

**Alcohol Poisoning Outbreak in Iranian
Adult Population During the COVID-19
Pandemic: A Prospective Cross-
sectional Linkage Study from 13
Toxicology Referral Centers in Iran**

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Introduction

- Iran reported its first confirmed COVID-19 case in February 2020.
- Social distancing, using face masks and alcohol-based hand sanitizers were recommended by WHO
- High demand of alcohol, less supply

Messaging, COVID-19, and alcohol use:

- WHO warning, April 2020:
- “Under no circumstances should you drink any type of alcoholic product as a means to preventing or treating COVID-19 infection”



The screenshot shows the WHO website interface. At the top, there is the WHO logo and the text "World Health Organization REGIONAL OFFICE FOR Europe". To the right, there are language options: "English", "Français", "Deutsch", and "Русский". Below this is a search bar. A navigation menu includes "Home", "Health topics", "Countries", "Publications", "Data and evidence", "Media centre", and "About us". The main content area features a breadcrumb trail: "Health topics > Disease prevention > Alcohol use > Data and statistics > Infographic - Alcohol and COVID-19: what you need to know". On the left, there is a sidebar menu for "Alcohol use" with links for "News", "Events", "Policy", "Activities", "Country work", "Data and statistics" (highlighted), "Publications", "Partners", and "Contact us". The main content area displays the infographic title "Infographic - Alcohol and COVID-19: what you need to know" with social media sharing icons. The infographic itself has a title "Alcohol and COVID-19: what you need to know" and a key message: "Under no circumstances should you drink any type of alcoholic product as a means of preventing or treating COVID-19 infection. Consumption of alcohol WILL NOT protect you from COVID-19." Below this, there are two panels: "Avoid alcohol altogether" with the text "so that you do not undermine your own immune system and" and an illustration of a person relaxing; and "Do not use alcohol as a way of dealing with your emotions and stress" with the text "as isolation and drinking may also increase the risk of suicide. Please" and an illustration of a person looking stressed.

Meanwhile in Iran...

- Epicenter of COVID-19 in the Middle East
- Co-occurrence of a large methanol outbreak from late February 2020:
 - Triggered by false claims on social media that consumption of disinfectants and alcohols could prevent and treat COVID-19 infection.
 - Rise in alcohol demand made bootleggers decolorate industrial alcohols containing pyridine (to deter from consumption) using bleach, before selling to customers for drinking

RESEARCH LETTER

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Double trouble: methanol outbreak in the wake of the COVID-19 pandemic in Iran—a cross-sectional assessment



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Keywords: Alcohol, Ethanol, Poisoning, Mortality, Coronavirus

Iran has been the epicenter of COVID-19 in the Middle East, with a total of 120,198 infected cases and 8556 deaths as of June 10 [1]. The pandemic has been complicated by the co-occurrence of a large methanol outbreak in Iran, seemingly triggered by false claims that consumption of disinfectants and alcohols could prevent and treat COVID-19 infection. According to local news, the ensuing rise in ethanol demand made bootleggers decolorate industrial alcohols containing pyridine (to deter from consumption) using bleach, before selling them as regular ethanol to Iranians.

case fatality rate of approximately 9% (534/5876). LMO registered 800 deaths from methanol poisoning during the same period (see Table 1 and Fig. 1), comprising both in-hospital and community-based fatalities. This 33% discrepancy in deaths between MOH and LMO data (i.e., $(800-534)/800 \times 100$) may have several explanations. For instance, LMO data also includes out-of-hospital deaths and is likely more accurate. Moreover, a hospital-based diagnosis of methanol poisoning is difficult and complicated by the lack of diagnostic equipment or physician knowledge. Therefore, methanol poisoning may

Objectives

- To address this gap of knowledge, we conducted a multicenter linkage study, with the aim to investigate the epidemiology of the 2020 methanol poisoning outbreak based on patient data reported by 13 referral toxicology centers and the Iranian Legal Medicine Organization (LMO).

Methods

- Cross-sectional linkage study between 13 referral toxicology centers , as well as mortality data obtained from the LMO during the study period from February 22nd until 31st June 2020, i.e. during the first wave of COVID-19.
- Inclusion: All alcohol poisoned patients >19 yo with a history of illicit alcoholic beverage/hand sanitizer consumption and manifestations of alcohol intoxication presenting to one of the participating referral toxicology centers
- Exclusion criteria: Ethanol intoxication

Results

- 795 cases predominantly men (84.4%) were admitted in in thirteen referral toxicology centers.
- Deaths in 84 cases (10.6%) matched between LMO & Centers
- Mostly men (718; 90.3%); mean age 32 [IQR 26, 40] (range 19–91).
- The non-survivors were significantly older than survived methanol poisoning cases (39 vs. 31 years, $P < 0.001$) and sequelae were also significantly older that other patients without sequelae (33 vs. 30 years, $P = 0.026$).

Figure 1: Number of alive (left) and dead (right) patients referred to 11 out of 31 Iranian provinces.

Data visualizations were performed using Tableau Desktop, version 2020.1, an interactive data visualization software.

[Tableau Software. Seattle, WA; Available through: <https://www.tableau.com/>]

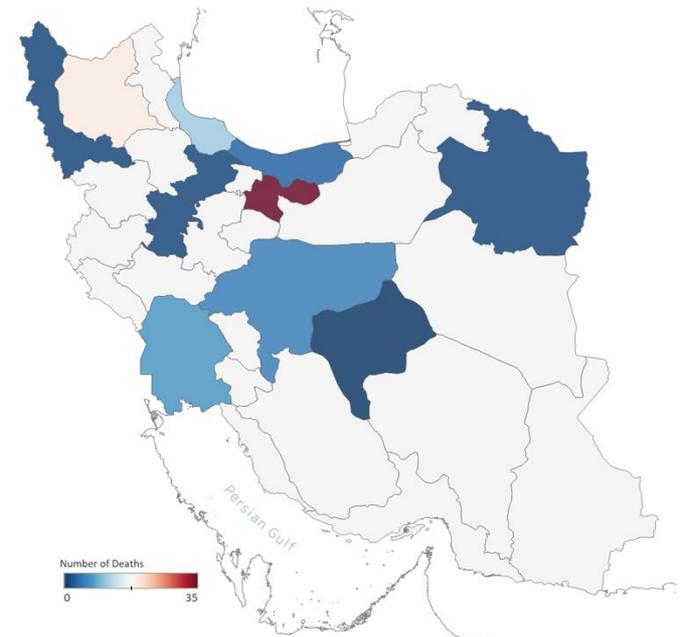
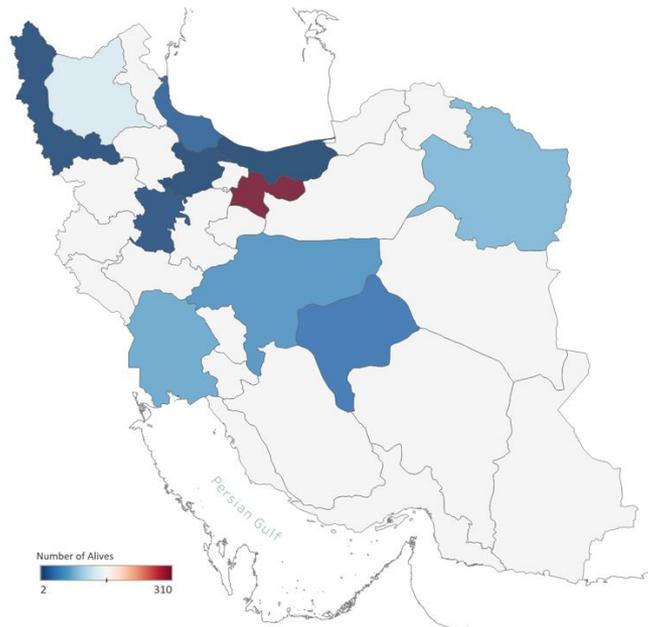
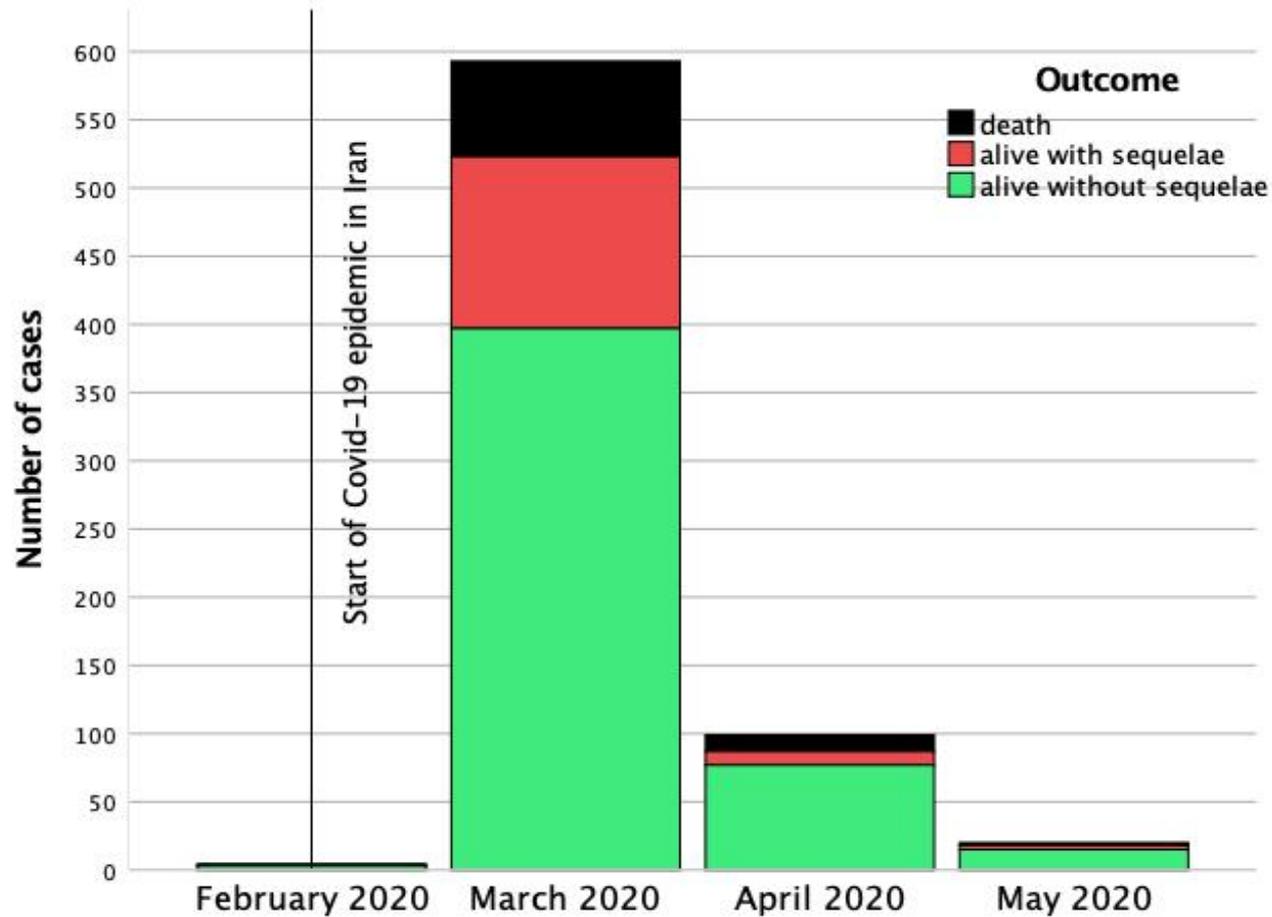


Figure 2. Trend of methanol poisoning after start of Covid-19 in 13 toxicology referral centers

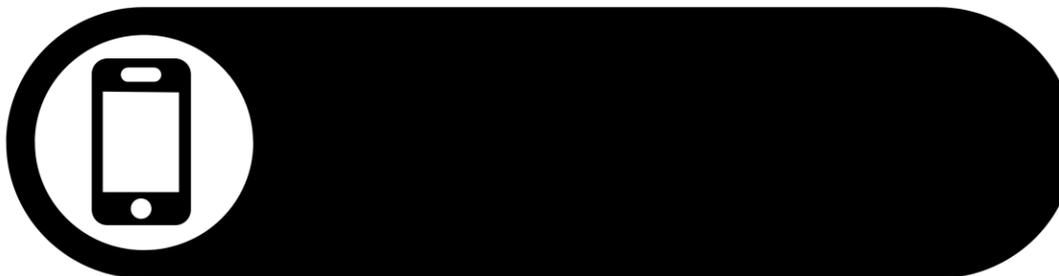


Discussion & Conclusion

- Older patients were more prone to fatal outcome, whereas younger patients were more likely to survive.
- ◉ Early arrival at the hospital can facilitate timely diagnosis and treatment and may reduce long-term morbidity from methanol poisoning.
- Importance of raising public awareness of the risks and early symptoms of methanol poisoning.

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