

AWARENESS OF DIAGNOSTIC TESTS FOR COVID AMONG DENTAL STUDENTS

¹Reshmi B, ²DhanrajGanapathy

¹Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India

²Professor and Head of the department, Department of Prosthodontics, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India
Email : dhanraj@saveetha.com

ABSTRACT: *Coronavirus disease caused by SARS-COV2, a potentially fatal disease has become a global public health concern. As the understanding of this novel disease is evolving, dental students and professionals should have an in-depth knowledge and understanding and should be updated with the practices that have to be adapted to identify a possible COVID-19 infection .Not only knowledge but also an update on diagnostics, treatment ,variant ,side effects will be required to survive the infection on the upper hand .Knowledge of diagnostic tests for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is still evolving, and a clear understanding of the nature of the tests and interpretation of their findings is important.The aim of the study was to assess the awareness of diagnostic tests for COVID-19 among dental students.This questionnaire containing 10 questions regarding awareness about the diagnostic test were given to 100 students including interns , final year students ,and third year students through google forms and responses were collected and results were tabulated using SPSS software.In this survey 79.8% were females and 20.2% were males. 16.2% were third years, 12.2% were final years , 34.3 % were interns and 37.4% were post graduates. 66.6% of the students know PCR is used for diagnosing and detecting viruses responsible for COVID 19 and 33.4% don't know that PCR is a key test for diagnosing COVID and detecting viruses.⁷⁻¹¹ The study concluded the respondents had moderate awareness about the diagnostic tests for COVID-19.*

KEYWORDS: *Awareness,dentalstudents,diagnostic tests,COVID-19*

1. INTRODUCTION:

Coronavirus or SARS CoV2 is one of the major pathogens that primarily targets the human respiratory system. There have been previous outbreaks of coronaviruses (CoVs) which includes SARS-CoV and the MERS-CoV which have also been characterized as great public health threats¹. Coronavirus disease caused by SARS COV2 represents the causative agent of a potentially fatal disease which is of global public health concern. Based on the large number of infected people that were exposed to the wet animal market in Wuhan City, it is suggested that COVID – 19 is most likely of zoonotic origin i.e. transfer of infection from animals to humans.

The novel coronavirus is a single stranded RNA virus which belongs to Coronaviridae family Betacoronavirus genus and Severe acute respiratory syndrome- related coronavirus species. The World Health Organization named the novel coronavirus as SARS CoV – 2 i.e. Severe acute respiratory syndrome coronavirus. Studies done using PCR and Serological tests have shown close relation between the genetic material of SARS CoV-2 and R. sinicus. R. pearsoni, R. marcotis.²

The outer part of the virus is made of 4 proteins namely Spike, Envelope, Membrane and Nucleocapsid. SARS CoV 2 uses spike glycoprotein for neutralizing antibodies, receptor binding, mediate membrane fusion and to gain entry into the system. The receptor utilized for entry is Angiotensin-Converting Enzyme 2 (ACE-2). The virus is primarily transmitted through respiratory droplets and direct or indirect contact. Droplet transmission occurs when a person is within 1 metre of someone who has symptoms like coughing or sneezing and is therefore at risk of having himself exposed to potentially infective droplets. Indirect contact with surfaces in the immediate environment or with objects used on the infected person like a stethoscope can transmit virus. Airborne transmission can occur in specific circumstances and proceed. People who are old or who have underlying heart, lung, liver, kidney disease, diabetes, severe obesity, or who have compromised immune systems may be at higher risk of serious illness. Person-to-person transmission of this disease makes isolation of patients an indispensable part of treatment. Dental professionals are at maximum risk for nosocomial infection and can become potential carriers of the disease. Dental care settings have the risk of 2019-nCoV infection due to the aerosols generated during procedures, handling of sharps, proximity of the dentist to the patient's oropharyngeal region. If adequate precautions are not taken, the dental office can potentially lead to cross contamination. As the understanding of this novel disease is evolving, dental students and professionals should have an in-depth knowledge, a better understanding and should be updated with the practices and diagnostic test and treatment options that have to be adapted to identify a possible COVID-19 infection. The aim of the study was to assess the awareness of diagnostic tests for COVID-19 among dental students.⁷⁻¹¹

2. MATERIALS AND METHODS:

STUDY DESIGN :

Cross sectional study

STUDY SETTING :

It was an online based questionnaire that was given among dental students of Saveetha Dental College , Chennai

SAMPLE SIZE AND SAMPLING:

The total sample size was 100 , which involved the final years and interns. It was constricted to 100 samples according to the response obtained from the students .

SURVEY INSTRUMENT:

The questionnaire contained 10 awareness questions ,apart from the general demographic details of study participants, like year of study and gender. The questions were close ended , and depending upon the number of correct responses, they were grouped into yes and no. Questionnaire was administered in Google forms to general practitioners. Questionnaire validation was done giving the survey to 10% of the study population. The reliability was assessed by cronbach's alpha .

ETHICAL CLEARANCE :

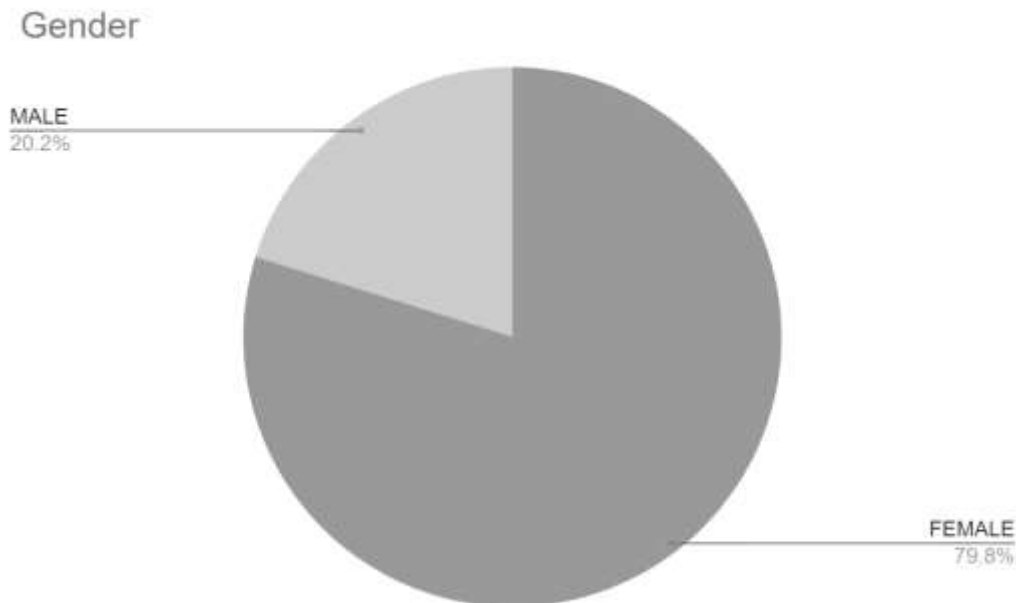
The ethical board of clearance was obtained from the scientific review board of Saveethauniversity.

DATA COLLECTION AND STATISTICAL ANALYSIS :

The responses obtained were transferred to excel sheets where it was segregated and tabulated accordingly. The data was further put in a graph based on the percentage of yes or no responses.

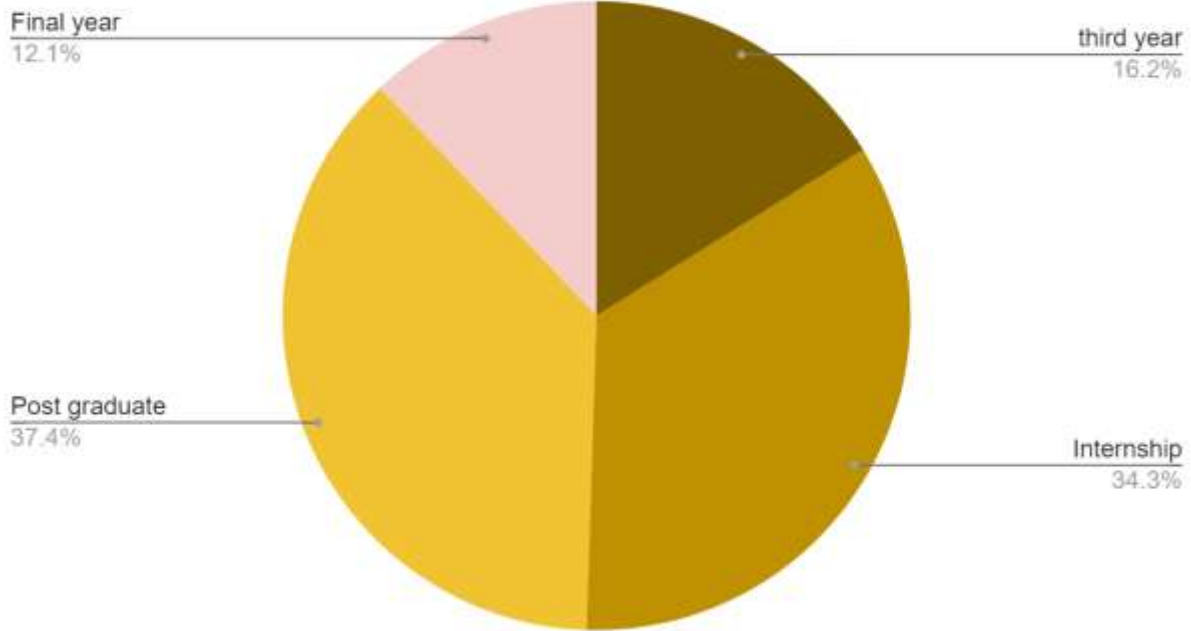
3. RESULTS AND DISCUSSION:

In this survey 79.8% were females and 20.2% were males. 16.2% were third years, 12.2% were final years , 34.3 % were interns and 37.4% were post graduates. 66.6% of the students know PCR is used for diagnosing and detecting viruses responsible for COVID 19 and 33.4% don't know that PCR is a key test for diagnosing COVID and detecting viruses. 99.% of them know PCR is a gold standard test for diagnosing COVID and swab is taken from nasopharynx for rt PCR and 1 % don't know its a gold standard test and the nasopharynx swab.82% of them know serologic test plays important role in identifying COVID and believed that there is a specific treatment for the virus and 12% don't know the role of serological tests did not believes there is a cure for the virus . 81% know Lateral flow assay detects the specific biological marker responsible for the virus and 19% did not know. 63% were aware that the antigen test for COVID19 reveals chronic infection of the same and 37% were not aware. 85 % believed that CB NAAT {cartridge based nucleic acid amplification} test is a diagnostic test for COVID 19 and 15% did not know CB NAAT 62% of them agreed .chest X-ray is more accurate than CT thorax in diagnosis of COVID 19 and 38% did not agree .

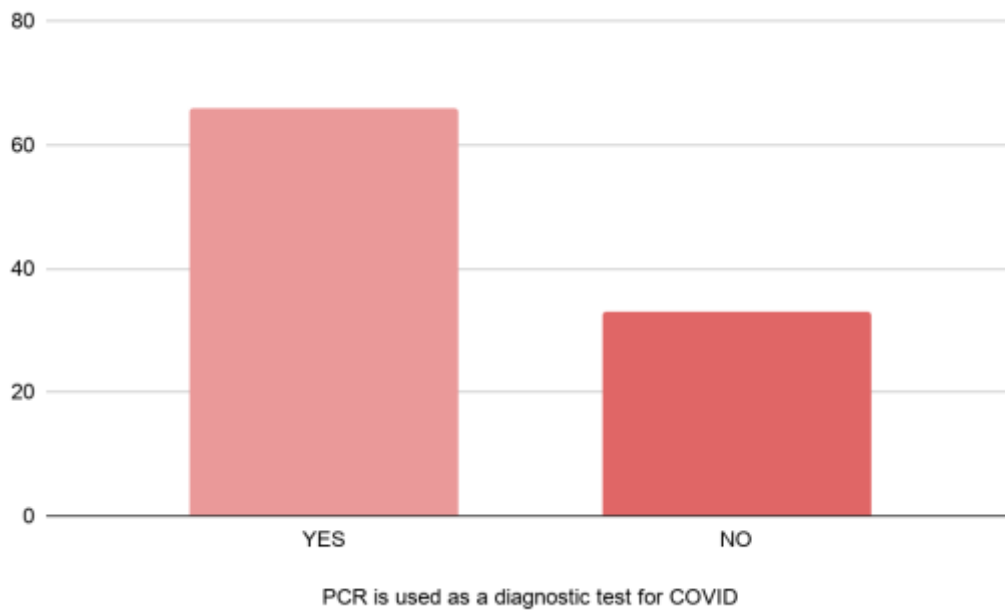


Graph 1:A pie chart depicting the gender wise distribution of study population

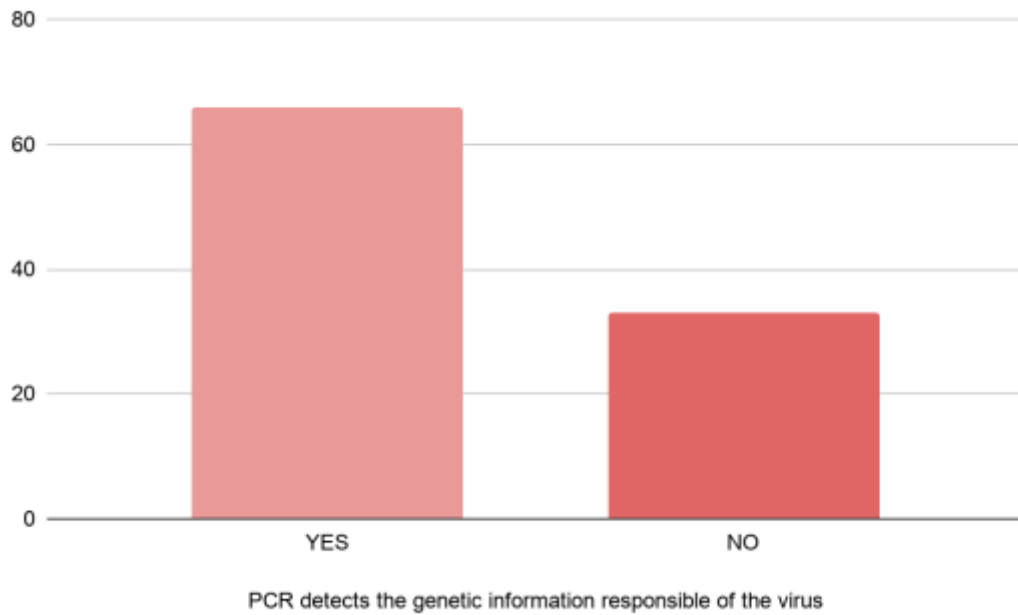
YEAR OF STUDY



Graph 2: A pie chart representing the year of study of the study population

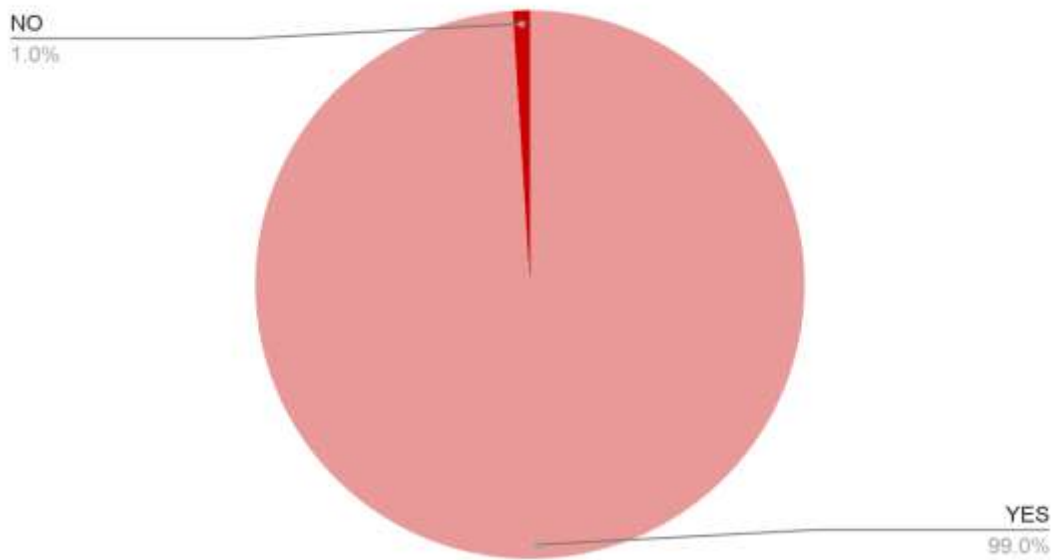


Graph 3: This graph represents the students' knowledge on PCR being used as a diagnostic test for Covid 19.

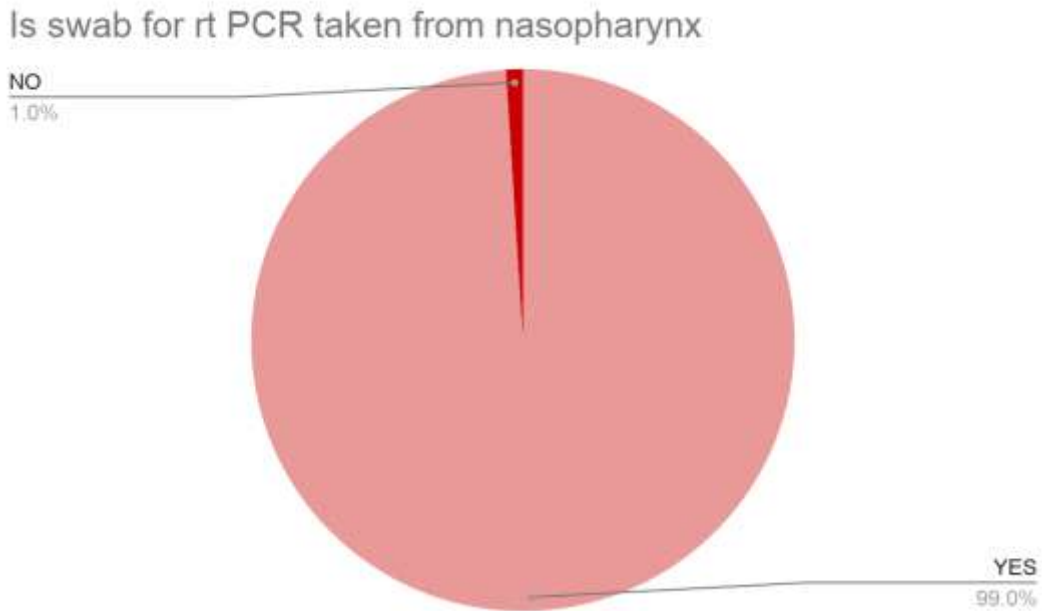


Graph:4 This graph represents the students knowledge on the PCR test

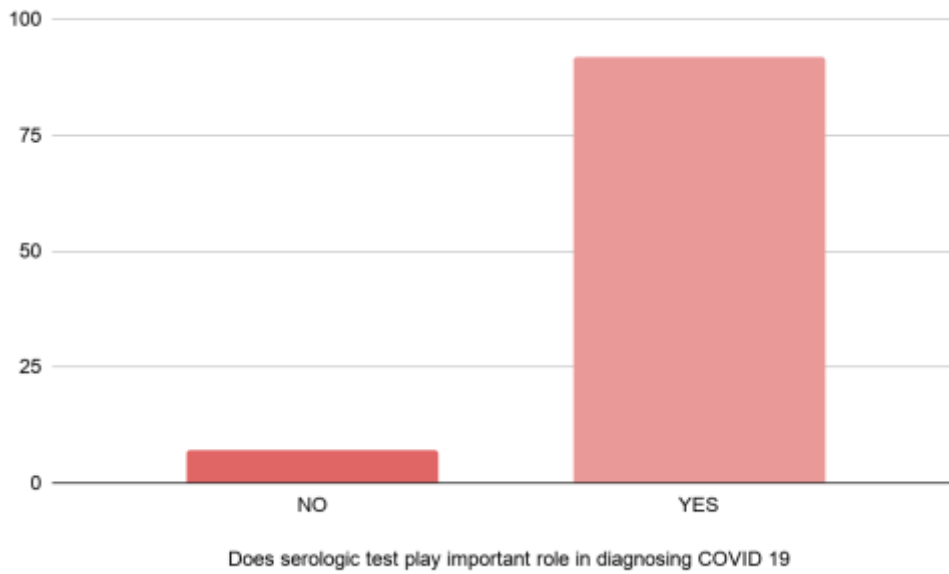
RT PCR a gold standard diagnostic test for COVID19



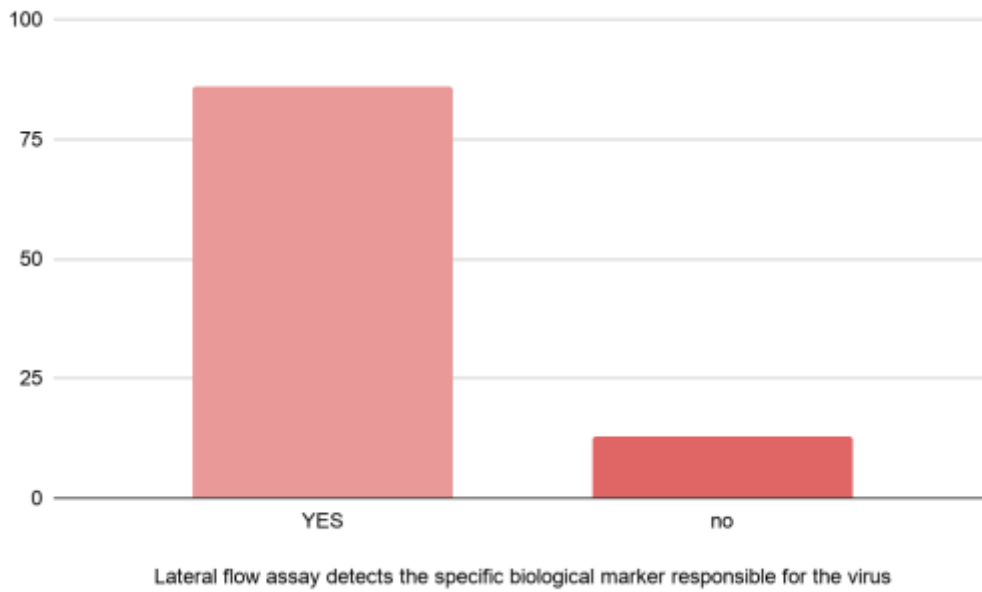
Graph 5: This figure represents if students think RT PCR is the gold standard test for Covid 19



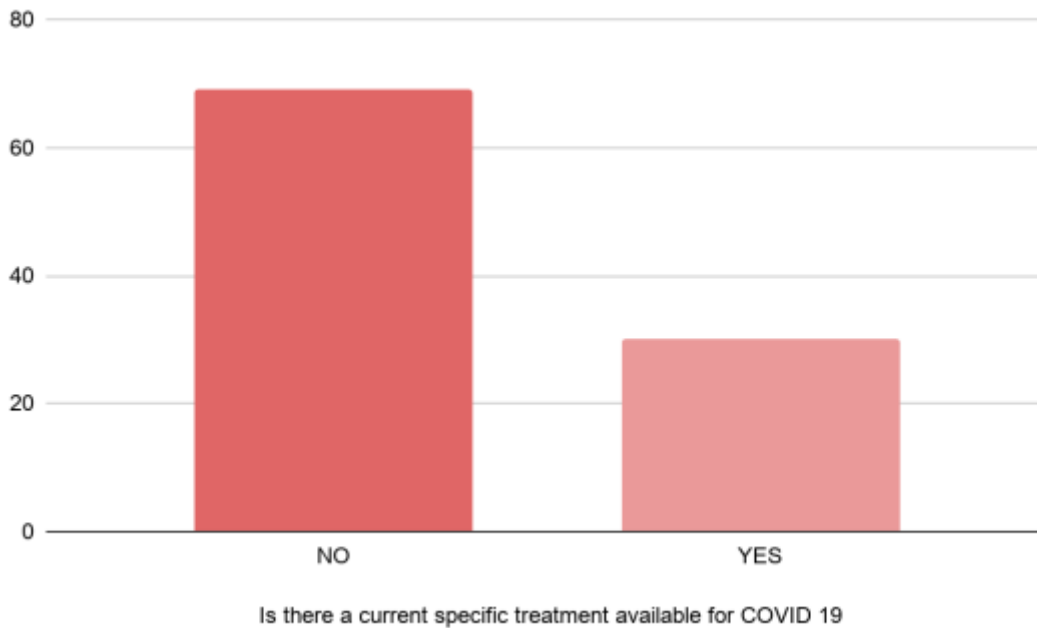
Graph 6: This figure represents the students knowledge on the swab site for RT PCR.



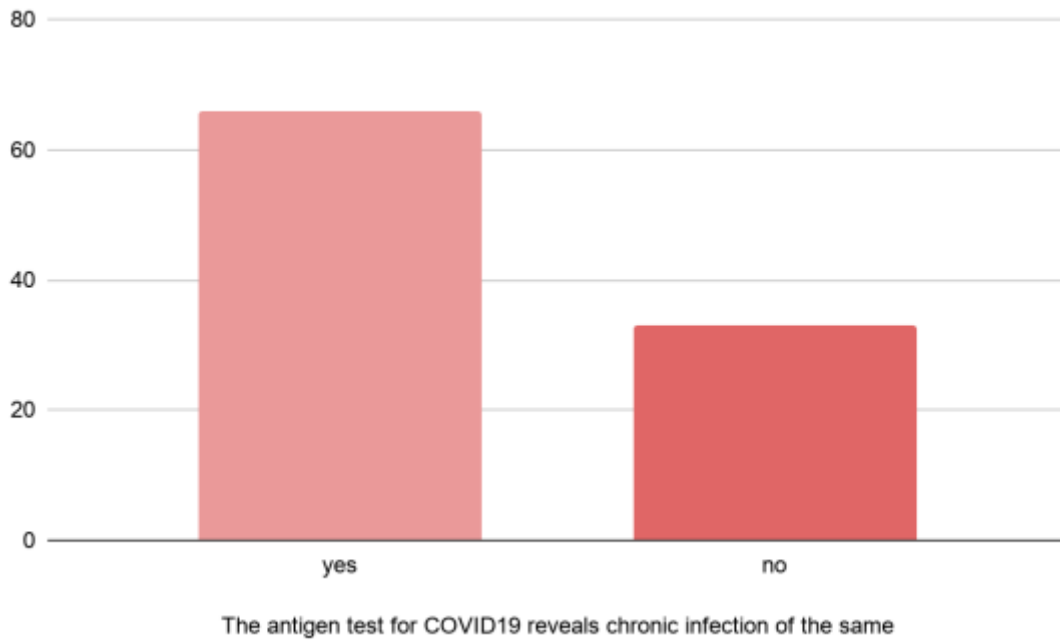
Graph 7: This graph represents the knowledge of importance of serological tests in the diagnosis of Covid 19.



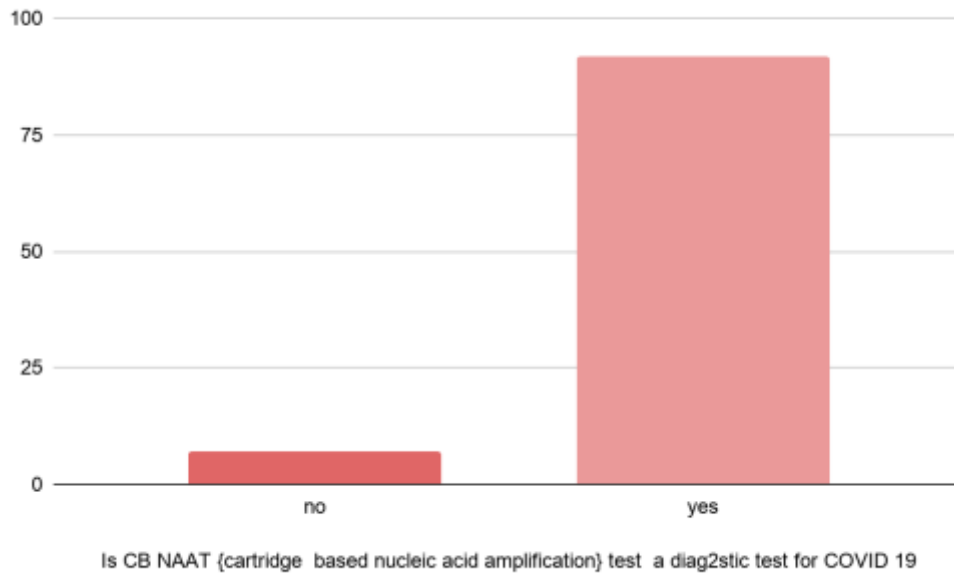
Graph 8: This graph represents students knowledge of lateral flow assay.



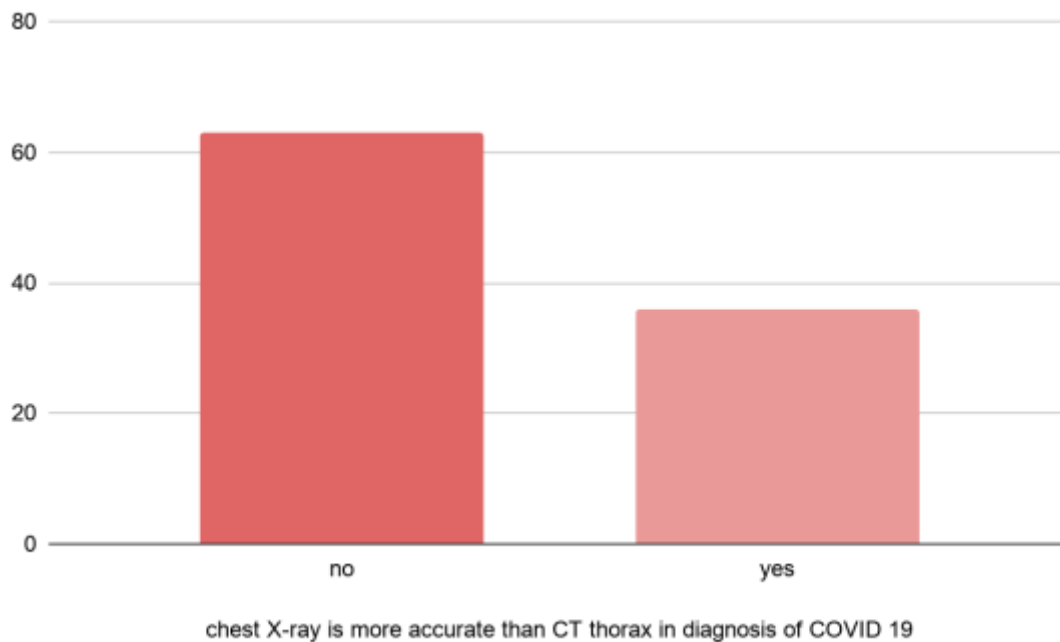
Graph 9: This graph represents the knowledge of treatment options available for covid 19.



Graph 10: This graph represents the students knowledge on antigen test for Covid 19.



Graph 11: This graph represents the students knowledge on CB NAAT used as a diagnostic test for covid 19.



Graph 12: This graph represents the knowledge of the application of chest x ray in the diagnosis of Covid 19.

The ongoing, unprecedented outbreak of COVID-19 globally has emphasized the importance of the laboratory diagnosis of human coronavirus infections in order to limit the spread as well as to appropriately treat those patients who have a serious infection.

The urgent need for accurate and rapid diagnosis of SARS-CoV-2 infection remains critical as global healthcare systems continue to operate during the course of the COVID-19 pandemic. In particular, serological and immunological testing of infected asymptomatic and symptomatic individuals, and their close contacts, is expected to be in high demand³. In addition to its role complementary to molecular genetic testing to confirm suspected cases, this type of testing would provide valuable information about the course and degree of immune response as well as the durability of immunity in both infected individuals and participants in vaccine clinical trials.⁴⁻⁶

4. CONCLUSION

The study concluded the respondents had moderate awareness about the diagnostic tests for COVID-19. The COVID-19 pandemic poses a major global challenge. With a subtle clinical presentation and asymptomatic carriage, and in the absence of specific treatment and vaccines, it is clear that an early and accurate diagnosis is crucial for the control of the disease. Although rt-PCR represents a cornerstone for SARS-CoV-2 laboratory diagnosis, several limitations have been observed. Therefore, a combined approach harmonizing laboratory methods (ie, rt-PCR and serology) with imaging features and clinical findings is essential to guide patient management and infection control.

5. REFERENCES :

1. Paules CI, Marston HD, Fauci AS. Coronavirus Infections—More Than Just the Common Cold. *JAMA* 2020; 323: 707–708.
2. del Rio C, Malani PN. COVID-19—New Insights on a Rapidly Changing Epidemic. *JAMA* 2020; 323: 1339–1340.
3. Cota G, Freire ML, de Souza CS, et al. Diagnostic performance of commercially available COVID-19 serology tests in Brazil. *International Journal of Infectious Diseases* 2020; 101: 382–390.
4. Service R, Robert Service. The standard coronavirus test, if available, works well—but can new diagnostics help in this pandemic? *Science*. Epub ahead of print 2020. DOI: 10.1126/science.abb8400.
5. Sardu C, D’Onofrio N, Balestrieri ML, et al. Outcomes in Patients With Hyperglycemia Affected by COVID-19: Can We Do More on Glycemic Control? *Diabetes Care* 2020; 43: 1408–1415.
6. Tromberg BJ, Schwetz TA, Pérez-Stable EJ, et al. Rapid Scaling Up of Covid-19 Diagnostic Testing in the United States - The NIH RADx Initiative. *N Engl J Med* 2020; 383: 1071–1077.
7. Perumalsamy, Haribalan ; Sankarapandian, Karuppasamy ; Veerappan, Karpagam ; Natarajan, Sathishkumar ; Kandaswamy, Narendran ; Thangavelu, Lakshmi ; Balusamy, Sri Renukadevi In silico and in vitro analysis of coumarin derivative induced anticancer effects by undergoing intrinsic pathway mediated apoptosis in human stomach cancer . *PHYTOMEDICINE* .2018; 46;119-130 DOI: 10.1016/j.phymed.2018.04.021
8. Lakshmi, Thangavelu ; Ezhilarasan, Devaraj ; Nagaich, Upendra Acacia catechu Ethanolic Seed Extract Triggers Apoptosis of SCC-25 Cells. *PHARMACOGNOSY MAGAZINE* .2017; 13(51)S405-S411. Supplement: 3 DOI: 10.4103/pm.pm_458_16
9. Lakshmi.T, Rajendran R, Krishnan V. Perspectives of oil pulling therapy in dental practice. *Dent Hypotheses* 2013;4:1314
10. Krishnan, Vidya ; Lakshmi, T .Bioglass: A novel biocompatible innovation *JOURNAL OF ADVANCED PHARMACEUTICAL TECHNOLOGY & RESEARCH* .2013; 4(2); 78-83
11. Lakshmi, T., Ezhilarasan, D., Vijayaragavan, R., Bhullar, S. K., & Rajendran, R. (2017). Acacia catechu ethanolic bark extract induces apoptosis in human oral squamous carcinoma cells. *Journal of advanced pharmaceutical technology & research*, 8(4), 143–149. https://doi.org/10.4103/japtr.JAPTR_73_17