

ORIGINAL ARTICLE

Awareness of the Green Dentistry Concept among Dental Professionals in Tertiary Care Dental Hospital, RawalpindiVasiqa Bano^{1*}, Erum Amin², Samar Maqbool³, Syed Ali Hassan⁴, Abeer Baber¹, Raabia Urooj⁴**ABSTRACT****Objective:** To assess awareness of green dentistry among graduates, postgraduates and general dentists**Study Design:** Descriptive Cross-sectional.**Place and Duration of Study:** The study was conducted at Armed Forces Institute of Dentistry (AFID) Rawalpindi, Pakistan from August 2022 to October 2022.**Methods:** Based on a pre-validated survey questionnaire comprising of 20 close-ended questions assessing the awareness regarding green dentistry. Male and female respondents consisting of General dentists, graduates, postgraduate and house officers, and practitioners of AFID who gave consent were included in the study. The sample size was calculated using the WHO calculator and 332 respondents were recruited and the questionnaire was distributed, responses were then analyzed using SPSS version 22 and the p -value < 0.05 was considered significant.**Results:** Out of the 332 participants 148 were post-graduates, 109 were Graduates, 35 were consultants and 40 were general dentists with the age range of 25 to 50 years. 248 participants were females and 84 were males and 100% response rate was observed. Postgraduates (47%) were more aware of the eco-friendly dentistry concept the difference was found statistically significant (p -value < 0.000).**Conclusion:** Most of the respondents were aware of the green dentistry concept, those who had little knowledge were accepting the concept and were enthusiastic to inculcate these practices in their practices.**Key Words:** Amalgam, Eco-Friendly Dentistry, Hazards, Questionnaire.**How to cite this:** Bano V, Amin E, Maqbool S, Hassan SA, Baber A, Urooj R. Awareness of Green Dentistry Concept among Dental Professionals. *Life and Science*. 2024; 5(2): 251-258. doi: <http://doi.org/10.37185/LnS.1.1.418>

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Global sustainability is one of the major concerns in today's world due to rising pollution and rapidly changing climates.¹ Since 1992, several conferences have been held to build a framework for the advancing world's road to development,² and in

¹Department of Operative Dentistry/Orthodontics²/Radiology⁴
Armed Forces Institute of Dentistry, Rawalpindi, Pakistan

³Excel Lab, Islamabad

⁴Department of Oncology
Combined Military Hospital, Rawalpindi, Pakistan

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Correspondence:

Dr. Vasiqa Bano

Department of Operative Dentistry
Armed Forces Institute of Dentistry (AFID), Rawalpindi, Pakistan
E-mail: vasiqaali@gmail.com

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September 2000, Millennium Development Goals were set, encouraging countries worldwide towards creating a more sustainable environment.³ 21 years later, 193 countries by November 2021 had their hands joined in this agreement to strengthen climate action.¹ However, to bring about an evolutionary improvement globally, serious environmentally sustainable actions on national and international levels are capially needed to mitigate the hazardous global emissions.⁴

Dentistry, as a vital healthcare profession, has a significant impact on the environmental wastes produced through its' practices. According to the Eco-Dentistry Association, dental practices discard approximately 680 million dental barriers and dispensers, light handle covers, and towel patient bibs, as well as 1.7 million sterilization pouches each

year.⁵ In light of the recent COVID-19 pandemic, necessary usage of single-use disposables, PPEs, single-dose prescribed materials, protective barriers, disinfection, and sterilization protocols. Nonetheless, emphasis needs to be laid on reviewing practices that are environmentally sustainable and favorable to adapt to the pandemic as well as the posed carbon footprint.^{3,5} Other disposables include gloves, surgical masks, suction tips, saliva ejectors, needles, and paper. Much of this waste does not easily decompose. In addition, dental practices generate 4.8 million lead foils, 28 million liters of used X-ray fixers from the processing of radiographic films, and 3.7 tons of mercury-containing wastes and discarded mercury-containing products annually all of them had serious effects on health.^{3,4,5} It stated that estimated carbon dioxide emissions through dental practices were 675 kilotons, as it is a very resource and labor-intensive, and energy-consuming field.⁶ Amalgam-filling material, which contains primarily 50% mercury and causes changes in pH oxygen availability, and temperature if released into the environment, also donates to the wastes produced. It poses as a serious threat to human health if it enters the drinking and irrigation processes. A cross-sectional study was carried out among dental practitioners in Lahore, Pakistan regarding the use and disposal of amalgam waste. It concluded that there was a significant gap in the familiarity of dentists pertaining to the use and proper disposal of amalgam, where approximately 76% of respondents were uninformed about the disposal of dental amalgam and the guidelines of Minamata Convention.^{7,8}

In the 1960s and 1970s, Rachel Carson, a conservationist, began an environmental movement with the publication of his book "The Silent Spring".⁹ It further gave rise to aiming curb on environmental waste with emphasis on 'eco-friendly dentistry', which soon gained its popularity, and the consequent surge has extended till the present day. The EDA (Eco-dentistry Association) defines Green Dentistry as a futuristic approach to abate the environmental impact of dental practices and encompasses ecologically responsible measures that promote pollution prevention, and health and sustain wellness for present and future times.¹⁰

This research is unique as in our knowledge no such concept was evaluated in Pakistan. This study aims to assess and evaluate the prevalence of awareness of Green Dentistry and consequently the dire need of education to provide enough knowledge.

Methods

This descriptive cross-sectional study was conducted at Armed Forces Institute of Dentistry (AFID) Rawalpindi, Pakistan. The sampling technique was consecutive non non-probability, self-administered type questionnaire based. The ethical approval of the study was obtained from the Institutional Ethical Committee, with the reference number. DIR/KMU AS & RB/IM/00081 dated 10th July 2022. The estimated duration was kept 3 months from August 2022 to October 2022 and the sample size of 323 was calculated using a WHO calculator with a confidence interval 95%, population proportion 50% and population size 2000. A 20-item based close questionnaire was selected from previous surveys done on same topic keeping in mind our resources and environment. The questionnaire was then distributed among 350 respondents over and above the estimated sample size as there are chances of exclusion of respondents who do not meet criteria such as missing responses, who were unable to understand the main concept of the study and do not return the questionnaire back. The inclusion criteria was male and female respondents consisting of General dentists, graduates, postgraduate and house officers, and practitioners of AFID who gave consent. The collected data was then analyzed and tabulated using SPSS software version 22. The significance level was fixed at 5% ($\alpha=0.05$). Statistical analysis was done using descriptive statistics and the Chi-square test was used to understand proportions.

Results

Respondent's demographic data is illustrated in (Table-1 and Figure.1), where the total number of participants was 332 out of which 148 were post-graduates, 109 were Graduates, 35 were consultants and 40 were General Dentist of 25 to 50 years. 248(73.60%) participants were females and 84(24.90%) males. 100% response rates were observed.

Table-2 depicts the awareness of eco-friendly

dentistry among study participants. Results showed that 117(47%) of Postgraduates, 81(32.5%)

graduates, 16(6.4%) consultants, and 35(14.1%) Of general dentists were aware of the eco-friendly

Table-1: Demographic data

| Frequency Distribution of Academic status and Experience no. 332 | | | |
|--|-----------------------|---------------------|-----------------------|
| Academic Status | Frequency/percentages | Clinical Experience | Frequency/Percentages |
| Consultants | 35 (10.5%) | >15 Years | 13 (3.9%) |
| Post Graduates | 148 (44.5%) | 11-15 Years | 28 (8.4%) |
| Graduates | 109 (32.8%) | 6-10 Years | 52 (15.6%) |
| General Dentists | 40 (12%) | 0-5 Years | 239 (71.9%) |

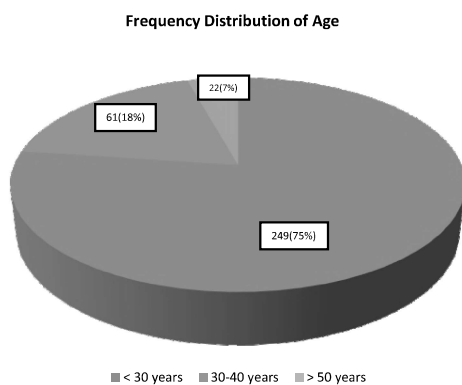


Fig.1: Demographic data of frequency distribution of age

concept and it was reported that the difference was statistically significant with the p -value<0.000. Among different groups of Dental Practitioners, Postgraduates have a higher awareness of the harm done by dental amalgam 120(43.3%), radiographic chemicals 80(34.3%), plastic barrier 83(33.5%), disinfectant solutions 71(42.0%) and incorporation of plants within their clinical setups 50(32.5%) with statistically significant results p -value<0.000. Postgraduates were more conscious regarding eco-friendly strategies to keep records of material usage and wastage 94(42.9%) and implementing waste segregation protocol 79(36.7%) in comparison to other dental practitioners. Statistically significant results were found with a p -value<0.001. In contrast to practitioners, postgraduates knew about using biodegradable housekeeping materials 93(41.2%) and how to use a dry dental vacuum or stainless 64(37.2%). A statistically significant difference was observed with a p -value<0.004.

Table-3 portrays the knowledge regarding eco-friendly dentistry among different dental

practitioner groups. 137(43.1%) postgraduates used disposable drapes among other dentists' statistically significant group (p -value<0.011). Increased enthusiasm has been observed in postgraduates to shift to SS glasses and cloth drapes 52(51.5%). Postgraduates 73(50.7%) have a greater knowledge that shifting to green practice will be economical to dentists and to acquire green practice, minimal resources & no additional cost of basic infrastructure required 62(50.8%) in comparison to graduates, consultants, and general dentists. It was reported that the difference was statistically significant with the p -value<0.000. 116(48.3%) postgraduates argued that energy management is beneficial in green dentistry (p -value<0.001).

Discussion

Eco-Dentistry or Green Dentistry,¹⁰ has taken dentistry beyond the point of preventing pollution to a place of promoting sustainability. The response and interest of participant were remarkable, despite several voids in knowledge regarding green practice most of them were enthusiastic to shift their practice towards eco-friendly dentistry. In our study 47% of students were found to be more aware of eco-friendly practices as compared to consultants 14.1% a statistically significant difference was observed, the reason may be that postgraduate students have more updated knowledge and are continuously involved in professional development.

The postgraduates also seem aware of harm produced by amalgam and disinfectant solutions. Postgraduates were more conscious of eco-friendly strategies and willing to incorporate them in their daily practice, but the main barrier is the economic constraints.¹¹ Dental practitioners and postgraduates

Table-2: Awareness of Eco-Friendly Dentistry among Different Dental Practitioner's Group

| Question | Academic Status | | | | P-Value |
|--|-----------------|---------------------|-------------|--------------------|---------|
| | Graduates | Post - Graduates | Consultants | General Dentist | |
| Awareness of Eco - Friendly Concept | 81 (32.5%) | 117 (47.0%) | 16 (6.4%) | 35 (14.1%) | 0.000 |
| Follow few strategies | 67 (31.5%) | 97 (45.5%) | 14 (6.6%) | 35 (16.4%) | 0.000 |
| Aware of Harm Done to Environment by Dental Practice | 94 (32.8%) | 120 (41.8%) | 33 (11.5%) | 40 (13.9%) | 0.029 |
| Felt Responsible not to Harm Environment | 103 (35.5%) | 122 (42.1%) | 34 (11.7%) | 31 (10.7%) | 0.000 |
| Tried to Reduce Harm Done to Environment | 94 (37.2%) | 104 (41.1%) | 30 (11.9%) | 25 (9.9%) | 0.002 |
| Aware of Harm Done by Dental Amalgam | 105 (36.3%) | 120 (43.3%) | 26 (9.4%) | 37 (13.4%) | 0.000 |
| Aware of Harm Done by Radiographic Chemicals | 86 (36.9%) | 80 (34.3%) | 31 (13.3%) | 36 (15.5%) | 0.000 |
| Aware of Harm Done by Plastic Barrier | 99 (39.9%) | 83 (33.5%) | 31 (13.3%) | 36 (15.5%) | 0.000 |
| Aware of Harm Done by Disinfectant Solutions | 69 (40.8%) | 71 (42.0%) | 25 (14.8%) | 4 (2.4%) | 0.000 |
| Aware of Harm Done by Sound Pollution | 79 (37.8%) | 81 (38.8%) | 27 (12.9%) | 4 (2.4%) | 0.000 |
| Aware of Harm Done by Unorganized Waste Disposal | 96 (37.5%) | 94 (36.7%) | 34 (13.35%) | 32 (12.5%) | 0.000 |
| EFS Reported by Dentists: Keeping Records of Material Usage and Wastage | 83 (37.9%) | 94 (42.9%) | 14 (6.4%) | 28 (12.8%) | 0.001 |
| EFS Reported by Dentists: Following Proper Waste Disposal Protocol | 104 (35.7%) | 113 (38.8%) | 34 (11.7%) | 40 (13.7%) | 0.000 |
| EFS Reported by Dentists: Implementi ng Waste Segregation Protocol | 83 (38.6%) | 79 (36.7%) | 27 (12.6%) | 26 (12.1%) | 0.001 |

| | | | | | |
|---|-------------|------------|------------|------------|-------|
| EFS Reported by Dentists: Provision of Recycle of Material | 60 (31.7%) | 80 (42.3%) | 18 (9.5%) | 31 (16.4%) | 0.046 |
| EFS Reported by Dentists: Encourage Recycle Concept | 79 (38.0%) | 83 (39.9%) | 16 (7.7%) | 30 (14.4%) | 0.003 |
| EFS Reported by Dentists: Incorporation of Plants | 58 (37.7%) | 50 (32.5%) | 20 (13.0%) | 26 (16.9%) | 0.000 |
| EFS Reported by Dentists: Using Biodegradable House Keeping Materials | 86 (38.6%) | 93 (41.7%) | 24 (10.8%) | 20 (50.0%) | 0.004 |
| EFS Reported by Dentists: Using Dry Dental Vacuum or Stainless | 59 (34.35%) | 64 (37.2%) | 21 (12.2%) | 28 (16.3%) | 0.013 |

Table -3: Knowledge Regarding Eco -Friendly Dentistry Among Different Dental Practitioner’s Group

| Academic Status | Chi-Square Value | P-value | Yes | No | |
|--|---------------------|---------|--------------|-----------------|--------------|
| Do You Use Disposable Drapes | | | | | |
| Graduates | | | 109(34.3%) | 0 | |
| Post -Graduates | 9.001 ^a | .001 | 137(43.1%) | 11(78.6%) | |
| Consultants | | | 35(11.0%) | 0 | |
| General Dentist | | | 37(11.6%) | 3(21.4%) | |
| Do You Think Digital Radiography Greener than Conventional Radiography | | | | | |
| Graduates | | | 101(36.1%) | 4(22.2%) | |
| Post -Graduates | 11.153 ^a | .006 | 114(40.7%) | 9(50.0%) | |
| Consultants | | | 33(11.8%) | 2(11.1%) | |
| General Dentist | | | 32(11.4%) | 3(16.7%) | |
| Do You Think We Should Shift to SS Glasses & Cloth Drapes | | | | | |
| Graduates | | | 23(22.8%) | 51(35.7%) | |
| Post -Graduates | 30.821 ^a | .000 | 52(51.5%) | 70(49.0%) | |
| Consultants | | | 8(7.9%) | 7(4.9%) | |
| General Dentist | | | 18 (17.8%) | 15(10.5%) | |
| Green Practice Require Minimal Resources & no Additional Cost of Basic Infrastructure | | | | | |
| | | | Agree | Disagree | Maybe |
| Graduates | | | 30(24.6%) | 21(24.1%) | 58(47.9%) |
| Post-Graduates | 36.486 ^a | .000 | 62(50.8%) | 44(50.6%) | 40(33.1%) |
| Consultants | | | 19(15.6%) | 11(12.6%) | 5(4.1%) |
| General Dentist | | | 11(9.0%) | 11(12.6%) | 18(14.9%) |

| Shifting to Green Practice will be Economical to Dentist | | | | | |
|---|---------------------|------|------------|-----------|-----------|
| Graduates | | | 41(28.5%) | 10(17.2%) | 58(44.6%) |
| Post-Graduates | 45.491 ^a | .000 | 73(50.7%) | 34(58.6%) | 41(31.5%) |
| Consultants | | | 12(8.3%) | 11(19.0%) | 12(9.2%) |
| General Dentist | | | 18(12.5%) | 3(5.2%) | 19(14.6%) |
| Do You Think Green Dentistry Plays a Role in Environment Conservation | | | | | |
| Graduates | | | 93(32.6%) | 4(23.5%) | 12(40.0%) |
| Post-Graduates | 9.769 ^a | .031 | 120(42.1%) | 13(76.5%) | 15(50.0%) |
| Consultants | | | 32(11.2%) | 0 | 3(10.0%) |
| General Dentist | | | 40(14.0%) | 0 | 0 |
| Is Energy Management Beneficial in Green Dentistry | | | | | |
| Graduates | | | 63(26.3%) | 3(27.3%) | 43(53.1%) |
| Post-Graduates | 17.799 ^a | | 116(48.3%) | 7(63.6%) | 25(30.9%) |
| Consultants | | .001 | 27(11.3%) | 1(9.1%) | 7(8.6%) |
| General Dentist | | | 34(14.2%) | 0 | 6(7.4%) |
| Will Increase GP Awareness Led to Patients Selecting Dentists Practicing Green Dentistry | | | | | |
| Graduates | | | 48(26.8%) | 12(28.6%) | 49(44.1%) |
| Post-Graduates | 19.493 ^a | .000 | 87(48.6%) | 19(45.2%) | 42(37.8%) |
| Consultants | | | 30(16.8%) | 1(2.4%) | 4(3.6%) |
| General Dentist | | | 14(7.8%) | 10(23.8%) | 16(14.4%) |
| Before Switching to GP, I Will Undergo its Effectiveness Trial | | | | | |
| Graduates | | | 91(34.7%) | 3(12.0%) | 15(33.3%) |
| Post-Graduates | 16.388 ^a | .003 | 105(40.1%) | 17(68.0%) | 26(57.8%) |
| Consultants | | | 31(11.8%) | 0 | 4(8.9%) |
| General Dentist | | | 35(13.4%) | 5(20.0%) | |

both were aware of using biodegradable materials but most of them used them 50.7% in their daily practice and agreed to shift towards eco-friendly products. Most of our respondents were below 30 years of age (74.8%) with experience of 6 to 10 years and were females (73.6%) this shows an increasing number of females who graduated in dentistry. Dental graduates were found more aware of hazards produced by radiographic chemicals (36.9%) and plastic barriers (39.9%). Graduates were more aware of unorganized waste as compared to postgraduates who were more encouraged to incorporate plants in their setups,¹² same results were observed in a study by Adam E.¹³ Implementation of new strategies to reduce the waste generated by the dental profession feasibly and sustainably and is the main rationale

behind green dentistry¹¹ by adopting and advocating the four 'R'.¹² It is commonplace to perceive recycling as the first step but the reduction in waste production and rethinking and reusing our things are much more effective similar results were seen in our study where all of the respondents agreed to the provision of recycling materials. The key to reducing our waste is to extend the life of things we use. Moreover, by implementing these four easy steps, dentistry, and dental hygienists can transform the dental health profession into a greener and cleaner one.¹⁴ There are innumerable ways to introduce eco-friendly dental practices, such such digital X-rays, low energy bulbs and motion sensors can be introduced, reducing water wastage, using amalgam separators

on chairs and sinks can reduce amalgam pollution, reducing paper usage, and recycle wherever possible and investing in energy-efficient equipment can significantly help.¹⁵

Siddhi Passi et al. reported in their review article that the major cause of pollution in dentistry is the usage of disposable items.¹⁶ In fact, in this study 65.6% and 68.4% of dental surgeons use disposable cups and drapes, similar results seen in our study 34.3% and 43.1% students and residents use disposable item in their daily practice. There is a lot of disposable waste that is generated in a non-green practice. 83.4% of dentists believed that digital radiographs are much better than the conventional ones as compared to a similar study,¹⁷ where only 79.9% believed the same. In our study 73% of postgraduates believe that green dentistry will not burden their practices, a difference in opinion was seen in a study done in Thailand⁹, 54.4% of individuals thought that shifting to a green practice would increase their financial burden whereas in study by Parkash et al. 63.2% people believed green practice will be more economical these results are closer to this study.¹⁸ But when the respondent was asked in the current study whether to shift to more environment-suitable supplies, most of them agreed.

The present study reported that 50% of dentists believed that the future patients will be aware and picky of incurring treatment mostly from Green Practices whereas the study done by Bhargav et al. presented that 74% agreed.¹⁷

There is a higher proportion of dentists willing to adopt green practices on a small scale first and the establish it in their practice (p -value=0.003) which shows a high acceptance rate of such practices. When asked if such a practice would require minimum cost and infrastructure, most of respondents were agreed (p -value=0.000), there is awareness regarding the need for green practice, the uncertainty and inexperience¹⁹ of such practice is the major limitations in today's dental practice. Dentists throughout the country should work together to decrease the environmental impact of dental practice.

Conclusion

Most of the respondents especially consultants were

aware of the green dentistry concept, others with minimal knowledge accepted the concept and were enthusiastic to inculcate these practices in their practices. Effective training is required to popularize the concept and it is recommended to include the eco-friendly concept in the curriculum as well.

REFERENCES

1. Duane B, Harford S, Ramasubbu D, Stancliffe R, Pasdeki-Clewer E, Lomax R. Environmentally sustainable dentistry: A brief introduction to sustainable concept within the dental practice. *British Dental Journal*. 2019; 226; 292-5. doi: 10.1038/s41415-019-0010-7
2. Mulimani P. Green dentistry: The art and science of sustainable practice. *British Dental Journal*. 2017; 222; 954-61. doi: 10.1038/sj.bdj.2017.546
3. Khanna S, Dhaimade PA. Green dentistry: A systematic review of ecological dental practice. *Environment Development and Sustainability*. 2018; 21: 1-20. doi: 10.1007/s10668-018-0156-5
4. Lopez de Leon M. Barriers to environmentally sustainable initiatives in oral health care clinical settings. *The Canadian Journal of Dental Hygiene*. 2020; 54; 156-60.
5. Mahabob MN. Role of a dentist in environment protection. A short communication. *International Journal of Oral and Craniofacial Science*. 2021; 7; 1-2. doi: 10.17352/2455-4634.000049
6. Kumar G, Rehman F, Kelkar M. Biomedical waste management in dentistry during COVID-19 pandemic: What the guidelines recommend? *National Journal of Maxillofacial Surgery*. 2021; 12; 311-15. doi: 10.4103/njms.NJMS_132_20
7. Wainer C. Discussing the environment impact of dental-associated travel- how do we build from the current COVID-19 crisis towards a more sustainable future within dentistry? *British Dental Journal* 2020; 232; 437-40. doi: 10.1038/s41415-022-4136-7
8. Khan S, Khalid N, Bajwa O, Qamar T, Kazmi A, Tariq A. Amalgam phase-out, an environmental safety concern: a cross-sectional study among general dental practitioners in Pakistan. *Eastern Mediterranean Health Journal*. 2022; 28; 69-73. doi: 10.26719/emhj.21.068
9. Meyer CA. Taking lessons from silent spring: Using environmental literature for climate change. *Literature*. 2021; 1; 2-13. doi: 10.3390/literature1010002
10. Mazur MD, Ndokaj A, Maciej J, Antonello M, Claudio S, Corridore D, et al. How Dentistry is impacting the

- environment. *Senses & Sciences*. 2019; 6: 922-8. doi: 10.14616/sands-2019-6-922928
11. Kumbhalwar A, Mehta V, Mathur A. Green dentistry: A sustainable approach for rural india. *Journal of Dental Research and Review*. 2021; 8: 136-8. doi: 10.4103/jdrr.jdrr_144_20
 12. Al Qarni MA, Shakeela NV, Alamri MA, Al Shaikh YA. Awareness of Eco-Friendly dentistry among dental faculty and students of King Khalid University, Saudia Arabia. *Journal of Clinical and Diagnostic Research*. 2016; 10; ZC75-8. doi: 10.7860/JCDR/2016/21560.8663
 13. Adams E. Eco-friendly dentistry. Not a matter of choice. *Canadian Dental Association*. 2007; 73; 581-4.
 14. Rathakrishnan M, Priyadarhini A. Green dentistry: The future. *Journal of the International Clinical Dental Research Organization*. 2017; 9: 59-61. doi: 10.4103/jicdro.jicdro_15_17
 15. Holland C. Investigation: greening up the bottom line. *British Dental Journal*. 2014; 217; 10-1. doi: 10.1038/sj.bdj.2014.569
 16. Passi S, Bhalla S. Go green dentistry. *Journal of Education and Ethics in Dentistry*. 2012; 2; 10-2.
 17. Bhargava A, Anand B. Attitudes and factors inflicting adaptation of green dentistry among dental practitioners in Hubli-Dharwad-A cross-sectional survey. *IOSR Journal of Dental and Medical Sciences*. 2017; 16; 64-9. doi: 10.9790/0853-1607096469
 18. Parakh A, Mody J, Shasrabuddhe R, Sotaa B, Balhara S, Fernandes G. Evaluation of the knowledge and attitude of dental practitioners on green dentistry in Navi Mumbai-A cross-sectional study. *IOSR Journal of Dental and Medical Sciences*. 2020; 19; 34-42. doi: 10.9790/0853-1906143442
 19. Martin N, Sheppard M, Gorasia G, Arora P, Cooper M, Mulligan S. Drivers, opportunities and best practice for sustainability in dentistry: A scoping review. *Journal of Dentistry*. 2021; 112: 103737. doi: 10.1016/j.jdent. 2021. 103737

Authors Contribution

VB: Idea conception, study designing, data collection, data analysis, results and interpretation

EA: Study designing, data analysis, results and interpretation, manuscript writing, and proofreading

SM: Data analysis, results and interpretation, manuscript writing, and proofreading

SAH: Idea conception, study designing, data collection, data analysis, results and interpretation

AB: Idea conception, data collection, manuscript writing, and proofreading

RU: Idea conception, data collection, manuscript writing, and proofreading

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