

pharmacological approach to fight the disease. This paper is the first step to develop the standardized approach utilizing the public health interventions to be applied effectively to the globe population.

Key messages:

- the most effective measures to control the COVID-19, and future outbreaks.
- The effect of particular measure varied by country and time of implementation.

Public Health Policies and Global COVID-19 Outbreak

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Background:

Was the world prepared to face the pandemic with a standard strategy?

Objectives:

To evaluate the association between public health interventions against the COVID-19 outbreak and the outcome.

Methods:

The observational study included data on incidence of confirmed COVID-19 cases (outcome) and public health non-pharmaceutical interventions (exposure) from five countries: France, Italy, Japan, South Korea, and the USA, December 31, 2019 through April 12, 2020. The public health measures were grouped into five categories: lockdown, movement restrictions, public health measures, social (including social distancing) and economic measures, and use of facial mask. The multiple linear regressions were utilized to test the hypothesis that implementation of some public health measures was associated with the change in the incident number of COVID-19 cases, 2-sided, $\alpha = 0.05$.

Results:

The incidence of COVID-19 would be significantly greater without lockdown (1.89 times, p-value <.0001), public health and economic measures (25.17, p-value <.0001), and using masks (11.93, p-value=0.002), assuming that all other public health policies are the same. The effectiveness increases with earlier time of implementation. Among considered countries, South Korea was the most efficacious, where all measures were statistically significantly efficacious (p-value <0.05).

Conclusions:

The findings demonstrate an association between public health measures and the outcome. The experience from South Korea should be studied further as the most effective non-