

## Exploring Claustrophobia in Dental Students' Perspective: A Survey Analysis

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### Abstract

*Claustrophobia is a form of anxiety that is caused due to the fear of closed spaces. The person will be psychologically affected because of it. Claustrophobia can be analyzed with the help of Agoraphobia. Agoraphobia means getting fear of what would happen to them in public places. Claustrophobia will cause severe breathing difficulties as well. The treatment for the claustrophobia was given according to analyzing the patients and by referring to many previous studies. The aim of this study is to know the effects of claustrophobia and its perspective among the students. A survey has been created through Google forms and it has been circulated through social networking and the results obtained through the responses from the survey obtained from the students were put in the form of the pie chart. From the results obtained, we would come to know that 41.5% of students have mentioned that it does not affect their studies and a majority of the students have told that by having good ventilation they could get rid of claustrophobia. We would like to conclude that the majority of the students are aware of claustrophobia and it does not affect your studies.*

**Keywords:** Anxiety, Claustrophobia, Perspective, Therapy.

### Introduction

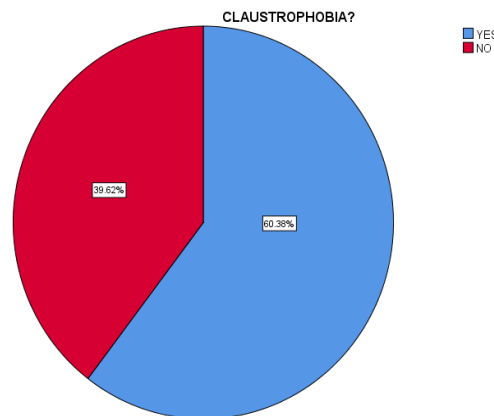
Claustrophobia is a fear of enclosed spaces. It can be unpleasant and distressing but most people who experience the fear find ways to cope usually through the deliberate avoidance of small or enclosed places. Fears of restriction and of being trapped, such as sitting in a dentist's chair or waiting in a long queue, are also associated with a fear of being enclosed and usually are regarded as signs of claustrophobia. People get scared because they have to undergo dental treatment like wearing

a temporary partial denture, complete ceramic veneer crown and so because of that they will exhibit Claustrophobia as they do not come out of the closed space, always thinking about it [1]. People also get very scared thinking that an implant is a very complicated procedure in which they have to undergo and so because of this they will exhibit a symptom of claustrophobia that is an increase in the heart rate. People also get frightened about the harm caused due to the bacteria and also by the alopecia. Cellulitis causes panic to the people and

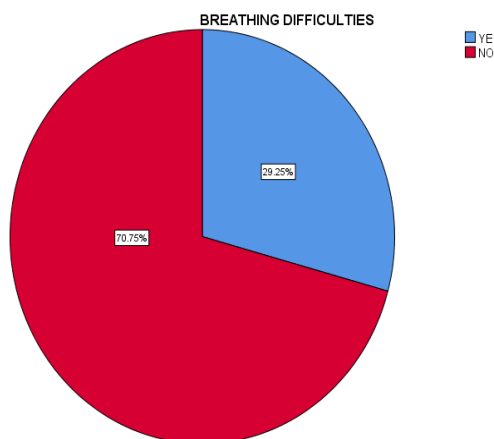
thereby they feel isolated thinking about it. People are not aware that ceramic restoration does not cause any harm to them so unnecessarily they are getting tensed for getting done a simple dental restorative treatment. Acromegaly, Silicone facial prosthesis, impregnated retraction of the cords presents in the gingiva, pregnant women thinking about the oral hygiene, and the implants, all these medical conditions and the treatment all together makes a person feel that they exhibit Claustrophobia thinking about the fact that they are going to undergo for themselves to be healthy.

Claustrophobia is a form of anxiety that is caused due to the fear of closed spaces. The person will be psychologically affected

because of it. Claustrophobia is said to be frightened of getting suffocated and fear of getting restricted from something. Claustrophobia can be analyzed with the help of Agoraphobia. Agoraphobia means it is getting feared of what would happen to them in public places [2]. It is said that a patient who underwent MRI had undergone claustrophobia for a while. During the hospital procedures, the patients who had claustrophobia said to have more RBC compared to the patients who did not have claustrophobia [3]. Claustrophobia may also lead to an increase in the guilty feeling, depression and it might also gradually re-form the claustrophobic attitude [4].



**Figure 1** Pie Chart Representing the Percentage Distribution on What is Claustrophobia. 60.38% Reported Yes (Blue) and the Remaining 39.62% Reported No (Red).

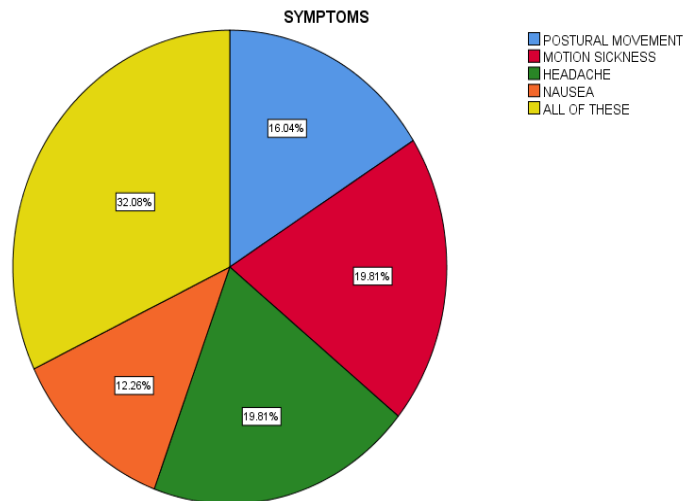


**Figure 2** Pie Chart Representing the Percentage Distribution on the Breathing Difficulties. 70.75% Reported Yes (Blue) and the Remaining 29.25% Reported no (Red).

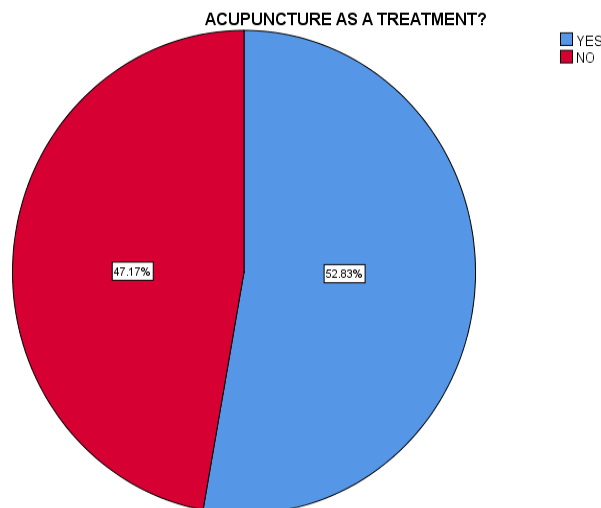
Claustrophobia causes severe breathing difficulties which leads to several other respiratory complications [5]. The treatment for the claustrophobia was given according to

analyzing the patience and by referring to many previous studies [6]. Continuous Positive Airway Pressure (CPAP) therapy was given to the patients who were affected by claustrophobia [7]. Eye Movement Desensitization and Reprocessing (EMDR) treatment can be given for the patients affected

with claustrophobia [8]. Auricular acupuncture can be given for dental anxiety which is caused due to claustrophobia [9]. The aim of this study is to know the effects of claustrophobia and its perspective among the students.



**Figure 3** Pie Chart Representing the Percentage Distribution on the Symptoms of the Claustrophobia. 16.04% Reported Postural Movement (Blue), 19.81% Reported Motion Sickness (Red), 19.81% Reported Headache (Green), 12.26% Reported Nausea (Orange) and 32.08% Reported All of These (Yellow).



**Figure 4** Pie Chart Representing the Percentage Distribution on Acupuncture as a Treatment for Claustrophobia. 52.83% Reported Yes (Blue) and 47.17% Reported No (Red).

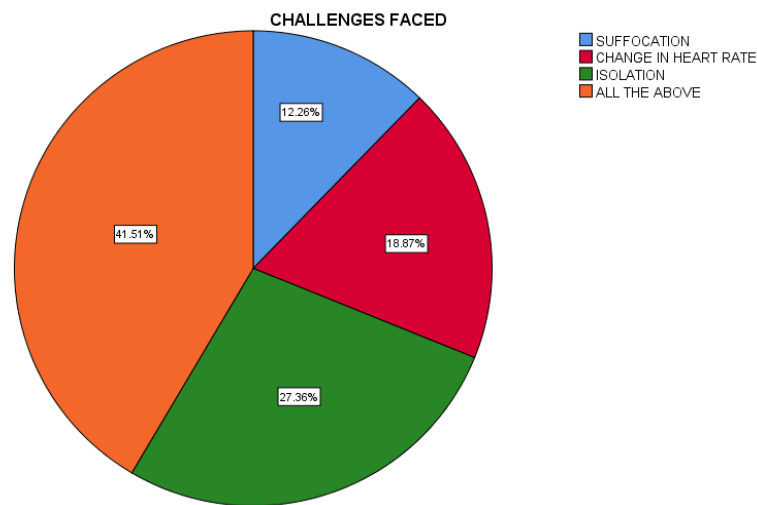
## Materials and Methods

The study setting will be a university setting. Some of the PRO'S are -a collection of data will be made very easy and that will be aware of plagiarism among the dental students. Some of the CON'S are - outside the

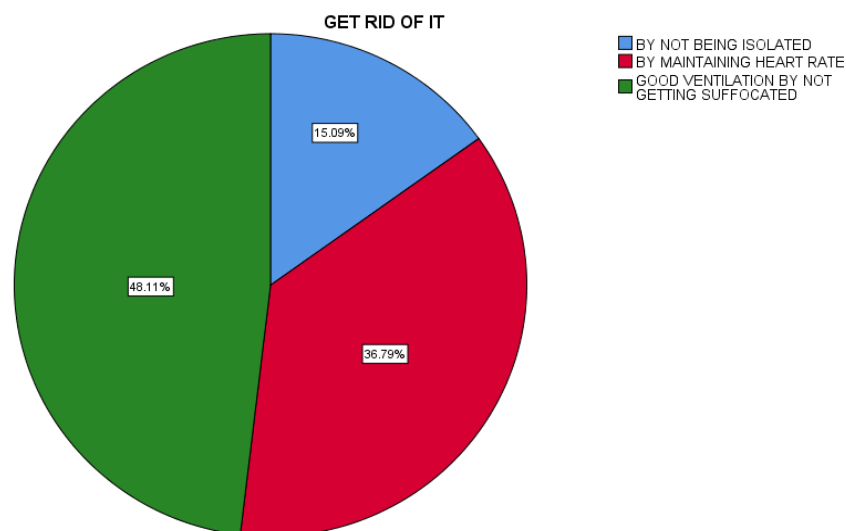
university, the opinions will vary among every student. The number of people involved are 106 students from various colleges. The author in his study has considered 210 psychology undergraduate students and analyzed the claustrophobia among them [10]. The author in his study has taken into account 424

students and analyzed their behavior and their responsiveness towards the treatment which has been given for the claustrophobia [11]. Some of the steps taken to minimize bias are: proper questionnaires should be made online and the data collected should not be mixed with other data. A questionnaire has been prepared through the Google forms and it is circulated through social networks. It consists of a total of 10 questions [Table 1]. The data obtained through the survey has been put in

the form of a pie chart. Validity checking is done by the three internal experts from Saveetha Dental College and three external experts from other colleges (outside Saveetha dental College). The statistical test used will be the descriptive analysis and the statistical software used will be SPSS. The dependent variable will be the knowledge and awareness. The independent variable will be age, gender, ethnic city variables, and the educational background.



**Figure 5** Pie Chart Representing the Percentage Distribution on the Challenges Faced Due to Claustrophobia. 12.26% Reported Suffocation Due to Claustrophobia (Blue). 18.87% Reported a Change in Heart Rate (Red). 27.36% Reported Feel Isolated (Green). 41.51% Reported All of the Above Challenges.



**Figure 6** Pie Chart Representing the Percentage Distribution of Methods to get rid of Claustrophobia. 15.09% Reported by Not Being Isolated (Blue). 36.79% Reported by Maintaining Heart Rate (Red). 48.11% Reported Good Ventilation and by Not Getting Suffocated (Green).

## Questionnaire

## Results and Discussion

The results showed that claustrophobia does

students think that nausea will be the symptom of claustrophobia. 32.08% of students think that all of the above options will be the

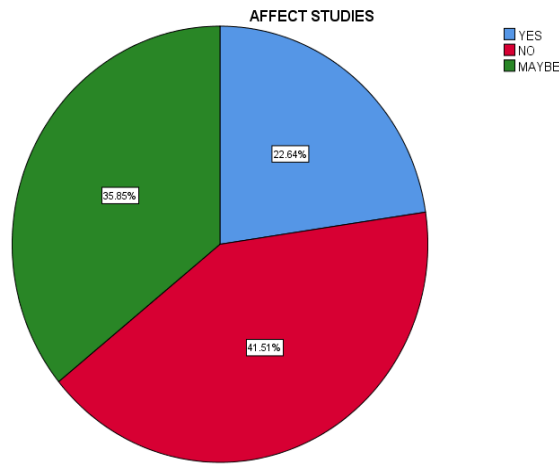
Name	
Age: 18 - 20, 20 - 22, greater than 23	
Year of study: First-year, second year, third year, fourth year, Intern, PG	
Do you know what is meant by Claustrophobia: Yes, no	
Do you know what is meant by Claustrophobia: Yes, no	
Do you exhibit breathing difficulties?: Yes, no	
Which among these do you think will be the symptoms for Claustrophobia?: postural movements, motion sickness, headache, nausea, all of these.	
According to your perspective, can Acupuncture be used as a treatment for Claustrophobia?: Yes, no.	
Challenges faced due to Claustrophobia?: Suffocation, changes in heart rate, isolation, all of the above.	
According to you, how can you get rid of Claustrophobia?: By not being isolated, by maintaining heart rate, good ventilation by not getting suffocated	
Does it affect your studies?: Yes, no, maybe.	

not affect the students' studies and most of them are aware of claustrophobia. 39.62% of students did not know about Claustrophobia. 60.38% of students knew about Claustrophobia (fig1). 29.2% of students said that they do exhibit breathing difficulties. 70.8% of students said that they do not exhibit any breathing difficulties (fig2). 16.04% of students think Postural movement as a symptom of claustrophobia (fig8). 19.81% of students think that motion sickness will be the symptom of claustrophobia. 19.81% of students think that headaches will be the symptoms of claustrophobia. 12.26% of

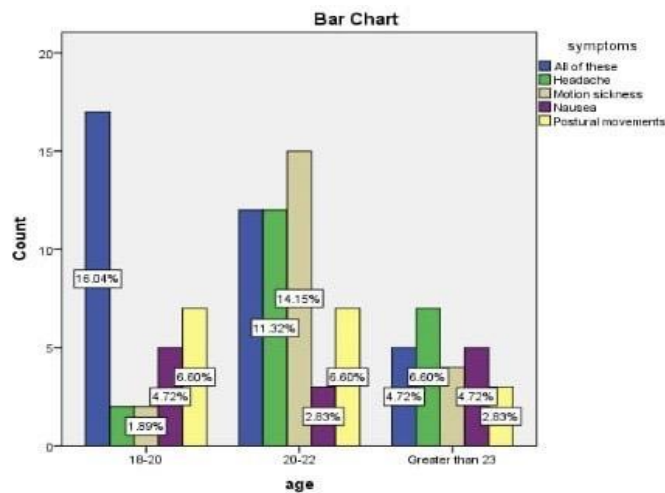
symptoms of claustrophobia (fig3). 52.83% of students said that acupuncture can be used as a treatment for claustrophobia. 47.17% of students think that acupuncture cannot be used as a treatment for claustrophobia (fig4). 12.26% of students exhibit suffocation due to claustrophobia. 18.87% of students exhibit a change in the heart rate. 27.36% of students feel isolated. 41.51% of students have faced all of the above challenges (fig5 & fig9). 15.09% of students told that by not being isolated they can get rid of claustrophobia. 36.79% of students told that by maintaining the heart rate they can get rid of claustrophobia and 48.11%

of students told that by good ventilation and by not getting suffocated they can get rid of claustrophobia (fig6 & 10). 22.64% of students said that claustrophobia affects their

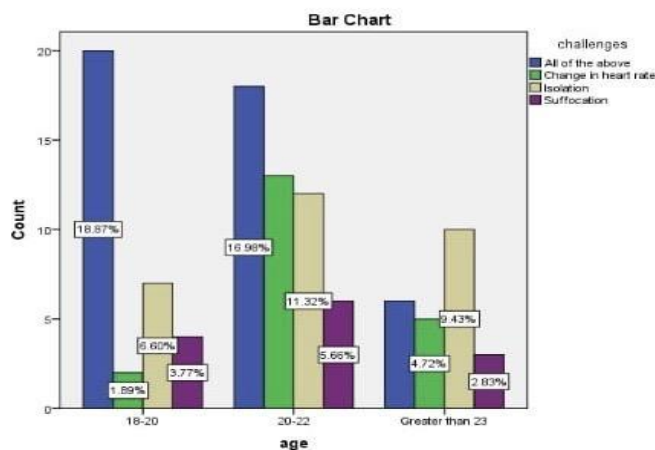
studies. 41.51% of students told that Claustrophobia does not affect their studies. 35.85% of students said Claustrophobia might affect their studies (fig7).



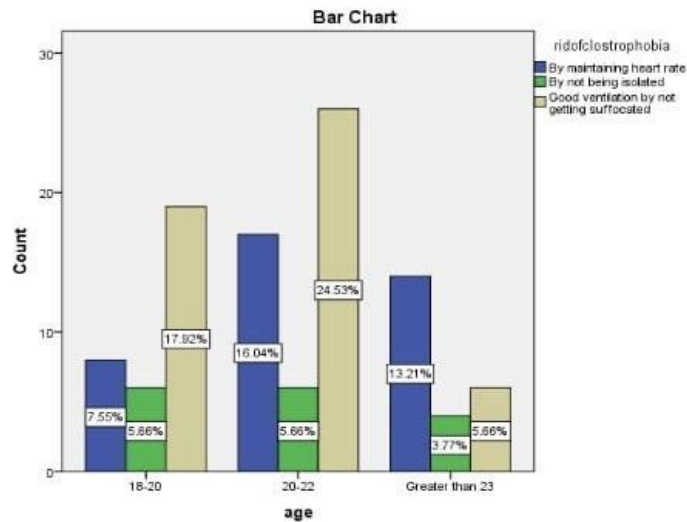
**Figure 7** Pie Chart Representing the Percentage Distribution on the Effects of Claustrophobia in Studies. 22.64% Reported Yes (Blue), 41.51% Reported No (Red), 35.85% Reported Maybe (Green).



**Figure 8** Depicts the Bar Chart Showing Association of Responses on Age and Symptoms of Claustrophobia.



**Figure 9** Depicts the Bar Chart Showing Association of Responses on Age and Challenges of Claustrophobia.



**Figure 10** Depicts the Bar Chart Showing Association of Responses on Age and Methods to get rid of Claustrophobia.

The author in his study has explained about claustrophobia and he has also said that claustrophobia will have a common symptom of motion sickness and breathing difficulties as well [12]. Cognitive Behavioural Programs that are (CBT) has been demonstrated in the treatment of claustrophobia. The author has also mentioned that virtual reality has been used as a very useful tool to treat virtual situations but treating real situations is not at all possible [13]. People will exhibit Agoraphobia, bodily sensations when they get exposed to some small close space [14]. People with claustrophobia were measured for the following criteria such as EEG, heart rate, and respiratory rate concerning the Meridian of the acupuncture. The treatment was done for 30 minutes and the patients exhibited a reduction of EMG in the trapezius muscle and the EEG-theta wave activity was also said to be changed [15, 16] Some of the limitations are data presented in the study are self-reported and it has the active involvement of the participants [17, 18, 19, 20, 21]. In the future, awareness of claustrophobia can be perceived among the students [22,-30]. It will create proper knowledge and awareness among the wide population.

## Conclusion

Our survey analysis delved into the nuanced perceptions of claustrophobia among dental students, shedding light on the multifaceted nature of this phenomenon within the context of their professional training. Through the exploration of various factors such as frequency of exposure to confined spaces, coping mechanisms, and perceived impact on academic performance, we gained valuable insights into the prevalence and implications of claustrophobia in this demographic. Our findings underscored the significance of acknowledging and addressing claustrophobia within dental education and practice. [31,-37]. The high prevalence rates revealed by our survey highlight the importance of proactive measures to support affected students, ranging from increased awareness and education about coping strategies to the provision of psychological support services. Furthermore, the association between claustrophobia and academic performance suggests a need for tailored interventions aimed at mitigating its potential impact on students' professional development.

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## Author Contributions

Author 1 (Ashwin Jaikumar Ram), carried out the study by collecting data and drafted the manuscript after performing the necessary statistical analysis. Author 2 (Dr. Vaishnavi Rajaraman), aided in conception of the topic, has participated in the study design, statistical, analysis and has supervised in preparation of the manuscript. Author 3 (Dr. L. Keerthi

Sasanka) has participated in the study design and has coordinated in developing the manuscript. Author 4 (Dr Vishnupriya) has helped in developing the manuscript. All the authors have discussed the results among themselves and contributed to the final manuscript.

## Conflicts of Interest

Nil.

## References

- [1] Akshaya, R., Preejitha, V.B., Brundha, M.P., 2020, A survey study of gender-related anxiety and fear on dental care among the patients visiting Saveetha Dental College and Hospital. *Drug Invention Today*, 13. <https://openurl.ebsco.com/EPDB%3Agcd%3A12%3A9956764/detailv2?sid=ebsco%3Aplink%3Ascholar&id=ebsco%3Agcd%3A142963114&crl=f>.
- [2] Rachman, S., Taylor, S., 2014, Claustrophobia Behavioural Avoidance Test. PsycTESTS Dataset. <https://doi.org/10.1037/t26838-000>.
- [3] Enders, J., Zimmermann, E., Rief, M., Martus, P., Klingebiel, R., Asbach, P., Klessen, C., Diederichs, G., Bengner, T., Teichgräber, U., Hamm, B., Dewey, M., 2011, Reduction of claustrophobia during magnetic resonance imaging: methods and design of the "CLAUSTRO" randomized controlled trial. *BMC medical imaging*, 11, 4. <https://doi.org/10.1186/1471-2342-11-4>.
- [4] Chandran, D., Jayaraman, S., Sankaran, K., Veeraraghavan, V.P., Gayathri, R., 2023, Antioxidant Vitamins Attenuate Glyphosate-Induced Development of Type-2 Diabetes Through the Activation of Glycogen Synthase Kinase-3  $\beta$  and Forkhead Box Protein O-1 in the Liver of Adult Male Rats. *Cureus*, 15(12), e51088. <https://doi.org/10.7759/cureus.51088>.
- [5] GEHL R. H., 1964, DEPRESSION AND CLAUSTROPHOBIA. *The International journal of psycho-analysis*, 45, 312–323.
- [6] Speltz, M.L., Bernstein, D.A., 1979, The use of participant modeling for claustrophobia. *Journal of Behavior Therapy and Experimental Psychiatry*, 10:251–255. [https://doi.org/10.1016/0005-7916\(79\)90072-7](https://doi.org/10.1016/0005-7916(79)90072-7).
- [7] Ost, L. G., Jerremalm, A., Johansson, J., 1981, Individual response patterns and the effects of different behavioral methods in the treatment of social phobia. *Behaviour research and therapy*, 19(1), 1–16. [https://doi.org/10.1016/0005-7967\(81\)90107-8](https://doi.org/10.1016/0005-7967(81)90107-8)
- [8] Chasens, E.R., Pack, A.I., Maislin, G., Dinges, D.F., Weaver, T.E., 2005, Claustrophobia and adherence to CPAP treatment. *Western Journal of Nursing Research*, 27:307–21. <https://doi.org/10.1177/0193945904273283>.
- [9] Vadakkan, C., Siddiqui, W., 2023, Claustrophobia. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK542327/>.
- [10] Karst M., Winterhalter M., Münte S., Francki B., Hondronikos A., Eckardt A., Hoy L., Buhck H., Bernateck M., Fink, M., 2007, Auricular acupuncture for dental anxiety: A randomized controlled trial. *Anesthesia & Analgesia*, 104:295–300. doi: 10.1213/01.ane.0000242531.12722.f.
- [11] Radomsky, A.S., Rachman, S., Thordarson, D.S., McIsaac, H.K., Teachman, B.A., 2001, The Claustrophobia Questionnaire. *Journal of Anxiety Disorders*, 15:287–97. [https://doi.org/10.1016/s0887-6185\(01\)00064-0](https://doi.org/10.1016/s0887-6185(01)00064-0).
- [12] Knowledge about the effects of medicinal plants against COVID-19 among dental students-A questionnaire study. Available from: <https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-995148>
- [13] Lambrou, S., 2003, Left atrial enlargement is



- related with unfavorable left ventricular geometric pattern in untreated essential hypertensive subjects. *American Journal of Hypertension*, 16:A175. [https://doi.org/10.1016/s0895-7061\(03\)00547-8](https://doi.org/10.1016/s0895-7061(03)00547-8).
- [14] Jagadheeswari, R., Vishnu Priya, V., Gayathri, R., 2020, Awareness of Vitamin-C Rich Foods Among South Indian Population: A Survey, *Journal of Research in Medical and Dental Science*, 8(7), 330-338.
- [15] Radomsky, A.S., Ouimet, A.J., Ashbaugh, A.R., Paradis, M.R., Lavoie, S.L., O'Connor, K.P., 2006, Psychometric properties of the French and English versions of the Claustrophobia Questionnaire (CLQ). *Journal of Anxiety Disorders*, 20:818–28. <https://doi.org/10.1016/j.janxdis.2006.01.002>.
- [16] Bonnet, C.T., Faugloire, E., Riley, M.A., Bardy, B.G., Stoffregen, T.A., 2008, Self-Induced Motion Sickness and Body Movement During Passive Restraint. *Ecological Psychology*, 20:121–45. <https://doi.org/10.1080/10407410801949289>.
- [17] Ojastha, B.L., Selvaraj, J., Kavitha, S., Veeraraghavan Vishnu Priya., Gayathri R., 2023, Effect Of Argyreia Nervosa On The Expression Of Growth Factor Signaling In The Skeletal Muscle Of Streptozotocin-Induced Experimental Diabetic Rats. *Journal of Namibian Studies: History Politics Culture*, 33, 5942-5950. <https://doi.org/10.59670/jns.v33i.4474>.
- [18] Zillinger, G., 1963, On the problem of anxiety and of the description of psychosexual maturation stages in the “fairy tale on shuddering”. A study in analytic psychology. III. *Prax Kinderpsychol Kinderpsychiatr*, 12,134–43.
- [19] Jelinčić, V., Torta, D.M., Van Diest, I., Von Leupoldt, A., 2020, Error-related negativity relates to the neural processing of brief aversive bodily sensations. *Biological Psychology*, 152:107872. <https://doi.org/10.1016/j.biopsycho.2020.107872>.
- [20] Jeevitha, M., Mohanraj, K.G., 2020, Assessment of anxiety among dental students performing extraction and patients undergoing third molar extraction. *International Journal of Pharmaceutical Research* (09752366), 12(1).
- [21] Selvi, V.T., Devi, R.G., Jothipriya, A. (2020). Prevalence of dental anxiety among the OP patients in Saveetha Dental College. *Drug Invention Today*, 14(1).
- [22] Vishaka, S., Sridevi, G., Selvaraj, J., 2022, An *in vitro* analysis on the antioxidant and anti-diabetic properties of Kaempferia galanga rhizome using different solvent systems. *Journal of Advanced Pharmaceutical Technology & Research*, 13(2), S505–9.
- [23] Ridha Azimudin, D.L., 2022, Prevalence of generalised anxiety towards dental education among the first year dental students in a private dental institution in Chennai city. *Journal of Coastal Life Medicine*, 10,443-8.
- [24] Karthik, E.V.G., Priya, V.V., Gayathri, R., 2021. Dhanraj Ganapathy. Health Benefits Of Annona Muricata-A Review. *International Journal of Oral Science*, 8(7), 2965–7.
- [25] Rangeela, M., Haripriya, S., 2019, Management of fear, pain, and anxiety levels during endodontic procedures: A questionnaire-based survey. *Drug Invention Today*, 11(9).
- [26] Mithil Vora., Vishnu Priya, V., Selvaraj, J., Gayathri, R., Kavitha, S., 2021, Effect of Lupeol on proinflammatory Markers in Adipose Tissue of High-Fat Diet and Sucrose Induced Type-2 Diabetic Rats. *Journal of Research in Medical and Dental Science*, 9(10),116-121.
- [27] Manohar, J.K., Kumar, M.P., 2019, Anxiety levels of dental students during administration of their first local anesthetic injection. *Drug Invention Today*, 11(11), 2730-6.
- [28] Sadasivam, P., Ganapathy, D.M., Sasanka, L.K.,2023, Assessment of Depressive Behaviour among the Undergraduate Dental students-A Survey. *Turkish Journal of Physiotherapy and Rehabilitation*, 32, 2.
- [29] Yasothkumar, D., Jayaraman, S., Ramalingam, K., Ramani, P., 2023. *In vitro* Anti-Inflammatory and Antioxidant Activity of Seed Ethanolic Extract of *Pongamia pinnata*. *Biomedical and Pharmacology Journal*, 16(4).
- [30] Santhosh, T., Prabu, D., Malaiappan, S. (2020). Dental Students Awareness on Factors Related to Patients Anxiety Towards 3rd Molar Extraction-A Questionnaire Based Study. *International Journal of Pharmaceutical Research*, (09752366).

- [31] Shukri, M., Masitah, N., 2020, Stress, Anger and Coping among Dental Students. *Indian Journal of Forensic Medicine & Toxicology*, 14(3).
- [32] Kumar, I.L., Ramesh, S., 2021, A Questionnaire Based Survey On Fear and Anxiety Levels of Patient Before and After Endodontic Treatment. *International Journal of Oral Science*, 8(6), 2844-9.
- [33] Kumar, M.P., Thenarasu, V., 2021, Knowledge, Awareness, and Attitude Of Dental Students towards management of Dental Patients with Psychological Problems. *International Journal of Clinical Dentistry*, 14(2).
- [34] Priya DV, (2020) Knowledge and awareness on HIV/AIDS among college students in A university hospital setting. *Int J Dent Oral Sci* 1182–1186
- [35] Ealla KKR, Veeraraghavan VP, Ravula NR, Durga CS, Ramani P, Sahu V, Poola PK, Patil S, Panta P (2022) Silk Hydrogel for Tissue Engineering: A Review. *J Contemp Dent Pract* 23:467–477
- [36] Patil S, Sujatha G, Varadarajan S, Priya VV (2022) A bibliometric analysis of the published literature related to toothbrush as a source of DNA. *World J Dent* 13:S87–S95
- [37] Ganesan A, Muthukrishnan A, Veeraraghavan V (2021) Effectiveness of Salivary Glucose in Diagnosing Gestational Diabetes Mellitus. *Contemp Clin Dent* 12:294–300