



OPEN ACCESS

القلم Al-Qālam

P-ISSN: 2071-8683; E-ISSN: 2707-0077

Volume 29, Issue, 2, 2024

<http://alqalamjournalpu.com/>

Personal Protective Equipment (PPE) used by Plague and Covid-19 Doctors: A Study of Sematic Religious Perspective

Bela Monis Mughal

MPhil Islamic Studies Alumni, Fatima Jinnah Women University, Rawalpindi

Dr. Masooma Batool

Lecturer, Fatima Jinnah Women University, Rawalpindi

Abstract

KEYWORDS:

Plague doctors,
disease, Personal
protective equipment
PPE, precautionary
and preventive
measures, covid-19
doctors, plague,
covid-19

Date of Publication:

26-12-2024



Plague doctors are very much prominent and leading figures for the future covid-19 doctors of this global era in which the pandemic covid-19 disease has stricken the whole world. As an epidemic plague disease was very contagious and infected millions of the people in the past. Therefore, the plague doctors used to wear a uniform from head to toe. It was designed in order to combat the disease, saving themselves and others from infection. They also adopted preventive measure at that time in order to control the spread of disease. Later on, similarly, when a pandemic covid-19 disease came, it had also affected millions of people around the globe. So, the covid-19 doctors of today's world also wore the costume having some amendments in it but covering themselves alike plague doctors. Likewise, they also imposed preventive and precautionary measures along with, Standard operational procedures (SOP's) which is a modern term and technique used for controlling the spread of disease. The study is done with the purpose to know the plague doctor's attire which have become an example for the future doctors of pandemic covid-19 disease. The study will also find the comparison of preventive and precautionary measures adopted during plague by plague doctors with those adopted in covid-19 disease by covid-19 doctors of modern world. The methodology adopted for conducting research is qualitative. For this purpose the study includes the secondary sources. As both the diseases were very much life-threatening for an individual in their respective times. The study also highlights the Personal Protective Equipment (PPE) of the ancient plague doctors with those of the modern covid-19 doctors in controlling disease. The reader will come to know that whenever any epidemic or pandemic disease came, doctors are the ones who stands on the frontline in serving the nation. They are the ones who adopt strategies of precautionary and preventive measures for their implementation in order to combat and fight against the disease for humanity at their best possible way.

Introduction

Yersinia pestis, the bacteria that causes the plague disease, has traditionally spread through a number of different channels. The plague disease has been around for much longer and is still present in some regions of the world today, but its most notorious form, the Black Death, devastated Europe in the fourteenth century. Infected fleas caught rides on rats aboard ships during ancient epidemics like the Black Death, causing the disease to spread quickly across trade channels to new areas. The main way that this bacteria spreads among rodents is by flea infestations, which affect rodents, prairie dogs and squirrels as well. The plague disease can transmit from human to individual by respiratory droplets, however fleas are the main means of transmission from animals to people.

In the Middle Ages, personal protective equipment (PPE) was created to enable plague doctors to care for patients during the Black Plague. Ancient PPE included caps, face masks, eye protectors, gloves, gowns, shoes, and canes. These were designed for monitoring, evacuating, and examining disease contacts, as well as working in plague hospitals and open-air burial sites. To control the disease, preventative measures included cleaning hospitals and streets, holding breath through a handkerchief, separating contagious patients, staying indoors, avoiding contaminated air, teaching proper hygiene, and isolating those diagnosed with the disease.

Since its appearance in late 2019, the development of Covid-19 disease, which is brought on by the new coronavirus SARS-CoV-2, have been continuously observed. In December 2019, a market for seafood in Wuhan, China, was connected to the first cases. The World Health Organisation (WHO) declared a pandemic in March 2020 as a result of Covid-19's quick worldwide spread. It is thought that the virus started in bats and may have moved through a different host species before affecting people. When an infected individual coughs, sneezes, or speaks; respiratory droplets are the main way that Covid-19 disease spreads. It can also spread via contacting infected surfaces and then contacting the face. The most typical Covid-19 disease symptoms include fever, coughing, and diaherrea.

The modern Covid-19 pandemic has led to the rise of plague doctors wearing personal protective equipment (PPE), including caps, goggles, face shields, masks, gowns, shoes, and body bags. These PPEs are designed to honour their efforts and protect themselves and patients. The CDC encourages doctors to use PPE according to location, personnel, and activities. Training on infection reduction and proper PPE usage is provided, with the outermost layer removed first. The government implemented preventive measures and Standard Operating Procedures (SOPs) to combat Covid-19, including avoiding physical contact, quarantine facilities, and strict cleaning and disinfection of surfaces. Activities like movie theaters, sports, and social gatherings were banned nationwide. Pakistan used a "smart lockdown" technique, tracking contact and testing to identify hotspots for illness. Symptoms should be reported promptly.

1. Evolution of Ancient Pandemic Plague Disease

The Latin word "plague," which meaning wound, harm, and misfortune, is where the word "plague" originates.¹ For millennia, infectious illnesses have plagued humankind, causing entire populations to be destroyed during catastrophic epidemics. Pathogens and parasites accompanied their human hosts on trade routes even before globalization. During epidemics, plague doctors protective gear acts as a potent historical record, preserving prevailing notions of disease transmission and treatment.² There have been other instances of the Black Death, or more precisely the Bubonic plague disease, throughout history. Nevertheless, the emergence and initial breakout in the middle of the 14th century was the most notable. Around the beginning of the 1340s, the disease is believed to have started in Asia and spread to nations including Egypt, China, and India. When a fleet of ships from the Black Sea anchored at a port in Sicily in 1347, the disease finally made its way to Europe. Upon greeting the men from the ships, the civilians saw that the sailors were essentially either dead or ill, with black boils covering them a sign known as "plague boils," which is the main indication of the illness. When the inhabitants saw the condition of individuals on board the ships, they made an attempt to compel them to leave, but in the end, it was in vain because the plague disease had already started to spread among the port's residents and subsequently over much of Europe. The primary cause of the plague disease quick spread and therefore high death toll was the way the disease was transported, in addition to trade and shipping routes and inadequate medical care. It is an airborne transmitter that may also be particularly transmitted by rodents and fleas. Furthermore, the plague disease global spread was facilitated by commerce and shipping routes, which allowed disease-carrying rats and/or diseased passengers to infect new populations as ships travelled from one region to another.³ With the bite of an infected flea, the Black Death was transmitted from person to person. Direct contact with tissues or bodily fluids from infected animals and human corpses that have succumbed to the plague disease can also spread it. Aside from improperly cooked meat, air or aerosols from animals or people respiratory tracts that exhibit the clinical signs of pneumonia can also transmit epidemics.⁴ *Ibn Khatimah* emphasises that the air we breathe is not a clean component. The combination consists of aqueous vapours, dry smoke from the soil, tiny sparks of fire, and predominantly elemental air. When air decays, the proportion of elemental air decreases relative to other elements. Inhaling polluted air might be fatal. He identified three origins of plague disease miasma: seasonal changes, rotting materials, and astronomical events. He believed the first scenario to be most likely plausible.⁵

1.1. Medical Procedures Done By Plague Doctors For Curing Plague Disease

Bloodletting was a crucial medical treatment during the plague to restore humour balance. Plague doctors assessed blood imbalances and applied leeches to eliminate excess blood, restoring health and equilibrium. Trepanning was a medical procedure used before and during the Black Death to expel "demons" from patients with epilepsy, persisting until the 16th century. Traditionally, plague doctors used "skullcap" seeds to treat headaches due to their resemblance to human skulls. This belief led to the acceptance of procedures like bloodletting and trepanning as "medicine."⁶ Buboes held Plague disease toxin, requiring surgical

procedures like piercing, blood extraction, "cutting," suction, ointments, and frequent opening and cauterization.⁷

1.2. Personal Protective Equipment (Ppe) Used by Plague Doctors in the Time of Plague Disease

The middle Ages' personal protective equipment (PPE) served a noble function. It was designed to make it possible for plague doctors to treat patients in a safe manner during the Black Death.⁸ Plague doctors' protective gear, including masks, gloves, gowns, hats, and eyeglasses, serves as a historical record of disease transmission and treatment during epidemics, preserving accepted ideas.⁹ The intention was for plague doctors and other medical or paramedical personnel to wear this device while working in various settings, including plague hospitals, open-air burial sites for plague victims, and the task of evacuating, monitoring, and inspecting contacts with the disease.¹⁰

1.2.1 Caps

In seventeenth centuries, the plague doctors and healthcare workers used to wear caps to cover their heads. It was the standard part of their uniform. It was the aspect of the surgery uniform to wear which was adapted in order to reduce the infections in patients.¹¹

1.2.2. Masks

Additionally, it was intended to be worn by contacts, patients, and the whole impacted population. This was the first attempt at an epidemic containment strategy of that kind, only surpassed by global efforts of a similar nature during the 1918 influenza pandemic.¹² Dr. Wu Lien-teh urged people to wear masks to combat Manchuria's plague in 1910. The development of masks continued in the 20th century due to workplace safety and global conflicts.¹³ The plague doctor's suit, adorned with leather headdresses and fragrant spices, served as a crucial example of individual protective gear in medical history.¹⁴ The nose is half a foot long, and packed with perfume. It has only two openings, one on each side close to the nostrils, but they are sufficient for breathing in and transferring the scent of the herbs farther inside the beak to the air one breaths.¹⁵ Masks have evolved over time, with disposable paper masks replacing medical masks in the 1930s and single-use synthetic materials in the 1960s. This change aligns with the total disposable system in hospitals, maintaining sterility and cleanliness while reducing labour costs and meeting demand.¹⁶ Masks during plague disease in cities identified wearers as plague doctors, hired by infected towns or villages for medical care, requiring isolation from general population interactions.¹⁷

1.2.3. Gloves

Plague doctors who treated plague disease in the 17th century used gloves in some of the first recorded medical procedures. In 1619, Charles De'Lorme, a royal French physician, wrote of the plague doctor's attire, which featured bulky leather gloves for protection against the enigmatic disease. In the 1840s, Dr. Ignaz Semmelweis (Hungary) was ridiculed for his publication suggesting that handwashing by plague doctors could prevent puerperal fever,

and it wasn't until many years later that handwashing and glove wearing would be routine for preventing infection. Much of this shift was due to Joseph Lister's appreciation of antiseptic technique. He recommended carbolic washes for hands and instruments.¹⁸ The Ansell Rubber Company created the first medical gloves that could be thrown away after being sterilised with gamma radiation in 1965. The HIV pandemic of the 1980s and the idea of universal precautions led to a rise in the usage of disposable latex gloves outside of operating rooms. Latex gloves are made from plant-based rubber; however, they are not completely resistant to harmful chemicals and can result in severe allergic responses. Since, its creation from synthetic rubber in the mid-1990s, nitrile gloves have mainly taken the place of latex gloves.¹⁹

1.2.4. Gowns

Black frock jackets were the norm in the early to mid-19th century before being supplanted with white smocks. It is safer and better that all should put on a complete change of costume; rather, than simply wear a sterilised coat and pair of trousers over the ordinary clothing, according to a surgical manual published in 1894. Notably, throughout numerous epidemics, plague doctors wore gowns or other protective outerwear. One notable example is the thick leather coat and pants worn by the plague doctors who treated plague disease patients in the 17th century. Reusable and disposable nonsurgical isolation gowns developed alongside their sterile, operating room-approved counterparts throughout the epidemics of the 20th and 21st centuries.

1.2.5. Eye protectors

Some of the first doctors to use them were the plague doctors of the 17th century, who used glass eye shields as facial protection. Various forms of eye protectors were evolved for combating diseases. Although it was increasingly popularised during the 1980s HIV pandemic, eye protection was not generally used for a while; since, it was believed to impair surgeons' eyesight. During several epidemics, plague doctors used it as well to shield themselves from respiratory excretions and splashes.²⁰ Glass goggles kept the miasma from getting into the plague doctor's eyes.²¹

1.2.6. Canes

Canes were used by plague doctors to check on patients, examine buboes, feel their pulse, and maybe, even deter desperate people. They were also used to establish social and medical distance.²² The plague doctor could examine patients from that distance; since, the cane indicated how far away he would stand from them.²³ In addition to keeping people at bay, the canes were used by plague doctors to take off garments from plague disease patients without having to come into contact with them.²⁴

The plague doctors' costumes and safety measures were effective in keeping them safe from the plague disease, it was because fleas, not miasma, were being repelled by the clothing.²⁵ Plague doctors used to wear smooth-skinned short sleeves with a shirt tucked into the bottom

of the trousers, and boots made of Moroccan leather (goat leather) from the front of the breeches that are joined to said boots below the coat.²⁶

All personal protective equipment (PPE), whether disposable or not, used for a plague patient's care were disposed of, disinfected, or decontaminated in accordance with waste management protocols. Additionally, they must to often wash their hands, especially before donning and taking off personal protective equipment (PPE).²⁷ Administrators of healthcare systems had taken all reasonable steps to reduce the risk of infection among healthcare workers by ensuring that they have the proper personal protective equipment (PPE) and training.²⁸ Modern protective gear is made of materials and designs that honour the contributions of surgeons to medical professionals' strategies for safeguarding both the patients along themselves during pandemics.²⁹

1.3. Precautionary and preventive measures adopted by plague doctors

Actions advised to assist individuals in avoiding plague are:

- 1.** Fumigation was the most effective way to prevent spread.³⁰
- 2.** Wine was utilised as an antiseptic prior to and during the Black Death, demonstrating its effectiveness.³¹
- 3.** One example is the belief that hot baths should be avoided due to their relaxing and moisturising effects on the body.
- 4.** Plague doctors recommend consuming blood-enriching foods to improve strength and resistance to illness.
- 5.** A solution to the epidemic was avoiding polluted air. Plague doctors advise patients to avoid airborne contamination from sick individuals to reduce their risk of contracting the condition.³²
- 6.** Exercising can improve overall health and prepare the body to fight disease.³³
- 7.** Watchman to watch over sufferers' homes. Every impacted home should have a cross on it.
- 8.** Pomanders, balls filled with fragrant herbs, should be carried to ward off miasmas. To decrease miasma, several communities imposed fines for home owners who did not clean their homes' exteriors.
- 9.** To curb the spread of the epidemic, public gatherings, fairs, and theatres were cancelled.³⁴
- 10.** Cleaning of the streets were done.³⁵
- 11.** Many felt the Plague was a judgement from God and must have to be endured. Muslim writers often urge repentance, supplication, and prayer in addition to medical recommendations.³⁶ Larger cities saw several community prayers to alleviate the sickness.³⁷

12. For a healthy lifestyle, prioritise fresh air, a north-facing home, and cool smells like myrtle and eastern aspen blossoms.
13. Rosewater and lemon should be sprinkled about the house. Rub yourself down with citron, lemon, flowers, and violets.³⁸ Plants and aromas with pleasant scents should be used to enhance homes.³⁹
14. Avoiding the sun, warm air, and ovens.⁴⁰
15. During epidemics, it was thought that open spaces may be dangerous. It was urged that everyone stay inside.⁴¹
16. Hospitals were also cleaned.⁴²
17. It was believed that holding one's breath or inhaling through a handkerchief may help those who were unwell.⁴³
18. Patients in the plague disease hospital received new clothing, feather beds, blankets, and mattresses, which were evaluated by the city's health authority to assure their quality.⁴⁴
19. In the mid-Aged, the concept of organized and socially preventive quarantine was introduced, requiring quarantine centres for forty days for those cured from plague.
20. Jacob of Padua, Ragusa's leading plague doctor, also recommended establishing a medical facility remote from the town to treat patients who were either doubtful or confirmed to be ill.⁴⁵
21. Infectious patients were kept in different wards, but doctors frequently went between wards without cleaning or changing their clothes.⁴⁶
22. The government promotes a healthier lifestyle through legislative interventions, warning advertisements, events like Stoptober, and initiatives like Change for Life, aiming to prevent sickness.⁴⁷
23. Equipment used by plague doctors were sterilized.⁴⁸

2. Evolution of Covid-19 Disease

The World Health Organization (WHO) was notified about Covid-19 disease for the first time more than two years ago. As of March 23, 2022, statistics indicates that over 470 million individuals across over 225 nations and territories have contracted Covid-19 disease. There are almost 1.5 million new instances of Covid-19 disease every day, and more than six million people have passed away worldwide after testing positive for the virus.⁴⁹ Coronavirus disease-19 has overtaken the planet. Although terrible, the coronavirus disease is just one of several pandemics that have affected humanity throughout history.⁵⁰ Covid-19 disease is a member of a recently identified virus family that causes infections. It affected millions of individuals in terms of their health, mental health, finances, social life, and religion. Pakistan is ranked among 19 in the global report on Covid-19 disease updates, which were released on May 23, 2020. On February 26, 2020 Pakistan tested positive for

coronavirus in its first-ever case, a young man returning from a pilgrimage in Iran.⁵¹ Although Covid-19 disease was not officially declared a pandemic on January 30, 2020, the World Health Organization did proclaim it a public health emergency of international concern.⁵² Coronavirus disease can be transmitted from one person to another with the help of droplets that are larger in size.⁵³ The covid-19 has emerged from the viruses of zoonotic as it is closely related with SARS i.e severe acute respiratory syndrome and the MERS i.e Middle East respiratory syndrome. The name which is given to it as (SARS-COV-2) stands for severe acute respiratory syndrome coronavirus 2.⁵⁴ The virus was originally identified in late December 2019 in the Chinese city of Wuhan, Hubei. On January 7, 2020, the virus was formally announced. Since then, because it is one of the severe respiratory infections that can cause pneumonia, it has been dubbed "severe acute respiratory syndrome coronavirus 2 (SAR-CoV-2).⁵⁵ The composition of lymphocytes might be in the composition of blood. The cells such as B and T in blood have a major role for developing the system of immune. It can affect the people of all age groups. But, it affects negatively to those who are old. Because of the complications in their immune and the diseases to which they are interacted besides this. Such ailments consist of blood pressure, obesity, diabetes, cancer, and the kidney problems.⁵⁶

2.1. Personal Protective Equipment (PPE) used by covid-19 Doctors in Covid-19 Disease

The CDC emphasizes the importance of healthcare workers' health and safety, advising Covid-19 doctors to wear PPE for effective outbreak response, emphasizing the critical role of PPE in preventing infection.⁵⁷

When providing care for Covid-19 disease patients, different Personal Protective Equipment (PPE) will be used according to the environment, personnel, and activities. Covid-19 doctors should specifically wear respirators, eye protection, gloves, gowns, and aprons for aerosol-generating procedures (such as tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation prior to intubation, and bronchoscopy). If the gowns are not fluid resistant, aprons should also be worn.⁵⁸ The face mask evolved become the essential first line of defense in the infection control approach, which aims to contain germs; rather, than destroy them with chemicals.⁵⁹

2.1.1. Goggles and a Face Shield

Mucous membranes in the mouth, nose, and eyes may get contaminated when an infected individual coughs or sneezes, or when aerosol-generating procedures are performed in a clinical environment. Another common scenario is unintentionally contacting the mouth, nose, or eyes with a contaminated hand. Therefore, utilising face shields or goggles to protect the mucous membranes of the eyes, nose, and mouth is an essential component of standard and contact precautions. The goggles' flexible frame should fit the skin of the face well, shielding the eyes and surrounding regions and even taking prescription glasses into account.

2.1.2. Masks

Coronaviruses are among the respiratory viruses that mostly affect the upper and lower respiratory tracts. Therefore, preventing human infection involves shielding the airway from

particulate matter produced by droplets and aerosols. The virus can potentially infect a host through contaminated hands or infectious droplets that contaminate the mucous membranes of the mouth and nose. Hence, whether handling a suspected or confirmed case of Covid-19 disease or carrying out aerosol producing operations, droplet precautions and mask-wearing, airborne precautions are essential. There are several kinds of masks. The kind of mask to be worn depends on the specific danger profile of the employee and their line of work. Depending on the kind of work environment, two types of masks are advised for different categories of workers in the hospital or community settings:

a. Medical Mask with Three Layers

A triple layer medical mask is a disposable, fluid-resistant mask that shields the user from infectious material droplets released when they cough, sneeze, or talk.

b. Mask for Respirators, N-95.

A respirator mask with excellent effectiveness of filtration against airborne particles is the N-95 respirator mask. These masks are made to fit very closely on the wearer's face in order to provide them the necessary air seal. High fluid resistance, adequate breathability (ideally with an expiratory valve), easily distinguishable internal and exterior faces, and a structural duckbill or cup form that won't collapse against the lips are all desirable qualities in a mask.

2.1.3. Gloves

A person can become infected with Covid-19 disease if they come into contact with contaminated objects or surfaces and then touch their own eyes, nose, or mouth.⁶⁰ Despite the fact, that this is not believed to be the main method of transmission, caution should be used when handling items or surfaces that may have been contaminated by suspected or confirmed Covid-19 disease cases. Because nitrile gloves are resistant to chemicals, including certain disinfectants like chlorine, they are favoured over latex gloves. Covid-19 doctors have a high incidence of contact allergic dermatitis and latex allergies. Latex gloves can be utilised instead of nitrile gloves, nevertheless. Gloves without powder are better than gloves with powder.

2.1.4. Overalls/Gowns

Coveralls and gowns are used to protect Covid-19 doctors' torsos from viral exposure. Coveralls cover the entire body, while gowns offer limited coverage. Healthcare personnel working near Covid-19 cases can protect themselves by establishing barriers to eliminate contact and droplet exposure. Both gowns and coveralls are appropriate, with gowns being easier to wear and an apron for treatment. Strict requirements include shielding against chemical risks and avoiding contact with biologically contaminated particles.⁶¹ Disposable (single-use) isolation gowns are made of nonwoven fabrics either by themselves or in conjunction with components that provide further protection against liquid penetration, including plastic films. They are intended to be thrown away after a single usage. Rather, than the interlocking geometries seen in woven and knitted materials, they may be made utilising a range of nonwoven fibre-bonding processes (thermal, chemical, or mechanical) to offer integrity and strength.⁶²

2.1.5. Shoe covers

To aid in personal protection and disinfection, shoe covers should be composed of impermeable fabric and worn over shoes.

2.1.6. Head coverings

Typically, coveralls hide the head. When giving patients clinical treatment, Covid-19 doctors wearing gowns should cover their heads and necks with a head covering. Hair extensions and natural hair should fit within the head covering.⁶³

2.1.7. Body Bags

The features of the body bags include resistant, watertight, Vacuum-sealed, Two-fold sealed, Disposable, Transparent, White, U-shaped with zip, Four or six grips, Dimensions: 2.2 x 1.2 m.⁶⁴

Personal protective equipment (PPE) has a lengthy past.⁶⁵ Covid-19 doctors were trained in the proper use of personal protective equipment (PPE) to reduce infection risk. Pairs watched each other put on and take off PPE, following the outside-in principle. Hand sanitizer was used after each process to maintain hygiene.⁶⁶

2.2. Standard Operational Procedures (SOP's) in covid-19 disease

2.2.1. Standard Operational Procedures (SOP's) For Covid-19 doctors

1. High-risk contacts will undergo a 14-day quarantine, be tested in accordance with ICMR testing guidelines, be closely watched for the onset of symptoms, and be handled in accordance with established procedures.

2. If they test positive but continue to show no symptoms, they will proceed according to the guidelines for extremely mild, mild, or presymptomatic instances.

3. After a 14-day quarantine, if they test negative and show no symptoms, they can resume their job.⁶⁷

4. Low-risk connections will keep working. They will keep an eye on their own health to see if any signs arise.⁶⁸

The Pakistan Preparedness and Response Plan (PPRP) is a strategic plan developed by the Government of Pakistan, in collaboration with the WHO and the UN, to support the Ministry of Health Services.⁶⁹

2.2.2. SOP's of Quarantine

1. Authorities are involving the community and public in public preventive measures, such as mandatory quarantine and self-isolation, to ensure public safety during the pandemic.

2. If at all feasible, the individual under quarantine should remain isolated in a different room or maintain a minimum of one-meter social distance from other residents of the same home.

3. If possible, the individual under quarantine need to eat in the same room as them and refrain from using the shared bathroom.
4. Keep the individual in quarantine's belongings separate, including plates, cups, drinking glasses, dining utensils, towels, and bedding.
5. Use soap and water to clean the taps, bathroom utensils and door knobs.
6. Monitor body temperature with a thermometer, twice a day. Appearance of any of the symptoms of Covid-19 disease must immediately be reported.
7. Communication link with a Covid-19 doctors should be established for the duration of the quarantine period.⁷⁰
8. The guidelines cleaning and disinfection of environmental surface should be understood and observed by all members of the household.
9. Minimize visitors to the household.⁷¹

Quarantining has been effective since the Middle Ages, and despite advancements in medicine, it remains necessary in unidentified pandemics like Covid-19, demonstrating constant efficacy.⁷²

2.2.3. Lockdown

On March 21, 2020, Pakistan imposed a total lockdown on some of the country's largest cities, which lasted for around two weeks. As a result, non-essential companies, restaurants, retail centres, public spaces, and public transportation were all closed. The majority of provinces outlawed inter-state travel, and all public meetings were prohibited. Schools, colleges, and universities all continued to be closed while offering online instruction. The province governments started easing the national lockdown on May 9, 2020. In June 2020, Pakistan used the 'smart lockdown' method, which comprised localising a lockdown in targeted regions with high disease transmission and using testing and contact tracking to detect hotspots of illness.⁷³

2.3. Covid-19 SOP's or precautionary measures and preventive measures

The plague doctors specialising in plague presents a stark contrast to the majority of Covid-19 doctors.⁷⁴ Health authorities currently advise using face masks in both public and healthcare settings to contain and lessen the spread of this infection in the community.⁷⁵

1. All movie theatres, athletic events, marriage ceremonies, and social gatherings were outright banned nationwide.
2. All police, rangers, and army personnel assigned to duty have been on high alert to ensure the social distancing.

3. Health department websites and social media platforms have organised awareness campaigns, and announcements have been made on radio stations and loudspeakers within the nation.

4. Fumigation procedures are regularly organised for ambulances, isolation rooms, hospitals, central jails, and quarantine centres.⁷⁶

2.3.1. Standard operational procedures (SOP's) guidelines for individual and community level

1. When you don't really need to go outside, stay at home.

2. Try to avoid making physical contact with others, such as handshakes.

3. Never give your phone to a household member. If it needs to be shared with someone, use a disinfectant to clean it.

4. If you must go outside, maintain a two-arm's length (about six-foot) distance from other people.

5. Refrain from using public transit needlessly.

6. Maintain communication with others via email or phone.

7. Make sure of having enough supplies and medication for many weeks in case you have to stay at home.

8. Keep a close eye on the symptoms of yours, and if they worsen, get in touch with your doctor right away for advice.

9. Keep updated on the state of the local epidemic.⁷⁷

10. To lessen the likelihood of transmission, stay away from both big and small gatherings in public areas like parks, restaurants, libraries, and other such locations.

11. Practice daily preventative and precautionary measures are:

a. Hand wash often for 40–60 seconds with soap and water. If you don't have access to soap and water, massage your hands for 20 to 30 seconds with a hand sanitizer that is 60–80% alcohol.

b. Refrain from touching your lips, nose, or eyes.

c. Use a tissue to cover your cough or sneeze, then dispose of the tissue in the trash.

d. Dust and sanitise surfaces and items in the house that are regularly handled, such as switchboards and door knobs. (Different Guidelines Regarding Surface Cleaning).⁷⁸

The WHO emphasizes the importance of precautionary and preventive measures, including PPE, in controlling acute respiratory illnesses in healthcare, including administrative, environmental, and technical safeguards.⁷⁹

Analysis and Discussion

The plague disease-causing bacterium, *Yersinia Pestis*, has historically spread through a variety of routes. The Black Death, the most well-known type of the plague disease, ravaged Europe in the fourteenth century, yet it has been there for much longer and is still present in some parts of the world today. During historical epidemics like the Black Death, infected fleas rode on rats on ships, allowing the disease to spread swiftly across trade channels to new regions. Flea infestations, which afflict not just rodents but also prairie dogs and squirrels, are the primary means by which this pathogen spreads among rodents. Although respiratory droplets can spread the plague disease from person to person, fleas are the primary vector of transmission from animals to humans. Bloodletting involves a plague doctor determining if a patient's illness is caused by blood imbalance. Leeches are applied to restore balance. Trepanning involves drilling holes in the skull for neurological issues. Skullcap seeds are used for headache remedies. Cupping involves heating a cup over a bubo to extract poison.

In the Middle Ages, PPE was developed to help plague doctors treat patients during the Black Plague. Ancient protective clothing included caps, face masks, eye protection, gloves, gowns, shoes, and canes. These gadgets were used by medical plague doctors, paramedics, and physicians in open-air cemeteries and hospitals. The plague epidemic was managed through precautionary and preventative measures, including spraying homes with rosewater and lemon, cleaning hospitals, and providing comfort to affected individuals. Contagious patients were kept in separate wards, and open spaces were avoided. Awareness-raising campaigns and quarantining were also implemented to prevent the spread of the disease. A watchman guarded affected homes, and quarantining and isolating those diagnosed helped prevent the spread.

The progression of Covid-19 disease, caused by the novel coronavirus SARS-CoV-2, has been carefully monitored from late 2019. The first cases were linked to a seafood market in Wuhan, China, in December 2019. Due to Covid-19' disease rapid global spread, the World Health Organisation (WHO) declared a pandemic in March 2020. The virus is believed to have originated in bats and may have spread to humans by contact with another host species. Covid-19 disease is mostly transmitted by respiratory droplets, which are released when an infected person coughs, sneezes, or talks. While it's not the main way, HPV can also spread via coming into touch with contaminated surfaces and then coming into contact with the face. The three most common symptoms of Covid-19 disease are fever, coughing, and diarrhoea. Headaches, fatigue, sore throats, runny or clogged noses, nausea, vomiting, diarrhoea, headaches, and body or muscle pains are possible additional symptoms.

Modern personal protective equipment (PPE) is designed to honour the work of plague doctors during the Covid-19 pandemic. It includes caps, goggles, face shields, masks, gowns, shoes, and body bags. The CDC advises healthcare personnel to wear PPE when treating Covid-19 patients, with different types depending on the setting, people involved, and activities. Medical personnel are trained on infection risk reduction and PPE usage, adhering

to the outside-in principle. During the Covid-19 pandemic, precautionary measures included staying indoors, avoiding physical interactions, setting up quarantine facilities, and ensuring cleanliness. High alert personnel were placed, and social gatherings were prohibited. Health agencies and social media coordinated awareness campaigns. Pakistan used a "smart lockdown" strategy, imposing lockdowns in high-risk areas and using contact tracking to identify sickness hotspots.

Conclusion and Recommendations

The study concludes on a point that the plague doctor's attire serves as of vital importance for the upcoming pandemic diseases such as that of covid-19 disease. As the plague doctors were first who wore that uniform in the time of plague disease which has affected millions of the people worldwide. The outfit of today's covid-19 doctors consists of the same personal protective equipment (PPE) which are alike the plague doctors but it is made and designed with the new and modern techniques. The strategies adopted by the plague doctors in ancient times along with precautionary and preventive measures were very beneficial for the people in the past. Likewise, with some amendments much of the precautionary and preventive measures were also followed and still following in this contemporary era of covid-19 disease pandemic. In order to save the humanity from the disease. As covid-19 disease is also a contagious disease which had affected millions of individuals living worldwide. A serious pandemic of the twenty first century which had posed a serious danger for individuals.

It's essential to adhere to a variety of preventative measures targeted at lowering the risk of infection in order to avoid diseases like the plague disease and Covid-19 disease. Frequently washing hands for at least 20 seconds with soap and water, especially after handling surfaces, being in public, or tending to someone who is unwell. Steer clear of congested areas and events, especially in small, poorly ventilated locations. Keeping oneself updated on the most recent findings and advice from reliable sources, including the Centres for Disease Control and Prevention (CDC), the World Health Organisation (WHO), and regional health agencies. Observe the policies and directives that public health authorities have issued about travel, events, and other activities. Use virus-fighting home disinfectants and make sure that they should be use according to the manufacturer's directions. All things considered, the quarantine is an essential weapon in the public health toolbox for halting the spread of infectious illnesses and defending the health and welfare of people and communities.

References

- ¹ Puteh Noraihan A Rahman, Alexander Kam, Arina Azmi & Radas Zasra, “History of PPE: Special Reference to Beaked Masks. During the Black Death and Its Aftermath”. *Akademika* 92, no. 1, (2022): 137-150, <https://doi.org/10.17576/akad-2022-9201-11>
- ² Jackson M. Hoyle, “The Black Death’s Effect on Medicine & Medical Practices”. *H-SC Journal of Sciences*, 7, (2023): 1-5.
- ³ Jackson M. Hoyle, “The Black Death’s Effect on Medicine & Medical Practices”, 1.
- ⁴ Puteh Noraihan A Rahman, Alexander Kam, Arina Azmi & Radas Zasra, “History of PPE: Special Reference to Beaked Masks”, 145.
- ⁵ Joseph A Legan, "The medical response to the Black Death". *Senior Honors Projects, 2010-current.103*, (2015):1-77, <https://commons.lib.jmu.edu/honors201019/103/>
- ⁶ Jackson M. Hoyle, “The Black Death’s Effect on Medicine & Medical Practices”, 2.
- ⁷ Joseph A Legan, "The medical response to the Black Death", 34.
- ⁸ Mark Earnest, “On becoming a plague doctor”. *The new England journal of medicine*, 383, no. 10, (2020): 1-3, doi: 10.1056/NEJMp2011418
- ⁹ Alexis R. Steinmetz and Ronald Rabinowitz, “The Plague Doctor, the Pandemic Doctor, and Surgical Protective Clothing”. *International Journal of Urologic History*, 2, (2023): 52-59, DOI: 10.53101/IJUH.2.2.01052304
- ¹⁰ Christos Lynteris. “Plague Masks: The Visual Emergence of Anti Epidemic Personal Protection Equipment”. *Medical Anthropology*, 37, no. 6, (2018): 442-457, doi: <https://doi.org/10.1080/01459740.2017.1423072>
- ¹¹ Alexis R. Steinmetz and Ronald Rabinowitz, “The Plague Doctor, the Pandemic Doctor, and Surgical Protective Clothing”, 56.
- ¹² Christos Lynteris, “Plague Masks: The Visual Emergence of Anti Epidemic Personal Protection Equipment”, 444.
- ¹³ Alexis R. Steinmetz and Ronald Rabinowitz, “The Plague Doctor, the Pandemic Doctor, and Surgical Protective Clothing”, 53.
- ¹⁴ Andrea Alberto Conti, “Protective face masks through centuries, from XVII century plague doctors to current health care professionals managing the COVID-19 pandemic”. *Acta Biomed* 91, no. 4, (2020): 1-2, doi:10.23750/abm.v91i4.10231
- ¹⁵ Puteh Noraihan A Rahman, Alexander Kam, Arina Azmi & Radas Zasra. “History of PPE: Special Reference to Beaked Masks”, 144.
- ¹⁶ Ibid; pg. 143.
- ¹⁷ Ibid; pg. 142.
- ¹⁸ Alexis R. Steinmetz and Ronald Rabinowitz, “The Plague Doctor, the Pandemic Doctor, and Surgical Protective Clothing”, 54.
- ¹⁹ Ibid; pg. 55.
- ²⁰ Ibid; pg. 56.
- ²¹ Madeliene Mant, “Behind the beak plague doctors iconography”. *Medical health humanities*.(2020): 1-13, <https://doi.org/10.7916/y5ba-b628>
- ²² Ibid; pg. 3.
- ²³ Mark Earnest, “On becoming a plague doctor”, 1.
- ²⁴ “The black death: the plague, 1331-1770”, Accessed: 21 April, 2024, <https://hosted.lib.uiowa.edu/histmed/plague/>

- ²⁵ Ibid; pg. 4.
- ²⁶ Puteh Noraihan A Rahman, Alexander Kam, Arina Azmi & Radias Zasra, “History of PPE: Special Reference to Beaked Masks”, 144-145.
- ²⁷ European Centre for Disease Prevention and Control, “Guidance for healthcare workers on the use of personal protective equipment in the management of bubonic and pneumonic plague patients - 26 October 2017”. (Stockholm: ECDC, 2017): 1-3.
- ²⁸ Luca Cabrini, [Giacomo Grasselli](#), and [Maurizio Cecconi](#), “Yesterday heroes, today plague doctors: the dark side of celebration”, *Intensive Care Med*, 46, (2020): 1790–1791, <https://doi.org/10.1007/s00134-020-06166-4>
- ²⁹ Alexis R. Steinmetz and Ronald Rabinowitz, “The plague doctor, the pandemic doctor, and surgical protective clothing”, 1.
- ³⁰ Joseph A Legan., "The medical response to the Black Death", 41.
- ³¹ Jackson M. Hoyle, “The Black Death’s Effect on Medicine & Medical Practices”, 2.
- ³² Ibid; pg. 3.
- ³³ Ibid; pg. 4.
- ³⁴ “*The British sector of the Western Front, 1914-18: injuries*”. The Dean Academy School (Lydney, England, 2019): pp.2: 1-4,
- ³⁵ Ibid; pg. 1.
- ³⁶ Joseph A Legan., "The medical response to the Black Death", 42.
- ³⁷ Ibid; pg. 49.
- ³⁸ Ibid; pg. 42.
- ³⁹ Ibid; pg. 31.
- ⁴⁰ Ibid; pg. 42.
- ⁴¹ Ibid; pg.43.
- ⁴² Ibid; pg. 54.
- ⁴³ Ibid; pg.33.
- ⁴⁴ Neil Murphy, “Plague Hospitals, Poverty and the Provision of Medical Care in France, c.1450–c.1650”. *Journal of Social History*, 55 no. 4 (2022): 825–853, <https://doi.org/10.1093/jsh/shab066>
- ⁴⁵ Kelly Fai, Katelyn Kim, Elie Wang, Mindy Wang, Isabella Yu, “Effects of the Black Death on Treatments”. *Medical Understandings, and the Human Immune System*. (2020): 1-16, <https://pioneeracademics.com/wp-content/uploads/2020/10/PF-CO>
- ⁴⁶ Ibid; pg. 28.
- ⁴⁷ Ibid; pg. 46.
- ⁴⁸ Ibid; pg. 30.
- ⁴⁹ Padarath Gangaram, Yugan Pillay, Guillaume Alinier, “Paramedics' knowledge, attitudes, and practices regarding the use of personal protective equipment against COVID-19”. *Qatar medical journal*, 4, no. 50, (2022): 1-11, doi: <https://doi.org/10.5339/qmj.2022.50>
- ⁵⁰ Justin Barr, Walton O. Schalick , and Cynthia K. Shortell, Durham, NC; and Madison, Wisc . “Surgeons in the time of plague: Guy de Chauliac in fourteenth-century France”. *Journal of Vascular Surgery Cases and Innovative Techniques*, 2020: 657-658, doi: <https://doi.org/10.1016/j.jvscit.2020.07.006>
- ⁵¹ Saeed Ullah Jan, Mukhtiar Ali, “COVID-19 and preventive measures for Libraries in

- Pakistan: A commentary”. *J Med Sci*, 28, no.3, (2020): 201-204.
- ⁵² Fatima Gul, Haseeb Manzoor, Hira Tanveer, Daim Shiraz, Hira Jamil. “Protective and preventive measures to control COVID-19 in Pakistan healthcare prospective”. *International Journal of Community Medicine and Public Health*, 8, no. 3, (2021): 1547-1550, doi: <https://dx.doi.org/10.18203/2394-6040.ijcmph20210861>
- ⁵³ Eric Crubezy and Norbert Telmon. “Pandemic-related excess mortality (Covid-19), public health measures and funerary rituals”. *E Clinical Medicine*, 22, (2020): 1, doi: <https://doi.org/10.1016/j.eclinm.2020.100358>
- ⁵⁴ Muhammad Khalid Anser, Zahid Yousaf, Mohammad Azhar Khan, Abdelmohsen A. Nassani, Muhammad Moinuddin Qazi Abro, Xuan Hinh Vo, Khalid Zaman, “Social administrative issues related to the covid-19 pandemic in Pakistan: better late than never”. *Environmental science and population research*, 27, no. 3, (2020): 34567–34573, doi: <https://doi.org/10.1371/journal.pone.0256971>
- ⁵⁵ Ibid; pg. 34567.
- ⁵⁶ Ambreen Chaudhry, Aamer Ikram, Mirza Amir Baig, Muhammad Salman, Tamkeen Ghafoor, Zakir, Hussain, Mumtaz Ali Khan, Jamil Ahmed Ansari, Asif Syed, Wasif Javed, Ehsan Larik, Muhammad Mohsan, Naveed Masood, Zeeshan Iqbal, Khurram Akram, “Mortality analysis of covid-19 confirmed cases in Pakistan”. *The international journal of frontier sciences*, 4, no.2, (2020): 1-7, doi:10.1101/2020.06.07.20121939
- ⁵⁷ Zia Ul Haq, Zarghona Fazal Sher, Farhad Ali Khattak, Zala, Muhammad Hakim, Naeem Ullah, Abid Rahim, Umar Hussain and Saima Afaq, “Healthcare workers safety in the COVID-19 era: the impact of pre-pandemic personal protective equipment (PPE) training in Pakistan”. *BMC Health Services Research*, 23, no. 1256, (2023): 1-9, doi:10.1186/s12913-023-10048-y
- ⁵⁸ World Health Organization. “Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) Interim guidance”. (2020): 1-7, <https://iris.who.int/handle/10665/331498>
- ⁵⁹ Puteh Noraihan A Rahman, Alexander Kam, Arina Azmi & Radias Zadra, “History of PPE: Special Reference to Beaked Masks”, 142.
- ⁶⁰ Ministry of Health and Family Welfare Directorate General of Health Services [Emergency Medical Relief]. “Novel Coronavirus Disease 2019 (COVID-19): Guidelines on rational use of Personal Protective Equipment”, 1-11, <https://www.mohfw.gov.in/pdf/GuidelinesonrationaluseofPersonalProtectiveEquipment.pdf>
- ⁶¹ Ibid; pg. 3.
- ⁶² Luigi Cirrincione, Fulvio Plescia, Caterina Ledda, Venerando Rapisarda, Daniela Martorana, Raluca Emilia Moldovan, Kelly Theodoridou and Emanuele Cannizzaro, “Covid-19 Pandemic: Prevention and Protection Measures to Be Adopted at the Workplace”. *Sustainability*, 12, no. 9:3603, (2020): 1-18, <https://doi.org/10.3390/su12093603>
- ⁶³ Ibid; pg. 3.
- ⁶⁴ Ibid; pg. 11.
- ⁶⁵ Puteh Noraihan A Rahman, Alexander Kam, Arina Azmi & Radias Zadra, “History of PPE: Special Reference to Beaked Masks”, Ibid; pg. 143.
- ⁶⁶ Min Liu, Shou-Zhen Cheng, Ke-Wei Xu, Yang Yang, Qing-Tang Zhu, Hui Zhang, Da-Ya

Yang, Shu-Yuan Cheng, Han Xiao, Ji-Wen Wang, He-Rui Yao, Yu-Tian Cong, Yu-Qi Zhou,

Sui Peng, Ming Kuang, Fan-Fan Hou, KK Cheng, Hai-Peng Xiao, “Use of personal protective equipment against coronavirus disease 2019 by healthcare professionals in Wuhan, China: cross sectional study”. *BMJ*, 369, no. 2159, (2020): 1-6, doi: <https://doi.org/10.1136/bmj.m2195>

⁶⁷ Ministry of Health & Family Welfare Directorate General of Health Services (EMR Division), “Advisory for managing Health care workers working in COVID and Non-COVID areas of the hospital”, (2020): 1-3, <https://www.mohfw.gov.in/pdf/AdvisoryformanagingHealthcareworkersworkinginCOVIDandNonCOVIDareasofthehospital.pdf>

⁶⁸ Ibid; pg. 2.

⁶⁹ Government of Pakistan, “Pakistan preparedness & response plan covid-19”, (2020): 1-55, https://pakistan.un.org/sites/default/files/202006/PAKISTAN%20Preparedness%20and%20R%20response%20Plan%20PPRP%20COVID-19_27%20April%20updated.pdf

⁷⁰ Government of Pakistan, “Guidelines Home Quarantine during Covid-19 Out-break”, (2020):1-2, https://nhsrsrc.gov.pk/SiteImage/Misc/files/8_20200328%20Guidelines%20for%20Home%20Quarantine%200402.pdf

⁷¹ Ibid; pg. 2.

⁷² Kelly Fai, Katelyn Kim, Elie Wang, Mindy Wang, Isabella Yu, “Effects of the Black Death

on Treatments, Medical Understandings, and the Human Immune System”, 8.

⁷³ Farran Emmanuel, Anusheh Hassan, Ahsan Ahmad, Tahira E. Reza, “Pakistan's COVID-19

Prevention and Control Response Using the World Health Organization's Guidelines for Epidemic Response Interventions”. *Cureus* 15, no. 1, (2023): 1-9, doi: 10.7759/cureus.34480

⁷⁴ Mark Earnest, “On becoming a doctor”, 1.

⁷⁵ Andrea Alberto Conti, “Protective face masks through centuries, from XVII century plague doctors to current health care professionals managing the COVID-19 pandemic”, 2.

⁷⁶ Anees Muhammad, Muhammad Owais, Nasir Ali, Hidayat Khan, “COVID-19 pandemic and precautionary measures in Pakistan”. *Anaesth pain intensive care* 24, no. 1, (2020):94-100, doi: <https://doi.org/10.35975/apic.v24i1.1231>

⁷⁷ Government of Pakistan, “Guidelines Social Distancing during COVID 19 Outbreak”, (2020): 1-3, https://nhsrsrc.gov.pk/SiteImage/Misc/files/5_20200326%20Guidelines%20for%20Soial%20Distancing%200601.pdf

⁷⁸ Ibid; pg. 2.

⁷⁹ World Health Organization, “Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) Interim guidance”, 1, https://iris.who.int/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf