

A Review Study On Contamination Rate Of Covid-19

Dr.Sanjayan R.D Tutor¹, Dr.Monisha Junior Resident²

^{1&2}Meenakshi Academy of Higher Education and Research

Email :¹sanjayan94@gmail.com

ABSTRACT

Outbreaks have arisen in civilization such as extreme acute coronavirus 1 (SARS-CoV-1) in 2003, Eastern Coronavirus (MERS-CoV) in 2012, Ebola virus in 2014, and today SARS-CoV-2. Although health care professionals are searching for a vaccine to mitigate the disease outbreak, environmental engineers need to consider the effect of the virus organisation in sewages, provided that viruses are documented for multiple days to survive in human faeces and wastewater conditions. Here, on the basis of a study of recent research on SARS-CoV-2 as well as past pandemic incidents, the debate will be conducted on questions about the on-courage virus in faeces and sewages of humans^{1,2}. In order to deter unprecedented coronaviral spread 2019 (COVID-19) especially in developed countries, faeces and sewage-derived routes of transmission may be of significant significance as a result of the recorded environmental stability of coronaviruses. However, there have, up to now, been small numbers of experiments that have been identified with the SARS-CoV-2, also in human faeces. In prospective experiments, for example, an improvement in the number of samples, a study of the usefulness of procedures for viral viability analysis, a review of the medical records of patients and so forth are warranted and are still still in the probability of this dissemination.

KEYWORDS: *Pandemic, COVID-19, Infection rate*

BACKGROUND

Today in the hyperlinked environment, there is a growing global fear of viral pandemics. The Spanish H1N1 influenza pandemic caused over 50 million deaths in 1918. Since then we have been suffering infectious pandemics of 774, 456 and 10,353 deaths, respectively including SARS, MERS and Ebola virus disease. Coronaviridae-affiliated respiratory viruses such as SARS-CoV-1 and MERS-CoV are considered zoonotic viruses that are both animal (e.g., bats) and human as host viruses. Further mutation occur, in the absence of immunity from new stress, causes a high risk of transmission³⁻⁷. Moreover, increasing foreign travel, increased food demand and the illegality of the trade of endangered species (especially animals), will encourage the spread of viruses and technologies. The high infectious and environmental persistence of this disease can at least be partly attributed to the unprecedented SARS-CoV-2 Pandemic (CoV-19), which infected at least 19,5 million people and caused at least 722,285 deaths⁸⁻¹¹.

Even in developed nations, like African countries, the SARS-CoV-2 infection has spread. Therefore, developing countries should have special concerns for the mitigation of the spread

of SARS-CoV-2 especially in low-income and heavily populated areas with restricted health care facilities, and limited access to clean water and adequate hygiene¹²⁻¹⁶. Around 60 percent of the population of Sub-Saharan Africa subsists in slum settlements without basic sanitation such as drainage systems. For instance, Nairobi and Uganda are mainly engaged in wastewater treatment with latrines, small bore sews and natural wetlands. In Africa, the coverage of consolidated waste water technology (e.g. activated sludge, trickling filters, lagoons stabilised and oxidation ditch) is minimal. Egypt and Tunisia maintain 51% to 75% of clean waste water, as stated in the latest study from the United Nations (UN), while Morocco is actually between 26 and 50 per cent cleaner than or inadequate for the rest of the African states^{17,18}.

INFECTIONS SPREAD

Since SARS-CoV-2 is primarily spread through respiratory droplets and contagion (hence a communitarian activity is essential in the pandemic pathway) it can also be established that this respiratory virus is excreted in human residual waste. Therefore, in developed countries the fecal-oral pollution path could be one of the problems of inadequate sanitation¹⁹⁻²². Moreover, we still have sewage-related virus transmission paths, despite the fact that new developments in the sewage system can be successful in safe transport of sewage and the elimination of such pathogens, in the countries with safe sanitation systems such as waste water treatment plants (WWTPs). Therefore we are addressing problems related to the presence of the viruses in human faeces and sews with regard to the potential transmission of SARS-CoV-2 through faecal oral pathway and sanitation channels, which in developed countries are of special concern. We also address the problems of the future research and summarise safeguards for potential transmission from faecal and sewage sources²³⁻²⁵.

The widespread dissemination of COVID-19 disease (SARS-CoV-2) and deaths in the world afterward contributed to the statement of the pandemic situation worldwide in late December 2019. At the onset of the outbreak, care is paid to the movement of virus-contaminated surfaces, disinfection and social distance. There is a considerable amount of discussion however regarding the mechanisms for transmission of diseases, including airborne transmission, so the precise route of transmission of COVID-19 is necessary to be understood. For this reason, the first systematic analysis study has been carried out with a view to systematically searching all databases for study indoor air-borne SRSA-CoV-2 transmission^{21,26-31}. A total of 14 studies were included, appropriate and qualifying. On the basis of the results, indoor air conditions there is a strong opportunity for airborne SARS-CoV-2 transmission. There are therefore certain procedures such as improvements in ventilation and observation of interpersonal distance of more than 2 m, particularly at hospitals and crowded areas, so that indoor air Qualität experts see this as improvements in indoor air conditions. Finally, the air transmission direction should be regarded as a more security for health care workers, hospital patients and the public in other public buildings in addition to the guidelines made by the centres and official bodies, such as the hand washing and control of social distances. In Wuhan City, central Hubei Province, China, a novel human coronavirus from the Betacoronavirus Subgenus first appeared at the end of December 2019. The epidemic has widely spread around the world. On 12 March 2020, however, a new 2019 coronavirus (COVID-19) disease which is the causative of serious acute coronavirus 2 syndrome (SARS-CoV-2) was declared a global pandemic by the World Health Organisation (WHO).

WHO GUIDELINES

The WHO Guidelines have suggested that the principal route of COVID-19 transmission is individual transmission, especially extended and unprotected virus exposure. It is advised also to wash hands more than once a day and to watch the social gap of at least 1 m (arm length) as the key measures to prevent exposure are³²⁻³⁵. Health officials reported that the virus is mainly spread through coughing or sneezing droplets and patient surfaces by direct or indirect contact. These precautions have led to emergency quarantine situations and lock-up practises impeding social movement in countries and health authorities³⁶.

DISCUSSION

Unfortunately, all the countries in the world continue to suffer from this disease and pandemic condition due to the high levels of infection and mortality, despite all of the precautions, disease prevention and control measures mentioned above. Domingo et al., 2020 have explored the effects of COVID-19 airborne SARS-CoV-2 transmission recently. It was proposed that prolonged exposure to certain air contaminants can result in more serious and lethal disease types and delay in patient recovery from COVID-19, based on the findings of the studies examined^{3,8-11,37-39}. We should also conclude that the diverse facets of viral propagation processes are not fully known and we perceive the dissemination of the disease in rudimentary terms, including a major problem concerning the road to viral transmission.

The first identified coronavirus disease (COVID-19) in Wuhan, China in late 2019 has been the global pandemic ever since. According to latest updates (14 August 2020) from the World Health Organisation, 20,730,456 confirmed cases of COVID-19, and 751,154 deaths worldwide were registered. Present attempts to avoid further COVID-19 spread include social distancings by self-isolation or the use of domestic quarantine or 'locking downs' (PPE). Present prevention steps must be understood that COVID-19 is primarily spread by infected individuals by respiratory droplets emitted while coughing both sneezing, and by direct communication routes with infected individuals and surfaces⁴⁰⁻⁴⁴.

REFERENCES:

- [1] Elsamadony M, Fujii M, Miura T, Watanabe T. Possible transmission of viruses from contaminated human feces and sewage: Implications for SARS-CoV-2. *Sci Total Environ.* 2021;755. doi:10.1016/j.scitotenv.2020.142575
- [2] Noorimotlagh Z, Jaafarzadeh N, Martínez SS, Mirzaee SA. A systematic review of possible airborne transmission of the COVID-19 virus (SARS-CoV-2) in the indoor air environment. *Environ Res.* 2021;193. doi:10.1016/j.envres.2020.110612
- [3] Shakir Basha S, Susmitha K, Jagadeesh P, et al. An overview of coronavirus disease (MERS& SARS): COVID-19. *Int J Pharm Res.* 2021;13(1):748-755. doi:10.31838/ijpr/2021.13.01.123
- [4] Kang S-K. COVID-19 and MERS Infections in Healthcare Workers in Korea. *Saf Health Work.* 2020;11(2):125-126. doi:10.1016/j.shaw.2020.04.007
- [5] Mahmoodpoor A. SARS, MERS and COVID-19; the story continues. *J Cell Mol Anesth.* 2020;5(2):57-58. doi:10.22037/jcma.v5i2.31196
- [6] Al-Tawfiq JA, Garout MA, Gautret P. Preparing for emerging respiratory pathogens such as SARS-COV, MERS-COV, and SARS-COV-2. *Infez Med.* 2020;28:64-70.

- <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086603851&partnerID=40&md5=c3ae2751b20f5d48cfdc64b0ab5a34a8>.
- [7] Ortiz-Prado E, Simbaña-Rivera K, Gómez- Barreno L, et al. Clinical, molecular, and epidemiological characterization of the SARS-CoV-2 virus and the Coronavirus Disease 2019 (COVID-19), a comprehensive literature review. *Diagn Microbiol Infect Dis.* 2020;98(1). doi:10.1016/j.diagmicrobio.2020.115094
- [8] Nivette A, Ribeaud D, Murray A, et al. Non-compliance with COVID-19-related public health measures among young adults in Switzerland: Insights from a longitudinal cohort study. *Soc Sci Med.* 2021;268. doi:10.1016/j.socscimed.2020.113370
- [9] Banerjee R, Bhattacharya J, Majumdar P. Exponential-growth prediction bias and compliance with safety measures related to COVID-19. *Soc Sci Med.* 2021;268. doi:10.1016/j.socscimed.2020.113473
- [10] Kiely LF, Moloney E, O’Sullivan G, Eustace JA, Gallagher J, Bourke JF. Irritant contact dermatitis in healthcare workers as a result of the COVID-19 pandemic: a cross-sectional study. *Clin Exp Dermatol.* 2021;46(1):142-144. doi:10.1111/ced.14397
- [11] Nazione S, Perrault E, Pace K. Impact of Information Exposure on Perceived Risk, Efficacy, and Preventative Behaviors at the Beginning of the COVID-19 Pandemic in the United States. *Health Commun.* 2021;36(1):23-31. doi:10.1080/10410236.2020.1847446
- [12] Hasford F, Ige TA, Trauernicht C. Safety measures in selected radiotherapy centres within Africa in the face of Covid-19. *Health Technol (Berl).* 2020;10(6):1391-1396. doi:10.1007/s12553-020-00472-z
- [13] Saab R, Obeid A, Gachi F, et al. Impact of the coronavirus disease 2019 (COVID-19) pandemic on pediatric oncology care in the Middle East, North Africa, and West Asia region: A report from the Pediatric Oncology East and Mediterranean (POEM) group. *Cancer.* 2020;126(18):4235-4245. doi:10.1002/cncr.33075
- [14] Agyeman AA, Laar A, Ofori-Asenso R. Will COVID-19 be a litmus test for post-Ebola sub-Saharan Africa? *J Med Virol.* 2020;92(9):1373-1375. doi:10.1002/jmv.25780
- [15] Anim DO, Ofori-Asenso R. Water scarcity and COVID-19 in sub-Saharan Africa. *J Infect.* 2020;81(2):e108-e109. doi:10.1016/j.jinf.2020.05.032
- [16] El-Sadr WM, Justman J. Africa in the path of Covid-19. *N Engl J Med.* 2020;383(3). doi:10.1056/NEJMp2008193
- [17] Senghore M, Savi MK, Gnanngnon B, Hanage WP, Okeke IN. Leveraging Africa’s preparedness towards the next phase of the COVID-19 pandemic. *Lancet Glob Heal.* 2020;8(7):e884-e885. doi:10.1016/S2214-109X(20)30234-5
- [18] Quaresima V, Naldini MM, Cirillo DM. The prospects for the SARS-CoV-2 pandemic in Africa. *EMBO Mol Med.* 2020;12(6). doi:10.15252/emmm.202012488
- [19] Nakajima K, Kato H, Yamashiro T, et al. COVID-19 pneumonia: infection control protocol inside computed tomography suites. *Jpn J Radiol.* 2020;38(5):391-393. doi:10.1007/s11604-020-00948-y
- [20] Sahoo S, Padhy SK, Ipsita J, Mehra A, Grover S. Demystifying the myths about COVID-19 infection and its societal importance. *Asian J Psychiatr.* 2020;54. doi:10.1016/j.ajp.2020.102244
- [21] Gagneux-Brunon A, Pelissier C, Gagnaire J, et al. SARS-CoV-2 infection: advocacy for training and social distancing in healthcare settings. *J Hosp Infect.* 2020;106(3):610-612. doi:10.1016/j.jhin.2020.08.001

- [22] Hu L-Q, Wang J, Huang A, Wang D, Wang J. COVID-19 and improved prevention of hospital-acquired infection. *Br J Anaesth.* 2020;125(3):e318-e319. doi:10.1016/j.bja.2020.05.037
- [23] Robles JF. Position statement on covid-19 infection and diabetes. *J ASEAN Fed Endocr Soc.* 2020;35(1):52-54. doi:10.15605/jafes.035.01.02
- [24] Hsu S-T, Chou L-S, Chou FH-C, et al. Challenge and strategies of infection control in psychiatric hospitals during biological disasters—From SARS to COVID-19 in Taiwan. *Asian J Psychiatr.* 2020;54. doi:10.1016/j.ajp.2020.102270
- [25] Panda PK, Bandyopadhyay A, Singh BC, et al. Safety and efficacy of antiviral combination therapy in symptomatic patients of Covid-19 infection - a randomised controlled trial (SEV-COVID Trial): A structured summary of a study protocol for a randomized controlled trial. *Trials.* 2020;21(1). doi:10.1186/s13063-020-04774-5
- [26] Subramanian I. Virtual Parkinson's Disease Support Groups in the COVID-19 Era: Social Connection in the Time of Social Distancing. *Mov Disord Clin Pract.* 2020;7(6):739-740. doi:10.1002/mdc3.12994
- [27] Xiao H, Shu W, Li M, et al. Social distancing among medical students during the 2019 coronavirus disease pandemic in china: Disease awareness, anxiety disorder, depression, and behavioral activities. *Int J Environ Res Public Health.* 2020;17(14):1-13. doi:10.3390/ijerph17145047
- [28] Banerjee D, Rao TSS, Kallivayalil RA, Javed A. Revisiting 'The Plague' by Camus: Shaping the 'social absurdity' of the COVID-19 Pandemic. *Asian J Psychiatr.* 2020;54. doi:10.1016/j.ajp.2020.102291
- [29] Lima-Costa MF, de Melo Mambrini J V, de Andrade FB, Viana Peixoto SW, Macinko J. Social distancing, use of face masks and hand washing among participants in the Brazilian longitudinal study of aging: The ELSI-COVID-19 initiative [Distanciamiento social, uso de mascarillas e higienización de las manos entre participantes del Estudio Brasileño Longitudinal del Envejecimiento: Iniciativa ELSI-COVID-19] [Distanciamiento social, uso de máscaras e higienização das mãos entre participantes do Estudo Longitudinal da Saúde dos Idosos Brasileiros: Iniciativa ELSI-COVID-19]. *Cad Saude Publica.* 2020;36. doi:10.1590/0102-311X00193920
- [30] Maqbool A, Khan NZ. Analyzing barriers for implementation of public health and social measures to prevent the transmission of COVID-19 disease using DEMATEL method. *Diabetes Metab Syndr Clin Res Rev.* 2020;14(5):887-892. doi:10.1016/j.dsx.2020.06.024
- [31] Chiu N-C, Chi H, Tai Y-L, et al. Impact of wearing masks, hand hygiene, and social distancing on influenza, enterovirus, and all-cause pneumonia during the coronavirus pandemic: Retrospective national epidemiological surveillance study. *J Med Internet Res.* 2020;22(8). doi:10.2196/21257
- [32] Kimatu JN. The Negative Effects of the WHO COVID-19 Prevention Guidelines on the Human Immune System. *Biomed Pharmacol J.* 2020;13(3):1477-1481. doi:10.13005/bpj/2020
- [33] Mermel LA. Disposition of patients with coronavirus disease 2019 (COVID-19) whose respiratory specimens remain positive for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) by polymerase chain reaction assay (PCR). *Infect Control Hosp Epidemiol.* 2020;41(11):1326-1327. doi:10.1017/ice.2020.286
- [34] Bellizzi S, Panu Napodano CM, Fiamma M, Ali Maher O. Drought and COVID-19 in the Eastern Mediterranean Region of the WHO. *Public Health.* 2020;183:46-47. doi:10.1016/j.puhe.2020.04.032

- [35] Durand-Moreau Q. WHO recommendations for preparedness and response to COVID-19 at the workplace, on March 23, 2020 [Informations de l'OMS pour la gestion de l'épidémie de COVID-19 en milieu de travail, au 23 mars 2020]. *Arch des Mal Prof l'Environnement*. 2020;81(3):219-221. doi:10.1016/j.admp.2020.03.832
- [36] Ruiz-Frutos C, Ortega-Moreno M, Allande-Cussó R, Domínguez-Salas S, Dias A, Gómez-Salgado J. Health-related factors of psychological distress during the COVID-19 pandemic among non-health workers in Spain. *Saf Sci*. 2021;133. doi:10.1016/j.ssci.2020.104996
- [37] Selvaraj DF, Balakrishnan S, Manopaul P. Coronavirus disease (COVID-19) outbreak in India. *Int J Pharm Res*. 2021;13(1):568-571. doi:10.31838/ijpr/2021.13.01.086
- [38] Kristina SA, Annisa M, Ihsan M. Gaps in the public's awareness and protective practices during pivotal time of covid-19 pandemic: A survey from indonesia. *Int J Pharm Res*. 2021;13(1):1036-1041. doi:10.31838/ijpr/2021.13.01.172
- [39] To T, Zhang K, Maguire B, et al. Correlation of ambient temperature and COVID-19 incidence in Canada. *Sci Total Environ*. 2021;750. doi:10.1016/j.scitotenv.2020.141484
- [40] Bajwa S, Kurdi M, Malhotra N. Combating the COVID-19 battle with personal protective equipment (PPE) armamentarium. *J Anaesthesiol Clin Pharmacol*. 2020;36(5):S133-S136. doi:10.4103/joacp.JOACP_324_20
- [41] Khunti K, Adisesh A, Burton C, et al. Analysis ;The efficacy of PPE for COVID-19-type respiratory illnesses in primary and community care staff. *Br J Gen Pract*. 2020;70(697):413-416. doi:10.3399/bjgp20X710969
- [42] Lin Z, Shu H, Jiang D, et al. Ward renovation and PPE use procedures to protect medical staff from COVID-19 infection. *J Infect Dev Ctries*. 2020;14(6):554-558. doi:10.3855/jidc.12788
- [43] Díaz-Guio DA, Ricardo-Zapata A, Ospina-Velez J, Gómez-Candamil G, Mora-Martinez S, Rodriguez-Morales AJ. Cognitive load and performance of health care professionals in donning and doffing PPE before and after a simulation-based educational intervention and its implications during the covid-19 pandemic for biosafety. *Infez Med*. 2020;28:111-117. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85086606196&partnerID=40&md5=588696e87adaba8aa22360d99da09613>.
- [44] Shoaib M, Abdullah F. Risk Reduction of COVID-19 Pandemic in Pakistan. *Soc Work Public Health*. 2020;35(7):557-568. doi:10.1080/19371918.2020.1806172