomized according to validated cut-offs).

Duration of most represented general symptoms (i.e., fever, dyspnea, headache, fatigue, sleep disturbances, gastro-intestinal (GI) symptoms, anosmia/dysgeusia, and upper respiratory tract symptoms) for each subject was aggregated to compute an index of overall symptom burden (expressed as the sum of the duration of any reported symptom in symptoms-months, as extrapolated from the questionnaire answers, divided by the time elapsed between the date of infection and the date of questionnaire completion), as summarized by the following equation:

where is the time elapsed between time of infection (determined as the time of first SARS-CoV-2 positive nasopharyngeal swab) and the time of questionnaire administration. The value range of this index spans between 0 (lack of non-cognitive symptoms) and 8 (the maximum number of non-cognitive symptoms included, experienced for the whole period between acute infection and questionnaire completion).

Acute infection severity data was collected and coded into a multinomial variable with the following categories: non-hospitalized/paucisymptomatic, hospitalized - no oxygen supplementation required; hospitalized - low oxygen supplementation required (i.e., up to Venturi mask); hospitalized - high flow oxygen supplementation required but no ICU admission (i.e., high-flow nasal cannulas, or non-invasive ventilation that could be managed in a non-ICU setting), ICU admission/invasive ventilation. Each subject’s primary infection was classified into pandemic waves according to first nasopharyngeal swab date following the recommendation of Italian’s *Istituto Superiore di Sanità* 14.

For numerical continuous variables, normality of the distribution was tested through the Shapiro-Wilk test and/or through skewness/kurtosis analyses; differences between groups were assessed through Student t-tests for normally distributed variables and through nonparametric tests (Mann-Whitney U) for non-normally distributed variables. For nominal or ordinal (either dichotomic or multinomial) variables, χ2 test of homogeneity was used to assess differences between groups.

We assessed for concordance between reported cognitive symptoms and cognitive deficits found at MoCA subscores (as defined by Aiello et al. 2) by χ2 test of homogeneity for each symptom class and related subdomain deficit (e.g., memory complaints were assessed for concordance with memory impairment); similarly, we also assessed association of specific cognitive complaints with any impairment in any MoCA subdomain and association between cognitive and non-cognitive symptoms. For the purpose of these analyses, ES for attention and executive functions scores, dichotomized according to a cut-off between ES 0 and 1, were re-coded in a combined variable.

Correlations among symptom burden, demographic variables, cognitive scores (MoCA-TS, MIS, and ES for each subdomain) and psychiatric scores was then assessed through Pearson’s correlation coefficients. For EQ-5D-5L, the overall quality of life score was used for correlations, while for SDS, the average of the first three items (disability at school/work/social life, at home, and during social activities, as these are complementary measures of disability expressed on a 1-to-10 Likert scale) was used. Correlations strength has been interpreted according to the model reported by Cohen15 (summarized in e*Table 1*).

We also performed a binomial logistic regression, adjusted for age, gender, and education, to ascertain the effect of acute infection parameters (acute infection duration, infection severity, pandemic wave), psychoactive drug history, scores obtained at psychiatric scale (continuous and dichotomic), and overall symptom burden, on MoCA-TS (dichotomized both for an ES cut-off of 0/1 and of 1/2). Likewise, we performed a binomial logistic regression, adjusted for the same demographic variables, to assess the effect of acute infection parameters, psychoactive drug history, overall symptom burden, MoCA-TS and MoCA-memory (M), attention (A)/ executive functions (EF), language (L) subscores (dichotomized according to a ES cut-off at 0/1), and MIS (dichotomized according to validated cut-offs) on finding any psychiatric score above cut-off. Finally, we fitted a multiple regression model, adjusted for age, gender, and education, to assess the effect of infection, psychiatric, and cognitive parameters on overall symptom burden.



eTable 1 - Cohen's strength of correlation. |r| represents the absolute value of Pearson's r coefficient.

1. **eResults**
   1. **Association between cognitive symptoms and MoCA scores, as well as between cognitive symptoms and most represented non cognitive symptoms.** Contingency tables as well as their relative Chi-square statistic are reported.











1. **Supplementary Materials Bibliography:**

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**SUPPLEMENTARY FIGURES LEGENDS**:

**eFigure 1**: Histogram representing distribution of the index of overall symptom burden.

**eFigure 2***:* Number of subjects with impairment in DASS subscales, as well as their overlap. *Abbreviations: DASS, Depression, anxiety, Stress scale; DASS-D, DASS-depression; DASS-A, DASS anxiety subscale; DASS-S, DASS-stress subscale.*

**eFigure 3***:* Pearson's Correlation matrices represented as heatmaps (unadjusted). In the heatmap above Pearson's correlation coefficients are represented, while in the heatmap below p values for the same correlations are depicted.