

Multi-Dimensional (Quantitative and Qualitative) Longitudinal Research Methods for Biomedical Research of Post-COVID-19 ("Long Covid") Symptoms

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Abstract : Background: Since December 2019, the world has been afflicted by the spread of the Severe Acute Respiratory Syndrome-Corona Virus-2 (SARS-CoV-2), which is responsible for the condition referred to as Covid-19. The illness has had a cataclysmic impact on the political, social, economic, and overall well-being of the population of the entire globe. While Covid-19 has had a substantial universal fatality impact, it may have an even greater effect on the socioeconomic, medical well-being, and healthcare planning for remaining societies. Significance: As these numbers illustrate, many more persons survive the infection than die from it, and many of those patients have noted ongoing, persistent symptoms after successfully enduring the acute phase of the illness. Recognition and understanding of these symptoms are crucial for developing and arranging efficacious models of care for all patients (whether or not having been hospitalized) surviving acute covid illness and plagued by post-acute symptoms. Furthermore, regarding Covid infection in children (< 18 y/o), although it may be that Covid "+" children are not major vectors of infective transmission, it now appears that many more children than initially thought are carrying the virus without accompanying obvious symptomatic expression. It seems reasonable to wonder whether viral effects occur in children - those children who are Covid "+" and now asymptomatic - and if, over time, they might also experience similar symptoms. An even more significant question is whether Covid "+" asymptomatic children might manifest increased multiple health problems as they grow - i.e., developmental complications (e.g., physical/medical, metabolic, neurobehavioral, etc.) - in comparison to children who had been consistently Covid "-" during the pandemic. Topics Addressed and Theoretical Importance: This review is important because of the description of both quantitative and qualitative methods for clinical and biomedical research. Topics reviewed will consider the importance of well-designed, comprehensive (i.e., quantitative and qualitative methods) longitudinal studies of Post Covid-19 symptoms in both adults and children. Also reviewed will be general characteristics of longitudinal studies and a presentation of a model for a proposed study. Also discussed will be the benefit of longitudinal studies for the development of efficacious interventions and for the establishment of cogent, practical, and efficacious community healthcare service planning for post-acute covid patients. Conclusion: Results of multi-dimensional, longitudinal studies will have important theoretical implications. These studies will help to improve our understanding of the pathophysiology of long COVID and will aid in the identification of potential targets for treatment. Such studies can also provide valuable insights into the long-term impact of COVID-19 on public health and socioeconomics.

Keywords : COVID-19, post-COVID-19, long COVID, longitudinal research, quantitative research, qualitative research

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