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History of epidemics and preventive medicine in Algeria during the modern and contemporary period: Infectious diseases and quarantine as a model

Tayeb Guedim

Research Center for Islamic Sciences and Civilization (CRSIC)- Algeria

Email: t.guedim@crsic.dz

Orchid: <https://orcid.org/0009-0005-5128-8651>

Abstract---Since ancient historical times, and up to the present day, humanity has been exposed to many infectious and dangerous diseases, which often led to death, and claimed thousands of human lives due to the spread of infection as a result of contact with infected people and carriers of the disease. When an epidemic spreads, or what is called a pandemic, since ancient times, man has tried and worked hard to find preventive solutions to ensure his safety and limit the spread of infection among members of society, including what is known as quarantine, health isolation, and social distancing, which is considered one of the most prominent and important primary preventive measures to confront infectious diseases. In this study, we will attempt to highlight the history of epidemics and preventive medicine in Algeria in the modern and contemporary period (the Ottoman period and during French colonialism), represented by smallpox, typhus, plague, and cholera, as well as the most important preventive measures taken to limit their spread, such as quarantine.

Keywords---Algeria, epidemics, quarantine, ottoman era, the French occupation.

Introduction

In recent years, the world has witnessed the spread of the Corona pandemic (Covid-19), which made most countries - if not all - implement a quarantine policy as a primary and precautionary measure to limit the spread of this infection and its transmission from the sick to the healthy. The results of this pandemic were disastrous at all levels, as most countries witnessed an increase in deaths, in addition to its impact on the economic aspect and social life in general.

The application of quarantine when diseases appear was not the result of this pandemic, as many societies, nations and countries throughout various historical stages have known these procedures when epidemics occur, which is what we will try to explore during this study, and we will show the historical roots of quarantine and isolation procedures, the extent of their effectiveness, and the procedures for their application, to limit the spread of infectious diseases that Algeria experienced during the Ottoman period and the period of French colonialism, as well as their effects on Algerian society and on various areas of life, especially the economic ones.

How did these epidemics appear and spread in Algeria in the modern and contemporary period? And what is its nature and the preventive measures taken to confront it?

This study aims to highlight the history of epidemics in Algeria during the period of Ottoman rule and the period of French occupation (from the 18th century to the beginning of the 20th century), how to implement quarantine, as well as the discovery of vaccines for some diseases such as cholera.

Quarantine

Quarantine means absolute prohibition, and quarantine is a term given to the procedures followed when epidemics or infectious diseases spread in a specific area to limit its spread. It can be defined as isolating infected people and preventing them from mingling with healthy people, and even healthy people must stay away from direct contact with sick people and communicate with them, by not leaving or entering the affected area.

Quarantine in the past

Quarantine is considered one of the most important and effective preventive measures in the event of the spread of an infectious disease or epidemic, as this measure is not modern, but rather dates back to ancient historical periods dating back thousands of years, because humanity has known the occurrence of many pandemics at different periods and in many regions. Among the indications that show the antiquity of human knowledge of quarantine are indications in the books of the Old Testament, including “the Book of Leviticus” (the third book of the Torah), where it is stated that a person suffering from a skin disease such as leprosy or gout, for example, must be examined by a priest who orders his confinement for seven days -in certain cases-, and he is presented to him again to be detained for seven days againⁱ, and there is someone who is sentenced by the priest to live alone outside the cityⁱⁱ. If we return to the history of these procedures, we find that they date back to between the eighth and fifth centuries BC, which indicates that following what is known as quarantine and confinement, or sanitary isolation, considered one of the very ancient methods of confronting pandemics.

Quarantine for Muslims

Many narratives indicate how Muslims deal with epidemics and diseases when they spread, such as plague, leprosy, and many infectious diseases, by imposing quarantine and the necessity of social distancing, which was originally inspired by the Islamic religion, which calls for the preservation of the soul and human life. The first to call for this was the Prophet Muhammad - may God's prayers and peace be upon him - as there were many hadiths calling for the necessity of adhering to quarantine when the epidemic spreads, among which we mention what Al-Bukhari and Muslim narrated on the authority of the Noble Prophet: on the authority of Osama bin Zaid - on the authority of the Prophet, may God's prayers and peace be upon him, He said: "If you hear of the plague in a land, do not enter it, and if it occurs in a land while you are in it, do not leave it." And in another narration, he said: "If you hear of it in a land, do not go to it, and if it occurs in a land while you are in it, do not leave it to escape from it"ⁱⁱⁱ.

The goal of quarantine is to prevent the transmission of the disease outside the area where it is spread, as prohibiting leaving the affected area is a confinement that contributes to besieging the epidemic and preventing its spread, and preventing entry into the affected area is a preventive measure^{iv}. Since the Prophet, may God bless him and grant him peace, called for the necessity of adhering to health confinement; this is evidence that it is the best way and the most effective way to limit the spread of the epidemic. Therefore, it is necessary to adhere to it and its controls because it revives an entire nation, and vice versa, violating it leads to the transmission and spread of the disease, and exposes oneself and others to destruction.

It is noted that the Prophet, may God bless him and grant him peace, in his hadiths about how to deal with the epidemic, was to prevent going out of the area where it was occurring. The Prophet did not differentiate here between the infected person and the healthy person, as the prohibition on going out included everyone, because the infected person shows signs of his illness, but there are infected people who do not show symptoms of the disease and are in fact carriers of the disease, so they transmit it to others if they leave the affected area, thus causing the spread of the epidemic and the death of many people, which is what modern medicine has actually proven. Here the wisdom lies in not going out and moving for everyone outside the epidemic area, as the Prophet Muhammad ordered.

Amr ibn El-Aas said to the people of the Levant when the plague struck them: (The epidemic is like fire and you are its fuel; disperse until the fire finds nothing to ignite it and is extinguished), which shows that the idea of social distancing was also known at this time, because the more there is contact and contact, the greater the possibility of infection, and perhaps inevitable.

Epidemics in Algeria during the Ottoman period

During the Ottoman period, Algeria suffered from the spread of some epidemics and infectious and deadly diseases, which caused the death of thousands of

people. Its origin was Central Asia, Iraq, the Arabian Peninsula, Anatolia, and the Nile Valley, and its transmission was generally due to movements and travels such as Pilgrimage trips^v.

As an example of these diseases, we mention the endemic typhus disease, which was known as rat typhus, and its symptoms include a dry cough, this type of disease spread in Algeria many times during the aforementioned period, and some indicated that it recurred approximately every twenty years, and its causes were primarily due to environmental pollution. The epidemic and infection of tuberculosis also spread, as happened in 1782, where the public suffered from this disease, which causes pain in breathing, accompanied by a cough that lasts for weeks. Among its causes are pollution of the environment and sewage channels and the absence of prevention^{vi}, in addition to the Ottoman authority's lack of interest in the health sector in general.

In the years 1803 and 1804, smallpox appeared in Algeria, which is a highly contagious disease that claimed the lives of between 2,000 and 3,000 people in the city of Algiers alone, during only one of the periods during which this epidemic affected Algeria, which is considered the most dangerous, especially for children because they are most susceptible to it, because the date of its entry into Algeria is attributed by some historians to much before this period, and its entry was through trade exchanges with Italy on the one hand, and on the other hand the infection was transmitted coming from Spain, and its danger, in addition to its leading to death, is represented in the fact that it may cause Disabilities of blindness and deafness^{vii}. Other diseases have also appeared, such as tetanus, swamp fever or malaria, in addition to the plague epidemic^{viii}, which is considered a highly contagious and rapidly spreading disease, as it infects especially rodents and is then transmitted to humans, then spread through breathing or using the infected person's belongings. Algeria witnessed its spread during the Ottoman period many times, some estimate it at twenty-six times between the years 1552 and 1784 AD, especially during the period between 1700 and 1799 AD^{ix}. It witnessed its occurrence about fifteen times, and each time it claimed thousands of victims, the most severe of which was the epidemic of 1784-1788, which was considered one of the fiercest epidemics in the areas of the city of Algiers, during which the city's population declined to about 5,000 people, as 16,721 people died from this plague.

While the plague of 1793-1804 caused the death of 12,000 people in the city of Algiers, and spread in the rural areas because the infected fled the city, and because of it, life in the city of Algiers was disrupted. In 1797, the plague was claiming 20 to 25 victims daily in the city of Algiers, and the last plague witnessed by the Ottoman period spread between the years 1816 and 1822, which was characterized by the expansion of its area until it spread throughout the lands of the Algerian province. It lasted for seven years, and in 1818 it claimed the lives of more than 13,330 people in the city of Algiers alone^x, in addition to its impact on the social and economic conditions of the country in general.

Among the measures taken by the rulers of the Ottoman Empire of Algeria towards the aforementioned infectious epidemics is the application of quarantine, such as what Dey Ibrahim Pasha did when the plague spread in Algeria in the year 1741, where the people isolated himself in his residence, and he ordered quarantine procedures on the ship that came from Alexandria to Algeria, which was carrying pilgrims suspected of being infected with the epidemic, and that was in the year 1743, as mentioned by Ibn Hammadush^{xi}.

These pilgrims were prevented from entering the city, detained for fifteen days, and released after their safety was determined. In 1787, Salih Bey (Beylik of the East - Constantine) also imposed a sanitary confinement around the city of Annaba and its environs, with the aim of preventing the transmission of plague infection to Constantine, the capital of the Beylik^{xii}, and at the end of the Ottoman rule in Algeria, Hussein Dey was keen to implement quarantine procedures on ships coming to Algeria, especially in the event of doubts about their possibility of carrying the epidemic, but these preventive measures taken by some rulers were not respected in certain periods, as they were forced to lift the quarantine in cases of internal crises resulting from the scarcity of basic foodstuffs, or if the country is exposed to an external threat, they allow ships loaded with goods, equipment, and soldiers to dock in Algerian ports, which has contributed to the renewed emergence of epidemics. Aside from the measures of the ruling authority, there are those among the public who have resorted to quarantine individually or collectively, in addition to some calls from well-known figures such as "Hamdan Ibn Othman Khoja", who urged following and respecting precautionary preventive measures to avoid infection and wrote a book titled (Amaze the just and literary in protecting against the epidemic)^{xiii}.

In addition to these preventive measures taken by the authorities, individually or collectively, there are some figures who played a role in confronting some diseases in Ottoman Algeria, such as Abd Errezak Ibn Mohamed Ibn Hammadush Al-Jazairi, who wrote books on medicine, including the book: "Modifying the Mood Due to the Treatment Laws", the book: "The Plague", the book: "Revealing the Symbols", and the book: "The Essence Hidden in the Sea of Law in Medicine", In it, he mentioned a group of therapeutic properties of the most prominent epidemics that he personally witnessed, such as swamp fever or malaria.

His therapeutic methods were inspired by the noble Prophetic medicine, in addition to his reliance on the traditional medicine of the ancient Arabs and the Greeks (such as the doctor Dioscoride - the first century AD), as well as his discoveries of some herbs that proved effective in treating some epidemics, including the Eucalyptus herb, which contains substances It is a pain reliever, fever reducer, and virus killer. Ibn Hammadush had tried it on his trip to Morocco during the epidemic in Algeria, and confinement was imposed on residents at the port. The most important herbs that resist deadly diseases were also mentioned in his writings, such as (Sulaikha, Sassafras, and others...), where he was known to explore their therapeutic secrets^{xiv}, which suggests that Ibn Hammadush's therapeutic methods were mainly based on natural herbs and plants.

Epidemics in Algeria during the French occupation period (renewal and spread)

During the period of the French occupation of Algeria and because of its policy followed against the Algerians of displacement, starvation and other policies of impoverishment, the situation of Algerian society deteriorated and the living conditions became very low and lacked the minimum conditions for living, which caused the spread of many diseases and epidemics that claimed the lives of thousands of citizens, knowing that these Waves of epidemics are not new to Algeria, especially the plague epidemic, which occurred repeatedly during the period of the Ottoman presence, as we mentioned previously. The following is a mention of the most important epidemics that affected Algerian society during the period of the French occupation.

Smallpox epidemic

Smallpox is considered a highly contagious disease, and we mentioned that it spread in Algeria many times, the most severe of which was in the year 1803, and during the period of the French occupation, this epidemic continued to claim lives, appearing in the years 1831 and 1832, and leaving many dead and blind, both Algerian and French. It also appeared again in 1836, 1843 and 1849 in the province of Algiers, and spread in the city of Annaba and its suburbs in 1852 despite vaccination campaigns, affecting various cities and rural areas in a terrible way^{xv}.

It also appeared between the years 1865 and 1868, and in the period between 1869 and 1874, where it covered most regions of the world, and in the year 1877 it appeared again in the province of Algeria, and spread in schools and recorded a large number of infected children, and as a preventive measure the French authorities took a decision to close Schools to limit its spread, as not many deaths were recorded this time due to preventive measures such as closing schools and the widespread use of the vaccine.

It should be noted that Algerian children were not affiliated with French schools, except for a few of them, which means that the infections recorded in this epidemic primarily concern children of French residents, but this does not mean that Algerians were immune to this epidemic, especially with the lack of health care and therapeutic and preventive measures. Although the number of infections was small compared to the French colonists, the death rate among Algerians was high.

Since Algeria was a destination for European immigrants, at the beginning of the twentieth century, especially in the year 1906, it witnessed the arrival of some Spanish immigrants, who caused the re-emergence of the smallpox epidemic when they arrived at the ports of the Algerian province, and thus the infection spread in the country and became more severe in the years 1908 and 1909, and a high death rate was recorded, reaching 60% of those infected. The smallpox epidemic continued to reappear between 1916 and 1925, causing a high death rate in addition to the disabilities it caused, despite the intensification of vaccination operations. In general, this epidemic, which Algeria has been exposed

to many times -approximately every five years- always originates from outside the country, and is transmitted through infection^{xvi}.

The plague epidemic

This epidemic did not spread in Algeria only during the colonial period, because it spread there many times during the period of the Ottoman presence, as we mentioned previously, and its source was most often from the East and from Constantinople through conscripts, pilgrims, students, and merchants when they came to Algeria during the epidemic seasons. As well as due to friction and internal movements, it has spread in cities, villages and the countryside, especially with the lack of hygiene in many areas, which helps to spread it further.

Although the plague appeared in Algeria during the French occupation in several periods, it was less severe compared to the Ottoman period, as the province of Algiers witnessed it between the years 1852 and 1853, and it spread between the years 1899 and 1904, when cases were recorded in Skikda, Bejaia, El-Kala, and Oran, which are areas Coastal, containing ports that are always considered the main entrance to this epidemic. The epidemic continued to appear from time to time after 1923, but the number of infections remains small compared to the previous period, and vaccination and preventive procedures and measures may play a role in reducing this epidemic^{xvii}.

Typhus

It is also considered one of the infectious diseases that Algeria knew in the colonial period and before as a result of the deteriorating living conditions and poor health conditions, as it is transmitted to humans through lice, and with poverty, hunger and malnutrition, humans become more vulnerable to this disease, as it caused many deaths among Algerians during periods His appearance. In 1843, it caused human losses, especially children, and spread to most Algerian cities in 1846. It spread to the city of El Asnam in 1857, Ain Temouchent in 1862, and the Azazga region in 1863, 1867, and in 1968.

Some interior regions became hotspots for typhus due to drought, locusts, and famine, which led residents to migrate toward the city of Algiers, carrying the infection with them. The French authorities isolated them in shelters and prisons, but this did not prevent the infection from spreading to the city of Algiers and the coastal cities, and it caused the death of many until 1870^{xviii}, then it disappeared and returned again in 1879 and continued until 1898. This epidemic appeared mostly in periods of drought, and during Poor living conditions for Algerians, as it appeared in 1903, 1909 and 1910 in the province of Algiers and the province of Constantine, where Algerians were more susceptible to infection with this epidemic compared to the colonizers, and the death rate reached 24.9% in 1910, then it returned to spread in Algeria in the following years after 1st World War due to the reappearance of factors such as poverty^{xix}, famine, and drought, as happened in the city of Al-Afron between 1927 and 1929^{xx}.

Cholera

Among the infectious diseases that spread in Algeria during the French colonial period, it affects the intestines and causes diarrhea and dehydration of the body. It moved to Algeria for the same reasons as previous epidemics, and its beginnings were between 1834 and 1835 due to Spanish immigrants. It started in Oran and then moved to neighboring areas such as Mersa El-Kébir, Mostaganem and Mascara, and left more than 1,475 deaths among Algerians and Europeans in 20 days^{xxi}. It also appeared in 1837 in Annaba, and in 1849 it caused the death of 782 people out of 1,042 cases^{xxii}, which is a very high percentage that shows its seriousness, but most of the deaths were Algerians due to the difficult living conditions and lack of hygiene, in addition to not receiving adequate treatment or prevention, contrary to what the colonists had.

In the year 1850, the epidemic returned again in eastern Algeria (Constantine Province), and moved to the Algiers Province, where there are those who believe that it reappeared due to an Ottoman ship coming from Istanbul to the port of Algiers, carrying people infected with cholera, but the French authorities placed them in quarantine until As well as quarry clearance operations^{xxiii}. Although it was eliminated by this measure, it quickly spread again, causing deaths in several areas, such as the city of Algiers, Miliana, and Tennis. It also affected the movement of markets by disrupting them for fear of its spread, and this epidemic did not stop spreading in the various provinces of Algeria, where it reappeared every time when some expatriates carrying it arrived, whether from France, Spain, etc. It appeared in 1854 in the city of Algiers, causing 284 deaths, most of them soldiers, and in 1855 it caused 267 deaths^{xxiv}. Some French reports indicate that a cholera epidemic swept through the Dey Hussein Hospital in Algiers in September 1860, causing the colonial authorities and health offices in Algeria to take measures to try to limit its spread^{xxv}. It reappeared in 1865 due to a mission of nurses coming from Marseille, including 262 people infected with cholera. The disease spread in the city despite the isolation of patients in the port, and caused many deaths. In 1867, the epidemic spread in the province of Constantine and in several other regions, such as Setif, Bordj Bou Arreridj, M'Sila, Bou Saada, and even Batna and Biskra, and caused deaths among Algerians approaching a thousand victims^{xxvi}. It also returned in 1884 and 1893, when cholera appeared in the eastern regions, then moved to the province of Algiers, and was caused by returning pilgrims, after which the epidemic disappeared and did not reappear until the 1st World War^{xxvii}.

In general, we note that Algerian society suffered from the most deadly types of epidemics during the Ottoman period and the French occupation, and the reason for their spread during Ottoman rule was due to the Ottomans' neglect of health facilities and prevention measures in general. While during the colonial period, the reason for its spread is primarily due to the difficult and deteriorating living conditions of Algerians, the spread of poverty, hunger, drought, locusts and other factors that contribute to epidemics, as well as the discriminatory colonial policy followed by the colonial authority during the period of its colonization of Algeria,

and it is strange that the French government did not apply quarantine to some ships coming from areas affected by the cholera epidemic, and some members of the medical missions coming from France to Algeria were infected with the epidemic, as happened in 1865.

Conclusion

Through the above, this study reached the following results:

- The epidemics and pandemics that Algeria witnessed during the modern and contemporary period began mostly in the coastal regions, because they contain ports, which are considered the main outlet for epidemics, before spreading to the rest of the interior regions through the movement of people, which shows that these epidemics had an external source, as interference from Ports and ships carrying goods and people.
- Most of the epidemics and infectious and deadly diseases that spread in Algeria over successive periods were caused by the difficult living conditions of Algerian society, which suffered from famine, poverty, malnutrition, and lack of respect for hygiene rules, especially during the period of French colonialism and its unfair discriminatory policy.
- Quarantine and social distancing measures fall within the framework of self-protection and preservation, which is one of the most important purposes of the Islamic religion. Therefore, quarantine and confinement were applied individually or collectively before being imposed by the authority in many epidemic cases, in addition to the role of some figures in urging its implementation and adherence to it, as well as attempts to find other therapeutic and preventive methods such as the use of some medicinal herbs and vaccines.
- Quarantine, confinement, isolation, and social distancing are necessary measures to limit the spread of epidemics and infectious diseases and prevent them, as they have proven to be effective and effective if applied in accordance with their controls and requirements, and they allow full time to treat infected cases using other means such as vaccines and others, in addition to the necessity of paying attention to hygiene conditions.
- Although the most effective way to confront epidemics and limit their spread is to implement quarantine and confinement, some rulers did not adhere to this procedure in many waves of epidemics in Ottoman Algeria, which resulted in the continued emergence and spread of epidemics and infectious diseases in a renewed manner, which affected the social and demographic aspects, and caused great loss of life, recording thousands of victims in each pandemic, and the situation continued in the same way during the colonial period.
- Despite the positive effects of quarantine in limiting the spread of epidemics, it greatly affects the economic aspect, due to the stagnation of all economic activities, especially trade, due to the lack of movement to and from epidemic areas.

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ⁱⁱ - Ibid., chapter 13, verse 46.

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