

In some Countries Neurological Long COVID hits Harder than Others

Researchers assessed various outcomes in adult survivors of [coronavirus disease 2019](#) (COVID-19) who experienced neurological symptoms of Long COVID across four countries.

They found that Long COVID or neurological post-acute sequelae of COVID-19 (Neuro-PASC) was observed worldwide, but that symptom burden, cognitive impairment, and [psychological distress](#) varied significantly between countries.



Study

Long COVID, also known as post-acute sequelae of COVID-19 (PASC), affects hundreds of millions of people worldwide and poses a growing public health and economic challenge. Among its many manifestations, Neuro-PASC is among the most frequent and disabling, often prompting [clinical evaluation](#).

Prior studies have shown that neurological outcomes vary according to the severity of acute [COVID-19](#) and that Long COVID imposes a substantial burden on quality of life and cognitive function.

Although several large-scale studies and meta-analyses have examined the global impact of Long COVID, few have directly compared neurological manifestations across countries using harmonized primary [patient-level data](#). As a result, it remains unclear how Neuro-PASC presents across diverse geographic, economic, and sociocultural contexts.

Researchers used harmonized observational data from four countries, representing high-, middle-, and lower-middle-income settings, to systematically compare cognitive outcomes, quality of life, [symptom](#) profiles, and demographics in adults with Neuro-PASC. The primary studies were conducted in India, Nigeria, Colombia, and the United States between 2020 and 2025.

All sites followed a common protocol developed at a U.S.-based Neuro-COVID clinic, with local ethical approval obtained at each institution. Adult participants with a confirmed [infection](#) and persistent neurological symptoms lasting at least three months were included. Participants were evaluated either in person or via telehealth, depending on local resources and public health policies.

Patients were categorized into two groups: post-hospitalization Neuro-PASC (PNP) and non-hospitalized Neuro-PASC (NHP), based on the severity of their acute COVID-19. Data collected

included demographics, comorbidities, neurological and non-neurological symptoms, and quality-of-life measures. Cognitive function was assessed using locally validated but non-uniform instruments, while psychological distress was measured using established tools such as the [Depression and Anxiety Stress Scale \(DASS\)](#), with instrument availability varying by country.

Statistical analyses included descriptive comparisons, [regression models](#) adjusted for age and sex, and multiple correspondence analysis to examine cross-country symptom clustering by summarizing patterns across multiple symptoms simultaneously.

Findings

A total of 3,157 adults with Neuro-PASC were included, comprising 652 post-hospitalized and 2,505 non-hospitalized participants across four countries. Demographic profiles varied significantly by region, particularly in [sex distribution](#). For example, PNP patients were predominantly male except in the United States, while NNP patients were predominantly female except in India.

The most frequently reported neurological symptoms across cohorts were brain fog, myalgia, dizziness, [headache](#), and sensory disturbances, although their prevalence differed markedly by country. In both NNP and PNP groups, the median number of neurological symptoms was greatest in the United States and progressively lower in Colombia, Nigeria, and India.

Overall symptom burden was highest in the United States and Colombia and lowest in India, with Nigeria generally intermediate. [Brain fog](#), depression, and anxiety were especially common in the United States and Colombia. In contrast, they were reported far less frequently in Nigeria and India, even after statistical adjustment for age and sex, a pattern that does not necessarily indicate lower underlying disease burden.

Objective neurological examinations and cognitive testing using different locally validated tools similarly demonstrated higher rates of [abnormalities](#) in the United States and Colombia compared with Nigeria and India. Multiple correspondence analysis revealed clear clustering of symptom profiles, with the United States and Colombia grouping together and Nigeria and India forming a separate cluster, reflecting differences in overall global symptom burden rather than isolated manifestations.

These findings were consistent across both hospitalized and non-hospitalized groups, indicating substantial geographic variation in [Neuro-PASC presentation](#).

Conclusion

This study provides the first cross-continental comparison of neurological manifestations of Long COVID using harmonized observational data from primary cohorts. A major strength is the inclusion of diverse populations across [income levels](#) and regions, analyzed using a shared protocol.

The findings demonstrate that while Neuro-PASC occurs globally, symptom burden, psychological distress, and cognitive impairment vary significantly by country, and may be influenced by sociocultural norms, [healthcare access](#), health literacy, stigma surrounding mental and cognitive symptoms, and differing expectations of illness, rather than biological factors alone. Variations in health-seeking behavior, availability of specialty care, and routine

incorporation of mental health screening into clinical encounters may further contribute to these observed differences and to differences in symptom reporting across settings.

Key limitations include differences in recruitment strategies, timing of assessments, and the use of non-uniform cognitive and [psychological instruments](#) across sites, which restrict direct comparisons. Despite these constraints, the consistent clustering of symptom profiles supports the robustness of the findings.

The study highlights the importance of culturally sensitive assessment tools and standardized data collection in global Neuro-PASC research and underscores the need to integrate post-COVID neurological care into [health systems](#) worldwide.

Source:

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