

## Analyzing Factors Impacting COVID-19 Vaccination Rates

**Authors :** Dongseok Cho, Mitchell Driedger, Sera Han, Noman Khan, Mohammed Elmorsy, Mohamad El-Hajj

**Abstract :** Since the approval of the COVID-19 vaccine in late 2020, vaccination rates have varied around the globe. Access to a vaccine supply, mandated vaccination policy, and vaccine hesitancy contribute to these rates. This study used COVID-19 vaccination data from Our World in Data and the Multilateral Leaders Task Force on COVID-19 to create two COVID-19 vaccination indices. The first index is the Vaccine Utilization Index (VUI), which measures how effectively each country has utilized its vaccine supply to doubly vaccinate its population. The second index is the Vaccination Acceleration Index (VAI), which evaluates how efficiently each country vaccinated its population within its first 150 days. Pearson correlations were created between these indices and country indicators obtained from the World Bank. The results of these correlations identify countries with stronger health indicators, such as lower mortality rates, lower age dependency ratios, and higher rates of immunization to other diseases, displaying higher VUI and VAI scores than countries with lesser values. VAI scores are also positively correlated to Governance and Economic indicators, such as regulatory quality, control of corruption, and GDP per capita. As represented by the VUI, proper utilization of the COVID-19 vaccine supply by country is observed in countries that display excellence in health practices. A country's motivation to accelerate its vaccination rates within the first 150 days of vaccinating, as represented by the VAI, was largely a product of the governing body's effectiveness and economic status, as well as overall excellence in health practises.

**Keywords :** data mining, Pearson correlation, COVID-19, vaccination rates and hesitancy

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