Awareness on the Spread of COVID-19 Infection Among People from Interior Villages of South India - A Survey

Saivarshine S¹, R. Gayathri², V. Vishnupriya³, S. Kavitha⁴

¹Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai 77, Tamilnadu, India; ²Assistant Professor, Department of Biochemistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai 77, Tamilnadu, India; ³Professor, Department of Biochemistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai 77, Tamilnadu, India; ⁴Lecturer, Department of Biochemistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, Chennai 77, Tamilnadu, India.

ABSTRACT

Introduction: COVID-19 infection, so-called Coronavirus is a rapid, widespread virus creating an outbreak in different parts of the world. This was officially announced as an outbreak pandemic by the WHO [World Health Organisation]. It was first administered in the seafood and wet animal wholesale market in Wuhan, Hubei Province, China. The incubation period of the virus is 14 days which is an infectious disease that spreads directly from person to person.

Materials and Methods: A questionnaire was prepared and administered to 100 participants through Google form - an online survey platform. The study population included all the interior village people of different age groups. The results were collected and data were generated using SPSS software

Result: The people from the interior villages of South India were aware of the spread of COVID-19 infection.

Conclusion: The survey has created awareness on the spread of COVID-19 infection among people from the interior villages of South India.

Key Words: Spread, Awareness, COVID-19 infection, People, Precautions, Outbreak

INTRODUCTION

COVID-19 which is also known as Coronavirus was reported in Wuhan, China which created a major outbreak in almost every country.¹ Coronavirus is an infectious disease that significantly targets the human respiratory system. The firstly administered patients who were reported by the presence of the virus were epidemiologically linked to the seafood and wet animal wholesale market in Wuhan, Hubei Province, China.² COVID-19 primarily spreads through droplets of saliva / discharge from the nose. They are reported to have a severe illness, fever, dyspnea and pulmonary infiltrates on chest^{3,4}, pneumonia, and many more clinical conditions when in severe conditions.⁵ The virus is transmitted from person to person which is more likely to spread by the aerosol of the infected person.⁶

On March 11, 2020, the World Health Organisation declared the COVID-19 situation as a pandemic. The data and statistics from China indicated that older people and people with underlying medical problems like cardiovascular diseases, diabetes⁷, chronic respiratory disease, and cancer⁸⁻¹² are more likely to develop serious illness.¹³ The possibility for these viruses to grow seems determined for the public to be in health risk.

In the very meantime, scientists are working very hard and tirelessly in different clinical trials^{14,15} to identify diagnosis¹⁶, treatment and prevention¹⁷, and therapeutic strategies¹⁸ to solve the greatest pandemic which spread after many years. Scientists from different parts of the world are very seriously involved in the identification¹⁹ and carrying many research procedures.²⁰

Corresponding Author:

Dr. R. Gayathri, Department of Biochemistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Velappanchavadi, Chennai-60077, Tamilnadu, India; Phone: +91-9710680545; E-mail: gayathri.sdc@saveetha.com

ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 24.07.2020

Revised: 27.08.2020

Accepted: 29.09.2020

Published: 20.10.2020

The main aim of the study is to analyze the awareness of the spread of COVID-19 infection among people from interior villages of South India and to make sure that the information about the pandemic reaches the people of interior villages.

MATERIALS AND METHODS

A self-structured questionnaire survey based on the spread of COVID-19, a prospective observational study, comprising about 100 people (sample size) belonging to all age group in the interior villages were circulated on an online survey link using Google form (https://drive.google.com/drive/mobile/my-drive?usp=forms_web) and were asked to take up the survey, for illiterate the questionnaire was read by people and filled. The sampling method involved non-probability convenient sampling. The questionnaire was checked for validity in Saveetha Dental College, Chennai.

Statistical analysis

The results were collected and the data was generated using SPSS software and finally, the statistics were analyzed.

RESULTS AND DISCUSSION

The majority of the respondents show a positive perception (aware) regarding the spread of COVID-19 all over the world. When asked about COVID-19 which was spreading all over the world [Figure 1], 100% of respondents - 84% were aware of the spread and 16% were unaware of the COVID-19 spread. Thus, in the bar graph representing Chi-square analysis between gender and the awareness about COVID-19, the P-value was 0.676 was not statistically significant. According to the article²², knowledge, attitude, and practice towards COVID-19 among the Chinese residents were asked by a questionnaire during the rapid rise period of the COVID-19 outbreak. 70.2 - 98.6% overall or 90% correct answer rate of the 12 questions on the COVID-19 knowledge questionnaire was recorded.

From the results when asked if they were aware that this virus is highly contagious [Figure 2], out of 100% of respondents - 74% were aware and 26% were unaware that it is highly contagious. According to the²³, the study done earlier, it analyses the effect of COVID-19 pandemic, contagious infectious disease on the Chinese stock market. The study also assessed the low market capitalization stocks and sectors which performed better than others during the outbreak of the COVID-19, specifically, information technology, and medicine manufacturing sectors.

When asked if the social distancing is significant during an outbreak pandemic in controlling the spread of this virus [Figure 3], 100% respondents - 75% answered 'yes' and

25% answered 'no'. Thus, in the bar graph representing Chi-square analysis between gender and the awareness about social distancing to prevent COVID-19, the P-value was 0.177 was not statistically significant. According to ²⁴, the significance of age and social contact figures in examining the country - was the outcome of lenitive social distancing. The study also mentions that it is important to critically follow social - distancing in the absence of vaccines to control the spread of the contagious virus.

When asked about the symptoms of coronavirus (COVID-19) [Figure 4], 100% of respondents - 69% answered that they were aware and 31% answered that they wear unaware of the symptoms of COVID-19. Thus, in the bar graph representing Chi-square analysis between gender and the awareness about symptoms of COVID-19, the P-value was 0.1416 was not statistically significant. According to this article, the symptoms of COVID-19 include fever, Dyspnea, pulmonary infiltrates, and respiratory syndrome. When asked if they should visit the doctor if they have any of these symptoms [Figure 5], 100% respondents - 82% answered 'Yes' and 18% answered 'No'.

When asked if we should use hand sanitizer to prevent infection, 100% respondents - 82% answered 'yes' and 18% answered 'no'. When asked if we should use face masks to cover our mouth and nose preventing the aerosols from entering a body, 100% respondents - 81% answered 'yes' and 19% answered 'no'. According to the article²⁵, health workers should be provided with gloves, masks, goggles, gowns, hand sanitizer, soap, and water and various other cleaning supplies to treat and assess test patients as well as maintain preventive measures in order to maintain safety.

When asked if they know the main symptoms of COVID-19 that it is fever and cough, 100% of respondents - 83% answered 'Yes' and 17% answered 'No'. When asked if there are high possibilities for the old people to get infected [Figure 6], 100% of respondents - 77% answered 'yes' and 23% answered 'no'. Thus, in the bar graph representing Chi-square analysis between gender and the awareness about possibilities of spread of COVID-19 among old people, the P-value was 0.476 and was not statistically significant. According to the article, special attention is necessary to protect or reduce transmission in susceptible populations. To be noted, the elderly population is more susceptible to the contagious virus.

When asked if the lungs are the main organ to get affected by COVID-19, 100% of respondents - 78% answered 'yes' and 22% answered 'no'. According to the article²⁶, the patients infected showed severe lung abnormalities on CT scans in 10 days after the initial onset of symptoms.

When asked about the virus which takes 14 days to show symptoms, 100% of respondents - 80% answered that they were aware and 20% answered that they were unaware.

When asked if they should follow the orders to stay safe [100% respondents - 81% of respondents answered that they were aware and 19% answered that they were not aware.

When asked if they were aware that if a person entered their village from another city or country they should be quarantined [Figure 7], 100% of respondents - 83% voted that they were aware and 17% were unaware. Thus, in the bar graph representing Chi-square analysis between gender and the awareness about quarantine to control the spread of COVID-19 among old people, the P-value was 0.70 and was not statistically significant. According to the article²⁷, quarantines, self-quarantine, travel bans were the first response against the normal virus infection.

When asked if they should avoid family gatherings during lockdown 100% of respondents - 86% of respondents answered 'yes' and 14% answered 'no'. When asked if lockdown is essential to control the spread of the virus, 100% respondents - 88% answered 'Yes' and 12% answered 'No'.

The future scope of the study may enable us to create and analyze the awareness on COVID-19 spread among interior villagers of South India in a larger population.

Figure 1: Awareness of COVID-19 among the people of Interior villages. Bar graph representing the association between gender and awareness of COVID-19 which is spreading all over the world. X-axis represents the 'Gender of the respondents' and Y-axis represents the participants who were aware (Blue) or not aware (Red). 10 out of 67 male and 6 out of 33 female participants were totally unaware of the currently spreading COVID infection. Though statistically not significant, males seem to have more awareness of the current issues than females. Pearson's Chi-square analysis = 0.174, DF = 1, p-value=0.676 (>0.05) Statistically not significant.

Figure 2: The pie chart depicts the knowledge of COVID-19 and its highly contagious nature. The people who knew that COVID-19 is contagious, out of 100% of respondents were - 74% were aware (blue) and 26% (red) were unaware.

Figure 3: Knowledge about social distancing to control the spread of COVID-19. Bar graph representing the association between gender and awareness about social distancing which is significant in controlling the spread of the viral infection. X-axis represents the 'Gender of the respondents' and Y-axis represents the participants who were aware (Blue) or not aware (Red). Out of 100 participants, 14 male and 11 female participants were not aware of the precautions to be taken. Though, statistically not significant males are more aware than the female population. Pearson's Chi-square analysis = 1.824, DF = 1, p-value = 0.177 (>0.05) Statistically not significant.

Figure 4: Knowledge of the symptoms of COVID-19. Bar graph representing the association between gender and knowledge about the symptoms of COVID-19. X-axis represents the 'Gender of the respondents' and Y-axis represents the participants who were aware (Blue) or not aware (Red). Out of 100 participants, 19 male and 12 female participants were not aware of all the symptoms of COVID 19 infection. Pearson's Chi-square analysis = 0.662, DF = 1, p-value=0.416 (>0.05) Statistically not significant.

Figure 5: The pie chart depicts the awareness of the participants that they should visit a doctor if they have any of the symptoms of the viral infection. Out of 100% of respondents - 82% (blue) were aware that they should visit a doctor once they get a symptom and 18% (red) were unaware.

Figure 6: Knowledge about old age people is at high risk to get affected by COVID infection. Bar graph representing the association between gender and awareness about the high possibilities of old people to get affected by COVID-19 infection. X-axis represents the 'Gender of the respondents' and Y-axis represents the participants who were aware (Blue) and not aware (Red). 14 out of 67 male and 9 out of 33 female participants were not aware that old people come under high-risk category. Though statistically not significant, males seem to be more aware of current situations than females. Pearson's Chi-square analysis = 0.508, DF = 1, p-value = 0.476 (>0.05) Statistically not significant.

Figure 7: Knowledge about the necessity to quarantine the people who come from other countries/cities. Bar graph representing the association between gender and awareness about quarantining the people who enter the village from some other city or country. X-axis represents 'Gender of the respondent' and Y-axis represents the participants who were aware (Blue) or not aware (Red). Out of 100 participants, 12 male and 5 female participants were not aware that the person who enters their village from outside needs to be quarantined. This awareness is an individual's interest to learn things and does not depend on gender. Pearson's Chi-square analysis = 0.199, DF = 1, p-value = 0.730 (>0.05) Statistically not significant.

CONCLUSION

COVID-19 is a highly contagious viral infection that is spreading all over the world rapidly. The virus is infectious, hence, it is necessary for everyone to know about the preventive and safety measures. This survey has imparted knowledge, created awareness about COVID-19, its symptoms, and various preventive and safety measures to be taken among the people of interior villages.

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

- Xu Z, Shi L, Wang Y, Zhang J, Huang L, Zhang C, et al. Pathological findings of COVID-19 associated with acute respiratory distress syndrome [Internet]. Vol. 8, The Lancet Respiratory Medicine. 2020. p. 420–2. Available from: [http://dx.doi.org/10.1016/s2213-2600\(20\)30076-x](http://dx.doi.org/10.1016/s2213-2600(20)30076-x)
- Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak [Internet]. Vol. 109, Journal of Autoimmunity. 2020. p. 102433. Available from: <http://dx.doi.org/10.1016/j.jaut.2020.102433>
- Jainu M, Priya V, Mohan S. Biochemical evidence for the anti-tumor potential of *Garcinia mangostana* Linn. On diethylnitrosamine-induced hepatic carcinoma [Internet]. Vol. 14, Pharmacognosy Magazine. 2018. p. 186. Available from: http://dx.doi.org/10.4103/pm.pm_213_17
- Mohan SK, Veeraraghavan VP, Jainu M. Effect of pioglitazone, quercetin, and hydroxy citric acid on vascular endothelial growth factor messenger RNA (VEGF mRNA) expression in experimentally induced nonalcoholic steatohepatitis (NASH) [Internet]. Vol. 45, TURKISH JOURNAL OF MEDICAL SCIENCES. 2015. p. 542–6. Available from: <http://dx.doi.org/10.3906/sag-1404-136>
- Bogoch II, Watts A, Thomas-Bachli A, Huber C, Kraemer MUG, Khan K. Pneumonia of unknown aetiology in Wuhan, China: potential for international spread via commercial air travel [Internet]. Vol. 27, Journal of Travel Medicine. 2020. Available from: <http://dx.doi.org/10.1093/jtm/taaa008>
- Bai Y, Yao L, Wei T, Tian F, Jin D-Y, Chen L, et al. Presumed Asymptomatic Carrier Transmission of COVID-19 [Internet]. Vol. 323, JAMA. 2020. p. 1406. Available from: <http://dx.doi.org/10.1001/jama.2020.2565>
- Ponnulakshmi R, Shyamaladevi B, Vijayalakshmi P, Selvaraj J. In silico and in vivo analysis to identify the antidiabetic activity of beta sitosterol in adipose tissue of high fat diet and sucrose induced type-2 diabetic experimental rats. Toxicol Mech Methods [Internet]. 2019 May;29(4):276–90. Available from: <http://dx.doi.org/10.1080/15376516.2018.1545815>
- Wu F, Zhu J, Li G, Wang J, Veeraraghavan VP, Mohan SK, et al. Biologically synthesized green gold nanoparticles from Siberian ginseng induce growth-inhibitory effect on melanoma cells (B16) [Internet]. Vol. 47, Artificial Cells, Nanomedicine, and Biotechnology. 2019. p. 3297–305. Available from: <http://dx.doi.org/10.1080/21691401.2019.1647224>
- Ke Y, Al Aboody MS, Alturaiki W, Alsagaby SA, Alfaiz FA, Veeraraghavan VP, et al. Photosynthesized gold nanoparticles from *Catharanthus roseus* induces caspase-mediated apoptosis in cervical cancer cells (HeLa). Artif Cells Nanomed Biotechnol [Internet]. 2019 Dec;47(1):1938–46. Available from: <http://dx.doi.org/10.1080/21691401.2019.1614017>
- Rengasamy G, Venkataraman A, Veeraraghavan VP, Jainu M. Cytotoxic and apoptotic potential of *Myristica fragrans* Houtt. (mace) extract on human oral epidermal carcinoma KB cell lines [Internet]. Vol. 54, Brazilian Journal of Pharmaceutical Sciences. 2018. Available from: <http://dx.doi.org/10.1590/s2175-97902018000318028>
- G R, Ramya G, V VP, Gayathri R. Cytotoxicity of Strawberry Extract On Oral Cancer Cell Line [Internet]. Vol. 11, Asian Journal of Pharmaceutical and Clinical Research. 2018. p. 353. Available from: <http://dx.doi.org/10.22159/ajpcr.2018.v11i9.25955>
- Menon A, V VP, Gayathri R. Preliminary Phytochemical Analysis and Cytotoxicity Potential of Pineapple Extract on Oral Cancer Cell Lines [Internet]. Asian Journal of Pharmaceutical and Clinical Research. 2016. p. 140. Available from: <http://dx.doi.org/10.22159/ajpcr.2016.v9s2.13313>
- Team CC-19 R, CDC COVID-19 Response Team, Bialek S, Boundy E, Bowen V, Chow N, et al. Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) — United States, February 12–March 16, 2020 [Internet]. Vol. 69, MMWR. Morbidity and Mortality Weekly Report. 2020. p. 343–6. Available from: <http://dx.doi.org/10.15585/mmwr.mm6912e2>
- Wang Y, Zhang Y, Guo Y, Lu J, Veeraraghavan VP, Mohan SK, et al. Synthesis of Zinc oxide nanoparticles from *Marsdenia tenacissima* inhibits the cell proliferation and induces apoptosis in laryngeal cancer cells (Hep-2). J Photochem Photobiol B [Internet]. 2019 Dec;201:111624. Available from: <http://dx.doi.org/10.1016/j.jphotobiol.2019.111624>
- Rengasamy G, Jebaraj DM, Veeraraghavan VP, Mohan SK. Characterization, Partial Purification of Alkaline Protease from Intestinal Waste of *Scomberomorus guttatus* and Production of Laundry Detergent with Alkaline Protease Additive. Indian Journal of Pharmaceutical Education and Research [Internet]. 2016 [cited 2020 Jun 4];50(2s). Available from: <https://www.ijper.org/article/413>
- Ma Y, Karunakaran T, Veeraraghavan VP, Mohan SK, Li S. Sesame Inhibits Cell Proliferation and Induces Apoptosis through Inhibition of STAT-3 Translocation in Thyroid Cancer Cell Lines (FTC-133) [Internet]. Vol. 24, Biotechnology and Bio-process Engineering. 2019. p. 646–52. Available from: <http://dx.doi.org/10.1007/s12257-019-0151-1>
- Gan H, Zhang Y, Zhou Q, Zheng L, Xie X, Veeraraghavan VP, et al. Zingerone induced caspase-dependent apoptosis in MCF-7 cells and prevents 7,12-dimethylbenz(a)anthracene-induced mammary carcinogenesis in experimental rats. J Biochem Mol Toxicol [Internet]. 2019 Oct;33(10):e22387. Available from: <http://dx.doi.org/10.1002/jbt.22387>
- Chen F, Tang Y, Sun Y, Veeraraghavan VP, Mohan SK, Cui C. 6-shogaol, a active constituents of ginger prevents UVB radiation mediated inflammation and oxidative stress through modulating Nrf2 signaling in human epidermal keratinocytes (HaCaT cells). J Photochem Photobiol B [Internet]. 2019 Aug;197:111518. Available from: <http://dx.doi.org/10.1016/j.jphotobiol.2019.111518>
- Li Z, Veeraraghavan VP, Mohan SK, Bolla SR, Lakshmanan H, Kumaran S, et al. Apoptotic induction and anti-metastatic activity of eugenol encapsulated chitosan nanopolymer on rat glioma C6 cells via alleviating the MMP signaling pathway. J Photochem Photobiol B [Internet]. 2020 Jan;203:111773. Available from: <http://dx.doi.org/10.1016/j.jphotobiol.2019.111773>
- Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Di Napoli R. Features, Evaluation and Treatment Coronavirus (COVID-19). In: Stat Pearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32150360>
- Shukri NMM, Vishnupriya V, Gayathri R, Mohan SK. Awareness in childhood obesity [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1658. Available from: <http://dx.doi.org/10.5958/0974-360x.2016.00334.6>
- Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int J Biol Sci [Internet]. 2020 Mar 15;16(10):1745–52. Available from: <http://dx.doi.org/10.7150/ijbs.45221>
- Al-Awadhi AM, Al-Saifi K, Al-Awadhi A, Alhamadi S. Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. J Behav Exp Finance [Internet]. 2020 Apr 8;100326. Available from: <http://dx.doi.org/10.1016/j.jbef.2020.100326>

24. Website [Internet]. [cited 2020 Jun 4]. Available from: <https://arxiv.org/abs/2003.12055>
25. Nagendra A, Rao S. Coronavirus Disease (COVID-19) Outbreak- Recommendations for Health and Well-Being during Self-Quarantine at Home [Internet]. Vol. 4, Acta Scientifci Nutritional Health. 2020. p. 47–52. Available from: <http://dx.doi.org/10.31080/asnh.2020.04.0699>
26. Pan F, Ye T, Sun P, Gui S, Liang B, Li L, et al. Time Course of Lung Changes at Chest CT during Recovery from Coronavirus Disease 2019 (COVID-19). Radiology [Internet]. 2020 Jun;295(3):715–21. Available from: <http://dx.doi.org/10.1148/radiol.2020200370>
27. Parmet WE, Sinha MS. COVID-19 - The Law and Limits of Quarantine. N Engl J Med [Internet]. 2020 Apr 9;382(15):e28. Available from: <http://dx.doi.org/10.1056/NEJMp2004211>