

CORONAVIRUS MEDIATED NOSE MASKS, FACE MASKS OR MASKED FACE COMBAT – CRACKING THE HYMEN OF ILLUSION FROM THE FACES OF THE MASCARAS.

Okunye, Olufemi L¹ Idowu Philip Adegboyega²; Bamiro Oluyemisi Adebawale³; Winifred Aitalegbe Ojieabu³; Kasim, L.S.³; Olutayo, Ademola Adeleye³

¹Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Olabisi Onabanjo University, Ogun State, Nigeria

²Department of Pharmaceutical Microbiology, Faculty of Pharmacy, University of Ibadan, Ibadan Nigeria.

³Department of Pharmaceutics and Pharmaceutical Technology, Faculty of Pharmacy, Olabisi Onabanjo University, Ogun State.

ABSTRACT

A survey of attitudinal changes of peoples towards the epidemiological outbreak of SARS-CoV-2 popularly coined as (COVID-19) that has changed almost every aspect of lifestyle in over 98% of the countries of the world and turn them into mascararas was assessed locally. The observation of the behavioural response of the people studied showed psychological fear, stigma, misinformation on the identity of the virus, the characteristic, the pathogenesis, the first-line management, the therapeutic options – orthodox or generic and the fiction associated with this fingerprint of this monster called COVID-19. The abuse of one of the preventive methods of keeping the virus at bay observed was the evolution of homemade locally sown fabric nose mask that is ubiquitous and sold at the cheapest rate of fifty nairas per one, has turned many to mascararas on our street. An ideal nose mask with the capacity and integrity to prevent invasion of the virus must combine high breathability with exceptional filtration efficiency. It must be sterile and must not permit percolation of water from outside to the inside (fluid resistance) and also must not induce suffocation. Contrary to the costume sown fabric materials which can serve as a hibernation and incubation hood for the invincible virus intended to be walled off the vicinity of their nasopharyngeal arena. Although, the cloth sowed facemask /nose cover has the capacity to block the instant entrance of the viral particles but at the same time, it could be a hibernating port for these obligate intracellular parasites to initiates its pathogenesis and launch their biochemical coup det at – the sense and nonsense of face mask in Nigeria. Cracking the hymen of illusion from the odyssey of COVID-19 made mascararas on Nigerian street.

Keywords: Coronavirus, Face mask, hymen of illusion, The Mascara

Correspondence: Dr Olufemi L Okunye, Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Olabisi Onabanjo University, Ogun State. Email: femfem111@yahoo.com Tel:+23408165558033

INTRODUCTION

Coronavirus (common cold viruses, avian infectious bronchitis virus, feline infectious peritonitis virus, mouse hepatitis virus) is an enveloped, helical, positive-sense ssRNA virus. It belongs to the family Coronaviridae which includes four genera Alphacoronavirus, Beta coronavirus, Deltacoronavirus and Gammacoronavirus as well as subgenera and species. Its synthesis occurs in the host cell cytoplasm; maturation involves budding through membranes of the endoplasmic reticulum and Golgi apparatus. Viruses are released via cell lysis. Intra and interspecies transmission of CoVs and genetic recombination events contribute to the evolution of the new CoVs strain that has become a fingerprint of a monster within the population of the Sapiens for the past three months. Coronaviruses have clublike projections that give them a halo (corona Latin for "hallo" or "crown"). The projection is responsible for attaching the virus to the host cells as well as stimulating the immune system to produce antibodies against the virus. In addition to causing colds, these viruses also cause acute respiratory distress (Peiris et al., 2003). Various scientific and unscientific instructions, advice, information and untested and untried recommendations from both orthodox and traditional medical practitioners has flooded the consciousness of the concerned in readiness to combat this resisting invisible and invincible monster(s) – a running battle.

Historiography and Epidemiological Identity

Different cold viruses predominate during different seasons. In fall and spring, rhinoviruses are in the majority. Parainfluenza virus is present all year but peaks in the late summer. In mid-December, the coronaviruses appear. Adenoviruses are present at a low level all year. About 200 different viruses can cause colds and associated respiratory distress. Human coronaviruses (HCoVs) include HCoV-229E, HCoV-NL63 in the genus Alpha coronavirus, and HCoV-OC43 and HCoV-HKU1 in the A

lineage (subgenus Embecovirus) of genus Beta coronavirus. HCoVs were first isolated in the 1960s from a patient with upper respiratory infections. In the early 2000s, HCoV-HKU1 were discovered from persons with bronchiolitis and pneumonia and in 2002 a Betacoronavirus in lineage B (Subgenus Sarbecovirus) originating from bats was reported to have spread from humans in the Guangdong province of South China, causing severe respiratory disease from whence the name was coined as a severe acute respiratory syndrome-coronavirus (SARS-CoV). In 2012, a Betacoronavirus (Subgenus Merbecovirus) was reported among the Tuareg to have spread from camels to humans in Saudi Arabia presenting a somehow similar syndrome as SARS and coined as the Middle East respiratory syndrome-related coronavirus (MERS-CoV). The epidemiology of SARS-CoV-2 coined as (COVID-19) pandemic originated from China market that sold exotic animals for consumption in Wuhan. It is genetically related to Betacoronavirus, as both share the possibility of transmission via the zoonotic reservoir. SARS-CoV-2 coined as (COVID-19) is highly contagious than SARS-CoV and its precise source still remains a subject of arguments (Holshue et al., 2020).

Clinical symptoms

Viruses infect by invading cells – usually first attacking cells that line the body passages. They are directly invading target organs such as the lungs or travel in the blood (viraemia) to target organs or organ systems such as the liver or nervous system. The respiratory system consists of a series of tubes (the respiratory tract) for conducting air to the respiratory membrane where oxygen and carbon dioxide exchange occurs with the bloodstream, as well as a ventilatory system consisting of the lungs, diaphragm, and associated muscles. The primary function of the respiratory system is to supply oxygen to and remove carbon dioxide from, the blood. The blood is transported to all cells of the body by the cardiovascular system. The site of interaction between the two systems is the lung – this

organ being responsible for the exchange of gases between them. The respiratory tract which is known as conducting portion consists of the bronchioles, alveolar ducts, alveolar sacs and alveoli.

The conducting portion, apart from the bronchi, is heavily colonized by microbes, whereas the respiratory portion is generally sterile. It is also sometimes convenient to divide the track into the upper respiratory tract (nose and pharynx) and the lower respiratory tract (larynx, trachea, bronchi, and lungs). The respiratory portion must be constantly kept sterile, the accidental presence of pathogenic microbes especially viruses that uses their host conventional mechanisms to replicate constitutes a life-threatening trend to the host because the infected cell may produce hundreds of thousands of new viruses and usually dies (Michael Wilson, 2005).

Patients infected with SARS-CoV, after the incubation period of 4 – 5 days, often present with symptoms of fever, headache, and myalgias. Respiratory symptoms including cough, dyspnoea, respiratory distress and positive chest X-ray usually develops from several days to a week after the onset of the illness. Atypical pneumonia and respiratory deterioration occur in 15-30% of cases and lower respiratory symptoms may follow about one week from the onset of the primary symptoms.

Several measures are commonly used to quantify mortality. These numbers vary by region and over time and are influenced by the volume of testing, healthcare system quality, treatment options, time since the initial outbreak, and population characteristics, such as age, sex, and overall health. Some countries (like Belgium) include deaths from suspected cases of COVID-19, whether or not the person was tested, resulting in higher numbers when compared to countries that include only test-confirmed cases. Mortality is highest in older persons, with a medium age of 56-76 years. All pediatric cases with laboratory-confirmed SARS-CoV-2 infection were reported to be mild with no incidence of death (Guan et.al., 2020).

Due to the increased rates of infectivity, morbidity and mortality associated with COVID-19 outbreak, safe and simple tests with the assurance of accurate detection and identification are likely to have a quick impact on clinical and epidemiological decisions. Also, understanding the triads of epidemiological factors (host, agent, environment) can be very useful as a preventive measures.

Social Distancing or Physical Distancing (Interpersonal relationships)

Human beings are biological organisms with physiologically based needs such as nutrition, temperature control and elimination. Humans are also, psychological beings who think, plan, remember, act and experience a variety of emotions; glad, sad, bad or mad. Individual lives are inextricably bound up with the lives of others. We are typically being born into and grow up in families, we work and play with others and we feel allegiances to a range of social groupings from neighbourhood gangs. Notwithstanding, the facts of these three aspects of our being (biological, psychological, social), our relationship with other people are the most personally, mean full and powerful influence on how the patterns of our daily lives are structured. The physical distancing that is misinterpreted as a social distancing of 2 metres away from each other as recommended by medical experts can be of preventive tool to curtail the spread of COVID 19 because they are spread by fomite and by close contacts with infected persons. But the behavioural attitude of every individual associated with social distancing is another determining factor. Ours is a face-face- or belonging community with a sense of shared characteristics, cultural extremities and mutual interactions. A typical network of informal interaction in ways of relaying news, gossips, and information in the neighbourhood could easily facilitate the spread of this contagious virus. Therefore, maintaining a physical distance of 6 feet or 2 meters from each other can significantly reduce the spread the virus (Holahan and Moos, 1987).

Proper handwashing.

Handwashing is like a “do it yourself” vaccine- it involves five steps (Wet, Lather, Scrub, Rinse, Dry-WLSRD) one can take to reduce the spread of COVID-19 so one can stay healthy. The importance of handwashing/hand disinfection in preventing the spread of disease is accredited to the observations of Semmelweis at the Lying-In-Hospital in Vienna in 1846 and 1847. He noted that the number of cases of puerperal fever was closely related to the practice of sanitary methods. Until he took over his assignment in this hospital, it was customary for medical students to go directly from the autopsy room to a patient’s bedside and assist in deliveries without scrubbing and disinfecting their hands. When the medical students were on vacation, only the nurses, who were not permitted in the autopsy room, attended the patients. Semmelweis noted that during this time, deaths due to puerperal fever fell off markedly. As a result of his observations, he established a policy that no medical students would be allowed to examine obstetric patients or assist in deliveries until they had cleansed their hands with a solution of chloride of lime. Scrubbing the hands involves the removal of transient and resident microbes. Depending on the condition of the skin and the density of microbes present, it takes 7 to 8 minutes of washing with soap and water to remove all transients, and they can be killed with relative ease using suitable antiseptics. Hand washing is recognized as a key element to prevent the spread of infectious diseases. The essence of handwashing with disinfectants is to eliminate (kill or remove) the unseen loads of infectious agents and when worn gloves are compromised, it should be discarded and such should be washed with disinfectants or sanitiser (Okunye, 2017).

The fundamentals of how typical handwashing should be done and its primary intention are of no meaning to the pepper seller, the vegetable sellers, the pepper grinder, the fura seller, cow skin seller and those that market watery-associated products which are making a mockery of this vital step in

warding off the virus because of their little or no knowledge or belief in the existence of the virus. But thank nature and pathogen laden environment that has fortified their immune system against the virulence of the virus.

Handwashing with disinfectants triggers chemical reactions that destroy the genome of viruses so that they can no longer replicate themselves in the host. In addition, it breaks the virus’ protein shell or capsid. Hand sanitisers/disinfectants must be selected on a case by case basis to ensure efficiency which is the subject of their composition and purposeful handwashing should not be substituted for a mere emergency ablution.

Nose masks, face masks or masked face - the mascarar combat or costume

The use of personal protective equipment to prevent skin/mucous membrane exposure during use is good. But once the protective wear cannot achieve the primary purpose it was designed for, then it became an agent/mediator of the infectious agent. Gloves, face masks/shields and other protective gears are of paramount importance in combating this pandemic. But the integrity of the costume/fashion made locally sown nose masks makes a mockery of the purpose of this protective armament (Roy et.al, 2007) An ideal nose mask with the capacity and integrity to prevent invasion of microbes must combine high breathability with exceptional filtration efficiency. It must be sterile and must not permit percolation of water from outside to the inside (fluid resistance) and also must not induce suffocation. It must be worn with clean hands and the used one should not be shared among the family member. The different types of fabric made nose masks have infinitesimally low capacity to combat invading SARS-CoV-2 and any other pathogens from penetrating into nasopharyngeal chamber and can serve as a mediator of a microbe to the host skin or nasal passage. (Gregoretti et.al.,2002)



Figure 1: The mascararas and their masks

Figure 1: The mascararas and their masks

CONCLUSION

The fashion designers that have become professional in sowing face masks, putting pockets and infoldings (that can be trapped in pockets of microbes) to their designed colour riots costumes and their target audience should be informed that the decorators they are covering the nose and their mouth with may becomes an incubating hood for COVID -19, every other obligate intracellular parasite, and nomadic microbes. And for the mascara's and everybody, the most effective preventive measures include: Maintaining physical distance (a minimum of 2meters) from other individuals, performing hand hygiene frequently with an alcohol-based hand rub if available and if your hands are not visibly dirty or with soap and water if hands are dirty, performing hand hygiene frequently and avoiding touching your eyes, nose, and mouth. Practising respiratory hygiene by coughing or sneezing into a bent elbow or tissue and then immediately disposing of the tissue, Wearing a medical mask if you have respiratory symptoms and performing hand hygiene after disposing of the mask, routine cleaning and disinfection of environmental and other frequently touched surfaces and avoid contact with people who are sick. Stay at home if there are many COVID-19 cases in your community. COVID- 19, a message from the dead to the living is not a hoax, it is real. Therefore, stay safe to stay long (W.H.O,2020)

REFERENCES:

Peiris J.S., Lai S.T., Poon L.L. et al., (2003). Coronavirus as a possible cause of severe acute

respiratory syndrome. *Lancet*,361(9366):1319-1325.

Criner GJ, Travaline JM, Brennan KJ, Kreimer DT(1994). Efficacy of a new full face mask for noninvasive positive pressure ventilation. *Chest*. 106(4):1109-15.

Roy B, Cordova FC, Travaline JM, D'Alonzo GE Jr, Criner G J (2007). Full face mask for noninvasive positive-pressure ventilation in patients with acute respiratory failure. *J Am Osteopath Assoc*.107(4):148-56.

Gregoretti C, Confalonieri M, Navalesi P, Squadrone V, Frigerio P, Beltrame F, et al. (2002) Evaluation of patient skin breakdown and comfort with a new face mask for non-invasive ventilation: a multi-center study. *Intensive Care Med*. 28(3):278-84.

Holshue ML, DeBolt C, Lindquist S, et al(2002). First case of 2019 novel coronavirus in the United States. *N Engl J Med*.382(10):929-936. doi: 10.1056/NEJMoa2001191

Michael Wilson (2005). *Microbial Inhabitants of Humans; Their Ecology and Role in Health and Diseases* Pp128-136 : ISBN 0 521 84158 5

Guan WJ, Ni ZY, Hu Y, et al. (2020) Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. Epub ahead of print.

Poissy J, Goffard A, Parmentier-Decrucq E, et al.(2014) Kinetics and pattern of viral excretion in biological specimens of two MERS-CoV cases. *J Clin Virol*. 2014;61(2):275-278.

Holahan, C.J. and Moos R.H.(1987). Personal and contextual determinants of coping strategies. *Journal of personality and social psychology*. 52: 946-55

Okunye, O.L(2017) *Essential Practicals in Microbiology for Students of Pharmacy and Allied Sciences*. Hope Educational Publishers; Pp 3-4 ISBN978-978-964-702-6

Bruning AHL, Aatola H, Toivola H, et al.(2018). Rapid detection and monitoring of human coronavirus infections. *New Microbes New Infect.* 2018;24:52–55.

Shao X, Guo X, Esper F, et al.(2007) Seroepidemiology of group I human coronaviruses in children. *J Clin Virol.* 40(3):207–213.

Wu F, Zhao S, Yu B, et al.(2020). A new coronavirus associated with human respiratory disease in China. *Nature.* 2020;579(7798):265–269. doi: 10.1038/s41586-020-2008-3

Dembrosky, T.M. and Cost P.T.(1987) Coronary prone behavior: components of the Type A pattern and hostility. *Journal of personality*, 55 :211-35

Festus Adu (2011) *Viruses and their methods of identification.* Trafford publishing ISBN: 978-1-4269-5668-3(e) .

Prosis GL, Berry RB (1994) Oral-nasal continuous positive airway pressure as a treatment for obstructive sleep apnea. *Chest* 106:180–186

W.H.O. (2020) Interim guidance: Laboratory testing for coronavirus disease 2019 (COVID-19) in suspected human cases.