History of medicine and ethics

Communication and *Cholera Morbus*: measures and fears in 19th Century Italy in the face of an unknown evil. Medical ignorance and ideological paradigms unchanged over time

MARIANO MARTINI[1,2,3,4], FEDERICO DANIELLI[5]
[1] Department of Health Sciences, University of Genoa, Italy; [2] Interuniversity Research Center on Influenza and Other Transmissible Infections (CIRI-IT), Genoa, Italy; [3] UNESCO Chair "Anthropology of Health - Biosphere and Healing System", University of Genoa, Italy; [4] President of section of History of Radiology of Italian Society of History of Medicine, Italy; [5] Independent Scholar, Genoa, Italy

Keywords

Cholera • Disease, Health • Fear • Medical ignorance • History of hygiene

Summary

Abstract. *The arrival of Cholera Morbus in Europe and Italy elicited a prompt institutional reaction. Starting in 1831, preventive measures characteristic of the plagues of the "Ancien Régime" were reactivated. The new disease triggered several instinctive and irrational reactions in the population, which resulted in the most diverse fears: fear of death, of doctors, of food, isolation, and abuse of food and alcohol. Ignorance of the origin of the disease, its etiology and modes of transmission meant that containment measures and treatment were often inefficacious. When patients recovered from the disease, this was due more to their living conditions and underlying state of health than to medical treatment, which was still limited to bloodletting, purgatives, and natural remedies (as emerges from the data from 1835 in the archives of the Genoese hospitals). As revealed by the pamphlets distributed around 1830, the disease was attributed to dietary disorders, personal and domestic hygiene, damp environments, menial occupations, and exposure to cold.*
The medical theories of the time were still closely bound to the "miasmatic-humoral paradigm", as the discoveries of Filippo Pacini, (1812-1883), John Snow (1813-1858) and Heinrich Hermann Robert Koch (1843-1910) had not yet been made. As for preventive measures at the institutional level, "contagionist" theories prevailed, which meant that sanitary cordons were reintroduced, safety measures (e.g. quarantine on people and goods) were implemented and great attention was placed on cleansing and disinfecting streets and public places.
Background. *For centuries, Cholera Morbus was endemic to the territory of Bengal; only with the revolution in transport, starting from 1817, did the disease first spread beyond India [1], replacing the plague as the "scourge of urban populations" [2]. Cholera was localized in Asia until 1817, when a first pandemic spread from India to other regions of the world. Endemic in Asia, (in the delta of the Ganges-India), it remained enclosed to that geographical area until the beginning of the 1800s. It first emerged from the Sundarbans Forest where the bacterium Vibrio cholerae had perhaps been mutating for millennia.*
It afterwards moved to the Mediterranean and Europe as new commerce routes were opened up between East and West and in the 1830s, Western Europe was faced with this totally new and unknown evil [3], which appeared in Italy in 1835.

Introduction

The arrival of this new, aggressive, and unknown disease triggered extraordinary reactions on the part of the population and institutions, which were still tied to rigid mental patterns that dated back to the spread of *Yersinia Pestis* during the *Ancien Régime*.
This situation arose despite the great efforts implemented by the institutions to reassure the population.
According to the medical theories dominant at the time, the disease was caused by fear, dietary disorders and cold [4]. Moreover, there was considerable confusion as to how the disease spread and the nature of the agent that caused it, which was variously indicated in pamphlets and medical publications as: a "morbid germ", a "cholera germ", a "volatile principle", a "choleraic effluvium", a "miasmatic atom", *etc*.
The history of epidemics has been one of the most prominent fields of inquiry in Italian historiography over the past fifty years, with its foundations rooted in the work of Carlo M. Cipolla. A leading economic historian, Cipolla was among the first to examine epidemics through the lens of their socioeconomic consequences. His seminal studies on seventeenth-century epidemics in Italy, published mainly by Il Mulino between the late 1970s and early 1990s, have since been reissued in new editions [5-7], underscoring their lasting significance. These works remain an indispensable point of departure for any scholar approaching the subject, not only with regard to the Italian case but also in comparative perspective. Indeed, the central-northern regions of Italy, particularly the "quadrilateral" formed by Genoa, Florence, Venice, and Milan, where permanent health magistracies had been established in the early modern period, provided a Model subsequently adopted both across the peninsula and, in later centuries, beyond

the Alps and the Channel. As will be shown, English responses to cholera in the nineteenth century drew extensively on Italian precedents, illustrating the centrality of Cipolla's contributions.

Almost contemporaneous with Cipolla's early publications, Lorenzo del Panta's *Le epidemie nella storia demografica italiana* (Loescher, 1980), recently reprinted [8], extended the discussion to the demographic impact of epidemics from the Middle Ages to the contemporary era, thereby developing one of the many lines of inquiry opened by Cipolla. The intellectual vitality of that period also produced a rich series of studies on plague outbreaks in early modern Italy, among them the works of Preto [9, 10] and Restifo [11-13].

Turning to the nineteenth century and the *Cholera Morbus*, the key reference remains Eugenia Tognotti's comprehensive analysis of cholera in Italy [1]. Her study reconstructs the spread of the disease while examining reactions, causes, economic and demographic effects, and the social repercussions in terms of collective imagination and the resurgence of irrational fears, fears that re-emerged after the Enlightenment and nearly ninety years without encounters with a "monster" comparable to the plague. The theme of fear in relation to cholera was further developed by Paolo Sorcinelli in *Nuove epidemie, antiche paure* (Franco Angeli, 1986; reissued by Biblioteca Clueb in 2021 [14]). Focusing on everyday life, diet, interpersonal relations, relations with medical practitioners, and the persistence of irrational anxieties, Sorcinelli demonstrated how these aspects were profoundly disrupted and exacerbated by the sudden arrival of an unfamiliar disease, much as had occurred in earlier centuries.

As Guido Alfani has observed, "*in recent years mortality crises have once again attracted the attention of historical demographers and social and economic historians. This is an international phenomenon, in which Italian scholars have played a particularly visible role*" [15]. Alfani highlights the importance of Tognotti's work, including her collaboration with Alessia Melegaro [16], and notes the proliferation of publications in the first fifteen years of the twenty-first century. Many of these studies, however, focus on specific regions or cities, leaving southern Italy, though the area most severely affected by cholera, relatively understudied, thus revealing a significant gap in the literature. Nevertheless, several recent contributions have begun to address this imbalance [17, 18].

Alfani also points to the concentration of scholarship on the first and third cholera waves (1835-37 and 1854-55, respectively). A broader chronological perspective is offered by Forti Messina [19], whose work covers all cholera outbreaks in nineteenth-century Italy and provides valuable statistical and demographic insights.

Finally, it is worth noting that the post-COVID era has given rise to a renewed wave of scholarship on epidemics, exemplified by Tanturri's 2022 study [20].

The routes of propagation were similar to those of the plague: from miasmas to man, from an infected person to a healthy one, and from contaminated materials or objects to humans.

There were those who maintained that the contagion was spread "more by poor people's dirty clothes made of low-quality materials than by individuals".

They therefore claimed that a "sphere of contagious activity" surrounded the body of the cholera patient and could transmit the disease through the skin or respiratory tract. Some attributed great importance to the individual's way of life, claiming that cholera mainly affected "those with ill-disposed intestines and nerves, those who were poorly protected from the elements and those who led a disorderly life, (...) rather than persons who led a regular life" [1], while others cited geographical factors, climate and freak atmospheric events.

G. Franceschi's pamphlet, entitled *Istruzione al popolo sul cholera morbus contagioso*, published in Cesena in 1832 [21], is emblematic of the very limited knowledge of the time.

The pamphlet provided a set of recommendations: wrapping a woolen belt around the belly, wearing woolen shirts and underwear, washing these garments often and not using them if damp or dirty… [4]. The novelty of the disease prompted a large production of pamphlets, which demonstrated the scant knowledge of the incubation period of the disease and of the fact that the cholera vibrio remained in the feces for at least three weeks.

The liveliest debate between "anti-contagionists" and "contagionists" concerned the nature of the disease:

- on the one hand, the supporters of the epidemic theory, who again attributed the spread of the disease to the miasmas or harmful effluvia caused by stagnant water or by "rebus et corporibus putridis et corruptis", i.e. heaps of manure, garbage and filth that swamped the cities.
- on the other hand, those who believed that contagion was due to the inter-human transmission of germs.

The importance of this debate lay, above all, in its political implications. Indeed, a government that embraced the "anti-contagionist" theses, which held that sanitary cordons (against free trade) were ineffective, would have elicited adverse public reactions against the incautious health policy adopted. By contrast, implementing cordons, isolation, quarantine and seizures (measures supported by the "contagionists") would have limited trade, thereby generating negative psychological repercussions among the population; this, in turn, would have fueled social insecurity, which was regarded as one of the causes of the disease [4].

The "political danger of cholera" was manifested in "the common people's belief that the disease originated from poisons deliberately spread by scoundrels, as was also suggested by the rulers themselves" [1]; this conviction gave rise to "witch-hunts", which triggered bloody riots.

In Italy, the "contagionist" thesis prevailed, and the doctors present in the Health Magistracies recommended sanitary cordons and quarantine everywhere. The most sagacious magistrates drew upon both theories in order to implement those measures that they believed to be beneficial to public health: sanitary cordons and quarantine on the one hand; the removal of refuse,

cleansing of houses and propaganda on personal hygiene on the other [1].

Cholera came to Genoa in August 1835, despite the fact that the health authorities of the Kingdom of Sardinia had begun to implement interventions in 1831. These concerned regulations on trade and travel and the diffusion of rules and instructions on health and prevention among the population.

By the summer of 1835, the disease had reached Vienna and was approaching the borders of Savoy [22]; on July 18, a Higher Health Council, together with Provincial Councils, was established, in order to protect the kingdom's states from the disease. This council was charged with drafting public health regulations and trade restrictions and setting up quarantine.

The institution of the Health Magistrates was also maintained, whose tasks included communicating the orders and regulations deemed necessary against cholera. The measures and actions implemented by the Health Magistrate roughly retraced and repeated the Model that had already been tried and verified during the plague of 1579 and 1656-1657: public health officers were deployed to guard the coasts; the city gates were garrisoned *etc.* [23].

In Turin, a "Committee of Doctors for the Study, Prevention and Treatment of Cholera" was created, whose orders were to be carried out by the entire population. The first preventive measures of a "contagionist" nature were implemented: sanitary cordons were established in border areas, regulations were issued on quarantine and the transport of people, animals and goods, and sanctions were imposed in the event of violations [24]. Humans and transported goods have always been considered the main vectors of contagious diseases. Thus, in the case of cholera too, all those regulations that characterized attempts to contain the *17th century* plagues were reintroduced: *"those institutions and practices were rediscovered in the 19th century during the cholera epidemic and constituted the basis of the modern development of healthcare organization"* [5, 25].

News of the disease and its spread caused general concern, and reawakened a whole range of fears that were thought to have been overcome during the 18th century: fear of food, of death, of other people, of doctors and medicine - irrational fears, superstitions and beliefs dating back to the *ancien régime;* it was even believed that diseases were the result of sin.

Thus, people again invoked divine intervention; forms of popular devotion were revived, such as processions and collective prayers addressed to sacred images. Moreover, great importance was once again attributed to atmospheric factors, as people discerned a link between cholera mortality and adverse weather conditions.

The population asked for cannon to be fired and bonfires to be lit, in order to move and purify the air. The wealthiest individuals abandoned the cities and took refuge in their country houses or in areas that were not affected by the disease.

This sudden change in everyday habits interrupted trade and reduced work activities. It also led to the suspension of social relationships, reactions of anger or apathy, and even the rejection of reality; some were also prompted to overindulge in food and alcohol.

As most cases of cholera were ascribed to an unhealthy diet, health authorities urged people to eat with moderation and pay careful attention to the state of conservation of meat and the ripeness of fruit. Such regulations and calls for moderation elicited contrasting reactions; some people drastically reduced their food intake, while others defied the authorities, believing that an abundance of food and drink would enable them to recover their strength and keep disease at bay [14].

In this setting, any hint of gastrointestinal problems triggered terror: not only terror of the disease itself, but also fear of letting the authorities know, since this entailed isolation at home or transfer to hospital, a dreaded environment.

The fear of other people, who were seen as potential vectors of disease transmission, was heightened by the movement of the population from the countryside to the cities in search of food, shelter and care, as often occurred during epidemics and famines; this "forced urbanization" aroused resentment and rekindled the fear of others, who were regarded as intruders. Thus, the measures implemented during previous epidemics of the plague were revived; the city authorities banned vagabonds, itinerant entertainers and prostitutes in an attempt to contain the spread of the disease by isolating the city [14].

The "bill of health" was reintroduced, which was an indispensable document for those who wanted to travel; anyone found traveling with a false or expired bill was taken to the so-called "observation houses" [14].

Contagion was also facilitated by the fact that people did not seek medical attention promptly, but only when their symptoms were already very advanced and the disease was often incurable; this exacerbated public distrust of doctors, and many people turned to charlatans and faith-healers. Moreover, the disease was often left to run its course, especially if the patients were elderly or children.

In addition, as medical treatment was very expensive, natural and practical remedies were often preferred to medicines. Indeed, medical remedies were far from efficacious or innovative, being still tied to traditional practices such as bloodletting and phlebotomy, or ineffective medicines.

In the very rare cases of cure, it was believed that the physician's art had played no role.

"In many cases the most fearsome enemy was not so much cholera but the lack of assistance" [14]. Indeed, the desertion of healthcare personnel was frequent, owing to fear of the disease and its rapid spread. Treatment at the patient's home, when requested, was almost identical to that administered in hospital: *elderberry, zinc pills, enemas, linseed oil, olive oil, massage of the feet and stomach with hot cloths, baths in warm water, the application of leeches, drinking abundant water, mustard poultices, peach, cedar and alkermes tonics, rum, cinchona infusions and decoctions of chamomile, cinnamon and lemon balm, laudanum,*

lemon, vermifuges, anti-emetics, infusions of lime, wine, pine and malaga.

Every doctor proposed his own remedy, which was often different from that of other doctors, in a desperate bid to find a miracle cure for cholera. However, all such attempts ended in failure [14].

Most of the fears connected with cholera would be unfounded today. At that time, however, medical practice was somewhat backward, being still tied to ancient paradigms.

Indeed, only later would major breakthroughs be made, such as *Filippo Pacini's* discovery in 1854 of the presence in the intestines of cholera victims of millions of bacteria, which he named *Vibrio cholerae* (Fig. 1), or John Snow's discovery of the correlation between cholera and polluted water during the 1854-55 epidemic in London (Fig. 2), or the work of Robert Koch (1843-1910) (Fig. 3), who isolated and cultivated the *Vibrio cholerae* responsible for the disease in 1882.

The names of these three individuals are also associated with several fundamental discoveries in the history of science and medicine: the first is credited with the discovery of tactile nerve endings, now known as Pacinian corpuscles; the second is closely associated with advances in anesthesiology, having experimentally investigated and established the appropriate dosage between ether and chloroform; the third is primarily remembered for the discovery of the tuberculosis bacillus in 1882, which earned him the Nobel Prize in Physiology or Medicine in 1905.

Furthermore, a cholera vaccine was first developed in 1892 by Waldemar Haffkine (1860-1930) (Fig. 4), who conducted a trial of it in India in 1893; he is also known for having developed a plague vaccine in 1897.

However, these discoveries would only acquire meaning in the light of the germ theory put forward by Louis Pasteur (1822-1895) (Fig. 5) and the consequent bacteriological revolution [26].

A further aspect of interest in relation to communication concerns the use made of the content it conveyed, particularly in light of the fact that contemporary medical information was inherently unreliable due to the limited knowledge of a disease that was, at the time, still largely unknown [14]. It is possible to identify a political and economic purpose underlying the use of circulating information, for instance to target rival state entities, as occurred with Genoa at various points in history. In this regard, the quarantine regulations imposed on arrivals from Livorno from 1749 onward may be interpreted in the context of the peace treaties between the Tuscan

Fig. 1. Filippo Pacini (1812-1883) - [Public domain Wikipedia commons.

Fig. 2. John Snow (1813-1858) - [Public domain Wikipedia commons].

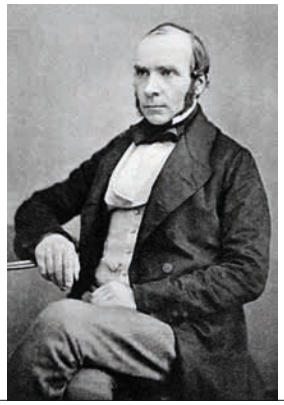

Fig. 3. Heinrich Hermann Robert Koch (1843-1910) - [Public domain Wikipedia commons.

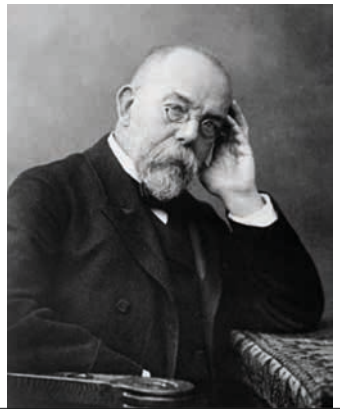

Fig. 4. Waldemar Haffkine (1860-1930) - [Public domain Wikipedia commons.

Fig. 5. Louis Pasteur (1822-1895) - [Public domain Wikipedia commons.

city and the Berber regencies, which were consistently regarded as a threat to public health [27, 28]. Similarly, the ban measures enforced by Florence against Genoa in 1652, following the spread of plague in Sardinia and its presumed presence in Genoese Corsica, can be understood within this framework [6]. In the context of 19th cholera, such an application of information was observed primarily in the Kingdom of the Two Sicilies, where information was used to incite the early anti-Bourbon uprisings during the transitional period between the two halves of the century [1, 20, 29].

Historical sources also reveal situations in which communication practices targeted more limited and individual groups. Instructions were disseminated to encourage the removal of beggars, the poor, and foreigners from cities as a preventive measure, based on the assumption that these minority groups were disruptive elements and facilitators of disease propagation [1, 6, 10].

The situation in Genoa and the city's precious archival sources

As mentioned above, the cause of the disease was ascribed to dietary disorders, exposure to the cold and the fear of the disease itself, which were unpredictable everyday factors.

With regard to Genoa, important archival documentation can be found in: *"Resoconto del colera a Sampierdarena tra il 24 agosto e il 24 ottobre 1835" (Report on cholera in Sampierdarena between August 24th and October 24th 1835);* "*Specchio dei colerosi tra il 22 agosto e il 22 settembre nel comune di Recco" (The picture of cholera patients between August 22nd and September 22nd in the municipality of Recco);* "*Quadro dei colerosi di Nervi" (Nervi's cholera sufferers);* "*Quadro dei colerosi di Quinto" (Quinto's cholera sufferers)* and "*Quadro dei colerosi di Cornigliano" (Cornigliano's cholera sufferers)* [30].

These documents report the name, surname, age, symptoms, presumed causes of the disease and occupations of the infected persons or victims.

The occupations comprised: vendors, blacksmiths, greengrocers, dyers, washerwomen, carpenters, domestic servants, boatmen, tavern keepers, health inspectors, porters, sailors, the children of sailors, fishermen, spinners, farmers, innkeepers, waiters, cheesemongers, shopkeepers and cobblers.

These are obviously professions that involve contact with other people, with materials that can easily harbor miasmas and dirt, and with damp environments.

For this reason, it was believed that these features predisposed people to cholera, and this reinforced the erroneous conviction that crowded and climatically unsuitable environments facilitated contagion, in addition to a low social status, which entailed an inadequate diet, scant hygiene in homes and workplaces and poor personal hygiene.

What the authorities lacked, however, was the awareness of a precise connection with contaminated water. This led to very generic conclusions involving a whole range of possible causes of the disease. Indeed, the traditional *Galenic-miasmatic paradigm* persisted. This close connection with tradition emerges clearly from the extensive production of information brochures.

Between October 1831 and March 1832, the Royal Printing House in Turin published the *Leggi e Provvedimenti di Sanità per gli Stati di Terraferma di S. M. Il Re di Sardegna* (Laws and Health Provisions for the Mainland States of His Majesty the King of Sardinia), a text of 19 chapters which was sent to the provinces and then reprinted and distributed to all pharmacies, which were instructed to keep it carefully [31].

The main purpose of this campaign of communication was to educate the public regarding the alleged methods of avoiding or treating cholera. In addition, however, it was also aimed at supporting and comforting the population, in order to counteract the fear, spread by state, ecclesiastical and health authorities. The instructions contained in the above-mentioned text were proposed and subsequently re-proposed in a series of pamphlets issued by the Royal Printing House in Turin from 1831 onwards, and later collected organically in the *Preservativo del Cholera* [32], which was printed in 1835.

The text strongly recommended an adequate standard of living, respect for the rules of domestic and personal hygiene and the avoidance of insidious pleasures.

- Regarding homes: occupants were instructed to remove all sources of dampness, especially stagnant water; to maintain a certain distance from wells; to keep land clear and drain puddles; not to live in recently built houses, as these were damp; to use fireplaces frequently, so as to prevent dampness; to dispose of rubbish away from inhabited areas; to clean rooms, especially kitchens; to open windows for at least half an hour to change the air; to purify the air by lighting fires; not to keep coal indoors; to keep chimneys clean, so as to ensure air exchange; and to clean latrines.
- Regarding individuals: it was important to wash the face and hands and, in the event of contact with a sick person, to use vinegar and calcium chloride [33]; to

change and wash clothes often; to keep clean clothes in the open air; to wear heavy clothes in cold weather *etc*.
The importance of moderation in food, in terms of both quantity and quality, was emphasized; unripe fruit, stale fish, legumes, chestnuts and mushrooms were deemed unhealthy, as they are difficult to digest, while rice, meat and potatoes were highly recommended; fatty condiments containing garlic or onion were to be avoided.
Concerning beverages, spring water was recommended; wine was to be drunk with moderation, and mixing different types of wine was to be avoided.
Light meals were suggested, such as broth, boiled meat, a little ripe fruit and watered down wine. Foods that were difficult to digest, such as pork, salty and fatty meat and condiments, were to be avoided; fish and cheese were to be consumed with moderation, and fruit and vegetables eaten only when properly ripe.
Close attention to diet was underlined in the bulletins on the sick with regard to the alleged causes of the disease: disorders of the dietary regime, abuse of new wine, consumption of unripe fruit, mushrooms, peaches or onions, as well as reactions such as hysteria and fear [34].
The importance of physical exercise, walking, and solidarity towards those infected was also emphasized. Prompt assistance for cholera sufferers was also essential: when the first symptoms appeared, the person was to go to bed immediately, to be kept warm with woolen blankets and to be fed hot *polenta* made with cornmeal or bran flour; in addition, the stomach, hands and feet were to be sprayed with mustard, and herbal infusions such as sage, chamomile, peppermint or lemon balm were to be drunk.
Vinegar was to be kept on hand for washing purposes, as was calcium chloride to disinfect the room and clothes; the patient was to be kept warm with the aid of hot bricks or bags of hot ash, given rice to eat and olive oil to drink, to prevent vomiting. Hot baths were also recommended.
This long and detailed list of preventive measures and treatment methods demonstrates that ignorance of the etiology of the disease played a determining role in rendering the action of the health authorities ineffective - a concept that applied just as much to cholera in the 19th century as it had to the plague in the 17th [35].

Conclusion

Epidemics, like wars and famines, are a constant feature of human history: the most feared of the Horsemen of the Apocalypse, an evocative biblical image that characterizes the late Middle Ages and the modern age.
This image is applicable not only to the 16th century [36], but also to the plague that broke out during the Peloponnesian Wars, to the epidemics of smallpox and measles in the Roman Empire, to the Justinian plague, which is considered the "first great pandemic" [2], up to the disastrous return of the plague in Europe in 1347 and to the subsequent epidemics of *Cholera Morbus* in the 19th century [37]. Clearly, these historical periods were constantly riven by epidemic upheavals that had "profound repercussions on the socio-economic and political-institutional scenario, as well as on the mentality and behavior of contemporaries" [38].
The appearance of a new and unknown evil has always triggered measures and reactions characterized by ignorance and fear, altering the social order despite governments' frequently ineffective efforts to tackle the situation. Fear and irrationality in popular reactions are also a key to understanding the development of such dramatic events: dynamics such as non-observance of regulations, refusal to submit to authority and attempts to escape from reality *etc.*
Phenomena of this type were recorded both in the 17th century and, with regard to cholera, in the 19th.
In Genoa, for example, cases of theft of materials by armed guards occurred and porters charged with transporting the sick sometimes refused to do their job [32] *etc*. It should also be noted that economic considerations frequently hindered institutional action, resulting in the need to "sacrifice public health to the economy" [7].
When it first appeared, cholera had a devastating impact; it spread at lightning speed, mainly affected the working class, was most lethal in subjects aged over 40/50 years, and carried a mortality rate of just under 50% (as shown by the Genoese health bulletins issued between 1835 and 1837) [34, 39].
On the basis of these data, cholera appears to have been less insidious than the previous epidemics of the plague; however, the historical and cultural context must also be taken into account.
Between the 14th and 18th centuries, the plague was considered to be the most fearsome evil of all, while during the 19th century one of the most feared diseases was cholera.
In conclusion, it is clear that all the elements analyzed unite the past and the present. Indeed, we can discern many analogies between the arrival of an unknown evil two centuries ago and the 2020 COVID pandemic [40].

- When *COVID-19* arrived in Italy, the first measures to be implemented concerned the reduction of gatherings and the limitation of movements and individual contacts.
- Subsequently, self-certification was introduced to authorize travel.
  In this regard, if we used the expressions "sanitary cordons", "general quarantine" and "bill of health", we would connect worlds that, albeit centuries apart, are united by reactions and behaviors resulting from traumatic and emergency events.
- These analogies can also be discerned in the work of doctors, in the care of patients and in the fear of hospitals, which were once again seen as hotbeds of infection – a return to the ancient view of the hospital as the "antechamber of hell" [6].

- The figure of the surgeon of yesteryear, wearing a bird-beak mask and a waxed gown, is similar to that of the modern-day doctor endowed with personal protective equipment, in that the evil enemy sometimes manages to overcome these barriers and strike the individual committed to saving the patient [41].
- During the COVID-19 pandemic, at least in its initial phase, patient care also encountered difficulties, owing to lack of knowledge of the disease itself [42]. Consequently, therapy was to some extent experimental.
- With regard to the circulation of information, between the early modern period and the 19th century it was evidently slower, and constrained in content by the limited knowledge available on the subject. Today, and in the context of the COVID-19 pandemic, this phenomenon has been exponentially accelerated by the web and social media, which in turn constitute an additional source of risk in the form of misinformation.

  Misinformation represents a major challenge for contemporary society, contributing to distorted judgments and decision-making processes in critical domains such as public health crises, and often exerting a persistent influence on reasoning even after it has been corrected. Its dissemination is greatly facilitated by channels such as AI and social networks [43, 44], where the rapid and large-scale spread of false information constitutes a global risk. Several approaches have been proposed to identify and mitigate these threats, including deep learning–based methods, prebunking interventions, and reactive debunking strategies; nevertheless, countering misinformation remains a challenge of considerable complexity [42, 45, 46, 47].

These similarities, however, may be somewhat misleading. Indeed, modern medical science soon found a way to immunize the population against COVID-19, while Alexandre-Émile-John Yersin (1863-1943) isolated the *Yersinia Pestis* bacillus only in 1894 [48, 49], more than half a millennium after the plague reached Messina from Caffa in 1347.

Funding

This research received no external funding.

Conflicts of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Data Availability Statement

Not applicable.

Informed Consent Statement

Not applicable.

Authors' contributions

FD: conceived the study; FD & MM: designed the study; drafted the manuscript; performed a search of the literature; revised the manuscript; conceptualization and methodology; investigation and data curation; original draft preparation; review; editing. All authors have read and approved the latest version of the paper for publication.

References

[1] Tognotti E. Il mostro asiatico. Storia del colera in Italia. Roma-Bari, Laterza, 2000.

[2] Naphy W, Spicer A. La peste in Europa, Bologna, Il Mulino, 2006.

[3] Cosmacini G. Storia della medicina e della sanità in Italia. Dalla peste nera ai giorni nostri. Roma-Bari, Laterza, 2016.

[4] Pieri D. Il colera giunge in Romagna: l'epidemia di Cesenatico (1836), in Tagarelli A, Piro A (a cura di). La geografia delle epidemie di colera in Italia, Considerazioni storiche e medico-sociali. Mangone, Istituto di Scienze Neurologiche-CNR, Pubblisfera, 2002, pp. 59-78.

[5] Cipolla CM. Contro un nemico invisibile. Epidemie e strutture sanitarie nell'Italia del rinascimento. Bologna, Il Mulino, 2007.

[6] Cipolla CM. Il pestifero e contagioso morbo. Combattere la peste nell'Italia del Seicento. Bologna, Il Mulino, 2012.

[7] Cipolla CM. Cristofano e la peste. Bologna, Il Mulino, 2013.

[8] Del Panta L. Le epidemie nella storia demografica italiana. Bologna, Biblioteca Clueb, 2020.

[9] Preto P. Peste e società a Venezia, 1576. Vicenza, Neri Pozza, 1978.

[10] Preto P. Epidemia, paura e politica nell'Italia moderna. Roma-Bari, Laterza, 1987.

[11] Restifo G. Peste al confine. L'epidemia di Messina del 1743. Messina, EPOS, 1984.

[12] Restifo G. Le ultime piaghe. Le pesti nel Mediterraneo (1720-1820). Milano, Selene Edizioni, 1994.

[13] Restifo G. I porti della peste. Epidemie mediterranee fra Sette e Ottocento. Messina, Mesogea, 2005.

[14] Sorcinelli P. Nuove epidemie, antiche paure. Uomini e colera nell'Ottocento. Bologna, Biblioteca Clueb, 2021.

[15] Alfani G. Le stime della mortalità per colera in Italia: una nota comparativa. Popolazione e storia, Italia, 2014. Disponibile all'indirizzo: https://popolazioneestoria.it/article/view/624. pp. 77-85.

[16] Alfani G, Melegaro A. Pandemie d'Italia. Dalla peste nera all'influenza suina: l'impatto sulla società. Milano, Egea, 2010.

[17] Alibrandi R. Il colera va per mare. Misure di polizia sanitaria in Sicilia nel 1837, in Antonelli L (a cura di). La polizia sanitaria: dall'emergenza alla gestione della quotidianit. Catanzaro, Soveria Mannelli: Rubbettino, 2015, pp. 197-206.

[18] Salvemini R. A tutela della salute e del commercio nel Mediterraneo: la sanità marittima nel Mezzogiorno preunitario, in Salvemini R (a cura di) Istituzioni e traffici nel Mediterraneo tra età antica e crescita moderna. Napoli: Consiglio Nazionale delle Ricerche, Istituto di studi sulle società del Mediterraneo, 2009, pp. 259-296.

[19] Forti Messina AL. L'Italia dell'Ottocento di fronte al colera. In: Della Peruta F, a cura di. Storia d'Italia, Annali, Malattia e medicina. Torino: Einaudi 1997, pp. 431-96.

[20] Tanturri A. Il flagello delle Indie. L'epidemia colerica del 1836-37 nel Mezzogiorno. Brescia: Morcelliana 2022.

[21] Franceschi G. Istruzione al popolo sul cholera morbus contagioso. Cesena 1832.

[22] Ruffié J, Sournia JC. Le epidemie nella storia. Roma: Editori Uniti 1985.

[23] Assereto G. Per la comune salvezza dal morbo contagioso. Novi Ligure: La città del silenzio 2011.

[24] Archivio di Stato di Genova (ASG). Intendenza Generale di Genova, Provvedimenti per impedirne la propagazione, b. 443, fasc. 65, 1831-1832.

[25] Martini M, Calcagno P, Brigo F, Ferrando F. The Story of the plague in the Maritime Republic of Genoa (Italy) (1656-1657): An innovative public health system and an efficacious method of territorial health organization. J Prev Med Hyg 2022 Dec;63:E625-9. https://doi.org/10.15167/2421-4248/jpmh2022.63.4.2781.

[26] Grima P. Colera. Scienza, storia, costume, letteratura. Nardò: Besa Editrice 2018.

[27] Pedemonte D. «Operando in pregiudizio della piazza di Livorno». Pubblica salute e privati interessi nella guerra sanitaria degli Stati italiani alle paci imperiali con i barbareschi (1748-1749). In: Addobbati M, Aglietti M, a cura di. La città delle nazioni. Livorno e i limiti del cosmopolitismo (1566-1834). Pisa: Pisa University Press 2016.

[28] ADBR, Intendance sanitaire de Marseille, 200 E 422, Lettere alla Sanità da Genova, 1749-1784.

[29] Di Fiore G. Pandemia 1836. La guerra dei Borbone contro il colera. Milano: UTET 2020.

[30] ASG, Intendenza Generale di Genova, Stabilimento di ospedali per i colerosi e relativi provvedimenti, b. 444, fasc. 67, 1835.

[31] ASG, Intendenza Generale di Genova, Provvedimenti per impedirne la propagazione, b. 443, fasc. 65, 1831-1832.

[32] ASG, Intendenza Generale di Genova, Disposizioni sanitarie sul Cholera Morbus, b. 445, fasc. 68, 1835.

[33] Martini M, Lippi D. SARS-CoV-2 (COVID-19) and the Teaching of Ignaz Semmelweis and Florence Nightingale: a Lesson of Public Health from History, after the "Introduction of Handwashing" (1847). J Prev Med Hyg 2021;62: E621-4. https://doi.org/10.15167/2421-4248/jpmh2021.62.3.2161.

[34] ASG, Intendenza Generale di Genova, Bollettini sanitari, b. 446, fasc. 71, 1835.

[35] Orsini D, Martini M. The insidious return of cholera in the Eastern Mediterranean Region, Lebanon and Syria: a worrying signal! Past, present, and future forthcoming. J Prev Med Hyg 2023;64:E27-33. https://doi.org/10.15167/2421-4248/jpmh2023.64.1.2910.

[36] Alfani G. Il Grand Tour dei Cavalieri dell'Apocalisse. L'Italia del lungo Cinquecento (1492-1629). Venezia: Marsilio 2010.

[37] Galassi FM, Varotto E, Percivaldi E, Vittori V, Ingaliso L, Vaccarezza M, Martini M, Ribatti D. A historico-medical perspective on ancient epidemics and their impact on past human societies. J Prev Med Hyg 2024;65:E456-63. https://doi.org/10.15167/2421-4248/jpmh2024.65.3.3383.

[38] Calcagno P. Pestilenze e controllo del territorio nella Repubblica di Genova. In: Berruti M, a cura di. La peste a finale, 1631-1632: Diffusione e incidenza di una epidemia nella Liguria di antico regime. Imperia: Philobiblon 2012.

[39] ASG, Intendenza Generale di Genova, Bollettini e spese, b. 449, fasc. 79, 1837.

[40] Simonetti O, Martini M, Armocida E. COVID-19 and Spanish flu-18: review of medical and social parallelisms between two global pandemics. J Prev Med Hyg 2021;62:E613-20. https://doi.org/10.15167/2421-4248/jpmh2021.62.3.2124.

[41] Simonetti O, Zatta M, Monticelli J, Orsini D, Martini M. Vaccine hesitancy, misinformation in the era of COVID-19: Lessons from the past. Filmdemics: The History of Modern Pandemics Through the Lens of Cinema. Medicina Nei Secoli 2023;35:111-30. https://doi.org/1013133/2531-72882823.

[42] Orsini D, Bianucci R, Galassi FM, Lippi D, Martini M. Ethics Med Public Health 2022;24:100812. https://doi.org/10.1016/j.jemep.2022.100812.

[43] Islam MR, Liu S, Wang X, Xu G. Deep learning for misinformation detection on online social networks: a survey and new perspectives. Soc Netw Anal Min 2020;10:82. https://doi.org/10.1007/s13278-020-00696-x.

[44] Spearing ER, Gile CI, Fogwill AL, Prike T, Swire-Thompson B, Lewandowsky S, Ecker UKH. Countering AI-generated misinformation with pre-emptive source discreditation and debunking. R. Soc Open Sci 2025;12:242148. https://doi.org/10.1098/rsos.242148.

[45] Rosselli R, Martini M, Fluad Effect Working Group; Bragazzi NL, Watad A. Public Health Impact of the So-Called "Fluad Effect" on the 2014/2015 Influenza Vaccination Campaign in Italy: Ethical Implications for Health-Care Workers and Health Communication Practitioners. Adv Exp Med Biol 2017;973:125-34. https://doi.org/10.1007/5584_2017_39.

[46] Mahroum N, Watad A, Rosselli R, Brigo F, Chiesa V, Siri A, Ben-Ami Shor D, Martini M, Bragazzi NL, Adawi M. Infodemiological investigation of the so-called "Fluad effect" during the 2014/2015 influenza vaccination campaign in Italy: Ethical and historical implications. Hum Vaccin Immunother 2018;14:712-8. https://doi.org/10.1080/21645515.2017.1420448.

[47] Ecker UKH, Lewandowsky S, Cook J, Schmid P, Fazio LK, Brashier N, Kendeou P, Vraga EK, Amazeen MA. The psychological drivers of misinformation belief and its resistance to correction. Nat Rev Psychol 2022;1:13-29. https://doi.org/10.1038/s44159-021-00006-y.

[48] Burns W Alexandre Yersin. Etymologia: Yersinia. Emerg Infect Dis 2010;16:496. https://doi.org/10.3201/eid1603.e11603.

[49] Zietz BP, Dunkelberg H. The history of the plague and the research on the causative agent Yersinia pestis. Int J Hyg Environ Health 2004;207:165-78. https://doi.org/10.1078/1438-4639-00259.

Received on November 08, 2025. Accepted on January 19, 2026.

Correspondence: Mariano Martini, Via Pastore 1, 16132 Genoa, Italy. E-mail: mariano.martini@unige.it

How to cite this article: Martini M, Danielli F. Communication and *Cholera Morbus*: measures and fears in 19th century Italy in the face of an unknown evil. Medical ignorance and ideological paradigms unchanged over time. J Prev Med Hyg 2025;66:E635-E642. https://doi.org/10.15167/2421-4248/jpmh2025.66.4.3797