COVID-19

see COVID-19 Pandemic.

COVID-19 Variants Overview

This table summarizes the major SARS-CoV-2 variants, their characteristics, and clinical implications.

Major Variants

Variant	First Identified	Key Features	Clinical Impact	WHO Label
Alpha (B.1.1.7)	UK, Sept 2020	Highly transmissible	More severe disease	Variant of Concern
Beta (B.1.351)	South Africa, May 2020	Immune escape	Possible vaccine resistance	Variant of Concern
Gamma (P.1)	Brazil, Nov 2020	Reinfection risk	Moderate severity	Variant of Concern
Delta (B.1.617.2)	India, Oct 2020	Very high spread	Higher hospital/death rates	Variant of Concern
Omicron (B.1.1.529)	Southern Africa, Nov 2021	Extremely contagious, many mutations	Milder disease	Variant of Concern

Subvariant	Key Notes
BA.1 / BA.2	Initial waves; BA.2 more transmissible
BA.4 / BA.5	More immune-evasive; widespread in mid-2022
XBB / XBB.1.5 (“Kraken”)	Recombinant; caused winter 2022–23 surge
EG.5 (“Eris”)	Circulated mid-late 2023; moderate immune escape
JN.1	Dominant in early 2024

General Trends

- Early variants: more severe in unvaccinated
- Omicron and beyond: milder but more transmissible
- Current focus: protection of vulnerable and managing comorbidities

Cross-Sectional Studies

In a cross-sectional study Jinjing Lu *et al.* from the Shengjing Hospital, Shenyang published in BMC Medicine to assess changes in cardio-cerebrovascular risk factors (CCVRFs) across three periods—pre-, during-, and post-COVID-19 lockdown—using preventive health assessment data from a single large center. The study found a statistically significant increase in diabetes mellitus, systemic immune-inflammation indices (NLR, PLR, SII), and insulin resistance markers (TyG, TyG-BMI) during the lockdown period, with older adults (>60 years) disproportionately affected. These findings underscore the need for targeted health strategies during prolonged societal disruptions [1].

Critical Review:

Despite its large sample size (n=46,958), this study suffers from inherent limitations of its cross-sectional design—specifically, an inability to establish causality. The use of a single-center cohort from one health management center in Shenyang introduces a selection bias, as individuals undergoing routine health assessments are not representative of the general population. Furthermore, while statistical significance is claimed across various parameters, clinical significance remains unaddressed. The temporal grouping (3-year pre-pandemic vs. 3-year lockdown vs. 1-year post-lockdown) is asymmetrical, potentially skewing comparative interpretations. Regression analyses are used effectively but without adjustment for key confounders such as socioeconomic status, access to healthcare, or physical activity changes—factors known to influence CCVRFs. Overall, while the data confirms expected trends, its real-world applicability is limited due to methodological constraints.

Final Verdict:

Moderately informative but suffers from design limitations that impair clinical utility.

Takeaway for the Practicing Neurosurgeon:

Recognize the indirect cerebrovascular implications of prolonged lockdowns—particularly the increase in systemic inflammation and insulin resistance—in older populations.

Bottom Line:

A single-center, large-sample cross-sectional analysis confirms the lockdown's adverse impact on CCVRFs, especially among the elderly, but lacks depth in causal inference and external generalizability.

Rating: 4/10

Full Citation: Lu J, Shen Y, Liu X, Mao Y, Jing L, Yang Z, Pei D, Dong W. Increased prevalence of cardio-cerebrovascular risk factors during the COVID-19 pandemic lockdown: a large, single center, cross-sectional study. *BMC Med.* 2025 Jul 9;23(1):414. doi:10.1186/s12916-025-04193-w. PMID: 40629381

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Blog Categories: Epidemiology, COVID-19, Public Health **Tags:** COVID-19 lockdown, cardio-

cerebrovascular risk, systemic inflammation, diabetes mellitus, insulin resistance, cross-sectional study, neurosurgery relevance, public health impact

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