Knowledge and Awareness about Craniofacial Surgery among Dental Students - A Survey

Arun Kishore RN[1], L. Keerthi Sasanka[2], Visalakshi Ramanadhan[3], Dhanraj Ganapathy[4]

[1]Research Associate, Dental Research Cell, [2]Senior Lecturer,Department of Prosthodontics, [3]Assistant professor, Department of Physiology, [4]Professor and Head, Department of Prosthodontics, Saveetha Dental College and Hospital, Saveetha institute of Medical and Technical Sciences, Chennai, India

Abstract

Craniofacial surgery is a subspecialty in dentistry that deals with congenital and acquired deformities of head, neck, skull, face and jaw and associated structures. Craniosynostosis, craniofacial clefts, cleft lip and palate , teachers collins syndrome are a few typical defects treated by craniofacial surgeons.Craniofacial surgery reconstructs damaged bone and tissue and improves the appearance of disfigured areas of the face and head. For children with craniofacial anomalies, early surgery can minimize the impact of these conditions on growth, development, and function. Craniofacial surgery fellowship. Such fellowships are accessible for members with residency in oral and maxillofacial surgery , plastic and constructive surgeries. Those surgeons may be awarded as single degree or dual-degree surgeons, in US, cleft and craniofacial centers are available in special centres like academic institutions.The questions were prepared and distributed through an online survey planet link the participants well explained about the study and the results were collected and statistically analysed. From the analysed results we can see that the majority know about craniofacial surgery is but not in depth . The awareness must be made on craniofacial surgery among undergraduate dental students. From the survey research done To evaluate the undergraduate dental students are aware and have knowledge on craniofacial surgeries and techniques but not in depth.

Keywords: *craniofacial surgery,craniofacial anomalies , knowledge , dental undergraduates*

Introduction

Craniofacial surgery is a surgical subspecialty that deals with congenital and acquired deformities of the head[1]. Although craniofacial treatment involves manipulation of the bones ,craniofacial surgery is not tissue based/specific; craniofacial surgery deals with bone,skin,nerve,muscle ,teeth and other related structures/anatomy [2 3]. There a more than a number of different surgeries in Craniofacial surgery .Facial anomalies typically treated by craniofacial surgeons includes craniosynostosis, rare craniofacial clefts, cleft lip and palate,micrognathia, teachers Collins syndrome, Crouzon's syndrome and many other conditions [2,4] . Computer assisted surgery has been more and widely used in craniofacial surgery in recent years.[5] The various advantages of the techniques are emphasized from a surgical and form a teaching standpoint . In recent decades the evolution of procedures to treat craniosynostosis has resulted in improvement in perioperative morbidity including decreased blood loss and transfusion ,shorter operation,and shorter hospital stays [67]. The main goals of craniofacial surgery is to maintain hemodynamic stability and oxygen carrying capacity and to prevent and treat hyper fibrosis and delusional coagulopathy during the surgery [8]. Over transfusion and transfusion related side effects should be minimised .The recent explosion in our understanding of development biology and genetics has enhanced our understanding of craniofacial biology [8,9]. While studies have reported [9] that it is not possible to summarise each and every new craniofacial findings and development[10]. Ongoing research in bone biology has brought new cutting-edge technologies into everyday use in craniofacial surgery. Nonetheless, when osseous defects the craniomaxillofacial skeleton are encountered, autogenous bone grafting remains the criteria standard for reconstruction . [11].The novel and emerging field of bone-tissue engineering holds great

promise as a limitless source of autogenous bone studies have reported [12,13]. According to the core principles of bone crafting in craniofacial surgery physiology is of great permanent importance . Bone grafting in craniofacial survey ;donor site morbidity and operative risk among the limitations of the autogenous bone grafting harvest[14].

In this survey research was done to assess the awareness and knowledge of undergraduate dental students on craniofacial surgeries through an online survey.

Materials and Method

Study Design:

This was an experimental study based on a questionnaire. The sample size of this study is 128. There was voluntary involvement by the participants and no incentives were provided for the participants. The sampling method done in this survey is simple random sampling and the measures taken to minimise biasing is by using software and avoiding leading questions

Survey Instrument:

Questionnaire was formatted after reviewing the existing literature, the questions were distributed through an online survey platform. The participants were well aware of the survey , the participants were explained about the purpose of this study in detail. The response was, therefore, estimated by personally collecting the completely filled questionnaire from the samples.**.** The answer was marked carefully by the participant. The questions consisted of 10 prepared questions.

Analysis

The results were collected and analysed carefully. Using software SPSS [15–19] and the type of analysis done is descriptive analysis. The independent variable age, sex, gender. The dependent variable of this survey is dental students.

Result and Discussion

The data was collected and analysed This study is to estimate that the majority of the undergraduate students are aware of Craniofacial surgery and have knowledge in craniofacial surgery but not in depth. This is the result analysed from the survey done above.

As the survey was done on a small scale basis the results were taken and analysed carefully and statistically. In (figure 1) Chi square test was done to analyse the association between gender and awareness on craniofacial surgeries in which 30% of female and 27% of the male answered they are aware and 24% of the female and 19% of the male answered they are not aware (P value:0.752). It was found statistically not significant. In (figure 2) Chi square test was done to analyse the association between gender and awareness on procedures under craniofacial surgeries. Out of 17% participants who opted craniofacial reconstruction, 7% constituted female and 10% constituted male .Out of 20% participants who opted craniosynostosis, 10% constituted female amd 10% constituted male .Out of 27% participants who opted cleft lip and palate,10% constituted male and 17% constituted female. Out of 36% participants who opted all the above, 20% constituted female and 16% constitutes male.(P value:0.539). It was found statistically not significant. In (figure 3) Chi square test was done to analyse the association between gender and awareness on craniofacial surgeries including brain and eye. In which 21% of females and 27% of the male answered they are aware and 33% of the female and 19% of the male answered they are not aware (P value:0.048). It was found statistically not significant. In (figure 4) Chi square test was done to analyse the association between gender and awareness on craniofacial doctors treated the same as doctors, In which 29% of female and 28% of the male answered they are aware and 25% of the female and 18% of the male answered they are not aware (P value:0.471). It was found statistically not significant. In (figure 5) Chi square test was done to analyse the association between gender and awareness on craniofacial surgeries are tissue specific, In which 32% of female and 25% of the male answered they are aware and 22% of the female and 21% of the male answered they are not aware (P value:0.621). It was found statistically not significant. In (figure 6) when asked the participants if they knew about craniofacial anomalies 51.11% of the participants knew about craniofacial anomalies (represented in red) and the rest of the participants that is 48.89% said that they are not aware of craniofacial anomalies (represented in blue). The present research work was elicited from works done by investigators, where previous studies

were done based on clinical reports, interventional studies like [20,21] ,in vitro studies like [15,17–19,22–25] , and systematic reviews,[14,26,27,28].According to previous Similar study all predoctoral dental undergraduate students showed learning diagnosis, treatment,awareness on craniofacial surgery and similar to our study. In (figure.10) When asked the participants if they are aware of craniofacial surgeons are being treated the same as MBBS doctors 50.37%(represented in red) said no that they are not being treated in the same way and the rest of the participants that is 49.63% (represented in blue)said that they are being treated in the same way.

According to previous similar study undergraduates should have minimum knowledge awareness on craniofacial surgery. There are no opposing findings to this novel article. Limitations of this study results are that of small population, low sample size and homogeneous population and the answers are biased and could also include more questions and more type of population these are the limitations of this very study. From this study the future scope is that the study must be done in depth and finalized and the population/sample size of the research must be more detailed analysed on this research topic.

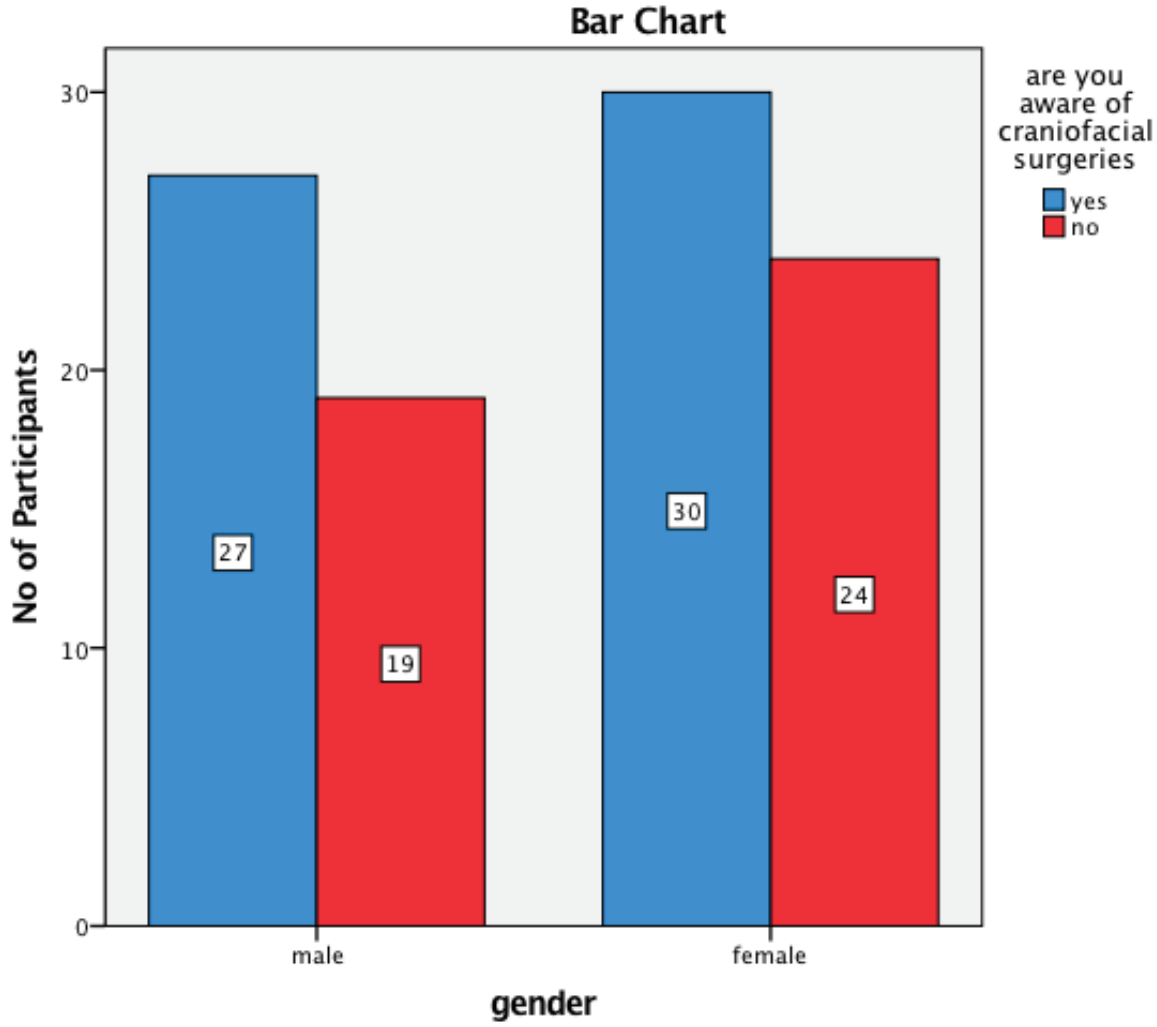

Fig.1 : Bar chart represents the association between gender and awareness on craniofacial surgeries. X-axis represents the Gender and Y-axis represents the number of participants who were aware (blue) and not aware (red). Out of 57% of the participants who were aware, 30% constituted female and 27% constituted male. Females are more aware than males about craniofacial surgeries. Chi square test was done. Pearson's Chi square value: 0.100, DF - 1, P value: 0.752(>0.05) hence it is statistically not significant.

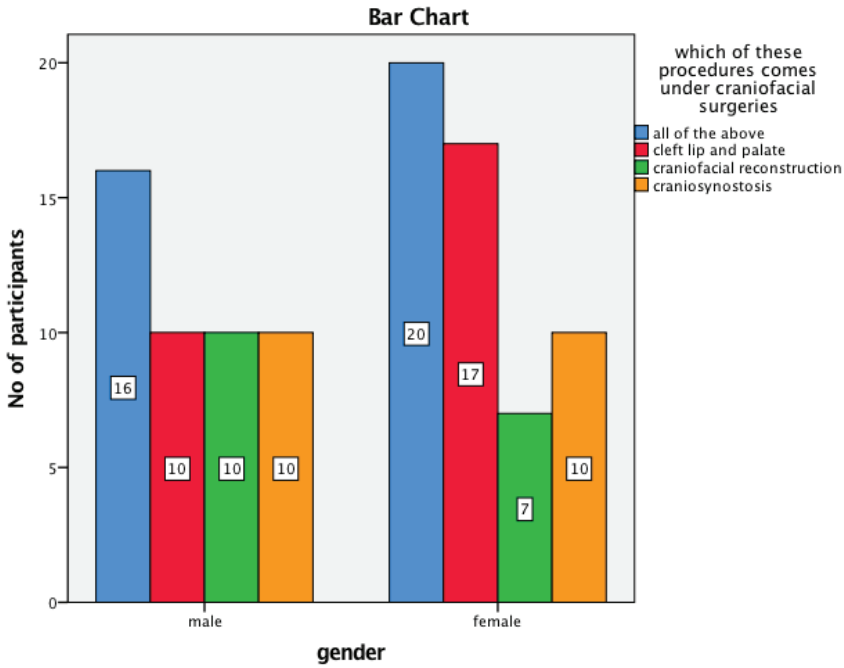

Fig.2: Bar chart represents the association between gender and awareness on procedures under craniofacial surgeries. X-axis represents the Gender and Y-axis represents the number of participants responding awareness on procedures under craniofacial surgeries. Out of 36% participants who opted all the above, 20% constitutes female and 16% constitutes male. Females were more aware about the procedures under craniofacial surgeries than females. Chi square test was done and the association was found statistically not significant. Pearson's Chi square value: 2.163, DF - 3, P value: 0.539(>0.05) hence not significant.

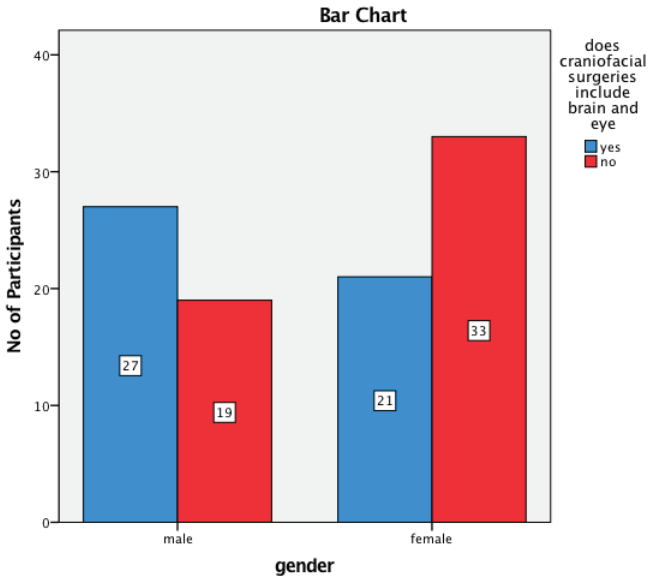

Fig.3 : Bar chart represents the association between gender and awareness on craniofacial surgeries including brain and eye. X-axis represents the Gender and Y-axis represents the number of participants who said yes (blue) and no (red). Out of 48% participants who were aware, 21% constitute female and 27% constitute male. When compared to male, females were slightly more aware Chi square test was done and the association was found statistically not significant. Pearson's Chi square value: 3.904, DF - 1, P value: 0.048(>0.05) hence not significant.

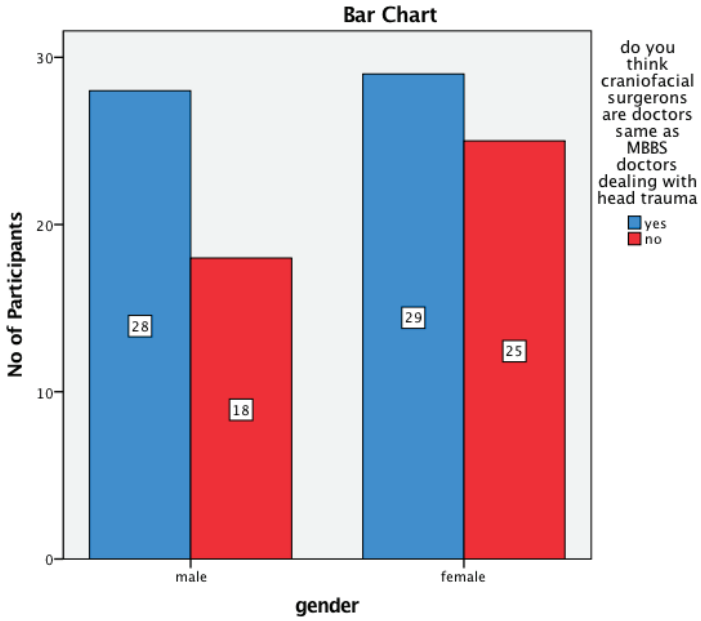

Fig.4 : Bar chart represents the association between gender and awareness on craniofacial doctors treated the same as doctors . X-axis represents the Gender and Y-axis represents the number of participants said yes (blue) and no (red). Out of 57% participants who were aware, 29% constitute female and 28% constitute male.When compared there is no significant difference in responses between male and females. Chi square test was done and the association was found statistically not significant. Pearson's Chi square value: 0.520, DF - 1, P value: 0.471(>0.05) hence not significant.

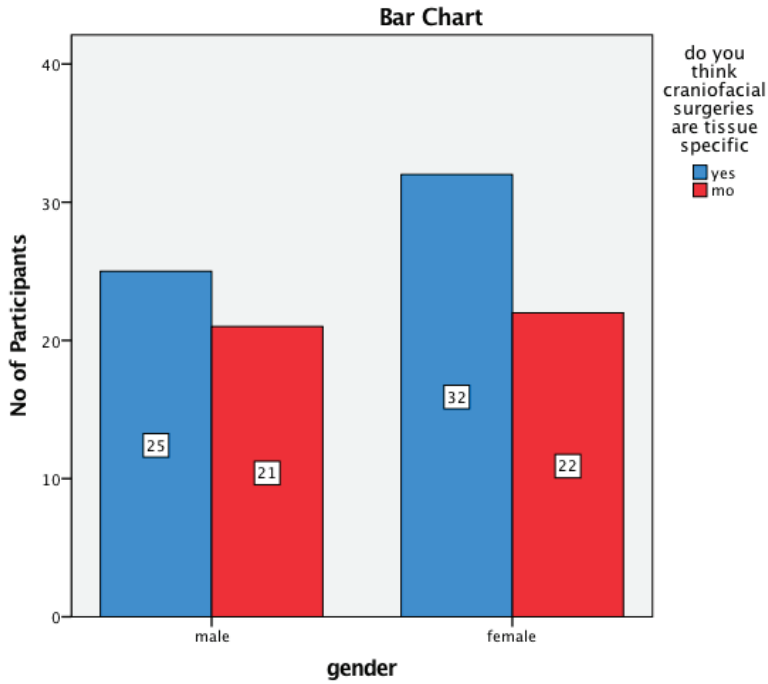

Fig.5 : Bar chart represents the association between gender and awareness on craniofacial surgeries are tissue specific. X-axis represents the Gender and Y-axis represents the number of participants said yes (blue) no (red).Out of 57% of the participants who were aware, 32% constitute female and 25% constitute male. When compared to male, females were slightly more aware. Chi square test was done and the association was found not to be significant statistically. Pearson's Chi square value: 0.244, DF - 1, P value: 0.621(>0.05) hence not significant.

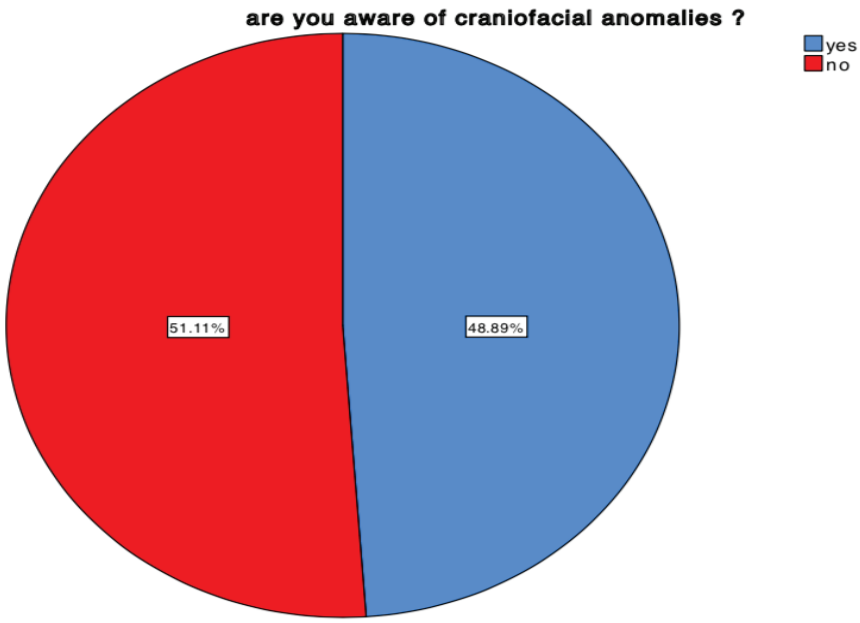

Fig.6: Pie chart depicts knowledge among study participants regarding awareness of craniofacial anomalies. 51.11% responded no (red) and 49.89% responded yes (blue)

Conclusion

Within the limitations of the study following conclusions can be drawn,

The undergraduate students are moderately aware of craniofacial surgery and what it deals with but in-depth knowledge about craniofacial surgery can be gained with further academic progression.

Acknowledgement: The author would like to thank the study participants for their participation and kind cooperation.

Conflicts of Interest : The author declares that there was no conflict of interest in the present study.

Source of Funding : Self.

Ethical Clearance: Not Required

References

1. Boffano P, Boffano M, Gallesio C, Roccia F, Cignetti R, Piana R. Rugby Players' Awareness of Concussion [Internet]. Vol. 22, Journal of Craniofacial Surgery. 2011. p. 2053–6. Available from: http://dx.doi.org/10.1097/scs.0b013e318231988d
2. Kumar V, Singh AK, Faisal A, Nandini R. Awareness among medical fraternity regarding the role of plastic surgeon [Internet]. Vol. 44, Indian Journal of Plastic Surgery. 2011. p. 494–7. Available from: http://dx.doi.org/10.1055/s-0039-1699525
3. Jyothi S, Robin PK, Ganapathy D, Anandiselvaraj. Periodontal Health Status of Three Different Groups Wearing Temporary Partial Denture [Internet]. Vol. 10, Research Journal of Pharmacy and Technology. 2017. p. 4339. Available from: http://dx.doi.org/10.5958/0974-360x.2017.00795.8
4. Poole MD. Complications in craniofacial surgery. Br J Plast Surg [Internet]. 1988 Nov;41(6):608–13. Available from: http://dx.doi.org/10.1016/0007-1226(88)90168-3
5. Schafer ME. Craniofacial surgery. Its evolution and application. Neurol Clin [Internet]. 1985 May;3(2):331–57. Available from: https://www.ncbi.nlm.nih.gov/pubmed/3894919
6. Reddy SG, Reddy LV, Reddy RR. Developing and Standardizing a Center to Treat Cleft and Craniofacial Anomalies in a Developing Country Like India [Internet]. Vol. 20, Journal of Craniofacial

Surgery. 2009. p. 1664–7. Available from: http://dx.doi.org/10.1097/scs.0b013e3181b2d6c7

7. Ariga P, Nallaswamy D, Jain AR, Ganapathy DM. Determination of Correlation of Width of Maxillary Anterior Teeth using Extraoral and Intraoral Factors in Indian Population: A Systematic Review [Internet]. Vol. 9, World Journal of Dentistry. 2018. p. 68–75. Available from: http://dx.doi.org/10.5005/jp-journals-10015-1509
8. Ghali S, Knox KR, Boutros S, Thorne CH, McCarthy JG. The Incidence of Late Cephalohematoma following Craniofacial Surgery [Internet]. Vol. 120, Plastic and Reconstructive Surgery. 2007. p. 1004–8. Available from: http://dx.doi.org/10.1097/01.prs.0000277997.56941.e5
9. de Santana Santos T, Albuquerque KM, Santos MESM, Laureano Filho JR. Survey on complications of orthognathic surgery among oral and maxillofacial surgeons. J Craniofac Surg [Internet]. 2012 Sep;23(5):e423–30. Available from: http://dx.doi.org/10.1097/SCS.0b013e31825e49c1
10. Mehrara BJ, Longaker MT. New Developments in Craniofacial Surgery Research [Internet]. Vol. 36, The Cleft Palate-Craniofacial Journal. 1999. p. 377–87. Available from: http://dx.doi.org/10.1597/1545-1569_1999_036_0377_ndicsr_2.3.co_2
11. Rossell-Perry P. A New Horizon for Craniofacial Research in Latin America [Internet]. Vol. 29, Journal of Craniofacial Surgery. 2018. p. 1392. Available from: http://dx.doi.org/10.1097/scs.0000000000004694
12. Wan D, Chen J, Longaker M. Research Directions in Craniofacial Surgery [Internet]. Craniofacial Surgery. 2007. p. 373–87. Available from: http://dx.doi.org/10.3109/9781420020151-25
13. Selvan SR, Ganapathy D. Efficacy of fifth generation cephalosporins against methicillin-resistant Staphylococcus aureus-A review [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1815. Available from: http://dx.doi.org/10.5958/0974-360x.2016.00369.3
14. Çelik M. Craniofacial Bone Grafting [Internet]. Bone Grafting - Recent Advances with Special References to Cranio-Maxillofacial Surgery. 2018. Available from: http://dx.doi.org/10.5772/intechopen.78787
15. Ajay R, Suma K, Ali S, Sivakumar JK, Rakshagan V, Devaki V, et al. Effect of surface modifications on the retention of cement-retained implant crowns under fatigue loads: An In vitro study [Internet]. Vol. 9, Journal of Pharmacy And Bioallied Sciences. 2017. p. 154. Available from: http://dx.doi.org/10.4103/jpbs.jpbs_146_17
16. Ashok V, Suvitha S. Awareness of all ceramic restoration in rural population [Internet]. Vol. 9, Research Journal of Pharmacy and Technology. 2016. p. 1691. Available from: http://dx.doi.org/10.5958/0974-360x.2016.00340.1
17. Ranganathan H, Ganapathy DM, Jain AR. Cervical and Incisal Marginal Discrepancy in Ceramic Laminate Veneering Materials: A SEM Analysis. Contemp Clin Dent [Internet]. 2017 Apr;8(2):272–8. Available from: http://dx.doi.org/10.4103/ccd.ccd_156_17
18. Ganapathy D, Sathyamoorthy A, Ranganathan H, Murthykumar K. Effect of Resin Bonded Luting Agents Influencing Marginal Discrepancy in All Ceramic Complete Veneer Crowns. J Clin Diagn Res [Internet]. 2016 Dec;10(12):ZC67–70. Available from: http://dx.doi.org/10.7860/JCDR/2016/21447.9028
19. Duraisamy R, Krishnan CS, Ramasubramanian H, Sampathkumar J, Mariappan S, Navarasampatti Sivaprakasam A. Compatibility of Nonoriginal Abutments With Implants: Evaluation of Microgap at the Implant-Abutment Interface, With Original and Nonoriginal Abutments. Implant Dent [Internet]. 2019 Jun;28(3):289–95. Available from: http://dx.doi.org/10.1097/ID.0000000000000885
20. Ashok V, Nallaswamy D, Benazir Begum S, Nesappan T. Lip Bumper Prosthesis for an Acromegaly Patient: A Clinical Report. J Indian Prosthodont Soc [Internet]. 2014 Dec;14(Suppl 1):279–82. Available from: http://dx.doi.org/10.1007/s13191-013-0339-6
21. Venugopalan S, Ariga P, Aggarwal P, Viswanath A. Magnetically retained silicone facial prosthesis. Niger J Clin Pract [Internet]. 2014 Mar;17(2):260–4. Available from: http://dx.doi.org/10.4103/1119-3077.127575
22. Subasree S, Murthykumar K, Dhanraj. Effect of Aloe Vera in Oral Health-A Review [Internet]. Vol.

9, Research Journal of Pharmacy and Technology. 2016. p. 609. Available from: http://dx.doi.org/10.5958/0974-360x.2016.00116.5

23. Vijayalakshmi B, Ganapathy D. Medical management of cellulitis. Research Journal of Pharmacy and Technology [Internet]. 2016;9(11):2067–70. Available from: http://www.indianjournals.com/ijor.aspx? target=ijor:rjpt&volume=9&issue=11&article=051
24. Ganapathy DM, Kannan A, Venugopalan S. Effect of Coated Surfaces influencing Screw Loosening in Implants: A Systematic Review and Meta-analysis [Internet]. Vol. 8, World Journal of Dentistry. 2017. p. 496–502. Available from: http://dx.doi.org/10.5005/jp-journals-10015-1493
25. Kannan A, Venugopalan S. A systematic review on the effect of use of impregnated retraction cords on gingiva [Internet]. Vol. 11, Research Journal of Pharmacy and Technology. 2018. p. 2121. Available from: http://dx.doi.org/10.5958/0974-360x.2018.00393.1
26. Alghamdi KB. Awareness of Medical Survey among School Teachers in Jeddah, Saudi Arabia [Internet]. Vol. 9, Global Journal of Health Science. 2017. p. 174. Available from: http://dx.doi.org/10.5539/gjhs.v9n10p174
27. Basha FYS, Ganapathy D, Venugopalan S. Oral Hygiene Status among Pregnant Women [Internet]. Vol. 11, Research Journal of Pharmacy and Technology. 2018. p. 3099. Available from: http://dx.doi.org/10.5958/0974-360x.2018.00569.3
28. MacIver C, Chiu GA. Preparing for a career in oral and maxillofacial surgery: a survey of dentists at medical schools. Br J Oral Maxillofac Surg [Internet]. 2005 Dec;43(6):516–9. Available from: http://dx.doi.org/10.1016/j.bjoms.2005.01.019