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Methanol Mass Poisoning Outbreak, a Consequence of COVID-19 Pandemic and Misleading Messages on Social Media

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The first cases of COVID-19 were two patients died of unexplained severe acute pneumonia in Qom city, Central Iran, identified on February 18, 2020. One month later, the virus spread around the country and as March 28, 2020, it left 35 408 documented cases of COVID-2019 with 2517 deaths (30 deaths/million population, mortality rate of 7.1%).¹

So far, there is no proven effective treatment or vaccine for COVID-19.² Preventive measures, such as social distancing and considering strict personal and public health measures are the only acceptable strategy to control the disease.³⁻⁵

SARS-CoV-2 can remain infectious on inanimate surfaces like metal, glass or plastic for up to 9 days. The virus, however, can efficiently be inactivated with 62% to 71% ethanol, 0.1% sodium hypochlorite, and 0.5% hydrogen peroxide.⁵ WHO recommends hand rub with water and soap or standard antiseptic formulations, especially ethanol-based products.⁵

In the early period of the COVID-19 epidemic in Iran, people demand for personal protective equipment, such as medical mask and gloves, and sanitation products, such as ethanol-based hand rubs and 70% ethanol solution, increased that led to the shortage of these products across the

nation. The shortage of these products and propagation of fake misleading messages throughout the social networking services, social media, and the Internet on the protective effects of drinking or gargling of the alcoholic beverages for prophylaxis of COVID-19, in the meantime, caused an increase in consumption of alcoholic beverages among some ill-informed people in Iran.

Like other Islamic countries, for religious beliefs, production, distribution, sale and consumption of alcoholic drinks are considered illegal in Iran. However, alcoholic beverages are available through smuggling and illegal home-made production (under non-standard conditions) in the black market.⁶

From February 26, 2020 (one week after the official report of the first COVID-19 cases in Iran), several patients with acute methanol intoxication were admitted to Tehran hospitals. They claimed they drank alcohol, as it was suggested in social media messages, to prevent them being infected by SARS-CoV-2. In about 4 weeks, the country experienced a methanol mass poisoning outbreak. As of March 28, 2020, almost 2200 cases poisoned by oral ingestion of illicit alcoholic beverages were reported across the nation; 824

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(37.5%) of whom were admitted to Intensive Care Unit (ICU); 296 died, translating to a fatality rate of 13.5%. More than 90% of patients were males mostly aged 20–30 (range 5 to 72) years. The poisoning has reported from 18 (58%) of 31 provinces of Iran (Table 1), reflecting a large distribution of counterfeit alcoholic beverages, according to the officials of the Ministry of Health (MOH), local hospital authorities, and Legal Medicine Organization (LMO) of Iran.⁷ The LMO found high concentrations of methanol in the counterfeit alcoholic beverages. Other provinces also reported methanol toxicity. Isfahan reported 11 fatal cases of methanol toxicity; Hamadan, 5; West Azerbaijan, 5; Yazd, 5; Markazi, 2; Bushehr, 2; Kohgiluyeh-va-Boyer-Ahmad, 1; and Hormozgan, 1.

Some profiteers in Iran use methanol instead of ethanol because of its lower price and availability. Other profiteers discolor the industrial alcohol by 5% sodium hypochlorite solution (Vitex®) and sale it instead of ethanol or drinking alcohol. Another source of methanol, in the recent outbreak, was industrial alcohol (one form of mixture of alcohols containing different percentages of ethanol, methanol, and higher toxic alcohols, also adulterated with coloring agents, which is produced solely for industrial purposes, not medical or oral use).

The recent outbreak with 2197 poisoned cases and 296 fatalities during 1-month period, is the largest methanol mass poisoning outbreak throughout Iran and the world in recent decades. Methanol mass poisoning outbreak has previously been reported in Iran (*eg*, in Shiraz, in 2004 with 62 poisoned and 11 dead, and Rafsanjan in 2013 with 694 cases of poisoning and 6 dead). Methanol mass poisoning outbreaks have also been reported by other countries including Sudan (in 2011 with 137 poisoned and 71 dead), Czech Republic (in 2012 with 121 poisoned cases and 20

Table 1: The main provinces in Iran reporting methanol mass poisoning

Province	Total cases	Fatal cases (%)
Fars	686	75 (10.9)
Khuzestan	673	63 (9.4)
East Azerbaijan	230	20 (8.7)
Ardabil	200	19 (9.5)
Razavi Khorasan	131	13 (9.9)
Tehran	97	23 (23.7)
Alborz	70	31 (44.3)
Kermanshah	41	2 (4.9)
Mazandaran	35	12 (34.3)
Kordestan	24	6 (25.0)
Total	2187	264 (12.1)

dead), and Pakistan, Turkey, Libya, Indonesia, and Kenya.⁷

In current outbreak in Iran, the average mortality rate was 12.1%, approximately twice the rate of COVID-19 in Iran. Occupying the ICU beds and the health care equipment necessary for COVID-19 patients, those with methanol poisoning are a burden over the Iran health care system.

Raising public awareness about the fatal outcomes of consumption of counterfeit alcoholic beverages sold in the black market is of paramount importance. This can be done through broadcasting various educational programs.

Conflicts of Interest: None declared.

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