



Knowledge and awareness of COVID 19 on the respiratory system - A survey

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Article History:

Received on: 20 Jun 2020
Revised on: 18 Jul 2020
Accepted on: 07 Aug 2020

Keywords:

Respiratory disease,
COVID-19,
survey,
SARS,
pandemic,
contagious

ABSTRACT

With the world in a lockdown due to the pandemic that is COVID-19, a disease that is similar to the SARS pandemic, it is a highly contagious disease and has a high fatality rate. While the awareness about the presence of such a disease is high, the knowledge about the disease needs assessment. This study aimed to find the awareness of the amount of impact that the disease COVID-19 had on the respiratory system. A survey was conducted with a questionnaire of 15 questions using Google Forms given to a study population of college students aged between 18 and 22 years, the link to which was sent to 106 participants. The data collected was compiled using SPSS software. The compiled data were compared with the results of other studies. There were high similarities in the results of both studies. The research assessed the awareness of COVID-19 and its effect on the respiratory system among college students, and it was found to be high.

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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL1.2828>

Production and Hosted by

IJRPS | www.ijrps.com

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INTRODUCTION

COVID-19 or coronavirus disease 19 is a viral disease ([World Health Organization, 2020](#)). It belongs to the subfamily of *orthocoronovirinae* ([World Health Organization, 2020](#)) and it is also called as the Severe Acute Respiratory Syndrome Coronavirus-2 by the International Committee on Taxonomy of Viruses ([Swathy and Sethu, 2015](#);

[Abigail, 2019](#); [David, 2019](#); [Cascella et al., 2020](#)). It is a respiratory illness which is compared to SARS, unlike asthma that can be managed, there is a possibility of a cure. Still, it is highly contagious and also has a high risk of being fatal. The reason for the virus being so effective is its environmental factor, just like ecological factors have its effect on sleeping patterns ([Timothy et al., 2019](#); [Ilankizhai and Devi, 2016](#); [Iyer et al., 2019](#); [Harsha, 2015](#)), viruses to be efficient have to be resistant to environmental factors and the coronavirus is very effective at that, it sustains pH from 3-10, able to sustain temperatures of up to 70C. Unlike Tuberculosis, which obstructs the airway and ultimately, the entire respiratory system ([Dave and Preetha, 2016](#)). COVID affects the upper respiratory tract, which can be measured by finding the forced expiratory time as it provides an understanding of pulmonary physiology ([Devi and Sethu, 2018](#); [Baheerati and Devi, 2018](#)). Sleep apnea can be caused due to respiratory problems, among which snoring is most common ([Shruthi and Preetha, 2018](#)). Thyroid

gland swells upon a deficiency of iodine, which can affect the immune system and from fighting diseases like Tuberculosis which can cause acute myocardial infarction (Samuel and Devi, 2015; Renuka and Sethu, 2015; Fathima and P, 2016; Choudhari and Jothipriya, 2016).

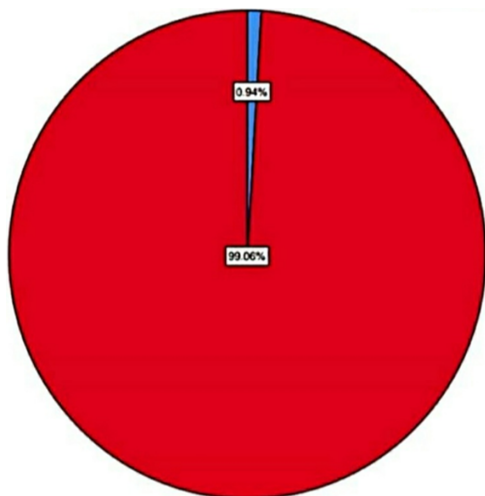


Figure 1: Awareness about the COVID-19 pandemic. 99.06% were aware of the COVID-19 pandemic, they chose the option yes in red colour and the remaining 0.94% chose the option no in blue colour

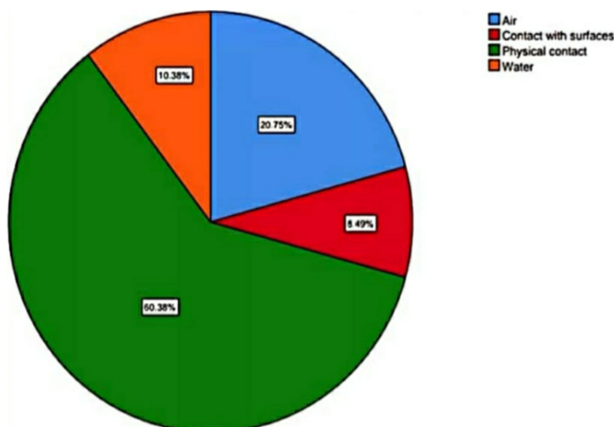


Figure 2: Awareness of disease is spread. 60.38% Physical contact (Green), 20.75% Air (Blue), 10.38% Water (Orange) and 5.49% Contact with contaminated surfaces (Red)

Its out break began in the live animal markets of Wuhan, China and has affected several first worlds as well as third world countries leading to a global shutdown, with the countries most severely affected by the virus being Italy, China, United States of America, India and Singapore among others. Due to the highly contagious nature of the virus, the patient begins shedding infected cells as early as within the first day of the infection with the symptoms for the disease not showing up for a few days (Kim, 2020).

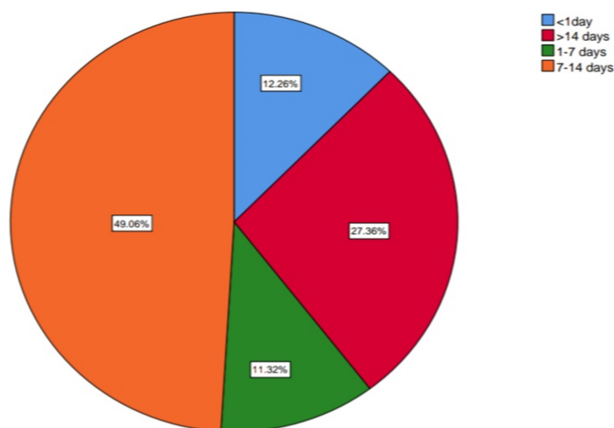


Figure 3: Incubation period of COVID-19. 49.06% 7-14 days (Orange), 27.36% > 14 days (Red), 12.26% < 1 day (Blue), 11.32% 1-7 days (Green)

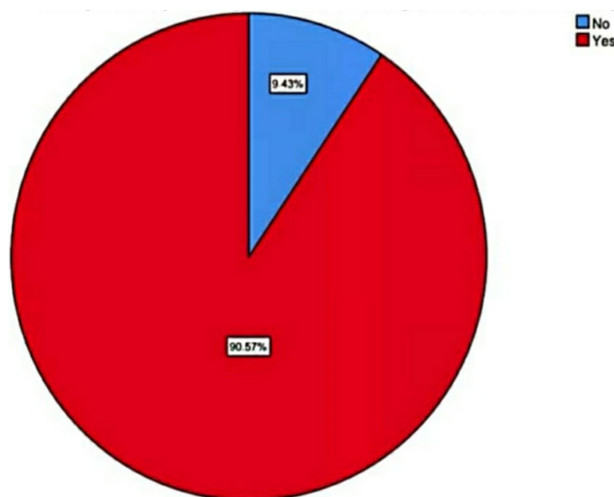


Figure 4: Following social distancing. 90.57% Yes (Red), 9.43% No (Blue)

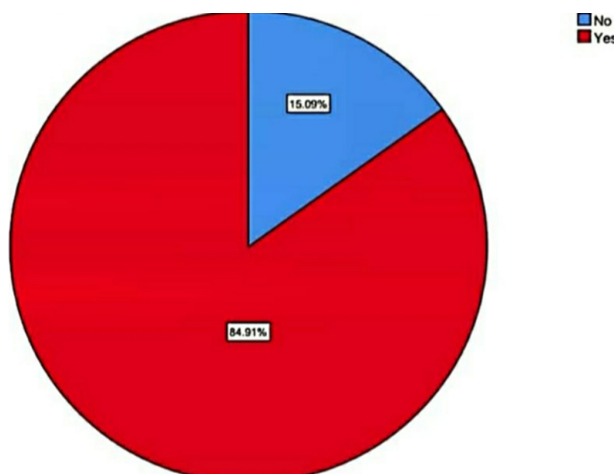


Figure 5: Awareness of the disease presenting itself as asymptomatic. 84.91% Yes (Red), 15.09% No (Blue)

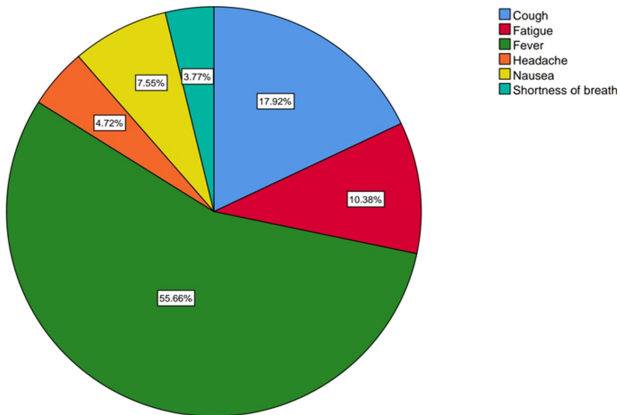


Figure 6: Familiarity with the symptoms of COVID-19. 55.66% Fever (Green), 10.38% Fatigue (Red), 17.92% Cough (Blue), 7.55% Nausea (Yellow), 4.72% Headache (Orange), 3.77% Shortness of breath (Greenish Blue)

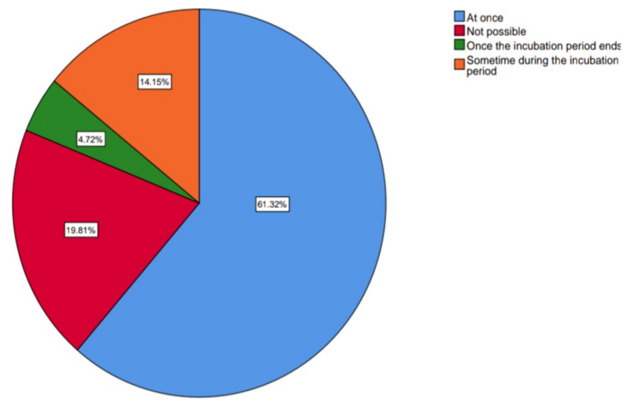


Figure 9: Awareness of the time taken before disease can be spread. 61.32% At once (Blue), 19.81% Not possible (Red), 14.15% Sometime during the incubation period (Orange), 4.72% Once the incubation period ends (Green)

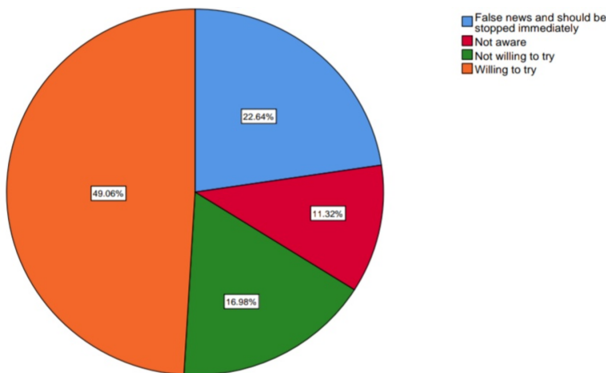


Figure 7: Thoughts and willingness to try remedies spread on social media. 49.06% Willing to try (Orange), 16.98% Not willing to try (Green), 22.64% False news and should be stopped immediately (Blue), 11.32% Not aware (Red)

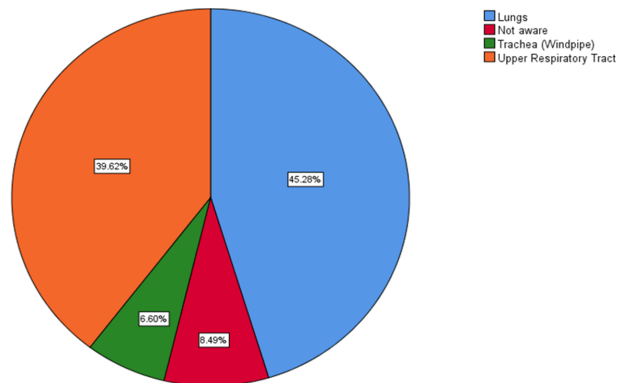


Figure 10: Awareness on the part of the body that gets affected the most by COVID-19. 45.28% Lungs (Blue), 40.57% Upper respiratory tract (Orange), 6.60% Trachea (Green), 7.55% (Not aware)

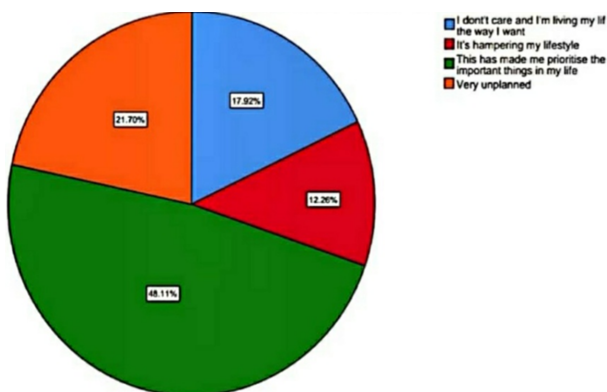


Figure 8: Thoughts of the respondents on the lockdown imposed. 48.11% (Green), 21.70% Very unplanned (Orange), 17.92% I don't care and I'm living my life the way I want (Blue), 12.26% It's hampering my lifestyle (Red)

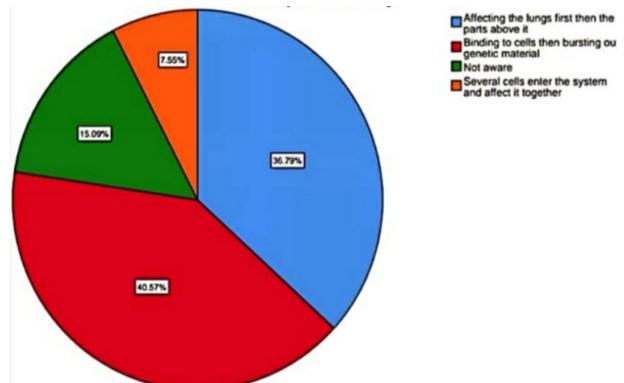


Figure 11: Awareness on spread of virus in the body. 40.57% Binding to cells then bursting out genetic material (Red), 36.79% Affecting lungs then the parts above it (Blue), 15.09% Not Aware (Green), 7.55% Several cells enter the system and affect it together (Orange)

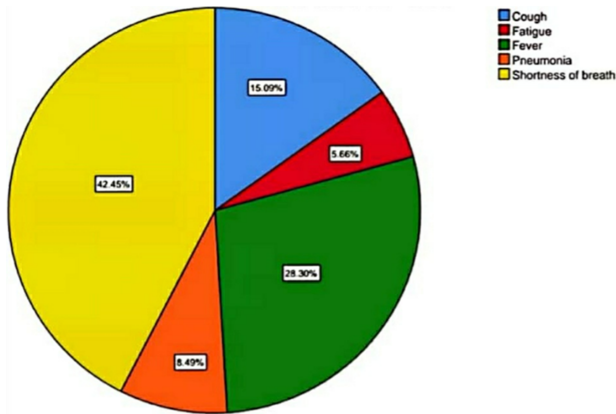


Figure 12: Awareness of final symptoms of COVID 19. 42.45% Shortness of breath (Yellow), 28.30% Fever (Green), 15.09% Cough (Blue), 5.66% Fatigue (Red), 5.49% Pneumonia (Orange)

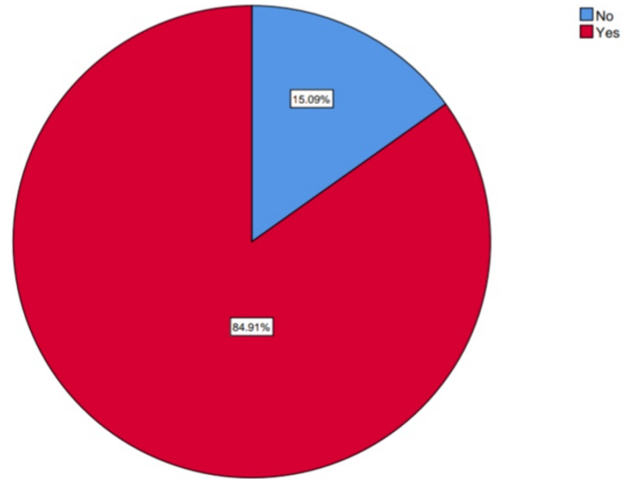


Figure 15: Awareness of the high susceptibility of smokers towards the disease. 87.74% Yes (Red), 12.26% No (Blue)

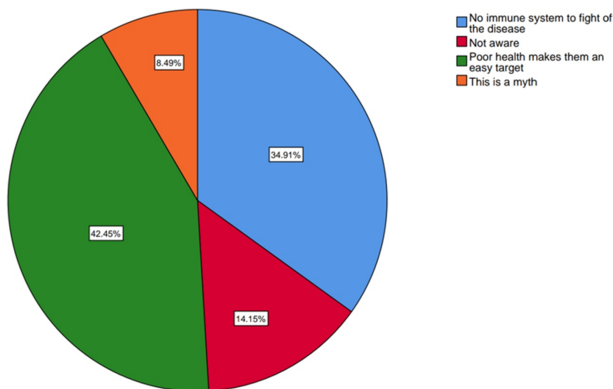


Figure 13: Awareness of the respondents of the risk faced by immuno compromised patients. 42.45% Poor health makes them an easy target (Green), 34.91% No immune system to fight off the disease (Blue), 8.49% This is a myth (Orange)

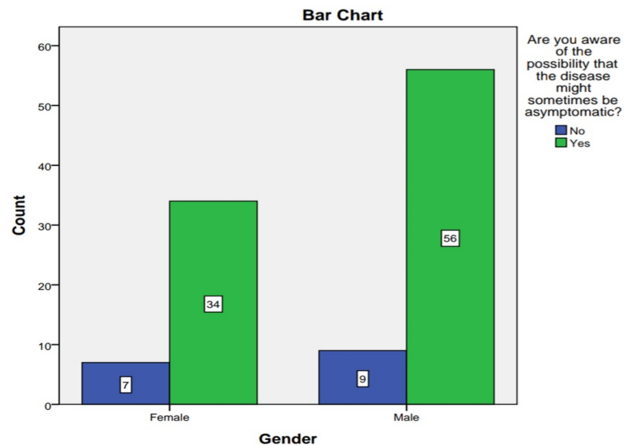


Figure 16: Bar graph represents the association between gender and the possibility of COVID-19 presenting itself without any symptoms

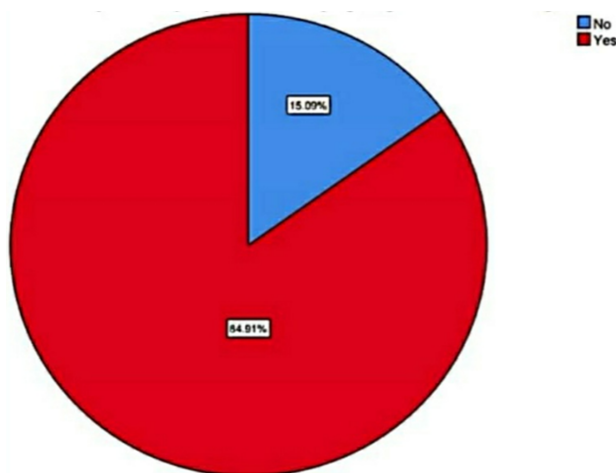


Figure 14: Awareness of high risk of patients with underlying lung disorders towards the disease. 84.91% Yes (Red), 15.09% No (Blue)

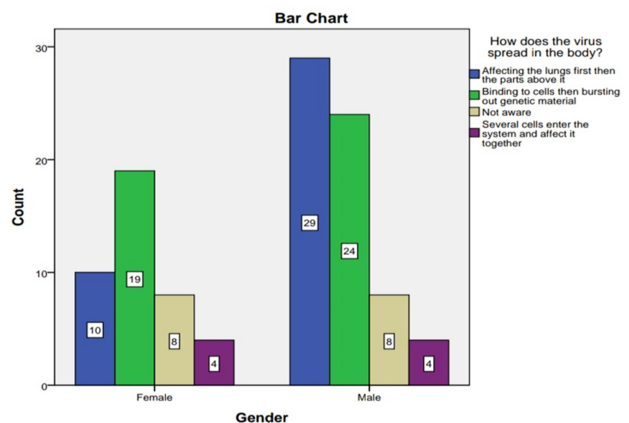


Figure 17: Bar graph represents the association between gender and the awareness of how the virus spreads in the body

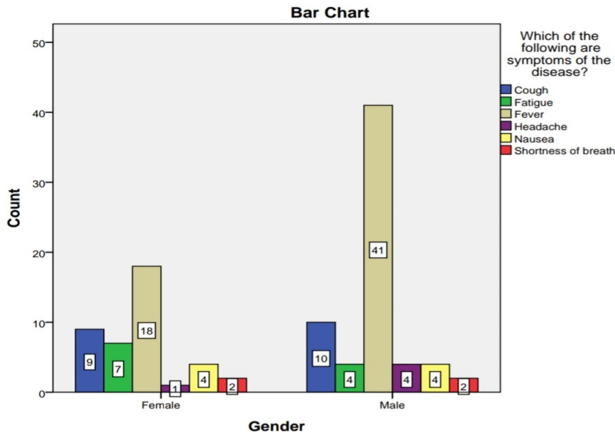


Figure 18: Bar graph represents the association between gender and awareness of common symptoms of COVID-19

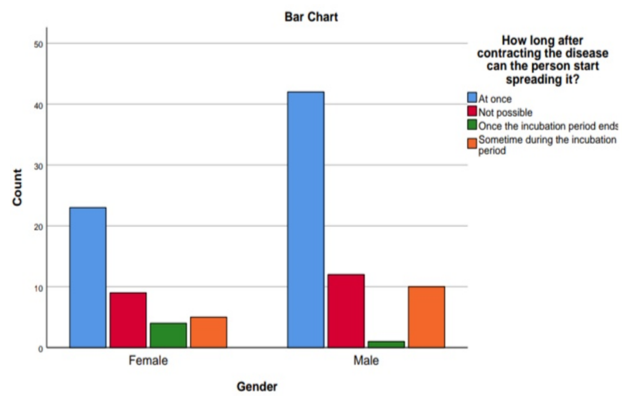


Figure 20: Bar graph represents the association between gender and awareness of the duration before which the disease can be spread

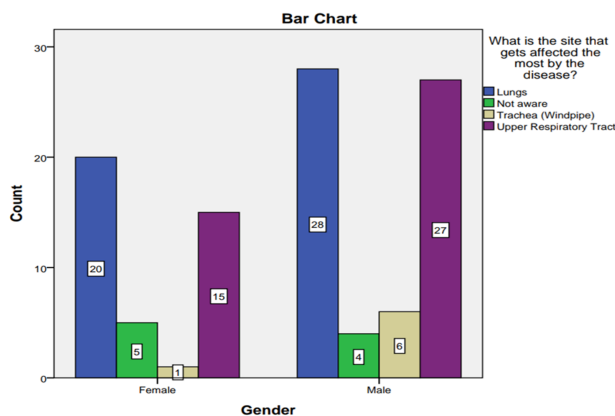


Figure 19: Bar graph depicting the association between gender and the awareness of the site most affected by COVID-19

Figure 16 X-axis represents the Gender and the Y-axis represents the number of participants. Of the 84.91% who said yes, 52.93% were males and 32.07% were females. Chi square test was done and the association was found not to be statistically significant. Pearson’s chi square value: 1.747, DF: 1, p value: 0.651 (>0.05) hence non significant.

Figure 18 X-axis represents the Gender and Y-axis represents the number of participants. Of the 55.66% who were familiar with fever, 38.67% were males and 16.98% were females. Chi square test was done and the association was found not to be statistically significant. Pearson’s Chi square value: 6.538, DF:5, p value: 0.257 (>0.05) hence non significant.

Figure 19 The X -axis represents Gender and Y-axis represents the number of participants. Out of the 39.62% who knew the answer, 25.42% were males who knew the answer was Upper respiratory tract and 14.15% were females. Chi square test was done and the association was found not to be statistically significant. Pearson’s Chi square value: 4.023, DF: 4,

p value: 0.366 (>0.05) hence non significant.

Figure 20 The X-axis represents gender and the Y-axis represents the participants. Chi square test was done and the association was found not to be statistically significant. Pearson’s Chi square value: 4.232, DF: 3, p value: 0.237 (>0.05), hence not significant.

Common symptoms include fever, cough, shortness of breath and in extreme cases even pneumonia, persistent pain in the chest and even bluish lips and face. While the coronavirus that can affect humans is responsible for up to 30% of colds but lower respiratory tract infections are caused by the ones which affect livestock and poultry (Holmes, 2003). Out of the strain of the virus, only α and β strains affect mammals.

In contrast, δ and γ strains affect birds with several rumours prevalent about how it is spread and the widespread dilemma about its symptoms where everyone has been advised to be in lockdown because of its effect on society. The rate of its spread and the fact that its fatality rate calls for more interest into the matter, like in the past, pandemics, awareness was poor about the disease thus as a result of that several new cases have shown up. The fatality count has increased and to combat that awareness was spread, and only then were we able to overcome such endeavours.

The study aims to assess the awareness of the COVID-19 pandemic and its effect on the human body.

MATERIALS AND METHODS

A survey was conducted using a self-made questionnaire of 15 questions. The survey was conducted on Google Forms, and the link was sent to each of the subjects. The number of subjects undertaking the survey totalled up to 106, out of which 41 were

females, and 65 were males. In this survey, questions covered a variety of topics which include questions covering the general awareness, incubation period, method of spread, symptoms and also tackles the issues regarding the possibility of the disease is asymptomatic. The questions presented had multiple options which would help get a result that's highly specific and in turn, helping us with our survey. To prevent any sampling bias taking place, we used software for randomly selecting participants. The validity of the resulting experiment was cleared internally by the random selection of the participants and externally by replicating said experiment. In this experiment, the independent variables that were taken into consideration are the height, weight and skin colour while the dependent variables were the age and sex of the subjects. After conducting the survey, the data was collected and was statistically analysed using SPSS statistics 19 and descriptive analysis was used to create pie charts.

RESULTS AND DISCUSSION

Upon analysing the data, we found the awareness and attitude of the subject towards COVID-19 and the effect that it had on the respiratory system to be high.

The awareness of COVID-19 pandemic was found to be 99.06%, while only 0.94% was not aware (Figure 1). Physical contact was found to be the most chosen option of the lot with 60.38% selecting the option, while 20.75% chose air for the question about the way the disease spreads (Figure 2). 49.06% thought the incubation period to be between 7-14 days, the incubation period of the disease is 14 days. It was thus making 7-14 days the favourable response (Figure 3). With the social distancing norms in place, 90.57% agreed that they were isolating themselves and were practising social distancing (Figure 4). A good majority were aware of the possibility of the disease being presented while the person was asymptomatic with 85% saying they were aware of this possibility (Figure 5). 55.66% were aware of the disease presenting itself with a fever, i.e., they were most aware with fever being a symptom, which is generally the first symptom to present itself. 17.92% chose cough is a common symptom of the disease (Figure 6). With any problems that arise, messages instantly start circulating about the various remedies which can be made at home. 49.06% said that they would be willing to try said medications, while only 22.64% said that this should be stopped (Figure 7)

The lockdown has made 48.11% prioritise their life and the important things in it. This lockdown has

helped them benefit, 21.70% were not happy at the abrupt manner at which it was held and found it very unplanned, 17.92% kept living there the way did before the lockdown began. The remaining 12.26% followed the guidelines but found it hampering on their lifestyles (Figure 8). 61.32% of the people were aware that the disease could spread at once after contracting the disease (Figure 9). While 40.57% said that the upper respiratory tract is the site that is the most affected by the disease, 45.28% thought that lungs were primarily affected by the virus (Figure 10). The way it spreads is by binding itself to cells that release genetic material. This option was chosen by 41% lower awareness (Figure 11). Only 8% of the participants were aware of pneumonia being the final symptom (Figure 12). Immuno compromised people have no immune system, which is needed to fight off infections, an option chosen by only 34.96% (Figure 13). Majority of the subjects who gave the survey agree that people with lung disorders are highly susceptible to migraine, with 84.91% agreeing (Figure 14). 87.74% agreed that smoking makes one more susceptible (Figure 15). Forty-one females took this study, and 65 males, comparing the results on the awareness of COVID-19 presenting itself without any symptoms was depicted with a P-value of 0.651, making it statistically not significant (Figure 16) and in (Figure 17). We depict the association between gender and the knowledge of how the virus spreads in the body. It has a p-value of 0.200, making it statistically not significant. The last three graphs depict the awareness related to the path of action of COVID-19, (Figure 18) which depicts the association of gender and the common symptoms of COVID-19, had a p-value of 0.257, (Figure 19) compares gender with the site of the respiratory system that gets affected the most by COVID-19 it had a p-value of 0.366 and finally, (Figure 20) depicting the awareness of duration before which the disease could be spread a p-value of 0.237, making all three of them statistically not significant.

The awareness of COVID-19 pandemic was at 99.04%, which is similar to the finding of (Kobayashi, 2014), who had a high 96%. When asked about the awareness of the incubation period, which in the case of COVID-19, is 14 days, 49.06% chose the option 7-14days which was the most favourable option, the percentage of answers of the favourable response was not similar to the findings of Neha Gupta et al. 2015 which had a favourable reaction of a mere 28% (Mehta et al., 2015). 90.57% agreed to be practising social distancing, similar to a study by Rajesh Singh 2020, who had a response rate of 87% (Bhadoria et al., 2020). The aware-

ness about how the virus spread in the body was asked with the findings that 40.57% knew the exact method of spread and this was not similar to findings of Okorie Nelson et al. 2017, who found at 71% awareness.

Limitations

Awareness of the subjects due to knowledge gained due to access to the internet. The small sample size can result in different results upon comparing to a more significant sample.

Future scope

This research will lay the building blocks for future research for finding the cure quicker should there be the next outbreak of a contagious and thus preventing such outbreaks in the future.

CONCLUSIONS

The research assessed the awareness of COVID-19 and its effect on the respiratory system among college students, and it was found to be high. With how rapidly the disease is spreading, high awareness is a good step forward towards the containment of the disease. However, even though the knowledge is high, more awareness must be raised about how the disease spreads to reach the masses who are yet not aware.

ACKNOWLEDGEMENT

Nil.

Conflict of Interest

Nil.

Funding Support

Nil.

REFERENCES

Abigail 2019. Evaluation of Muscular Endurance among Dentists. *Indian Journal of Public Health Research & Development*, pages 258–258.

Baheerati, M. M., Devi, R. G. 2018. Obesity in relation to Infertility. *Research Journal of Pharmacy and Technology*, 11(7):3183–3183.

Bhadoria, A. S., Mishra, S., Mohapatra, A. 2020. Physical distancing amidst social connectivity: Time to re-visit “social distancing” as India fights COVID-19 and a few concerns. *Current Medicine Research and Practice*, 10(3):85–87.

Cascella, M., Rajnik, M., Aleem, A. 2020. Features, Evaluation and Treatment Coronavirus (COVID-19). *StatPearls. Treasure*. Updated on: 4 May 2020.

Choudhari, S., Jothipriya, A. 2016. Non-alcoholic fatty liver disease. *Research Journal of Pharmacy and Technology*, 9(10):1782–1782.

Dave, P. H., Preetha 2016. Pathogenesis and Novel Drug for Treatment of Asthma-A Review. *Research Journal of Pharmacy and Technology*, 9(9):1519–1519.

David 2019. Physical Fitness among the Dental Physician, Dental Undergraduates and Postgraduates Students. *Indian Journal of Public Health Research & Development*, pages 223–223.

Devi, R. G., Sethu, G. 2018. Evaluation of adenoids by oronasal and nasal spirometry. *Asian Journal of Pharmaceutical and Clinical Research*, 11(10):272–272.

Fathima, F., P. P. 2016. Evaluation of thyroid function test in obese patients. *Asian Journal of Pharmaceutical and Clinical Research*, 9(9):353–353.

Harsha, L. 2015. Systemic Approach to Management of Neonatal Jaundice and Prevention of Kernicterus. *Research Journal of Pharmacy and Technology*, pages 1087–1087.

Holmes, K. V. 2003. VIROLOGY: The SARS Coronavirus: A Postgenomic Era. *Science*, 300(5624):1377–1378.

Ilankizhai, R., Devi, R. G. 2016. Role of environmental factors on sleep patterns of different age groups. *Asian Journal of Pharmaceutical and Clinical Research*, 9(6):124–124.

Iyer, P. K., Devi, R. G., Priya, A. J. 2019. A Survey Study on Causes, Treatment and Prevention of Onychocryptosis. *Indian Journal of Public Health Research & Development*, 10(8):807–807.

Kim, E. S. 2020. Clinical Course and Outcomes of Patients with Severe Acute Respiratory Syndrome Coronavirus 2 Infection: a Preliminary Report of the First 28 Patients from the Korean Cohort Study on COVID-19. *Journal of Korean medical science*, 35(13):142–142.

Kobayashi, M. 2014. Community Knowledge, Attitudes, and Practices Regarding Ebola Virus Disease - Five Counties, MMWR. *Morbidity and mortality weekly report*, 64(26):714–718.

Mehta, N., Gupta, N., Gupta, P. 2015. Knowledge regarding Ebola Hemorrhagic Fever among private dental practitioners in Tricity, India: A cross-sectional questionnaire study. *Nigerian Medical Journal*, 56(2):138–142.

Renuka, S., Sethu, G. 2015. Regeneration after Myocardial Infarction. *Research Journal of Pharmacy and Technology*, 8(6):738–738.

Samuel, A. R., Devi, M. G. 2015. Geographical

- distribution and occurrence of Endemic Goitre. *Research Journal of Pharmacy and Technology*, pages 973–973.
- Shruthi, M., Preetha, S. 2018. Effect of Simple Tongue Exercises in Habitual Snorers. *Research Journal of Pharmacy and Technology*, 11(8):3614–3614.
- Swathy, S., Sethu, V. G. 2015. Acupuncture and lower back pain. *Research Journal of Pharmacy and Technology*, 8(8):991–991.
- Timothy, C. N., Devi, R. G., Priya, A. J. 2019. Evaluation of Peak Expiratory Flow Rate (PEFR) in Pet Owners. *Indian Journal of Public Health Research & Development*, 10(8):803–803.
- World Health Organization 2020. Infection Prevention and Control of Epidemic and Pandemic. *Corona Virus Disease*. Updated on: 7 April 2014.