

## The Impact of Armed conflict on the Epidemiological Manifestations of COVID-19 in Libya and possible BCG vaccine induced protection- Warag S E - University of Nalut

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### Abstract

#### Introduction:

The emergence of COVID-19 as a pandemic has a major impact all over the world. Such impacts are rarely studied within countries enfolded by armed conflicts. The objectives of this study were to 1- determine the epidemiological characterization of COVID-19 in Libya 2- The influence of the armed conflict of the geographical clustering of the epidemic 3- Outline the needed policy to control the epidemic and the upcoming consequences. All the officially confirmed cases of COVID-19 were collected from all over Libyan regions from March till Oct.10th,2020. The data were analyzed and spatiotemporal distribution was determined. The prevalence of the epidemic was determined in each city affected by the ongoing conflict. A total of 41686 cases were reported during the study period. The geographic density varied greatly from one region to another and the war has affected the prevalence within the cities according to their geographic proximity of the ongoing war. The death prevalence from COVID-19 Was estimated at 623/1.5% and was higher among the distant cities compared with the closer cities engulfed in the war. In conclusion our results supports the possible role of timely BCG vaccination in the protection from COVID-19 and more research should be addressed. COVID-19 has great effect on the Libyan community and clearly influenced by the ongoing conflict, Hence then strategies should be planned to combat both the consequences epidemic and the armed conflict.

The COVID-19 pandemic has had major impacts on all aspects of life worldwide. No country can be considered safe, whether rich or poor. COVID-19 is a

global concern not only as a huge health problem, but also socially, economically, politically and even ethically. COVID-19 has caused huge numbers of deaths even in advanced, economically strong, politically stable countries with the best healthcare services. COVID-19 has also affected most African countries, with over 103,875 cases and 3,184 deaths. The largest number of cases have been recorded in South Africa and 64,388 cases have been reported in the WHO African region. Many African countries suffer from internal conflicts complicated by the emergence of some infectious diseases. One example is the Ebola epidemic in the Democratic Republic of Congo which happened side by side the armed conflict and geopolitical volatility, which led to the displacement of one million people. Libya is the second largest African country which shares its borders with the Mediterranean Sea and possesses huge natural resources. The armed conflict that started in 2011 has continued and became more complicated by April 2019, resulting in extensive mortality, injury and population displacement then the COVID-19 arrived.

Armed conflicts cause deaths, injuries, destruction of infrastructures, and physical damage or destruction of healthcare delivery facilities. This facilitates the spread of newly emerging diseases. Hence, conflict zones are more susceptible to the spread of infectious diseases, including COVID-19. Concerns about the impact of the pandemic in countries experiencing armed conflict have been expressed. Such countries include Syria, Libya and Yemen, where the impact may go even beyond the borders of these countries. Many studies have been published on all

aspects of COVID-19, but not enough attention has been paid to its epidemiology in conflict zones, such as Libya, Sudan and Somalia. This study aimed to examine the status and patterns of COVID-19 in Libya during wartime and the effect of the fighting on its emergence and spread. The study also seeks to highlight potential strategies to minimize the impact of this pandemic on Libyans during the conflict.

Based on the 689 cases reported within a three-month period (March 25th till June 25th 2020), we analyzed the epidemiological situation of COVID-19 all over Libya as well as the effect of the ongoing armed conflict on the pandemic patterns. The average age was 43 years and mainly males were affected, with a male-to-female ratio of 4.4:1.0. Of these patients, 540 (77.4%) are still hospitalized, 140 (20.1%) were discharged and 18 (2.6%) died. The number of daily new cases peaked between May 5th and May 7th in the western region, where the first cases were reported. Cases were reported in the eastern region on April 26th and later in the south on May 14th. The total number of cases has started to increase substantially, particularly in the southern region and with no clear sign of declining. This suggests that the epidemic in Libya is not under control and that, strict prevention and control measures have not been adopted. Nevertheless, despite the numerous challenges that the Libyan population has to face since the armed conflict started in 2011, including deaths, injuries and internal displacement of populations; the response to the epidemic and the resilience of the healthcare system has been reasonable. However, the situation remains precarious and a COVID-19 outbreak in this country would overload an already fragile healthcare system and poor baseline health status. Libya was the last country in the MENA region to report the first case of corona virus. However, preliminary epidemiological analysis carried out by Daw indicated that COVID-19 might have arrived in Libya as early as

January-February 2020, which has not been reported by the Libyan health authorities.

**Conclusion:**

This is one of the first studies to describe the epidemiological status of COVID-19 in an armed conflict area such as Libya and show the effect of the conflict on the epidemiologic pattern. As expected, COVID-19 spread from one region to another, but this spread was influenced by the ongoing battles. By June 2020, the numbers of COVID-19 cases and deaths were still increasing in Libya, but the real situation might have been at least partially masked in communities in close proximity to battle zones and undetected in remote communities in the Sahara area. The ability to contain the spread of infections will depend on the development of enforceable national policies and success ineffective education of the population in the reduction of infection risk according to international standards. At the present time, achievement of such objectives is unpredictable if the ongoing armed conflict is not ended.