**S1 Table. Studies on the association between influenza vaccination and COVID-19 related outcomes.**

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| Author, year | Design | Methods | Main results |
| Hernandez et al., 2020 [1] | Ecological study | COVID-19 mortality in the elderly (> 65 years) and influenza VCR were analyzed across 21 regions in Italy. No correction for confounding was performed. Data up to May 2020 were used.  | Negative correlation between influenza vaccination and COVID-19 attributable mortality. (r = −.5874, n = 21, *P* = .0051) |
| Amato et al., 2020 [2] | Ecological study | Influenza VCR and SARS-CoV-2 seroprevalence, hospitalization rates, ICU admissions, and COVID-19 related mortality in the elderly (>65 years) in Italy were assessed. Correction for confounders was performed for several comorbidities, economic and environmental variables. Data were collected from March until June 2020. | Negative correlation between influenza vaccination and SARS-CoV-2 seroprevalence, hospitalization rates, ICU admission as well as COVID-19 attributable mortality.(R2 of 0.88, 0.82, 0.70 and 0.78 respectively) |
| Zanettini et al.,2020 [3] | Ecologicalstudy | COVID-19 mortality in the elderly (> 65 years) and influenza VCR were analyzed across the USA. Correction for confounding was performed for several socio-economic-, demographic-, healthcare-, race- and comorbidity- related variables. Data from January 2020 until June 2020 were used.  | Negative association between influenza vaccination and COVID-19 attributable mortality, where every 10% increase in influenza VCR, causes a 28% decrease in COVID-19 related death. (MRR = 0.72; 95%CI: 0.58-0.89) |
| Arokiaraj, 2020 [4] | Ecological study | COVID-19 morbidity and mortality in the elderly (> 65 years) and influenza VCR were analyzed across OECD countries.  | Negative correlations between influenza vaccination and the COVID-19 epidemiological parameters. However, it lacks proper statistical analysis.  |
| Lisewski et al., 2020 [5] | Ecological study | COVID-19 incidence in the elderly (> 65 years) and influenza VCR were analyzed across 29 OECD countries. | Positive correlation between influenza vaccination and COVID-19 attack rates. (r = 0.58; 95%CI: 0.27 to 0.78; *P*=.001) |
| EBMPHET consortium, 2020 [6] | Ecological study | COVID-19 mortality in the elderly (> 65 years) and influenza VCR were analyzed across Europe and the USA. Data up to May 2020 were used. No correction for confounding was performed.  | Positive correlation between influenza vaccination and COVID-19 incidence in Europe (r = 0.66 ± 0.13, P = .000017) and the USA (r = 0.50 ± 0.14, *P* <.05). Positive correlation between influenza vaccination and COVID-19 attributable mortality in Europe (r = 0.68 ± 0.13, p = 0.000006) and the USA (r = 0.50 ± 0.14, *P* <.05). |
| Fink et al., 2020 [7] | Cross-sectionalstudy | Associations between COVID-19 related mortality, intensive care treatment, need for invasive respiratory support and influenza VCR were analyzed in 92.664 clinically and molecularly confirmed COVID-19 cases in Brazil. Correction for confounding was performed for several comorbidities, sociodemographic factors, and healthcare facilities.  | Positive correlation between influenza vaccination and COVID-19 attributed mortality (17% lower odds, 95%CI [0.75,0.89]). Positive correlation between influenza vaccination and need for ICU treatment (8% lower odds, 95%CI [0.86,0.99]). Positive correlation between influenza vaccination and need for invasive respiratory support (18% lower odds, 95%CI [0.74,0.88]) |
| Jehi et al.,2020 [8] | Ecologicalstudy | An individualized risk prediction model was created using a registry of 11,672 patients tested for COVID-19 in Cleveland Clinic. The multivariable logistic model was constructed based on demographics, symptoms, comorbidities, laboratory variables, medications, immunization history, and travel history. Validation was performed in a temporally and geographically distinct cohort of 2295 individuals. | Reduced positive test risk in people who had an influenza vaccine. 93.9% influenza vaccination rate in the COVID-negative group, in contrast to 6.1% in the COVID-positive group (P < .001) in the development cohort. The rates were 91.6% and 8.4% (P < .011), respectively, in the validation cohort. |
| Yang et al.,2021 [9] | Ecologicalstudy | Associations between influenza vaccination and COVID-19 related hospitalizations and ICU admissions were investigated in Florida. Data were controlled for age, gender, race, and comorbidities such as hypertension, diabetes, and coronary artery disease. | 2.44 greater odds of hospitalization (95% CI, 1.68, 3.61) and 3.29 greater odds of ICU admission (95% CI, 1.18, 13.77) in COVID-19 patients who did not receive an influenza vaccination in the last year. |
| ICU, intensive care unit; MRR, mortality rate ratio; OECD, Organization for Economic Cooperation and Development; VCR, vaccination coverage rate. |

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