



## Preference and Frequency of Bps Complete Denture in An Institutional Setup - A Retrospective Study

Kiruthika Patturaja<sup>1</sup>, Revathi Duraisamy<sup>2\*</sup>, Iffat Nasim<sup>3</sup>

<sup>1</sup>Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical sciences, Saveetha University, Chennai  
Email: [151501048.sdc@saveetha.com](mailto:151501048.sdc@saveetha.com)

<sup>2</sup>Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical sciences, Saveetha University, Chennai  
Email: [revathid.sdc@saveetha.com](mailto:revathid.sdc@saveetha.com)

<sup>3</sup>Professor and HOD, Department of Conservative Dentistry and Endodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical sciences, Saveetha University, Chennai  
Email: [iffatnasim@saveetha.com](mailto:iffatnasim@saveetha.com)

### ABSTRACT

The Biofunctional Prosthetic System (BPS) of complete denture is specially designed to work harmoniously optimising oral function, comfort, superior aesthetics giving natural appearance on the patient and maximizing function of the prosthesis. BPS using the functional impression technique from the active jaw movement of the patient and followed with simulation of patient's jaw using semi-adjustable articulator. The present study aims to find the frequency and preference of BPS denture usage. A retrospective study was conducted by retrieving data of patients who underwent replacement of missing teeth by BPS complete denture at an University hospital setting between June 2019-March 2020 from a total of 86,000 case records. A total of 81 subjects who received BPS dentures data on socio-economic status, systemic health manifestation, age and gender were recorded. The data were collected and statistical tests done by Chi-square test and descriptive analysis by SPSS statistical analyser 20.0. The findings of the present study shows that the prevalence rate of females 59.3% receiving BPS dentures was higher than males. BPS dentures were found to be more prevalent in use among upper socio-economic status 43.21%. There was no statistically significant association between gender and socioeconomic status  $p=0.810$ . Age, gender had statistically significant association with systemic health manifestations  $p=0.012$  and  $p=0.073$  respectively. Within the limitation of the study, the preference and frequency of BPS usage was more among higher socioeconomic status, females and those with systemic health manifestation

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### INTRODUCTION

Edentulism is a common phenomenon and is often treated with provision of complete denture and removable partial denture by the use of different techniques and materials [1]. Edentulousness is considered as a handicap to oral function which has

a psychosocial impact on quality of life. In edentulous patients, denture restores teeth and oral tissues thus providing masticatory, phonetic and aesthetic appearance which can improve the quality of life [2-5]. The goal of treating patients

\* **Contact:** Revathi Duraisamy, Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical sciences, Saveetha University, Chennai, [revathid.sdc@saveetha.com](mailto:revathid.sdc@saveetha.com)  
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with complete denture is to restore normal contour, aesthetics and preserve residual alveolar ridge.

Traditional complete dentures have been regarded as a versatile and cost efficient treatment option for a significant number of patients. However, success of complete denture treatment outcome remains unpredictable due to pain, discomfort, loss of retention and stability of the prosthesis [6]. To overcome the disadvantage, implant supported overdentures have been shown to provide a viable alternative to stabilise the dentures even in resorbed ridges and a high success rate has been evaluated [7]. Recent advances of CAD/CAM complete dentures have improved the quality of prosthesis such as improved retention, reduction in porosity and polymerisation shrinkage [8].

Biofunctional Prosthetic System is also called 'biogenic' or 'Biofunction' because of the ability to construct dentures which resemble natural elements they substitute by fulfilling aesthetics, function and phonetic demand [9–12]. The BPS system is based on the gnathological principles, consists of a series of steps from impression making, bite registration, teeth setting, polymerisation and finishing using Ivoclar vivadent system customised to individual patients which intends to overcome the disadvantages of conventional complete denture [13–17]. The masticatory efficiency and stability of BPS dentures were found to be superior to traditional conventional dentures [18–21].

Morbidity and Mortality has a significant association with demographics such as age, gender and socioeconomic status. Social economic inequalities play an important role from tooth loss to rehabilitation. Social and economic inequalities within society determine the risk of illness [22–24]. Systemic health conditions like diabetes and neuromuscular disease, asthma have an ill effect to complete denture adaptation due to factors such as xerostomia, residual ridge resorption which all play an important role in success rate of denture [25].

Previously we have focused our research on various invitro and invivo studies. [26–45] We have currently shifted our focus to this retrospective analysis. The present study aims to find the preference and frequency of BPS complete denture usage based on systemic health manifestation and socioeconomic status.

## MATERIALS AND METHODS

### Study design and setting

A retrospective study was conducted to find out the preference and frequency of BPS complete denture usage. The study was employed by reviewing 86,000 records of patients visiting the authors University hospital from June 2019 to March 2020. A total of 81 records with signed informed consent

of patients receiving bps dentures, age, systemic health manifestation and socioeconomic status were retrieved.

### Ethical approval

Prior permission to utilize the data for study and analysis was obtained from the Institutional Research Committee of the University under ethical approval number SDC/SIHEC/2020/DIASDATA/0619-0320.

### Data collection

We made an effort that all the 81 (48 females and 33 males) retrieved case records had all the information needed for the study with no duplicates with the help of an external reviewer. The age of the patients in the case records was categorized for the convenience of statistical analysis such as 35-50 years, 51-75 years, 75-90 years. The socioeconomic status was based on B.G.Prasad 2019 socio-economic scale and were categorised as 1- upper-class, 2- upper middle class, 3- middle class, 4- lower middle class, 5- lower class. Cross verification of datas was done over the telephone.

### Statistical analysis

Datas on age, gender, socioeconomic status, systemic health manifestation of BPS denture receiving patients were recorded and tabulated in Microsoft Excel and imported to SPSS statistical analysis of version 23.0. Descriptive statistics were used to present the preference of socioeconomic status based on BPS denture usage and a chi-square test was done to find the association between gender and systemic health manifestation. A statistical significance p value <0.05 was considered.

## RESULTS AND DISCUSSION

Of the total study participants, 81 case records on patients receiving BPS denture who had complete data was considered for the study. Figure 1 shows the gender distribution based on frequency of BPS denture usage, 59.26% were females and 40.74% were males. Figure 2 shows age distribution based on BPS denture usage, about 17.28% of the subjects were between the age group of 35 to 50 years, 70.37% were between 51 to 75 years and 12.35% were more than 75 years of age. The mean age of the study participants was 62 years. Figure 3 shows preference of BPS dentures usage based on socioeconomic status. About 43.21% BPS denture users were of upper class, 22.22% were of upper middle class, 27.16% were of middle class and 7.41% were lower middle class. Figure 4 shows association of gender with socioeconomic status. distribution of females in upper class (27.16%), upper middle class (11.11%), middle class (16.05%), lower middle class (4.94%) and males in

upper class (16.05%), upper middle and middle class (11.11%) and lower class (2.47%). Higher prevalence of males and females in upper class . There is no statistically significant association between socioeconomic status and gender ( $p=0.810$ ). Figure 5 shows association of systemic health manifestation based on gender. About 43.21% of females and 18.52% of males had systemic disease present while 16.05% of females and 22.22% of males had no history of systemic disease and were healthy. Association of systemic health manifestation with the gender shows a statistical significance  $p=0.012$ . Figure 6 shows association of systemic health manifestation based on age . Distribution of systemic disease in the age group of 35-50 years (12.35%), 51-75 years (38.27%), 76-90 years (11.11%) and systemically healthy in the age group of 35-50 years (4.94%), 51-75 years (32.10%), 76-90 years (1.23%). There was statistically significant association between age and systemic health manifestations ( $p=0.073$ ). Currently the Biofunctional prosthetic system prioritises the principle of bilateral balanced occlusion. The present study findings shows that bps dentures usage was seen at the mean age of 62 years. There was significant association between age and presence of systemic disease. While Carr et al , reported the mean age of patients receiving dentures as 58.37 years [46] and Ogunrinde et al ,reported a mean age of 69.10years increased prevalence of systemic disease with increase in age group. [47]. Which indicates higher prevalence of completely dentulous patients requiring BPS systems among older age groups.

The present study findings shows that females had higher preference to BPS denture and systemic health manifestation suggestive of aesthetic concern more among females. Similar findings Xie et al, found association between gender, residual ridge resorption and systemic disease. Females having higher risk of residual ridge resorption due to oestrogen deficiency after menopause . Edentulous elderly subjects the most severe resorption in the edentulous mandible seems to be related to systemic factors rather than to duration of edentulousness, especially with regard to resorption involving the basal portion of the mandible [18,48]. The present study findings shows that females had higher prevalence to BPS denture and systemic health manifestation suggestive of is that they contain more among females, this suggest higher use of BPS dentures as the efficiency is better than conventional dentures in resorbed ridges [49]. Systemic diseases such as diabetes, asthma, administration of steroids etc have been associated with residual ridge resorption which in turn compromises the efficiency of conventional denture thus opting for BPS dentures [50].

The present study findings showed higher frequency of BPS dentures usage in upper socioeconomic status than lower groups. Similar finding Pessoa et al ,socioeconomic factors may be associated with different approaches to use dental services ,low socioeconomic groups had a high proportion of those who needed dental prosthetic appliances had unmet prosthetic needs [22] . Nadgere et al, social pressure to maintain esthetics and function can be a driving force in influencing individuals in upper socioeconomic classes to have their missing teeth replaced [51]. This suggests the higher cost of fabrication and technique, affordability by upper class people while complete edentulism was higher among lower socioeconomic groups due to poverty, lack of education and their affordability only to removable dentures which are less in cost [52].

However the limitation of the study such as less sample size, geographical limitation may also contribute to bias in the outcome of the study . There are very few literature studies done on BPS dentures . Hence, further studies should be conducted among the large scale population to find the prevalence , long-term follow-up to evaluate the success rate of BPS dentures.

## CONCLUSION

Within the limitations of the study higher frequency of BPS usage was found females with upper socioeconomic status. Association of systematic health manifestation and BPS denture usage was found to be more among females .

## AUTHORS CONTRIBUTION

First author (Kiruthika Patturaja) performed the analysis, interpretation and wrote the manuscript. Second author (Revathi Duraisamy) contributed to conception, data design, analysis, interpretation and critically revised the manuscript.

Third author (Iffat Nasim) participated in the study and revised the manuscript. All the three authors have discussed the results and contributed to the final manuscript.

## CONFLICTS OF INTEREST

None declared.

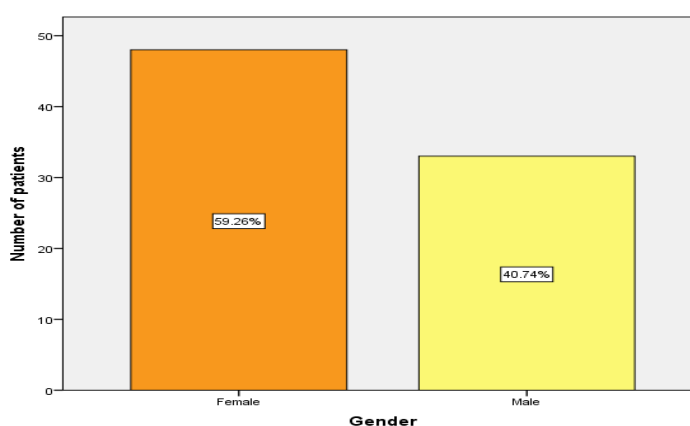
## REFERENCES

1. Jayaraman S, Singh BP, Ramanathan B, Pillai MP, MacDonald L, Kirubakaran R. Final-impresion techniques and materials for making complete and removable partial dentures [Internet]. Cochrane Database of Systematic Reviews. 2018. Available from: <http://dx.doi.org/10.1002/14651858.cd012256.pub2>
2. Goiato MC, Filho HG, Dos Santos DM, Barão

- VAR, Júnior ACF. Insertion and follow-up of complete dentures: a literature review. *Gerodontology*. 2011 Sep;28(3):197-204.
3. Ajay R, Suma K, Ali SA, Kumar Sivakumar JS, 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. *J Pharm Bioallied Sci*. 2017 Nov;9(Suppl 1):S154-60.
  4. Basha FYS, Ganapathy D, Venugopalan S. Oral Hygiene Status among Pregnant Women. *Research Journal of Pharmacy and Technology*. 2018;11(7):3099-102.
  5. Kannan A, Venugopalan S. A systematic review on the effect of use of impregnated retraction cords on gingiva. *Research Journal of Pharmacy and Technology*. 2018;11(5):2121-6.
  6. Zarb GA, Schmitt A. Implant prosthodontic treatment options for the edentulous patient. *J Oral Rehabil*. 1995 Aug;22(8):661-71.
  7. D. Mericske-Stern R, Taylor TD, Belsler U. Management of the edentulous patient. *Clinical Oral Implants Research: Chapter 7*. 2000;11:108-25.
  8. Thalji G, Jia-mahasap W. CAD/CAM Removable Dental Prostheses: a Review of Digital Impression Techniques for Edentulous Arches and Advancements on Design and Manufacturing Systems. *Current Oral Health Reports*. 2017 Jun 1;4(2):151-7.
  9. Xhajanka E, Bardhoshi M, Gjilo K, Meto A. Construct of the Full Removable Prosthetic Based on Biofunctional System in Edentulous Patients. *IOSR Journal of [Internet]*. 2017; Available from: [https://www.researchgate.net/profile/Aida\\_Meto/publication/315886634\\_Construct\\_of\\_the\\_Full\\_Removable\\_Prosthetic\\_Based\\_on\\_Biofunctional\\_System\\_in\\_Edentulous\\_Patients/links/5c24b44f458515a4c7fbc1ca/Construct-of-the-Full-Removable-Prosthetic-Based-on-Biofunctional-System-in-Edentulous-Patients.pdf](https://www.researchgate.net/profile/Aida_Meto/publication/315886634_Construct_of_the_Full_Removable_Prosthetic_Based_on_Biofunctional_System_in_Edentulous_Patients/links/5c24b44f458515a4c7fbc1ca/Construct-of-the-Full-Removable-Prosthetic-Based-on-Biofunctional-System-in-Edentulous-Patients.pdf)
  10. Venugopalan S, Ariga P, Aggarwal P, Viswanath A. Magnetically retained silicone facial prosthesis. *Niger J Clin Pract*. 2014 Mar;17(2):260-4.
  11. Ashok V, Suvitha S. Awareness of all ceramic restoration in rural population. *Research Journal of Pharmacy and Technology*. 2016;9(10):1691-3.
  12. Ashok V, Nallaswamy D, Benazir Begum S, Nesappan T. Lip Bumper Prosthesis for an Acromegaly Patient: A Clinical Report. *J Indian Prosthodont Soc*. 2014 Dec;14(Suppl 1):279-82.
  13. Paperpile [Internet]. [cited 2020 Jun 11]. Available from: <https://paperpile.com/app/p/961bebcd-1f73-0250-9ff6-2f9c5f6d015e>
  14. Vijayalakshmi B, Ganapathy D. Medical management of cellulitis. *J Pharm Res [Internet]*. 2016; Available from: <http://www.indianjournals.com/ijor.aspx?target=ijor:rjpt&volume=9&issue=11&article=051>
  15. Jain A, Ranganathan H, Ganapathy D. Cervical and incisal marginal discrepancy in ceramic laminate veneering materials: A SEM analysis [Internet]. Vol. 8, *Contemporary Clinical Dentistry*. 2017. p. 272. Available from: [http://dx.doi.org/10.4103/ccd.ccd\\_156\\_17](http://dx.doi.org/10.4103/ccd.ccd_156_17)
  16. Subasree S, Murthykumar K, Others. Effect of Aloe Vera in Oral Health-A Review. *Research Journal of Pharmacy and Technology*. 2016;9(5):609-12.
  17. 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*. 2016 Dec;10(12):ZC67-70.
  18. Xie Q, Ainamo A, Tilvis R. Association of residual ridge resorption with systemic factors in home-living elderly subjects. *Acta Odontol Scand*. 1997 Oct;55(5):299-305.
  19. 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>
  20. Selvan SR, Ganapathy D. Efficacy of fifth generation cephalosporins against methicillin-resistant *Staphylococcus aureus*-A review. *Research Journal of Pharmacy and Technology*. 2016;9(10):1815-8.
  21. 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*. 2019 Jun;28(3):289-95.
  22. Pessoa DM da V, da Veiga Pessoa DM, Roncalli AG, de Lima KC. Economic and sociodemographic inequalities in complete denture need among older Brazilian adults: a cross-sectional population-based study [Internet]. Vol. 17, *BMC Oral Health*. 2017. Available from: <http://dx.doi.org/10.1186/s12903-016-0233-9>
  23. Jyothi S, Robin PK, Ganapathy D, Others.

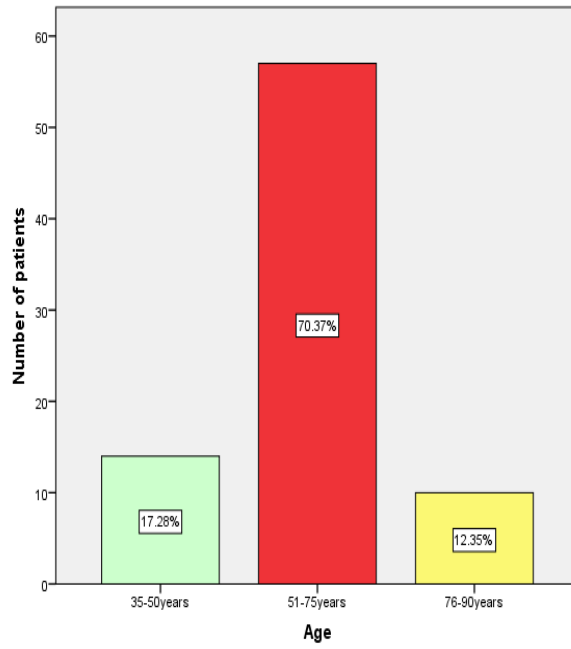
- Periodontal health status of three different groups wearing temporary partial denture. *Research Journal of Pharmacy and Technology*. 2017;10(12):4339–42.
24. Jain AR, Nallaswamy D, Ariga P, Ganapathy DM. Determination of correlation of width of maxillary anterior teeth using extraoral and intraoral factors in Indian population: A systematic review. *World J Dent*. 2018;9:68–75.
  25. Turner M, Jahangiri L, Ship JA. Hyposalivation, xerostomia and the complete denture: a systematic review. *J Am Dent Assoc*. 2008 Feb;139(2):146–50.
  26. Rajeshkumar S, Kumar SV, Ramaiah A, Agarwal H, Lakshmi T, Roopan SM. Biosynthesis of zinc oxide nanoparticles using *Mangifera indica* leaves and evaluation of their antioxidant and cytotoxic properties in lung cancer (A549) cells. *Enzyme Microb Technol*. 2018 Oct;117:91–5.
  27. Kavitha M, Subramanian R, Narayanan R, Udhayabanu V. Solution combustion synthesis and characterization of strontium substituted hydroxyapatite nanocrystals [Internet]. Vol. 253, *Powder Technology*. 2014. p. 129–37. Available from: <http://dx.doi.org/10.1016/j.powtec.2013.10.045>
  28. Vijayakumar GNS, Nixon Samuel Vijayakumar G, Devashankar S, Rathnakumari M, Sureshkumar P. Synthesis of electrospun ZnO/CuO nanocomposite fibers and their dielectric and non-linear optic studies [Internet]. Vol. 507, *Journal of Alloys and Compounds*. 2010. p. 225–9. Available from: <http://dx.doi.org/10.1016/j.jallcom.2010.07.161>
  29. Danda AK. Comparison of a single noncompression miniplate versus 2 noncompression miniplates in the treatment of mandibular angle fractures: a prospective, randomized clinical trial. *J Oral Maxillofac Surg*. 2010 Jul;68(7):1565–7.
  30. Lekha L, Kanmani Raja K, Rajagopal G, Easwaramoorthy D. Synthesis, spectroscopic characterization and antibacterial studies of lanthanide(III) Schiff base complexes containing N, O donor atoms [Internet]. Vols. 1056–1057, *Journal of Molecular Structure*. 2014. p. 307–13. Available from: <http://dx.doi.org/10.1016/j.molstruc.2013.10.014>
  31. Putchala MC, Ramani P, Herald J, Sherlin, Premkumar P, Natesan A. Ascorbic acid and its pro-oxidant activity as a therapy for tumours of oral cavity – A systematic review [Internet]. Vol. 58, *Archives of Oral Biology*. 2013. p. 563–74. Available from: <http://dx.doi.org/10.1016/j.archoralbio.2013.01.016>
  32. Devi VS, Subathra Devi V, Gnanavel BK. Properties of Concrete Manufactured Using Steel Slag [Internet]. Vol. 97, *Procedia Engineering*. 2014. p. 95–104. Available from: <http://dx.doi.org/10.1016/j.proeng.2014.12.229>
  33. Dhinesh B, Niruban Bharathi R, Isaac JoshuaRamesh Lalvani J, Parthasarathy M, Annamalai K. An experimental analysis on the influence of fuel borne additives on the single cylinder diesel engine powered by *Cymbopogon flexuosus* biofuel [Internet]. Vol. 90, *Journal of the Energy Institute*. 2017. p. 634–45. Available from: <http://dx.doi.org/10.1016/j.joei.2016.04.010>
  34. Danda AK, Tatiparthi MK, Narayanan V, Siddareddi A. Influence of Primary and Secondary Closure of Surgical Wound After Impacted Mandibular Third Molar Removal on Postoperative Pain and Swelling—A Comparative and Split Mouth Study [Internet]. Vol. 68, *Journal of Oral and Maxillofacial Surgery*. 2010. p. 309–12. Available from: <http://dx.doi.org/10.1016/j.joms.2009.04.060>
  35. Gopalakannan S, Senthivelan T, Ranganathan S. Modeling and Optimization of EDM Process Parameters on Machining of Al 7075-B4C MMC Using RSM [Internet]. Vol. 38, *Procedia Engineering*. 2012. p. 685–90. Available from: <http://dx.doi.org/10.1016/j.proeng.2012.06.086>
  36. Venu H, Dhana Raju V, Subramani L. Combined effect of influence of nano additives, combustion chamber geometry and injection timing in a DI diesel engine fuelled with ternary (diesel-biodiesel-ethanol) blends [Internet]. Vol. 174, *Energy*. 2019. p. 386–406. Available from: <http://dx.doi.org/10.1016/j.energy.2019.02.163>
  37. Adalarasan R, Santhanakumar M, Rajmohan M. Application of Grey Taguchi-based response surface methodology (GT-RSM) for optimizing the plasma arc cutting parameters of 304L stainless steel [Internet]. Vol. 78, *The International Journal of Advanced Manufacturing Technology*. 2015. p. 1161–70. Available from: <http://dx.doi.org/10.1007/s00170-014-6744-0>
  38. Parthasarathy M, Isaac JoshuaRamesh Lalvani J, Dhinesh B, Annamalai K. Effect of hydrogen on ethanol-biodiesel blend on performance and emission characteristics of a direct injection diesel engine. *Ecotoxicol Environ*

- Saf. 2016 Dec;134(Pt 2):433-9.
39. Neelakantan P, Cheng CQ, Mohanraj R, Sriraman P, Subbarao C, Sharma S. Antibiofilm activity of three irrigation protocols activated by ultrasonic, diode laser or Er:YAG laser in vitro [Internet]. Vol. 48, International Endodontic Journal. 2015. p. 602-10. Available from: <http://dx.doi.org/10.1111/iej.12354>
  40. Sajan D, Udaya Lakshmi K, Erdogdu Y, Joe IH. Molecular structure and vibrational spectra of 2,6-bis(benzylidene)cyclohexanone: a density functional theoretical study. Spectrochim Acta A Mol Biomol Spectrosc. 2011 Jan;78(1):113-21.
  41. Sharma P, Mehta M, Dhanjal DS, Kaur S, Gupta G, Singh H, et al. Emerging trends in the novel drug delivery approaches for the treatment of lung cancer. Chem Biol Interact. 2019 Aug 25;309:108720.
  42. Ranganathan H, Ganapathy DM, Jain AR. Cervical and Incisal Marginal Discrepancy in Ceramic Laminate Veneering Materials: A SEM Analysis. Contemp Clin Dent. 2017 Apr;8(2):272-8.
  43. Lekha L, Kanmani Raja K, Rajagopal G, Easwaramoorthy D. Schiff base complexes of rare earth metal ions: Synthesis, characterization and catalytic activity for the oxidation of aniline and substituted anilines [Internet]. Vol. 753, Journal of Organometallic Chemistry. 2014. p. 72-80. Available from: <http://dx.doi.org/10.1016/j.jorgchem.2013.12.014>
  44. Neelakantan P, Grotra D, Sharma S. Retreatability of 2 mineral trioxide aggregate-based root canal sealers: a cone-beam computed tomography analysis. J Endod. 2013 Jul;39(7):893-6.
  45. PradeepKumar AR, Shemesh H, Jothilatha S, Vijayabharathi R, Jayalakshmi S, Kishen A. Diagnosis of Vertical Root Fractures in Restored Endodontically Treated Teeth: A Time-dependent Retrospective Cohort Study. J Endod. 2016 Aug;42(8):1175-80.
  46. Carr L, Lucas VS, Becker PJ. Diseases, medication, and postinsertion visits in complete denture wearers. J Prosthet Dent. 1993 Sep;70(3):257-60.
  47. Ogunrinde TJ, Dosumu OO. The influence of demographic factors and medical conditions on patients complaints with complete dentures. Ann Ib Postgrad Med. 2012 Dec;10(2):16-21.
  48. Xie Q, Wolf J, Tilvis R, Ainamo A. Resorption of mandibular canal wall in the edentulous aged population. J Prosthet Dent. 1997 Jun;77(6):596-600.
  49. Baskaran K. Comparative Study of Patient Satisfaction on Receiving Biofunctional Prosthetic System (BPS) and Conventional Complete Denture. pdfs.semanticscholar.org [Internet]. Available from: <https://pdfs.semanticscholar.org/0445/bea053443ff3d4a85a0a2d7dcd4eee09a454.pdf>
  50. Carlsson GE. Clinical morbidity and sequelae of treatment with complete dentures. J Prosthet Dent. 1998 Jan;79(1):17-23.
  51. Nadgere J, Doshi AG, Kishore S. An evaluation of prosthetic status and prosthetic need amongst people living in and around Panvel, Navi-Mumbai-A Survey. Int J Prosthet Dent. 2010;1(1):6-9.
  52. Nagaraj E, Mankani N, Madalli P, Astekar D. Socioeconomic factors and complete edentulism in north karnataka population. J Indian Prosthodont Soc. 2014 Mar;14(1):24-8.

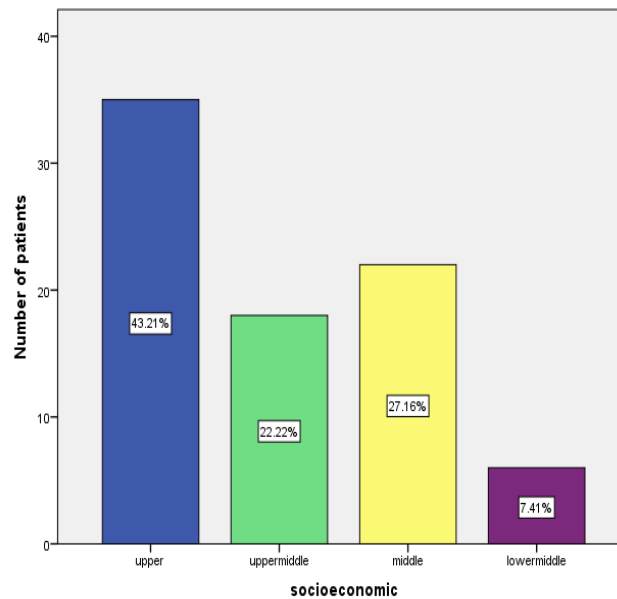


**Figure 1: Bar graph showing distribution of gender among patients who had received Bio functional prosthetic system (BPS) denture. X axis represents gender females (orange) and males (yellow) ,Y axis represents number of patients who received BPS Denture. Higher prevalence of BPS denture usage was seen among females .**





**Figure 2:** Bar graph showing age distribution of patients who received Bio functional prosthetic system (BPS) denture. X axis represents the age group 35-50 years (green), 51-75 years (red),76-90 years (yellow). Y axis represents the number of patients who received BPS dentures . The highest prevalence of BPS denture usage was seen in the age group of 51-75 years.



**Figure 3:** Bar graph represents preference of BPS dentures based on socioeconomic status . X axis represents socioeconomic status denoting upper class (blue) , upper middle class (green) , middle class (yellow) , lower middle class (violet) and Y axis represents number of patients. BPS denture usage among upper socioeconomic status was comparatively higher.

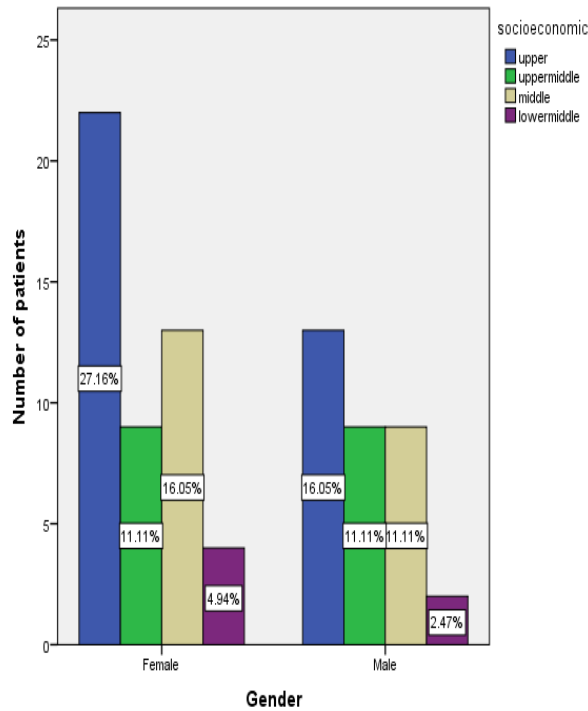


Figure 4: Bar graph shows association of gender with socioeconomic status. The X axis represents gender and The Y axis represents the number of patients fallen under categories of socioeconomic status as upper class (blue), upper middle class (green), middle class (peach), lower middle class (violet). Chi-square test was done and there is no statistically significant association found between socioeconomic status and gender (Pearson Chi-square value -0.963 and p value= 0.810(>0.05)). Even though it is not significant, higher prevalence of BPS denture usage was seen among females with upper socioeconomic status (blue-27.26%).

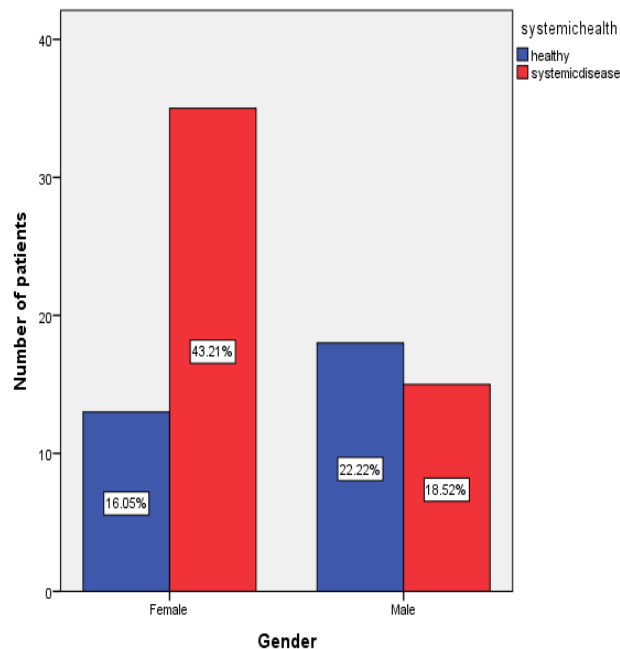
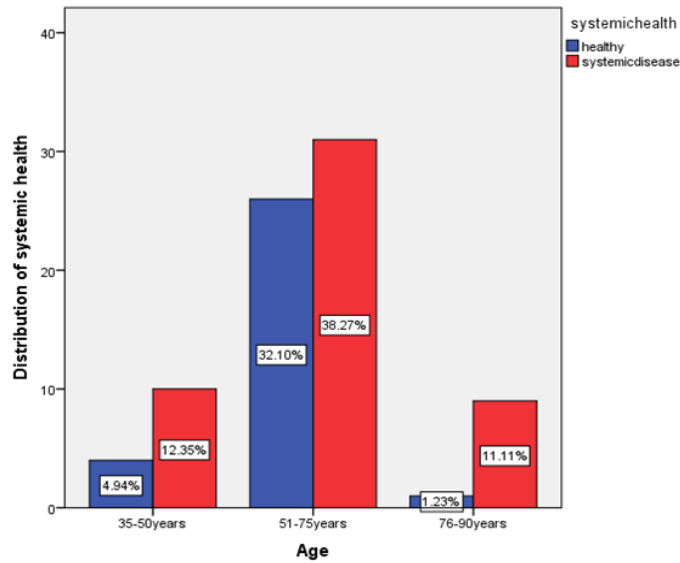


Figure 5: Bar graph shows association of gender with systemic health condition. X axis represents gender and systemic health condition of healthy (blue), diseased patients (red). Y axis represents the number of patients who required BPS dentures. Higher prevalence of systemic diseases was seen in females (red-43.21%) compared to males (red-18.52%). Chi-square test was done and there is a statistically significant association found between systemic health and gender (Pearson Chi-square value -6.243 and p value= 0.012 (<0.05)).





**Figure 6:** Bar graph shows association of age with systemic health condition. The X axis represents the age group 35-50 years , 51-75 years , 76-90 years. Y axis represents the number of patients with systemic health conditions of healthy (blue) , diseased (red). Chi-square test was done and the association between age and systemic condition was found to be statistically not significant. (Pearson Chi-square value -5.242 and p value= 0.073(<0.05)). Even though it is not significant higher prevalence of patients with systemic diseases were seen in all the three age groups with highest among age groups of 51-75 years (red-38.27%).