



Awareness of symptomatic differences Covid-19, SARS, Swine Flu, Common cold among dental students

Nivedha Valliammai Mahalingam¹, Abilasha R^{*2}, Kavitha S³

¹Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamallee High Road, Chennai-77, Tamil Nadu, India

²Department of Oral Pathology, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamallee High Road, Chennai-77, Tamil Nadu, India

³Department of Biochemistry, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, 162, Poonamallee High Road, Chennai-77, Tamil Nadu, India

Article History:

Received on: 12 Sep 2020

Revised on: 10 Oct 2020

Accepted on: 12 Oct 2020

Keywords:

COVID-19,
Swine flu,
SARS,
Common cold,
Symptoms

ABSTRACT



Enormous successes have been obtained against the control of major epidemic diseases, such as SARS, MERS, Ebola, Swine Flu in the past. Dynamic interplay of biological, socio-cultural and ecological factors, together with novel aspects of human-animal interphase, pose additional challenges with respect to the emergence of infectious diseases. The important challenges faced in the control and prevention of emerging and re-emerging infectious diseases range from understanding the impact of factors that are necessary for the emergence, to development of strengthened surveillance systems that can mitigate human suffering and death. The aim of the current study is to assess the awareness of symptomatic differences between viral diseases like COVID-19, SARS, Swine flu and common cold among dental students that support the prevention of emergence or re-emergence. Cross-sectional type of study conducted among the undergraduate students comprising 100 Subjects. A questionnaire comprising 15 questions in total were framed, and responses were collected in Google forms in SPSS Software statistical analysis. The study has concluded that dental students have an awareness of the symptomatic differences between infectious viral disease. The study concluded that the awareness of symptomatic differences between viral diseases like COVID-19, SARS, Swine flu, Common cold is good among the dental students who would pave the way for early diagnosis and avoid spreading of such diseases. A further awareness can be created by regular webinars, seminars and brainstorming sessions among these healthcare professionals.

*Corresponding Author

Name: Abilasha R

Phone: 9600191071

Email: abilasha@saveetha.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL1.3431>

Production and Hosted by

IJRPS | www.ijrps.com

© 2020 | All rights reserved.

INTRODUCTION

Enormous successes have been obtained against the control of major epidemic diseases, such as SARS, MERS, Ebola, Swine Flu in the past. Dynamic interplay of biological, socio-cultural and ecological factors, together with novel aspects of human-animal interphase, pose additional challenges with respect to the emergence of infectious diseases. The important challenges faced in the control and prevention of emerging and re-emerging infectious diseases range from understanding the impact of fac-

tors that are necessary for the emergence, to development of strengthened surveillance systems that can mitigate human suffering and death. Several factors underlie the emergence of infectious diseases, including increasing population, poverty and malnutrition, increased domestic and global connectivity, economic factors leading to population migration, social practices, the prevalence of immunosuppressive diseases, unplanned urbanization, deforestation and change in agricultural practices such as mixed farming.

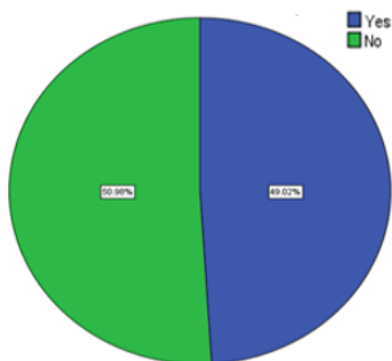


Figure 1: Pie chart represents the knowledge of people about coronavirus caused by SARS-COV2

Globally countries started believing that vaccination is the only remedy for controlling and avoiding the spread of viral disease. A landmark in the battle against viral infectious diseases was made in 1798 when Jenner first inoculated humans against smallpox with the less virulent cowpox (Brickman *et al.*, 2002).

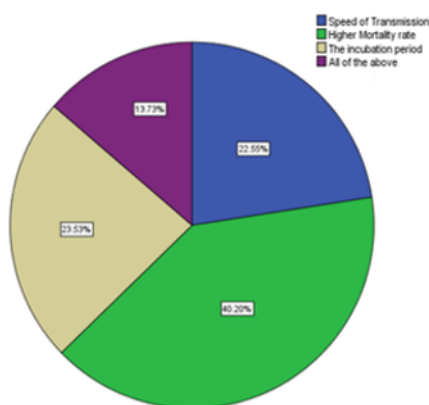


Figure 2: Pie chart represents the knowledge of people about the symptomatic differences between COVID-19 and other viruses

Moving forward for about two centuries since then, humans relied almost exclusively on vaccines for protection against viruses. Only in recent years, new strategies for controlling viral infectious diseases have emerged, leading to a couple of viral prophylaxis therapeutics on the market (Calvez *et al.*,

2004). Medical negligence is the breach of a legal duty to care, which includes the damages and establishing causation. Awareness of medical negligence is increasing day by day among patients (Uma *et al.*, 2020).

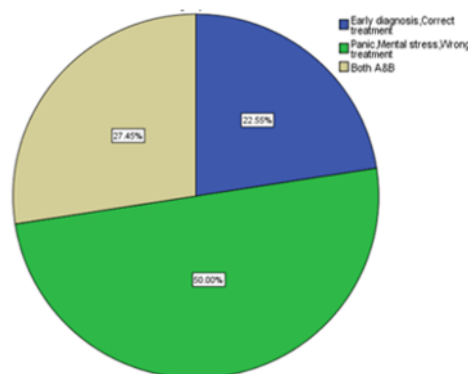


Figure 3: Pie chart represents the knowledge of people about the awareness of symptomatic differences between viruses

These strategies are fundamentally different from vaccines where they attempt to directly interrupt the viral infectious life cycle at the molecular level by using proteins or oligonucleotides. Differentiating them from the conventional vaccines that prevent viral infection by boosting the immune system, this new antiviral approach is referred to as "Biochemical Prevention and Treatment (Maclachlan and Dubovi, 2011).

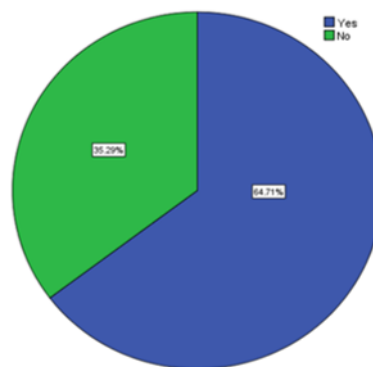


Figure 4: Pie chart represents the knowledge of people about the role of the immune system in the recovery of viral diseases

Biochemical Prevention and Treatment is used as an alternative to vaccines and chemical compound based antiviral drugs, may prove to be particularly valuable in the areas where vaccines and/or chemical drugs cannot be generated or have not been successful in human, including diseases caused by some common pathogenic viruses, such as HIV, hepatitis C virus (HCV), RSV and human rhinovirus (HRV), COVID-19.

Symptomatic differences between covid-19, SARS, swine flu, the common cold

Each environmental change, whether occurring as a natural phenomenon or through human intervention, changes the ecological balance and context within which disease hosts or vectors and parasites breed, develop, and transmit disease (Sarbeen and Gheena, 2016).

(ARDS) likely precipitated by cytokine storm multi-organ failure, septic shock, and blood clots. The average incubation period for COVID -19 to develop its symptom gradually is between five days to fourteen days (Webber, 2016). Assessment in living subjects has become increasingly important over the last few years due to the spread of many new viral diseases.

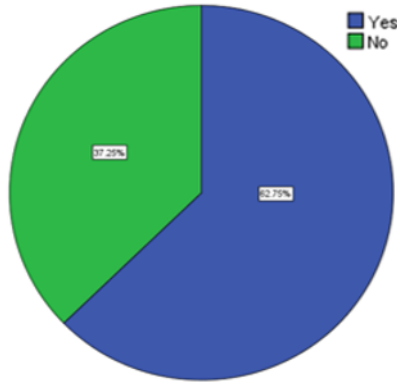


Figure 5: Pie chart represents the knowledge of people about the spread of viral diseases by sneezing, coughing and face to face contact

Corona virus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). It was first identified in December 2019 in Wuhan, China, and has since spread globally, resulting in an ongoing pandemic. As of 18 May 2020, more than 4.78 million cases have been reported across 188 countries and territories, resulting in more than 317,000 deaths.

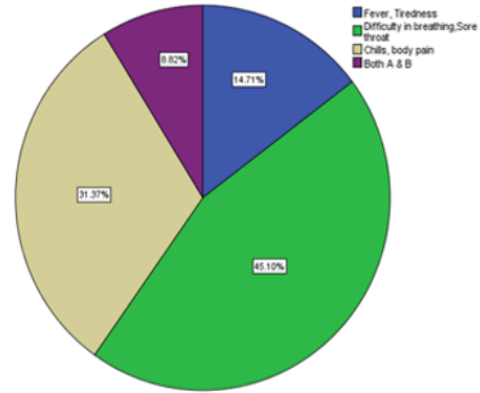


Figure 7: Pie chart represents the knowledge of people about the symptoms of COVID-19

Severe acute respiratory syndrome (SARS) is a viral respiratory disease of zoonotic is caused by severe acute respiratory syndrome corona virus (SARS-CoV or SARS-CoV-1), the first-identified strain of the SARS corona virus species severe acute respiratory syndrome-related corona virus (SARS-CoV) (Coronaviridae Study Group of the International Committee on Taxonomy of Viruses, 2020). The syndrome caused the 2002–2004 SARS outbreak in the Guangdong province of southern China.

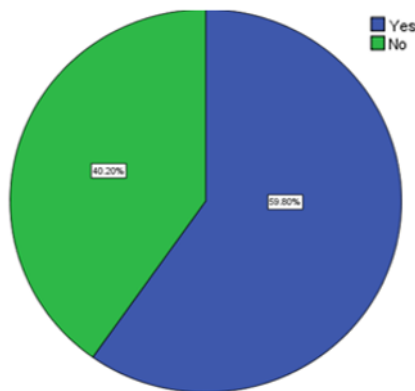


Figure 6: Pie chart represents the knowledge of people about the symptoms like fever, cold and sore throat is common in all viral diseases

More than 1.77 million people have recovered. Common symptoms include fever, cough, fatigue, shortness of breath, and loss of smell and taste. While the majority of cases result in mild symptoms, some progress to acute respiratory distress syndrome

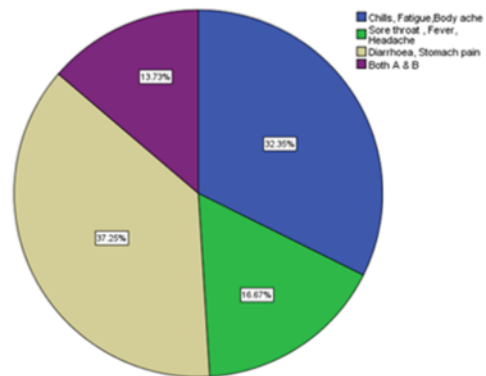


Figure 8: Pie chart represents the knowledge of people about the symptoms of swine flu

The viral respiratory illness spread to 29 countries across multiple continents before it was contained in July the following year. The infected and death count were approximately 8098 and 774. Symptoms are flu-like symptoms and may include fever, muscle pain, lethargy, cough, sore throat, and other nonspecific symptoms (Tan et al., 2020). The only

symptom common to all patients appears to be a fever 100 °F. SARS may eventually lead to shortness of breath and pneumonia; either direct viral pneumonia or secondary bacterial pneumonia. The average incubation period for SARS is 4–6 days, and in rare cases, it may vary between one day to fourteen days. SARS Originated from Bats and transmitted to humans through an intermediate animal — Civet cats.

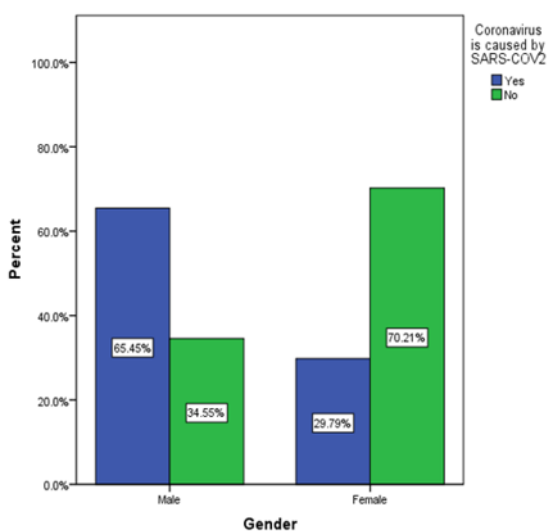


Figure 9: Bar graph represents the association between gender and knowledge of people about corona virus disease being caused by SARS-COV2

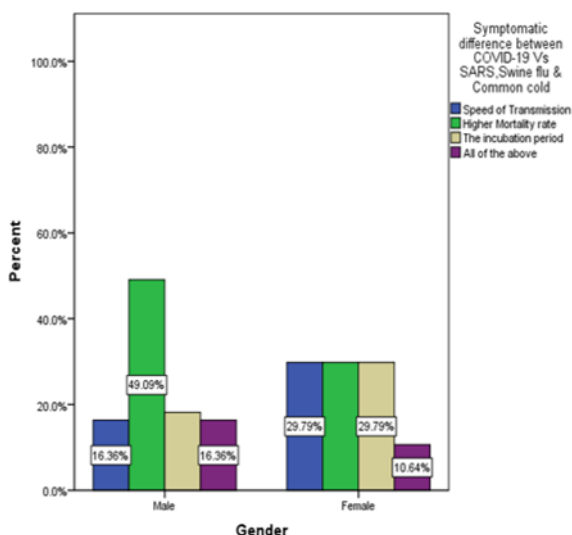


Figure 10: Bar graph represents the association between gender and knowledge of people about the symptomatic differences between COVID-19 and other viruses

Swine influenza is an infection caused by swine influenza viruses. The swine influenza virus is a strain of the influenza viruses that is endemic in

pigs. Transportation of virus flu from Pig to human often results only in the production of antibodies in the blood. It is called zoonotic swine flu. Swine influenza infection produces fever, lethargy, sneezing, coughing, difficulty breathing and decreased appetite (Cook et al., 2020). The incubation period of this virus varies from one day to four days. Colds are minor infections of the nose and throat caused by more than 200 different viruses. Rhinovirus is the most common cause, accounting for 10 to 40 per cent of colds. Cold and air stimulations are known to be the most common trigger which has shown to have significant potential in evoking dentine sensitivity (Gunasekaran and R, 2016). Other common cold viruses include corona virus and respiratory syncytial virus (RSV). A cold may last for about one week, but some colds last longer, especially in children, in elderly and those in poor health.

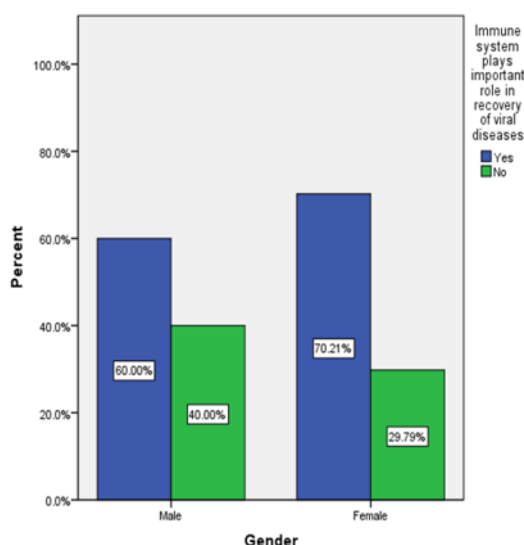


Figure 11: Bar graph represents the association between gender and knowledge of people about the role of the immune system in the recovery of viral diseases

Saliva is a secretory fluid transported from serum and surrounding the glandular tissues. The amount of importance given to systemic health is far more than oral health. The common cold is a highly contagious disease. They most often spread when droplets of fluid that contain a cold virus are transferred by touch (Perez, 2016). These droplets may also be inhaled. Symptoms are running nose, congestion, sneezing, weakened or no sense of taste and smell, and sore throat. Numerous studies on oral diseases and lesions (Shree et al., 2019; Palati et al., 2020, 2019) have been conducted by our team; this is the first study on the symptomatic differences on the three diseases (COVID-19, SARS, Swine flu and the common cold) which are pandemic, epidemic,

and common respectively. The aim of the current study is to assess the awareness of symptomatic differences between viral diseases like COVID-19, SARS, Swine flu and common cold among the dental students which will support the prevention of emergence or re-emergence of such diseases.

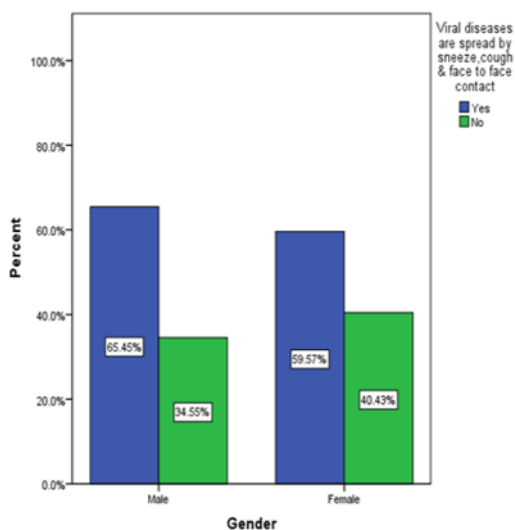


Figure 12: Bar graph represents the association between gender and knowledge about the spread of viral diseases by sneezing, coughing and face to face contact

MATERIALS AND METHODS

A survey was conducted among 100 dental Students at Saveetha Dental College, by circulating a questionnaire with 15 close-ended questions using Google forms. The Statistical Package for Social Science is the tool used to analyze the data on awareness of symptomatic differences between the COVID-19, SARS, MERS and Common Cold. The data was collected, analyses and represented in a Pie Chart in SPSS software statistically. The correlation analysis was done by chi-square test using SPSS software.

RESULTS AND DISCUSSION

49% of students are aware that COVID-19 is spread by a virus called SAR-COV2 and 50% are not aware of this fact Figure 1. The main difference between Viral disease like COVID-19, SARS, Swine flu 22 % say it is the speed of transmission, 40% say it has a high mortality rate, 23 % say it is the incubation period, and 13 % opt for all the differences Figure 2. 50% of students say that awareness of symptomatic differences between viral diseases leads to panic, wrong treatment and stress whereas 22% say it will lead early and correct diagnosis and treatment and 27% opt for both Figure 3. 64% say the immune

system plays a vital role in the spread of these diseases, whereas 35% disagree with this option Figure 4. 62% students agree that all viral diseases are spread through face to face contact with the infected person, and 37 % disagree with this fact-Figure 5. 59% students are aware that common symptoms of these viral diseases are fever, cough and sore throat whereas 40% aren't aware Figure 6. 45% of the students feel difficulty in breathing and sore throat, 31% feel chills and body pain, 14% feel fever and tiredness and 8% feel both fever, tiredness and difficulty in breathing, sore throat is symptoms of COVID-19 Figure 7. 37% of the students feel diarrhea and stomach pain, 32% feel chills, fatigue and body ache, 16% feel a sore throat, fever and headache, 13% feel both chills, fatigue, body ache and sore throat, fever, headache are symptoms of swine flu Figure 8

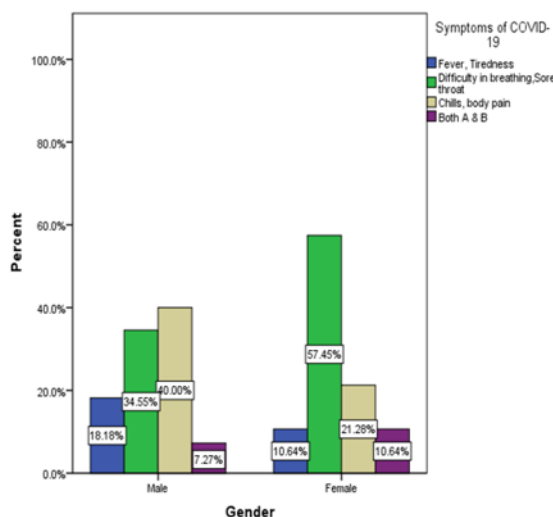


Figure 13: Bar graph represents the association between gender and knowledge of people about the symptoms of COVID-19

Association of the gender and the various parameters discussed assessing the knowledge about differentiating the various diseases (SARS, Covid-19, swine flu and the common cold) was analyzed using chi-square test and depicted in the graphs Figures 9, 10, 11, 12, 13 and 14. P-value of association between gender and whether corona virus is caused by SARS-COV2 is 0.000, which is less than 0.05, and so it is statistically significant Figure 9. Hence, males are more aware of the cause of covid-19. A p-value of association between gender and the symptomatic difference between COVID-19, SARS, Swine flu and Common cold is 0.493, which is greater than 0.05 and so it is statistically not significant Figure 10. A p-value of association between gender and whether the immune system plays an important role in the recovery of Virus disease is 0.287 which is greater

than 0.05, and so it is statistically not significant Figure 11. A p-value of association between gender and knowledge about whether the virus spreads by sneezing, coughing and face to face contact shows no significant association ($p = 0.545$) which is greater than 0.05 and so it is statistically not significant Figure 12. A p-value of association between gender and awareness about various symptoms of COVID-19 is 0.791, which is greater than 0.05, and so it is statistically not significant Figure 13. A p-value of association between gender and awareness about the various symptoms of swine flu is 0.008, which is less than 0.05, and so it is statistically significant with females being more aware Figure 14.

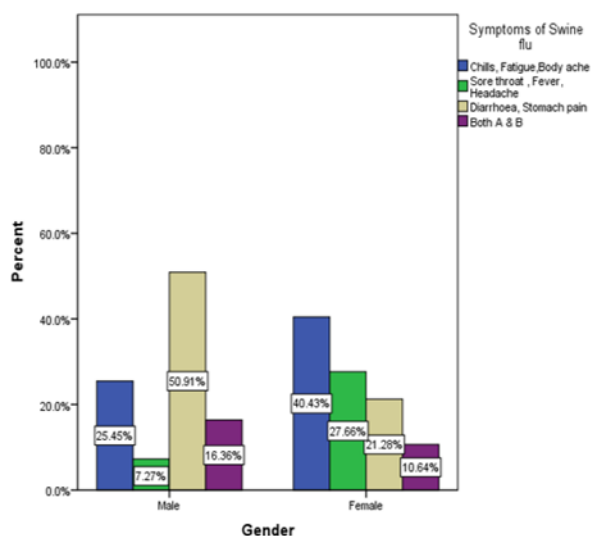


Figure 14: Bar graph represents the association between gender and knowledge of people about the symptoms of swine flu

Conditions common in the first three years of life, such as chickenpox, measles, and rubella (Sukumaran and Padavala, 2018) are also viral diseases. COVID-19, SARS, Swine Flu, Common cold also are viral diseases that belong to the same virus family. Few viruses are not very infectious, causing death whereas few are. As of today, no vaccinations are invented for these viral diseases, therefore being safe and precautions are the only way to control the emergence and spread of these diseases. The awareness of symptomatic differences is supported in documentation and photography for medico-legal purposes (Hannah et al., 2018). Basic awareness like how these viral diseases are spread, the symptoms, prevention methods, remedies to be taken when affected are discussed in this survey.

All patients and their tissue samples with such symptoms should be handled with the utmost care (Sheriff and Santhanam, 2018; Krishnan et al., 2018). The current study shows the major symp-

toms of all viral diseases are fever, cough, sneeze, Sore throat and these symptoms very frequently occur in all human beings. Therefore, it is very much necessary to be aware of these symptoms to diagnose the disease. Basically, the theory behind forensic odontology is that no two mouths are the same, even for identical twins (Harrita and Santhanam, 2019; Abitha and Santhanam, 2019), but all the viral diseases have identical symptoms. The normal cold will have running nose and congestion, which is not a symptom of another viral disease, hence people can take remedy for the same. SARS will have symptoms of cough, sneeze, fever, muscular pain. Swine flu has symptoms of fever, cough, sneezing, and bad appetite. COVID-19 will show the symptoms of fever, cough, sneeze, shortness of breath. Any errors wrong symptomatic identification can lead to serious consequences such as wrong diagnosis, inappropriate treatment, re-surgery, and physical and emotional disaster.

Improving the immune system of the individuals play a major role in avoiding exposure to these pathogens. Melanin is a non-haemoglobin derived brown pigment produced by melanocytes (Manohar and Abilasha, 2019). Melanin synthesis has been associated with virulence for a variety of pathogenic microbes. Melanin is believed to contribute to microbial virulence by reducing a pathogen's susceptibility to killing by host antimicrobial mechanisms and by influencing the host immune response to infection (Nosanchuk and Casadevall, 2006). Creating awareness of the symptoms will avoid panic among people. Empathy is the cornerstone of patient-physician relationships and should characterize all healthcare relationships (Prasanna and Gheena, 2016). This will also support diagnosing the disease at an early stage to stop spreading the same in large numbers, and the correct remedy can be taken. The general population should be educated by healthcare professionals to avoid any negative impact being created on such a viral disease. Hence, awareness among the dental students is a must on such diseases for prompt identification.

An experienced physician can deliver a better quality of healthcare to the patient; this can be achieved by reviewing and practicing current evidence-based, which is best recommended for the treatment (Ahad and Gheena, 2016). The limitation of the study is that it is limited to the dental student's category. General public awareness is not included to analyze the accurate facts. Similarly, the study is focused only on the symptomatic differences but failed to include the environmental medium of transmission, which plays a vital role in spreading the disease. The remedy for such viral disease is not discussed in the

study.

CONCLUSION

The dental students predominantly have convincing knowledge about the symptomatic differences between viral diseases like COVID-19, SARS, Swine Flu, Common cold which shows that they are competent enough to identify patients with these illnesses and thus protect themselves and the patients from exposure. The lacunae in knowledge can be improved by regular webinars, seminars and brainstorming sessions among these healthcare professionals.

Funding Support

The authors declare that they have no funding support for this study.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES

- Abitha, T., Santhanam, A. 2019. Correlation between bizygomatic and maxillary central incisor width for gender identification. *Brazilian Dental Science*, 22(4):458–466.
- Ahad, M., Gheena, S. 2016. Awareness, attitude and knowledge about evidence based dentistry among the dental practitioner in Chennai city. *Research Journal of Pharmacy and Technology*, 9(11):1863–1863.
- Brickman, J. P., Bazin, H., Bazin, H. 2002. The Eradication of Smallpox. Edward Jenner and the First and Only Eradication of a Human Infectious Disease. *Journal of Public Health Policy*, 23(4):517–517.
- Calvez, L., Yu, H., Fang, M. 2004. Biochemical prevention and treatment of viral infections - a new paradigm in medicine for infectious diseases. *Virology Journal*, 1:12–12.
- Cook, M., Glass, C. A., Cash, J. C. 2020. H1N1 Influenza A (Swine Flu): Infectious Disease Guidelines. *Family Practice Guidelines*. Published on: 01 May 2020.
- Gunasekaran, G., R, A. 2016. Tooth sensitivity among residential university students in Chennai. *Asian Journal of Pharmaceutical and Clinical Research*, 63:63–63.
- Hannah, R., Ramani, P., Sherlin, H. J., Ranjith, G., Ramasubramanian, A., Jayaraj, G., Don, K. R., Archana, S. 2018. Awareness about the use, Ethics and Scope of Dental Photography among Undergraduate Dental Students Dentist Behind the lens. *Research Journal of Pharmacy and Technology*, 11(3):1012–1012.
- Harrita, S., Santhanam, A. 2019. Determination of Physical Height Using Clinical Crown Height of Deciduous Teeth. *Indian Journal of Forensic Medicine & Toxicology*, 13(4):23–23.
- Krishnan, R., Ramani, P., Sherlin, H., Sukumaran, G., Ramasubramanian, A., Jayaraj, G., Don, K. R., Santhanam, A. 2018. Surgical specimen handover from operation theater to laboratory: A survey. *Annals of Maxillofacial Surgery*, 8(2):234–234.
- Maclachlan, N. J., Dubovi, E. J. 2011. Antiviral Immunity and Prophylaxis. *Fenner's Veterinary Virology Elsevier*, pages 75–99.
- Manohar, J., Abilasha, R. 2019. A Study on the Knowledge of Causes and Prevalance of Pigmentation of Gingiva among Dental Students. *Indian Journal of Public Health Research & Development*, 10(8):95–95.
- Nosanchuk, J. D., Casadevall, A. 2006. Impact of Melanin on Microbial Virulence and Clinical Resistance to Antimicrobial Compounds. *Antimicrobial Agents and Chemotherapy*, 50(11):3519–3528.
- Palati, S., Ramani, P., Sherlin, H. J., Gheena, S., Don, K. R., Jayaraj, G., Santhanam, A. 2019. Age Estimation of an Individual Using Olze's Method in Indian Population-A Cross-Sectional Study. *Indian Journal of Forensic Medicine & Toxicology*, 13(3):121–121.
- Palati, S., Ramani, P., Shrelin, H., Sukumaran, G., Ramasubramanian, A., Don, K. R., Jayaraj, G., Santhanam, A. 2020. Knowledge, Attitude and practice survey on the perspective of oral lesions and dental health in geriatric patients residing in old age homes. *Indian Journal of Dental Research*, 31(1):22–22.
- Perez, D. 2016. All About Common Events. *Beginning RPG Maker MV*, pages 201–212.
- Prasanna, G. E., Gheena, S. 2016. A study of empathy across students from 4 health disciplines among 1st years and Final years. *Research Journal of Pharmacy and Technology*, 9(9):1472–1472.
- Sarbeen, J. I., Gheena, S. 2016. Microbial variation in climatic change and its effect on human health. *Research Journal of Pharmacy and Technology*, 9(10):1777–1777.
- Sheriff, K. A. H., Santhanam, A. 2018. Knowledge and Awareness towards Oral Biopsy among Students of Saveetha Dental College. *Research Journal of Pharmacy and Technology*, 11(2):543–543.
- Shree, K. H., Ramani, P., Sherlin, H., Sukumaran, G., Jeyaraj, G., Don, K. R., Santhanam, A., Ramasubra-

- manian, A., Sundar, R. 2019. Saliva as a Diagnostic Tool in Oral Squamous Cell Carcinoma – a Systematic Review with Meta Analysis. *Pathology & Oncology Research*, 25(2):447–453.
- Sukumaran, G., Padavala, S. 2018. Molar incisor hypomineralization and its prevalence. *Contemporary Clinical Dentistry*, 9(6):246–246.
- Tan, C., Huang, Y., Shi, F., Tan, K., Ma, Q., Chen, Y., Jiang, X., Li, X. 2020. C-reactive protein correlates with computed tomographic findings and predicts severe COVID-19 early. *Journal of Medical Virology*, 92(7):856–862.
- Uma, P. K., Ramani, P., Herald, J., Sherlin, Gheena, Jayaraj, K. R. G., Don 2020. Knowledge about Legal Aspects of Medical Negligence in India among Dentists- A Questionnaire Survey. *Medico-Legal Update*, 20(1):111–115.
- Webber, R. 2016. Communicable diseases. *a global perspective*.