Knowledge About the Effects of Medicinal Plants Against COVID-19 Among Dental Students - A Questionnaire Study

Vikraman K S¹, Abilasha², Kavitha S³

Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India; 'Reader, Department of Oral and Maxillofacial Pathology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India; 'Lecturer, Department of Biochemistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India.

ABSTRACT

Background and Aim: Natural herbal medicines have long been an important cure/remedy in traditional Indian practices for treating various diseases. The current study aims at assessing the knowledge about medicinal plants and their effect on COVID-19 in dental students to understand the effects and advantages of using medicinal plants against such diseases.

Materials and Methods: This cross-sectional survey was initiated among dental students in a private dental institution, Chennai; about the effects of medicinal plants against COVID-19. Nearly 100 students responded to the survey. Data have been collected with help of SPSS software and data has been analyzed and plotted in graphs. Inferential statistics was done using the Chi-square test and a p-value of < 0.05 was considered statistically significant.

Results and Conclusion: More than 80% of the population were aware of the effects of medicinal plants against COVID-19. Few parameters like mode of transmission, diseases related to coronavirus, and diagnostic test for COVID-19 were associated with the gender of population and it is found that males were more aware than females, even though there was no statistical significance.

Conclusion: The future scope of this study is to gain knowledge about the effect of natural medicinal plants against COVID-19 and also to investigate the effects of the plants for therapeutic use.

Key Words: COVID-19, Medicinal plants, Effects, Spread, Treatment measures, Home remedies

INTRODUCTION

Coronavirus is an RNA virus and it has a crown-like appearance and spike glycoprotein envelope belongs to the subfamily orthocoronavirinae, there are four genera of coronaviruses, Betacoronavirus, Alpha coronavirus, Gamma coronavirus, and Deltacorona infection¹. This coronavirus is composed of four structural proteins, including spike (S), envelope (E), as a membrane (M), and nucleocapsid (N) proteins²,³. It is an infectious disease caused by severe acute respiratory syndrome coronavirus (SARS-CoV-2)⁴. Many infections also cause oral lesions, especially in older individuals⁵. It was first identified in December 2019 in Wuhan, China and has since spread globally, resulting in an ongoing pandemic ⁶. Common symptoms of COVID-19 include fever, cough, fatigue, shortness of breath, and loss of smell and taste as per the recent publications⁷. Some viral transmission may also occur through saliva which can be used as a diagnostic tool⁸. China promptly announced the pestilence to the World Health Organization (WHO) and furthermore imparted the grouping data to the worldwide network to alert the people in various regions of the world. WHO has helped in the development of the diagnosis; issued guidelines for patient monitoring, sample collection, and treatment; and provided up-to-date information on the epidemic on a continuous basis⁹. In spite of the extensive research done the source of the virus and its ability to spread still remains ambiguous, with an increasing number of cases showing signs of human-to-human transmission¹⁰,¹¹. In spite of the trials conducted all over the world, there is no particular treatment measure developed for the prevention or treatment of COVID-19. Hence, we in this article have aimed to impart knowledge and assess the same on the effectiveness of the various herbal
concoctions and medicinal herbs on COVID-19. Herbal therapeu-
tic items are restorative items where the dynamic fixing com-
prises only of homegrown substances or homegrown preparations. Natural cures are restorative items where the
dynamic fixing is of the common starting point and com-
prises a creature section, a bacterial culture, a mineral, or a
salt\textsuperscript{12}. The aim of the study is to make aware and to assess
the knowledge of dental students about the effects of natural
medicinal plants against COVID-19 and to resolve the myths
about the usage and effects of medicinal plants.

**MATERIALS AND METHODS**

A cross-sectional survey was initiated among the dental
students in Chennai city. Ethical clearance was obtained from the Institutional Review Board of Saveetha Dental
College. (No.SRB/SDC/BDS/002/03) Nearly 100 people
responded from the study group and the survey data
was collected and only the responses from the dental stu-
dents were considered. Data collection was done through
software using Google form: https://docs.google.com/
forms/d/e/1FAIpQLSduqhEa020t0zgztaCzuARU-fKe-
QwFnbUptWX6asul_1jHw/viewform?usp=sf_link. Re-
sults were analyzed and represented in the form of bar graph
and pie-charts. A list of dependent variables is knowledge in
universal precautions. A list of independent variables is age
and sex.

**Statistical Analysis**

Association between various parameters and the gender of
the participants was done using Chi-square test, using SPSS
software. \( p<0.05 \) was considered to be statistically signifi-
cant.

**RESULTS AND DISCUSSION**

100 people participated in this survey. Data was collect-
ed with help of online Google forms and responses ob-
tained were collected, analyzed, and plotted as a graph.
The study showed that more than 80% of people are aware
of COVID-19 and the effects of medicinal plants against
COVID-19. Graph 1 shows the response for the full form
of COVID-19, 88% of the population opted for corona-
virus disease 2019, and 7% of the population as coronavirus
disease 2019 and 5% answered as coronary artery disease
2019. Graph 2 shows knowledge about where corona-
virus was first identified in 78% of the population answered
as Wuhan, Hubei, and 13% as Hubei, Hunan, and 1% as
Xiaogan, and 7% as Jinan, Shandong. Graph 3 shows the
opinion for the reason why the virus is named corona. 56%
of the population and 4% due to their surface structure of
bricks and 39% as both crown-like and surface structure of
bricks and 1% due to leaf-like projection. Graph 4 shows
the opinion for the reason how the person gets infected by
a coronavirus, 5% as touching a contaminated surface and
9% as small droplets produced during coughing and sneez-
ing or talking and 84% as both first and second and 2% as
none of these. Graph 5 shows the diseases which are
related to coronavirus are 69% of population answered as
both SARS and MERS and 18% as SARS and 5% as MERS
and 8% as none of above. Graph 6 shows the response for
who is at the risk of developing severe illness, 7% of the
population selected older people, 10% selected person with
pre-existing medical conditions such as high blood pres-
sure and heart disease, and 14% as person close contact
with the infected individual and 69% as all of the above.
Graph 7 shows the response for the time frame of the incu-
bation period of coronavirus, 5% of the population opted
as 2 to 4 days and 81% as 1 to 14 days and 5% as 1 to 5
days and 9% as 2 to 28 days. Graph 8 shows the response
for whether COVID-19 is the same as SARS, 57% of the
population as Yes and 43% as No. Graph 9 shows the re-
sponse for the correct diagnostic test for COVID-19, 82%
of the population answered as RT-PCR and 6% as chest
x-ray and 7% as ELISA, and 5% as GFR test. Graph 10
shows the knowledge about the recommended source to
get information about COVID-19,7% as Google and 53%
as WHO and 7% as WhatsApp group and 33% as all the
above. Graph 11 shows the response for the knowledge
about the myths about coronavirus are 22% as eating gar-
lie help prevent with noble coronavirus and 13% as I will
die if I am diagnosed with coronavirus and 54% as both A
and B and 11% as none of the above. Graph 12 shows the
responses about whether our natural medicinal plants have
some effects against COVID-19,8% as Yes and 12% as No.
Graph 13 shows the knowledge about whether the medi-
cinal plants improve our immune system against coronavirus,
85% of the population opted as Yes and 15% as No. Graph
14 shows the responses of whether medicinal plants are
given directly in vivo, 64% of the population opted for Yes
and 36% as No. Graph 15 shows the response for whether
ginger protects us from COVID-19, 64% answered as Yes
and 36% as No. Graph 16 shows the responses for whether
medicinal plants can be used in preparing masks, 53% of
the population answered as true and 47% as false. Graph
17 shows the knowledge about whether the usage of tradi-
tional medicine against coronavirus has side effects, 21%
as Yes and 55% as No and 24% as may be. Graph 18 shows
the knowledge about whether Kabasura kudineer will help
in increasing immunity, 90.8% of the population as true, and
9.2 as false. Graph 19 shows the responses about which
plant targets the viral replication of coronavirus and slows
down, 11% of the population as *Glycyrrhiza glabra* and
*Allium sativum*, and 25% as none of the above. Graph 20
shows the responses for which plant extract can be used
against COVID-19, 43% as *Vitex trifolia*, 11% as hibiscus,
5% as Aloe vera, and 41% as none of above. Association between gender and other parameters about the knowledge of medicinal plants was analyzed using the Chi-square test (P value less than 0.05 as considered to be significant and greater than 0.05 considered as not statistically significant) and depicted in the following graphs from 21 to 30.

The spread of the virus is more virulent due to improper precautionary measures across all health disciplines due to a lack of empathy13. Due to the lack of treatment for many deadly diseases and infections, many medicinal plants help in the treatment of various problems like teeth sensitivity etc14. Currently, there are no effective treatments against coronavirus and the development of the treatment measures requires many months or years, hence we must be aware of the other treatment modalities of natural origin based on aromatic and medicinal plants which may play a role in inhibition the spread of COVID-19 15. The presence of SARS pushes a class of analysts to discover against coronavirus operators, including certain normal exacerbates that exist in homegrown medicines. Much illegal aspect has been happening against the natural medicine against COVID-19. Illegal practices can be due to an increase in medical negligence across all fields of healthcare 16. Plants used against COVID-19 include Indigo feraritctoria (AO), Vitex trifolia, Gymnema sylvestre, Abutilon indicum, Leucas aspera, casia alata, Sphaeranthus indicus, Clitoria ternatea, Clerodendrum Inerme Gaertn, Pergularia daemia, and Evolvulus alsinoides17. Many articles have referred to some of the articles that say that usage of metal nanoparticles like silver, zing in the existing wound dressing materials is not environment friendly due to its toxicity effect 17. The elective condition well disposed of comparable materials, for example, liquorice, neem, turmeric, nectar, nigella, and so on natural herbs, have a significant effect due to their inherent medicinal properties. Few plants may also prevent hypomineralisation of tooth18. The natural plant extract can be used to deactivate the active components of this virus19 but this virus undergoes mutation according to climatic conditions according to different places making it difficult for medicine20. As a contextual analysis, liquorice was chosen as an example to kill the action of infection proteins. Similar agreements are found in literature 21 that state “liquorice root extract is effective against HIV, RSB, and herpes viruses22. This virus affects people of different ages23 and severe acute respiratory syndrome-related coronavirus which causes a serious type of pneumonia24. Consumption of herbal medicine will prevent dental disturbances25. The contents of liquorice are glycyrrhizin, glycyrrhetcic acid, liquiritin, and isoliquiritin26 which are able to control the spreading of virus activity. In most of the countries, the body of corona infected persons was not subjected to post-mortem due to fear of handling the surgical specimen27. Previously our team had conducted many awareness studies on various dental problems and dental aids but none on the use of natural substances against diseases28,29,30. Evidence-based studies have a lot of impact on the present-day research in all fields31,32.

According to our study, many responded that people do get infected by coronavirus by touching a contaminated surface and small droplets produced during coughing and sneezing or talking. In a similar context, a review states that viruses may be transmitted from one host to another host depending on coronavirus species by an aerosol, fomite or fecal-oral route33. Disease related to corona 69% population answered as both SARS and MERS. A similar article states it is related to MERS-COV to several bats species34. Diagnostic test for COVID-19 has been identified by 82% of the population as RT-PCR which is the gold standard. According to the literature, Covid-19 tests include RT-PCR, isothermal nucleic acid amplification, antigen, and biopsy35,36. 53% of the population felt medicinal products can be used to make masks, in another article it is used as a disinfectant for killing germs in masks37. Kabasura kudineer will help in increasing immunity is believed to be true by 91% as, similar to the literature stating that Kabasura kudineer of fewer and virus epidemic38.

CONCLUSION

The study shows that most dental students are moderately aware of the effects of natural and medicinal plants against COVID-19. The male population had more awareness than the female population. Owing to the multi-fold increase in the cases in the city39, it is important for such studies on alternative medicines as therapeutic options to be performed in various populations in order to improve the current situation by decreasing the number of cases. Natural and home remedies are more economical and readily available to the common man, hence the propagation of knowledge about the various herbs and medicinal plants is essential. This study has been conducted in a limited population due to a shortage of time and the current pandemic situations and can be improved by including a wider population. The future scope of this study is to gain knowledge about the effect of natural medicinal plants against COVID-19 and also to investigate the effects of the plants for therapeutic use.

Acknowledgment

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references to this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals, and books from which the literature for this article has been reviewed and discussed.

Conflict of interest
Nil
Funding Information
None

REFERENCES

1. Schwartz DA, Graham AL. Potential Maternal and Infant Outcomes from Coronavirus 2019-nCoV (SARS-CoV-2) Infecting Pregnant Women: Lessons from SARS, MERS, and Other Human Coronavirus Infections [Internet]. Vol. 12, Viruses. 2020. p. 194. Available from: http://dx.doi.org/10.3390/v12020194

2. Wang N, Shang J, Jiang S, Du L. Subunit Vaccines Against Emerging Pathogenic Human Coronavirus [Internet]. Vol. 11, Frontiers in Microbiology. 2020. Available from: http://dx.doi.org/10.3389/fmicb.2020.00298

3. Du L, Tai W, Zhou Y, Jiang S. Vaccines for the prevention against the threat of MERS-CoV. Expert Rev Vaccines [Internet]. 2016 Sep;15(9):1123–34. Available from: http://dx.doi.org/10.1586/14760584.2016.1167603

4. Zhou Y, Jiang S, Du L. Prospects for a MERS-CoV spike vaccine. Expert Rev Vaccines [Internet]. 2018 Aug;17(8):677–86. Available from: http://dx.doi.org/10.1080/14760584.2018.1506702

5. Palati S, Ramani P, Shrelin H, Sukumaran G, Ramasubramanian A, Don KR, et al. Knowledge, Attitude and practice survey on the perspective of oral lesions and dental health in geriatric patients residing in old age homes [Internet]. Vol. 31, Indian Journal of Dental Research. 2020. p. 22. Available from: http://dx.doi.org/10.4103/ijdr.ijdr_195_18

6. Hui DS, Azhar EI, Madani TA, Ntoumi F, Kock R, Dar O, et al. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health — The latest 2019 novel coronavirus outbreak in Wuhan, China [Internet]. Vol. 91, International Journal of Infectious Diseases. 2020. p. 264–6. Available from: http://dx.doi.org/10.1016/j.ijid.2020.01.009

7. Diseases KS of I, Korean Society of Infectious Diseases, Korean Society of Pediatric Infectious Diseases, Korean Society of Epidemiology, Korean Society for Antimicrobial Therapy, Korean Society for Healthcare-associated Infection Control and Prevention, et al. Report on the Epidemiological Features of Coronavirus Disease 2019 (COVID-19) Outbreak in the Republic of Korea from January 19 to March 2, 2020 [Internet]. Vol. 35, Journal of Korean Medical Science. 2020. Available from: http://dx.doi.org/10.3346/jkms.2020.35.e112

8. Shree KH, Hema Shree K, Ramani P, Herald Sherlin, Sukumaran G, Jeyaraj G, et al. Saliva as a Diagnostic Tool in Oral Squamous Cell Carcinoma — a Systematic Review with Meta Analysis [Internet]. Vol. 25, Pathology & Oncology Research. 2019. p. 447–53. Available from: http://dx.doi.org/10.1007/s12253-019-00588-2

9. Münster VJ, Koopmans M, van Doremalen N, van Riel D, de Wit E. A Novel Coronavirus Emerging in China — Key Questions for Impact Assessment [Internet]. Vol. 382, New England Journal of Medicine. 2020. p. 692–4. Available from: http://dx.doi.org/10.1056/nejmp2009929

10. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019 [Internet]. Vol. 382, New England Journal of Medicine. 2020. p. 727–33. Available from: http://dx.doi.org/10.1056/nejmoa2001017

11. Chan JF-W, Yuan S, Kok K-H, To KK-W, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster [Internet]. Vol. 395, The Lancet. 2020. p. 514–23. Available from: http://dx.doi.org/10.1016/s0140-6736(20)30154-9

12. Pan S-Y, Zhou S-F, Gao S-H, Yu Z-L, Zhang S-F, Tang M-K, et al. New Perspectives on How to Discover Drugs from Herbal Medicines: CAM’s Outstanding Contribution to Modern Therapeutics. Evid Based Complement Alternat Med [Internet]. 2013 Mar 24;2013:627375. Available from: http://dx.doi.org/10.1155/2013/627375

13. Prasanna GE, Gheena S. A study of empathy across students from 4 health disciplines among 1st years and Final years [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1472. Available from: http://dx.doi.org/10.5958/0974-360x.2016.00286.9

14. Gunasekaran G, Abilasha R. TOOTH SENSITIVITY AMONG RESIDENTIAL UNIVERSITY STUDENTS IN CHENNAI [Internet]. Asian Journal of Pharmaceutical and Clinical Research. 2016. p. 63. Available from: http://dx.doi.org/10.22159/ajpcr.2016.v9s2.13228

15. Chen Z, Nakamura T. Statistical evidence for the usefulness of Chinese medicine in the treatment of SARS [Internet]. Vol. 18, Phytotherapy Research. 2004. p. 592–4. Available from: http://dx.doi.org/10.1002/ptr.1485

16. Uma PK, Ramani P, Sherlin HJ, Others. Knowledge about Legal Aspects of Medical Negligence in India among Dentists- A Questionnaire Survey. Medico Legal Update [Internet]. 2020,20(1):111–5. Available from: http://ijol.net/index.php/mlu/article/view/337

17. Shahid MA, Ali A, Uddin MN, Miah S, Islam SM, Mohrebullah M, et al. Antibacterial wound dressing electrospun nonfibrinous material from polynvinyl alcohol, honey and Curcumin longa extract [Internet]. Journal of Industrial Textiles. 2020. p. 152808372090437. Available from: http://dx.doi.org/10.1177/1528083720904379

18. Sukumaran G, Padavala S. Molar incisor hypomineralization and its prevalence [Internet]. Vol. 9, Contemporary Clinical Dentistry. 2018. p. 246. Available from: http://dx.doi.org/10.4103/ccd.ccd_161_18

19. Wang L, Yang R, Yuan B, Liu Y, Liu C. The antiviral and antimicrobial activities of licorice, a widely-used Chinese herb [Internet]. Vol. 5, Acta Pharmaceutica Sinica B. 2015. p. 310–5. Available from: http://dx.doi.org/10.1016/j.apsb.2015.05.005

20. Sarbeen JI, Insira Sarbeen J, Gheena S. Microbial variation in climatic change and its effect on human health [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1777. Available from: http://dx.doi.org/10.5958/0974-360x.2016.00359.0

21. Fukuchi K, Okudaira N, Adachi K, Odai-Ide R, Watanabe S, Ohno H, et al. Antiviral and Antitumor Activity of Licorice Root Extracts. In Vivo [Internet]. 2016;30(6):777–85. Available from: http://dx.doi.org/10.21873/invivo.10994

22. Yeh CF, Wang KC, Chiang LC, Shieh DE, Yen MH, Chang JS. Water extract of licorice had anti-viral activity against human respiratory syncytial virus in human respiratory tract cell lines [Internet]. Vol. 148, Journal of Ethnopharmacology. 2013. p. 466–73. Available from: http://dx.doi.org/10.1016/j.jep.2013.04.040

23. Palati S, Ramani P, Herald J, Sherlin G, Gheena S, Don KR, Jayaraj G, et al. Age Estimation of an Individual Using Olze's Method in Indian Population-A Cross-Sectional Study [Internet]. Vol. 13, Indian Journal of Forensic Medicine & Toxicology. 2019. p. 121. Available from: http://dx.doi.org/10.1155/2019/627375

24. Cinatl J, Morgenstern B, Bauer G, Chandra P, Rabenau H, Do-
err HW. Glycyrrhizin, an active component of liquorice roots, and replication of SARS-associated coronavirus [Internet]. Vol. 361, The Lancet. 2003. p. 2045–6. Available from: http://dx.doi.org/10.1016/s0140-6736(03)13615-x

25. Harrita S, Santhanam A. Determination of Physical Height Using Clinical Crown Height of Deciduous Teeth [Internet]. Vol. 13, Indian Journal of Forensic Medicine & Toxicology. 2019. p. 23. Available from: http://dx.doi.org/10.5958/0973-9130.2019.00255.x

26. Sharma V, Kaitiyar A, Agrawal RC. Glycyrrhiza Glabra: Chemistry and Pharmacological Activity [Internet]. Reference Series in Phytochemistry. 2016. p. 1–14. Available from: http://dx.doi.org/10.1007/978-3-319-26478-3_21-1

27. Krishnan RP, Ramani P, Sherlin HJ, Sukumaran G, Ramasubramanian A, Jayaraj G, et al. Surgical Specimen Handover from Operation Theater to Laboratory: A Survey. Ann Maxillofac Surg [Internet]. 2018 Jul;8(2):234–8. Available from: http://dx.doi.org/10.4103/ams.ams_51_18

28. Hannah R, Ramani P, Herald J, Sherlin, Ranjith G, Ramasubramanian A, Jayaraj G, et al. Awareness about the use, Ethics and Scope of Dental Photography among Undergraduate Dental Students Dentist Behind the lens [Internet]. Vol. 11, Research Journal of Pharmacy and Technology. 2018. p. 1012. Available from: http://dx.doi.org/10.5958/0974-360x.2018.00189.0

29. Manohar J, Abilasha R. A Study on the Knowledge of Causes and Prevalance of Pigmentation of Gingiva among Dental Students [Internet]. Vol. 10, Indian Journal of Public Health Research & Development. 2019. p. 95. Available from: http://dx.doi.org/10.5958/0976-5506.2019.01859.x

30. Abitha T, Santhanam A. Correlation between bizygomatic and maxillary central incisor width for gender identification. 2019 Oct 31 [cited 2020 Jun 6];22(4):458–66. Available from: https://bds.ict.unesp.br/index.php/cob/article/view/1775

31. Lai MMC, Cavanagh D. The Molecular Biology of Coronavirus [Internet]. Advances in Virus Research. 1997. p. 1–100. Available from: http://dx.doi.org/10.1016/s0065-3527(08)60286-9

32. Ahad M, Gheena S. Awareness, attitude and knowledge about evidence based dentistry among the dental practitioner in Chennai city [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1863. Available from: http://dx.doi.org/10.5958/0974-360x.2016.00380.2

33. Decaro N, Buonagiovia C. Canine coronavirus: not only an enteric pathogen. Vet Clin North Am Small Anim Pract [Internet]. 2011 Nov;41(6):1121–32. Available from: http://dx.doi.org/10.1016/j.cvsm.2011.07.005

34. Woo P, Lau S, Yip C, Huang Y, Yuen K-Y. More and More Coronavirus: Human Coronavirus HKU1 [Internet]. Vol. 1, Viruses. 2009. p. 57–71. Available from: http://dx.doi.org/10.3390/v1010057

35. Abbasi J. The Promise and Peril of Antibody Testing for COVID-19 [Internet]. Vol. 323, JAMA. 2020. p. 1881. Available from: http://dx.doi.org/10.1001/jama.2020.6170

36. Sheriff KAH, Santhanam A. Knowledge and Awareness towards Oral Biopsy among Students of Saveetha Dental College. J Adv Pharm Technol Res [Internet]. 2018;11(2):543. Available from: http://www.indianjournals.com/ijor.aspx?target=ijor:rjpt&volume=11&issue=2&article=023

37. Shahid MA, Chowdhury MA, Kashem MA. Scope of Natural Plant Extract to Deactivate COVID-19 [Internet]. Available from: http://dx.doi.org/10.21203/rs.3.rs-19240/v1

38. Tyler VM, Premila MS. Ayurvedic Herbs: A Clinical Guide to the Healing Plants of Traditional Indian Medicine [Internet]. Routledge; 2012. 398 p. Available from: https://play.google.com/store/books/details?id=YbgsBgAAQBAJ

39. Ramasamy K, Jayakumar S, Chinnu G. COVID-19 Situation at Chennai City – Forecasting for the Better Pandemic Management. Int J Cur Res Rev Vol 12 Issue 12 June 2020, 37-47.

**Figure 1:** Pie-chart representing response for the awareness about full form of covid-19, 87% of population opted for coronavirus disease 2019 and 8% of population as coronavirus disorder 2019 and 5% answered as coronary artery disease 2019.

**Figure 2:** Pie-chart representing response for the awareness about the knowledge, the place where the virus was identified, 78% of population answered as Wuhan, Hubei and 13% as Hubei, Hunan and 1% as Xiaogan and 8% as Jinan, Shandong.
Figure 3: Pie-chart representing response regarding the reason why the virus is named corona. 55% of population felt its due to crown like projections, 4% as due to their surface structure similar to bricks and 40% as both crown like and surface structure of bricks and 1% as due to leaf like projection.

Figure 4: Pie-chart representing response for the awareness about transmission of coronavirus. 5% - touching a contaminated surface, 10% - small droplets produced during coughing and sneezing or talking and 83% - both first and second option and 2% - none of these.

Figure 5: Pie-chart representing response for the awareness about disease related to coronavirus. 68% of population answered as both sars and mers and 20% as SARS and 5% as MERS and 7% as none of above.

Figure 6: Pie-chart representing response for the awareness about the group of people who are a risk of developing the illness. 8% of population selected older people, 9% selected person with pre-existing medical conditions such as high blood pressure and heart disease and 10% as person close contact with the infected individual and 73% as all of the above.

Figure 7: Pie-chart representing response for the awareness about the incubation period, 5% of population oped as 2 to 4 days and 80% as 1 to 14 days and 5% as 1 to 5 days and 10% as 2 to 28 days.

Figure 8: Pie-chart representing response for the awareness about whether covid-19 is the same as SARS, 58% of population as yes and 42% as no.
Figure 9: Pie-chart representing response for the awareness about the diagnostic tests, 81% of population answered as RT-PCR and 7% as chest x-ray and 8% as ELISA and 4% as GFR test.

Figure 10: Pie-chart representing response for the awareness about the source of information, 7% as google and 56% as WHO and 7% as whatsapp group and 30% as all the above.

Figure 11: Pie-chart representing response for the awareness about the myths about covid-19, 18% as eating garlic help prevent spread of coronavirus and 14% that they will die if diagnosed with coronavirus and 57% as both a and b and 11% as none of the above.

Figure 12: Pie-chart representing response for the awareness about the effects of medicinal plants against covid-19, 87% answered yes, they were aware and 13% answered no.

Figure 13: Pie-chart representing response for the awareness about whether medicinal plants improve immune system, 84% of the population opted as yes and 16% as no.

Figure 14: Pie-chart representing response for the opinion about whether the medicinal plants can be given in vivo, 64% of population opted for yes and 36% as no.
Vikraman et al.: Knowledge about the effects of medicinal plants against covid-19 among dental students - a questionnaire study

Figure 15: Pie-chart representing response for the awareness about whether ginger protects from covid-19, 63% answered as yes and 37% as no.

Figure 16: Pie-chart representing response regarding use of medicinal plants in mask preparation, 55% of population answered as true and 45% as false.

Figure 17: Pie-chart representing response for whether traditional medicinal plants have side effects, 22% as yes and 52% as no and 26% as may be.

Figure 18: Pie-chart representing the opinion about the role of Kabasura kudineer in immunity boosting, 90% of population as true and 10% as false.

Figure 19: Pie-chart representing response for the awareness about the plants which target and prevent the viral replication, 11% of population answered as glycyrrhiza glabra and 11% as allium sativum and 59% as both 19% as none of the above.

Figure 20: Pie-chart representing response for the awareness about the plants extracts used against covid-19, 47% as vitex trifolia, 12% as hibiscus, 5% as aloe vera and 36% as none of above.
Vikraman et al.: Knowledge about the effects of medicinal plants against covid-19 among dental students - a questionnaire study

Figure 21: The bar graph represents the association between gender and knowledge of people about the reason for virus being named corona. X axis represents gender and Y axis represents number of responses. Blue denotes due to crown like projection, red denotes due to their surface structure of bricks and green denotes both A and B and orange denotes due to their leaf like projection. Females were more aware than males. Pearson's chi square test shows p value is 0.243 (>0.05). Hence it is not statistically significant.

Figure 22: The bar graph represents the association between gender and knowledge of people about the reason for coronavirus spread through. X axis represents gender and Y axis represents number of responses. Blue denotes touching contaminated surfaces, red denotes small droplets produced during coughing, sneezing or talking and green denotes both A and B and orange denotes none of the above. Males were more aware than females. Pearson's chi square test shows p value is 0.294 (>0.05). Hence it is not statistically significant.

Figure 23: The bar graph represents the association between gender and knowledge of people about the diseases related to covid-19. X axis represents gender and Y axis represents number of responses. Blue denotes SARS, red denotes MERS and green denotes both A and B and orange denotes none of the above. Males were more aware than females. Pearson's chi square test shows p value is 0.602 (>0.05). Hence it is not statistically significant.

Figure 24: The bar graph represents the association between gender and knowledge of people about the diagnostic tests for covid-19. X axis represents gender and Y axis represents number of responses. Blue denotes RT-PCR, red denotes chest x-ray and green denotes ELISA and orange denotes GFR test. Males were more aware than females. Pearson's chi square test shows p value is 0.617 (>0.05). Hence it is not statistically significant.

Figure 25: The bar graph represents the association between gender and knowledge of people about the natural medicinal plants used in mask preparation. X axis represents gender and Y axis represents number of responses. Blue denotes true, red denotes false. Males were more aware than females. Pearson's chi square test shows p value is 0.121 (>0.05). Hence it is not statistically significant.
Figure 26: The bar graph represents the association between gender and knowledge of people about Kabasura kudineer will increase immunity. X axis represents gender and Y axis represents number of responses. Blue denotes true, red denotes false. Males were more aware than females. Pearson’s chi square test shows p value is 0.125 (>0.05). Hence it is not statistically significant.

Figure 27: The bar graph represents the association between gender and full form of covid-19. X axis represents gender and Y axis represents number of responses. Blue denotes coronavirus disease 2019, red denotes coronavirus disorder 2019 and green denotes coronary artery disease 2019. Males are more aware than females. Pearson’s chi square test shows p value is 0.198 (>0.05). Hence it is not statistically significant.

Figure 28: The bar graph represents the association between gender and incubation period of covid-19. X axis represents gender and Y axis represents number of responses. Blue denotes 2-4 days, red denotes 1-14 days and green denotes 1-5 days and orange denotes 2-28 days. Males were more aware than females. Pearson’s chi square test shows p value is 0.168 (>0.05). Hence it is not statistically significant.

Figure 29: The bar graph represents the association between gender and does medicinal plants have effects against covid-19. X axis represents gender and Y axis represents number of responses. Blue denotes yes, red denotes no. Males were more aware than females. Pearson’s chi square test shows p value is 0.948 (>0.05). Hence it is not statistically significant.

Figure 30: The bar graph represents the association between gender and medicinal plants which target viral replication. X axis represents gender and Y axis represents number of responses. Blue denotes Glycyrrhiza glabra, red denotes Allium sativum, green denotes both and orange denotes none of the above. Males were more aware than females. Pearson’s chi square test shows p value is 0.121 (>0.05). Hence it is not statistically significant.
QUESTIONNAIRE

Effect of Medicinal Plants against COVID-19

1. What is the full form of COVID-19?
   #Corona virus disease 2019
   #Corona virus disorder 2019
   #Coronary artery disease 2019
   #None of the above

2. Corona virus was first identified in
   #Xiaogan
   #Hubei Hunan
   #Jinan, Shandong
   #Wuhan, Hubei

3. Why the virus is named as corona?
   #Due to their crown-like projections
   #Due to their surface structure of bricks
   #Both a and b
   #Due to their leaf like projection

4. A person may get infected by corona virus through
   #Touching a contaminated surface
   #Small droplets produced during coughing and sneezing or talking
   #Both a and b
   #None of the above

5. The disease which is related to the corona virus are
   #SARS
   #MERS
   #Both a and b
   #None of the above

6. Who is at risk of developing severe illness
   #Older people
   #Person with pre-existing medical conditions (such as high blood pressure, heart disease etc)
   #Person close contact with the infected individual
   #All of the above

7. How long is the incubation period of corona virus
   #2 to 4 days
   #1 to 14 days
8. COVID-19 is the same as SARS
   # Yes
   # No

9. What is the diagnostic test for COVID-19
   # RT-PCR
   # Chest X Ray
   # ELISA
   # GFR test

10. Recommended source to get information about COVID-19
    # Google
    # WHO
    # Whatsapp group
    # All of the above

11. Myths about the coronavirus are
    # Eating garlic help prevent infection with the coronavirus
    # I will die if I am diagnosed with coronavirus
    # Both a and b
    # None of the above

12. Do you think our natural medicinal plants has some effects against COVID-19?
    # Yes
    # No

13. Can medicinal plants improve our immune system against the coronavirus?
    # Yes
    # No

14. Can medicinal plants be given directly in vivo?
    # Yes
    # No

15. Can eating ginger protect us from COVID-19?
    # Yes
    # No

16. Medicinal plants can be used in preparing masks?
    # True
    # False

17. Whether usage of traditional medicine against the coronavirus have side effects?
    # Yes
    # No
    # Maybe

18. Kaba sasur kudineer will help in increasing immunity?
    # True
    # False

19. Which plant targets the viral replication of the coronavirus and slows down?
    # Glycrrhiza glabra
    # Allium sativum
    # Both
    # None of above

20. Among these which plant extract can be used against COVID-19?
    # Vitex trifolia
    # Hibiscus
    # Aloe vera
    # None of above