

CORRELAZIONE TRA L'USO DELLE MASCHERINE E LE CONSEGUENZE DEL COVID-19 IN EUROPA

Articolo scientifico *peer-reviewed* pubblicato in data 19 aprile 2022

BREVE RIASSUNTO

L'uso delle mascherine è stato l'intervento non farmacologico più utilizzato durante la pandemia covid. Sono stati analizzati i dati di 35 paesi europei per studiare se e come l'uso di mascherine e' correlato ai contagi ed ai decessi.

Sono stati usati i dati di questi paesi europei: Albania, Bosnia-Erzegovina, Bulgaria, Croazia, Cechia, Ungheria, Macedonia Nord, Polonia, Romania, Serbia, Slovacchia, Slovenia, Bielorussia, Estonia, Lettonia, Lituania, Moldavia, Ucraina, Austria, Belgio, Danimarca, Francia, Germania, Grecia, Irlanda, Italia, Olanda, Norvegia, Portogallo, Spagna, Svezia, Svizzera, Regno Unito, e Irlanda del Nord.

E' STATO TROVATO CHE L'USO DELLE MASCHERINE NON HA UNA RELAZIONE SIGNIFICATIVA CON I CONTAGI COVID, CIOE' UN UTILIZZO MAGGIORE DELLE MASCHERINE NON PRODUCE ALCUN VANTAGGIO; AL CONTRARIO, ANZI, E' STATA TROVATA UNA CORRELAZIONE POSITIVA E STATISTICAMENTE SIGNIFICATIVA TRA L'USO DI MASCHERINE E I DECESSI COVID.

L'uso di mascherine durante la pandemia covid-19 non ha ridotto i contagi e anzi ha fatto aumentare lievemente i morti

ORIGINAL ARTICLE PEER-REVIEWED

Correlation Between Mask Compliance and COVID-19 Outcomes in Europe

Beny Spira

ARTICOLO COMPLETO A QUESTO LINK:
<https://doi.org/10.7759/cureus.24268>

Published: April 19, 2022 (see history)

DOI: 10.7759/cureus.24268

Cite this article as: Spira B (April 19, 2022) Correlation Between Mask Compliance and COVID-19 Outcomes in Europe. Cureus 14(4): e24268. doi:10.7759/cureus.24268

Abstract

Masking was the single most common non-pharmaceutical intervention in the course of the coronavirus disease 2019 (COVID-19) pandemic. Most countries have implemented recommendations or mandates regarding the use of masks in public spaces. The aim of this short study was to analyse the correlation between mask usage against morbidity and mortality rates in the 2020-2021 winter in Europe. Data from 35 European countries on morbidity, mortality, and mask usage during a six-month period were analysed and crossed. Mask usage was more homogeneous in Eastern Europe than in Western European countries. Spearman's correlation coefficients between mask usage and COVID-19 outcomes were either null or positive, depending on the subgroup of countries and type of outcome (cases or deaths). Positive correlations were stronger in Western than in Eastern European countries. These findings indicate that countries with high levels of mask compliance did not perform better than those with low mask usage.

Inclusion criterion

Data were collected from the following Eastern and Western European countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Hungary, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Belarus, Estonia, Latvia, Lithuania, Republic of Moldova, Ukraine, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and Northern Ireland. The inclusion criterion was a population size higher than one million people.

Results

This brief communication reports the correlation between the proportion of mask usage in the population and the number of cases (per million) and deaths (per million) from October 2020 to March 2021 in 35 European countries (Table 1). For this analysis, all European countries, including West and East Europe, with more than one million inhabitants were selected, encompassing a total of 602 million people. All

Surprisingly, weak positive correlations were observed when mask compliance was plotted against morbidity (cases/million) or mortality (deaths/million) in each country (Figure 3). Neither the number of cases nor the proportion of mask usage followed a Gaussian distribution (Shapiro-Wilk p-values were 0.004 and 0.0536, respectively). A Spearman's rank test was applied to quantify the correlation between mask usage, cases, and deaths (Table 2). The positive correlation between mask usage and cases was not statistically significant ($\rho = 0.136$, $p = 0.436$), while the correlation between mask usage and deaths was positive and significant ($\rho = 0.351$, $p = 0.039$). The Spearman's correlation between masks and deaths was considerably higher in the West than in East European countries: 0.627 ($p = 0.007$) and 0.164 ($p = 0.514$), respectively. This difference could be associated with the fact that the most populous countries are located in West Europe. However, the correlations did not significantly change when the seven countries with populations > 20 million were excluded from the analysis (cases $\rho = 0.129$ ($p = 0.513$); deaths $\rho = 0.375$ ($p = 0.049$)). Analyses of other sub-groups, such as countries with populations smaller or higher than six million, higher than 10 million, or higher than 15 million, were also evaluated. None of these tests provided negative correlations between mask usage and cases/deaths.

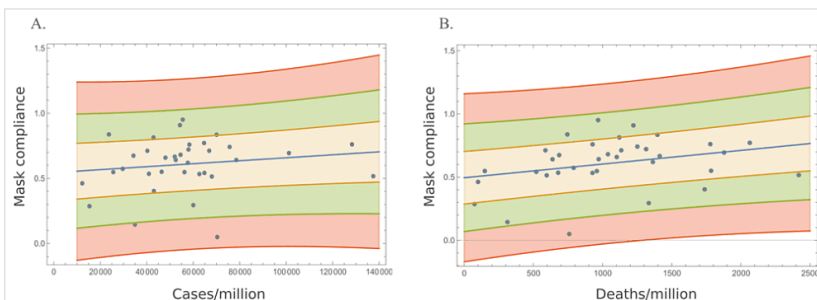


Figure 3: Correlation between average mask compliance and cases/million (A) or deaths/million (B) in 35 European countries. Each dot represents a country. The blue line represents the fitted regression line and the areas above and below indicate 1 σ (yellow), 2 σ (green), or 3 σ (red).

Territory	Masks x cases	Masks x deaths
All Europe	0.136 (0.436)	0.351 (0.039)*
Eastern Europe ¹	0.130 (0.606)	0.164 (0.514)
Western Europe ²	0.05 (0.848)	0.627 (0.007)*

Table 2: Spearman's rank correlation coefficient rho (p-value) between mask usage and COVID-19 cases or deaths.

¹ Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Hungary, North Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Belarus, Estonia, Latvia, Lithuania, Republic of Moldova, and Ukraine.

² Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and Northern Ireland.

* Statistically significant.

Conclusions

While no cause-effect conclusions could be inferred from this observational analysis, the lack of negative correlations between mask usage and COVID-19 cases and deaths suggest that the widespread use of masks at a time when an effective intervention was most needed, i.e., during the strong 2020-2021 autumn-winter peak, was not able to reduce COVID-19 transmission. Moreover, the moderate positive correlation between mask usage and deaths in Western Europe also suggests that the universal use of masks may have had harmful unintended consequences.