

Higher Alcohol Consumption Is Not Linked To Higher SARS COVID-19 Infection and Death

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Short Report

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Abstract

Severe acute respiratory syndrome (SARS) corona virus mediated COVid19 pandemic is a global concern. At the present, almost all countries of the world are home to the CoVid19 infection with varying rate. To understand the role of alcohol consumption and rate of CoVid19 infection, we conducted a comparative statistical analysis using the top CoVid19 infected countries of the world and compared them with per capita alcohol consumption per year. We found that higher alcohol consumption is not directly proportional to the higher number of CoVid19 infection and deaths. Google trend analysis for search of alcohol for last 12 months was found highest for Australia followed by New Zealand, Ireland, United States, and South Africa, suggesting sentiment of higher alcohol search also not related to the SARS CoV-2 infection and deaths.

Introduction

Corona virus mediated severe acute respiratory syndrome (SARS) caused by SARS CoV-2 (CoVid19) is a global pandemic and at the present it has infected more than 3.9 million people and claimed 270000 (7%) deaths world-wide. There are several misconceptions regarding the alcohol consumption and prophylaxis against corona virus as alcohol might kill the virus in the stomach. However, excessive or frequent drinking of alcohol weakens the immune system and it might get easier to get sick at this critical moment of the life. Due to the lock down of several cities, people feeling anxiety and boredom in stay-at-home condition which led to the increase in alcohol consumption. Drinking alcohol in short-run can also suppress the optimal function of the immune system. People who are drinking for decades and infected with respiratory tract infection require mechanical ventilation as well. Therefore, we tried to understand whether drinking more alcohol linked to the higher rate of CoVid19 infection across the globe.

Results And Discussion

The major suffered countries are Italy, the United States of America (USA), Spain, France, the United Kingdom (UK), and Germany with 215858, 1279391, 256855, 174791, 206715, and 169015 infections, respectively (till 7th May 2020). The number of deaths in Italy, the United States of America (USA), Spain, France, the United Kingdom (UK), and Germany were 29958, 76928, 26070, 25987, 30615, and 7392, respectively. Nobody knows when the pandemic will come to an end. Although, CoVid19 pandemic led to suffered the whole world, it is more prone in the countries belonged to the European Union (EU) and the United States of America. It is well known that the hygiene, cleanliness, medical facility and living standard of these mentioned countries are quite higher compared to others. Still these countries have witnessed a greater rate of deaths due to CoVid19. Recently, Clay and Parker (2020) has mentioned alcohol misuse contribute approximately 3 million deaths world-wide and the alcohol consumption rate in the USA and other EU countries are quite higher compared to the Asian countries (WHO 2018; Clay and Parker 2020). Therefore, question arises whether there is a relation between higher alcohol consumption led reduced immunity and CoVid19 mediated deaths occurred in these countries. According to the 2016 report by world health organization (WHO), the UK ranked 4th (12 liters), France 5th (11.6 liters), Spain 10th

(10.6 liters), USA ranked 14th in terms of annual alcohol consumption. Therefore, we analysed CoVid19 related deaths of top 21 countries and compared with the annual alcohol consumption. The correlation analysis of alcohol consumption and death rate has correlation coefficient of 0.003236 (Figure 1, Table 1). Therefore, the annual alcohol consumption with regard to CoVid19 mediated death was not related. The rank of per capita annual alcohol consumption of the UK (12 liters/year), France (11.6 liters/year), Belgium (10.8 liters/year), Germany (10.6 liters/year), Spain (10.6 liters/year), USA (9 liters/year), and Italy (6.1 liters/year) was 4th, 5th, 8th, 9th, 10th, 14th, and 20th, respectively. Although, USA ranked 14th and Italy ranked 20th in the annual alcohol consumption, the CoVid19 mediated death was quite higher in the USA (76928) and Italy (29958). However, the percentage of death rate in the USA and Italy was 5.95% and 13.87%, respectively. Belgium ranked 8th in the annual alcohol consumption and it was observed highest death rate of 16.36%. The death rate was followed by France (14.86%) and the United Kingdom (14.81%). Although Italy ranked 20th in the global alcohol consumption, the mortality rate in the Italy was 13.87%. the highest infected population was found in the USA (1.29 million) followed by Spain (256855) and Italy (215858). A correlation regression analysis of annual alcohol consumption with regard to number of infections was also not correlated. The correlation coefficient for annual alcohol consumption and infection was -0.0792 (Figure 2, Table 1). Therefore, it was concluded that annual alcohol consumption is not related higher CoVid19 infection or death rate.

A Google trend analysis was conducted to understand the sentiment of the people towards alcohol consumption as maximum of the cities are under locked down. People have very less access to the alcohol as restaurants and wine shops are under locked down. Still peoples are in search of alcohol in the internet to meet their demand. It was found that peoples of Australia have searched highest times for the alcohol followed by New Zealand and Ireland (Supplementary File 1). Highest number of infections was recorded in the USA and it was ranked 5th in terms of search for alcohol in the internet. Although the UK rank 5th in terms of number of infections, was fall in the 7th rank in terms of search term alcohol. Similarly, Italy ranked 4th in terms of number of CoVid19 infections, the search for alcohol was very less in Italy. Italy ranked 53rd in the world in terms of search for alcohol in the internet.

Materials And Methods

The CoVid19 details were collected from the CoVid visualizer (<https://www.covidvisualizer.com/>) hosted by Worldometer that collects the real-time CoVid19 data. The per capita alcohol consumption rate was collected from world health organization (WHO). The data were analysed using statistical software Past3. Ordinary least square correlation ($p < 0.05$) study was conducted to find the correlation between the (i) alcohol consumption and number of CoVid19 infection and (ii) alcohol consumption and death rate (%). The current trends of alcohol search term in internet was accessed using the Google trends platform. The highest searched country in Google is marked as 100.

Declarations

Competing of interest

There is no competing of interest to declare

Reference

Clay JM, Parker MO. Alcohol use and misuse during the COVID-19 pandemic: a potential public health crisis? *Lancet Public Heal* [Internet]. 2020;2667(20):30088–8. Available from: [http://dx.doi.org/10.1016/S2468-2667\(20\)30088-8](http://dx.doi.org/10.1016/S2468-2667(20)30088-8)
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WHO. Global status report on alcohol and health. Geneva World Heal Organ. 2018;https://www.who.int/substance_abuse/publications/.

Table

Table 1 CoVid19 Infection and death rate statistics with regard to alcohol consumption. Correlation regression result showed, higher alcohol consumption is not related to higher infection and higher death rate.

Statistics	Death Rate	Infection rate
Correlation (r)	0.003236	-0.0792
r^2	1.0471E-05	0.006285
t	0.013729	-0.33741
P (<i>uncorr.</i>)	0.9892	0.7397
Permutation (P)	0.9887	0.7632

Figures

$$y = 0.0066795x + 7.4855$$

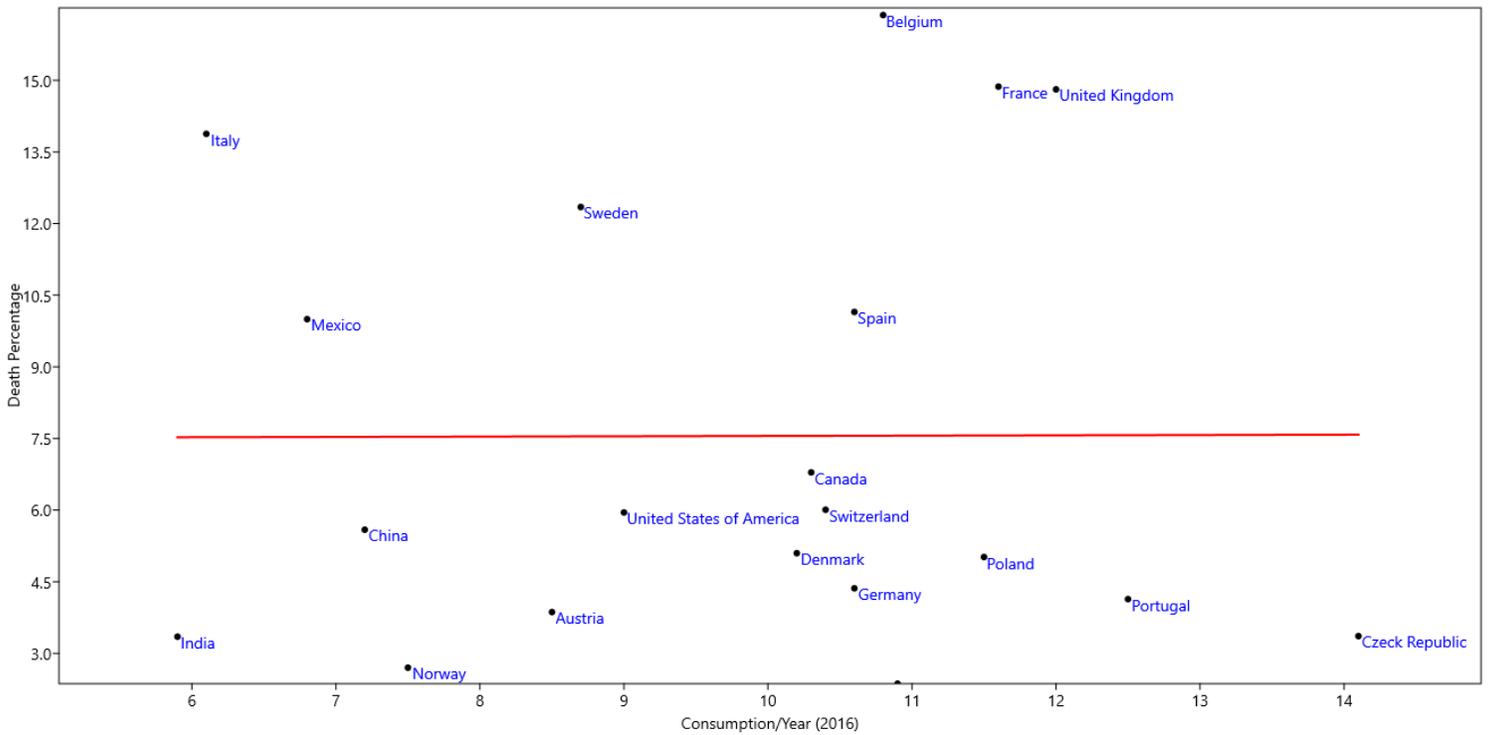


Figure 1

Correlation analysis of annual alcohol consumption and CoVid19 mediated death in the countries with more than 5000 deaths. The CoVid19 mediated death data collected till 7th May 2020. The data was collected from COVID-19 visualizer (<https://www.covidvisualizer.com/>).

$$y = -10082x + 2.3594E05$$

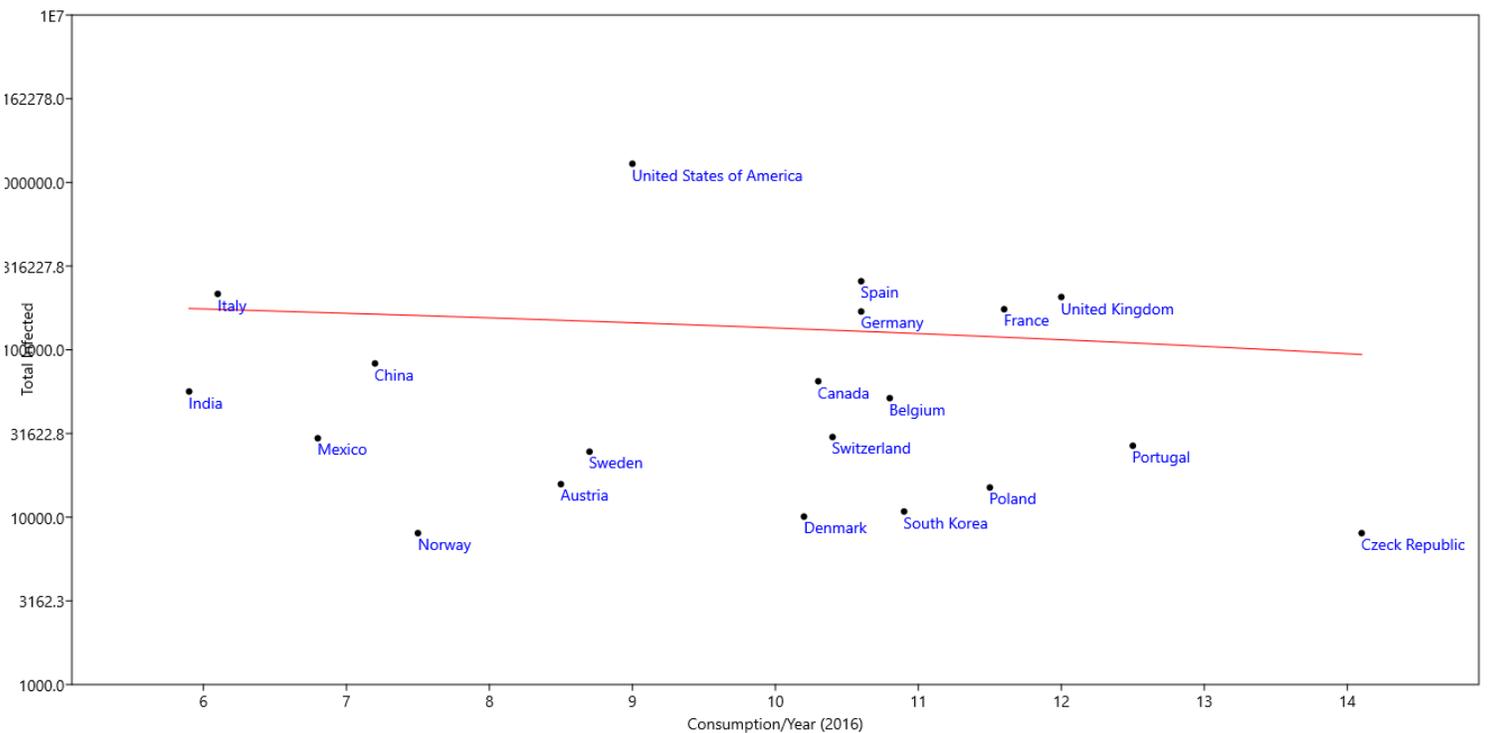


Figure 2

Correlation analysis of annual alcohol consumption and CoVid19 mediated infections in the countries with more than 5000 deaths. The CoVid19 mediated death data collected till 7th May 2020. The data was collected from COVID-19 visualizer (<https://www.covidvisualizer.com/>).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryFile1.xls](#)