COVID-19 transmission sources, management, and scientific research in Turkey

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To the Editor,

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was seen first in Wuhan, China and spread very quickly all over the world despite very strict precautions taken worldwide [1]. World Health Organisation (WHO) declared the disease as pandemic on March 11, 2020. Turkey reported the first case of coronavirus on the same day who has taken precautions both in the country and borders months before. Over time, many case reports and remarkable articles relating the disease progression, virus genomics and treatment options were published in high-quality journals. Simultaneously, country wide data registries and research activities started in Turkey. Recently, a correspondence sent from Turkey was published in Lancet, one of the most prestigious journals, criticized some important points concerning the disease transmission routes to Turkey (mainly through Iran and Saudi Arabia), lack of transparency of Ministry of Health (MoH) of Turkey and particularly scientific research restrictions about COVID-19 [2]. We read with great interest Hasan Bayram and colleagues’ correspondence, which reports some important information concerning COVID-19 transmission routes to Turkey, a lack of transparency by the Turkish Ministry of Health (MoH), and purported restrictions on scientific research on COVID-19.

We would like to address some concerns mentioned by Bayram and colleagues. For instance, the authors claim that COVID-19 reached Turkey mainly through Iran and Saudi Arabia, but research indicates many different origins of the disease in Turkey.
The SARS-CoV-2 genome was phylogenetically analyzed in Turkish laboratories and in laboratories around the world, and the results were documented in the Global Initiative on Sharing All Influenza Data platform [3]. Karacan et al. analyzed the viral isolates of three COVID-19-positive patients and found that all three isolates carried the D614G variant in the S gene, indicating that they are all in the G clade, which was mostly detected in European countries [4]. In addition, Adebali et al. performed a phylogenetic analysis of the first thirty SARS-CoV-2 genomes isolated and sequenced in Turkey [5]. Their analysis suggested multiple independent international introductions of the virus to the country. They clustered the genomes based on their clade distribution in the phylogenetic tree and found that most samples from Turkey belong to cluster four, which is also prevalent in Iran, Denmark, and France. They found a connection to Saudi Arabia in only two cities in Turkey while the Europe-based introductions were identified in the genomes isolated in Istanbul, the epicenter of Turkey’s COVID-19 outbreak. Besides, according to Turkey’s Ministry of Culture and Tourism data on border introduction counts between January and March, Iran and Saudi Arabia accounted for only 6.72% of all visitors (5.19% from Iran and 1.53% from Saudi Arabia). During the same interval, entry from Europe constituted 38.52% of all visitors (24.88% from OECD countries and 13.79% from non-OECD countries) [6]. The first COVID-19 positive cases were seen within the same day in Iran and Europe, which were both nearly 20 days before Turkey’s first documented case. Furthermore, Turkey closed its Iran border on February 23 after Iran’s first cases of COVID-19 were confirmed on February 19, while flights to and from Italy, one of the European countries most affected by COVID-19, were not cancelled until February 29. Additionally, Turkish visitors returning from pilgrimages in Saudi Arabia were checked
with thermal cameras before boarding and were quarantined in select isolated hostels for 14 days. Considering all this well-documented information, attributing the virus’s introduction to only one or two sources seems illogical.

The authors’ next point, that there is a lack of transparency by Turkey’s MoH has already been addressed by the organization in its daily explanations on the MoH website and on social media [7]. Furthermore, the authors’ most controversial subject is the supposed restrictions on COVID-19 research. These rumours about research restrictions are simply not true. In fact, the MoH’s timely responses to research applications encouraged researchers to work faster and more efficiently. According to data from the official MoH website, nearly 5000 research applications regarding COVID-19 were submitted online, and the MoH approved more than 96% of them within five days, allowing researchers to proceed with their proposed studies [8]. Local institutes and councils also supported many trials concerning COVID-19 [4,5].

Finally, in addition to all these objective data, Turkey’s official agencies, healthcare workers, and community have all come together to overcome the COVID-19 outbreak as successfully as any other country. Personal protective equipment (PPE) was produced in collaboration with formal and private agencies and distributed all around the country. Moreover, Turkey has supported many countries with PPE including the United States and the United Kingdom. Meanwhile, two large emergency hospitals were built and began providing services in Istanbul in only 45 days. In addition, mechanical ventilators were produced with 100% local resources for the first time and began being used in hospitals. With mass production, Turkey was able to produce enough ventilators to export to other countries. As a result of these productive and effective steps, Turkey has had lower mortality rates than many developed countries (Table).
References


https://bilimselarastirma.saglik.gov.tr/_layouts/15/BilimselYayin_Membership/
Table: Fatality and mortality rates calculated according to current population of countries (population counts acquired from [https://www.worldometers.info/world-population/population-by-country/](https://www.worldometers.info/world-population/population-by-country/) and death counts from [https://covid19.who.int/](https://covid19.who.int/) website as of 11:38 CEST, 16 August 2020)

<table>
<thead>
<tr>
<th>COUNTRIES</th>
<th>Fatality rate</th>
<th>Mortality rate</th>
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</thead>
<tbody>
<tr>
<td>Turkey</td>
<td>0.024</td>
<td>0.07</td>
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<tr>
<td>United States of America</td>
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<td>Italy</td>
<td>0.139</td>
<td>0.59</td>
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</tbody>
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