

Awareness, Attitude and Practice towards Green Dentistry among the Postgraduate Dental Students of D.J College of Dental Sciences and Research, Modinagar

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Abstract

Background: Green dentistry or eco-friendly dentistry is a high tech approach that reduces the environmental impact of dental practices and encompasses a service model for dentistry that supports and maintains wellness. It is a vital step in maintaining a balanced environment. It can be achieved by effectively designing dental clinics and using more eco-friendly materials in the clinical practice.

Aim: This study aims to assess the knowledge and attitude towards green dentistry among dental students of D.J college.

Materials and Methods: assessment was done using a self-structured questionnaire, which consisted of 10 close ended questions. The questionnaire consisted awareness on eco-friendly dentistry, its associations and implemented strategies in their practice, their support and opinion towards this concept. The completed questionnaires were statistically analyzed using SPSSV20.0.

Results: out of 135 study participants it was seen that majority 80% were familiar with the term green dentistry but lacked the implementation of eco friendly dentistry in practice.

Conclusion: The present study found that there is limited knowledge of green dentistry amongst the dental students. This can be substantiated with effective training channelized through the curriculum in an educational set-up to make dental practice eco-friendly for a greener future.

Keywords: Green dentistry, Eco-friendly, Environment, Questionnaire.

Introduction: Dental health care is devoted to endorsing and enhancing oral health and well-being and to achieve such goals, dentists use a diversity of materials and instruments. Unfortunately, particular materials that are currently used include heavy metals as well as biomedical waste, which offer impending challenges to the environmental balance [1]. The most common waste products in dental practices are found to be amalgam restorative materials, radiographic chemicals plastic/paper barriers and disinfectant solutions [2,3]. Dentists contribute between 3% and 70% of the total mercury load entering wastewater treatment facilities. Estimated 680 million plastic and paper chair barriers and 1.7

billion instrument and sterilization pouches are dumped into landfills yearly[4,5].Eco-friendly dentistry is a way of practicing that implicates various method and machinery which can reduce waste, decrease pollution, conserve energy and save money [6]. It is sustainable approach to encourage dentists to implement new strategies to try and reduce the energy being consumed and the large amount of waste being produced by the industry.

However, the application of same is possible only if a directive education in the field is stated and implemented at a primary level. Eco-friendly or green dentistry can be a reality by effectively designing dental clinics and using more eco-friendly materials in the clinical practice. Although, the basis of same is dependent on educating the budding dentists in their respective fields [2].

Today, the dental education system throughout the globe lacks incorporation of such a subject. Dental health care workers also have an important task of analysing and carrying out their bit of responsibilities for the eco-friendly environment [7].

Objective: This study was done to determine the awareness of eco-friendly dentistry among dental postgraduate students in preparation for future implementation.

MATERIALS AND METHODS: A cross-sectional survey was conducted to determine the awareness of eco-friendly dentistry among 130 postgraduate students of D.J College. Informed consent was obtained from all participants. Ethical clearance was obtained for Institutional Review Board.A 15 item closed-ended questionnaire (in English language) was distributed among all study participants in D.J. College.The Questionnaire were filled in front of distributor and personally collected on the same day by the distributor and it was completely filled by the participants.

Statistical analysis: The data were entered into excel and analyzed using the SPSS v20.0.

Results:The survey was conducted among 135 participants and response rate was 100%.

QUESTIONS

| | | | |
|---|--------------------|----------------|-------|
| Q1. Are you aware of the term green dentistry ? | | | |
| yes | | 108 | 80% |
| no | | 27 | 20% |
| Q2. Are you aware of eco-friendly dental association? | | | |
| yes | | 60 | 44.5% |
| no | | 75 | 55.5% |
| Q3. Are you aware of the harm done to envioprnmnt due to dental practice? | | | |
| Yes | | 102 | 75.5% |
| no | | 33 | 24.5% |
| Q4. Is there a need to promote reusable metal air/water syringes & suction devices, biodegradable cups? | | | |
| yes | | 115 | 85.2% |
| no | | 20 | 14.8% |
| Q5. What should be the preferred type of flooring? | | | |
| vinyl | Polyvinyl chloride | Linoleum/ cork | none |
| 27 | 57 | 11 | 40 |
| 20% | 42.2% | 8.2% | 29.6% |

| | | |
|---|------------|-------|
| Q6. Should we go digital to eliminate photochemical waste? | | |
| Yes | 122 | 90.4% |
| no | 13 | 9.6% |
| Q7. Does Dental office infection control and sterilisation processes can be a major source of a waste generation & pollution? | | |
| yes | 104 | 77% |
| no | 31% | 23% |
| Q8. Where do you dispose of mercury? | | |
| In liquid | In garbage | |
| 79 | 56 | |
| 58.5% | 41.5% | |
| Q9. What do you use as an alternative to amalgam filling? | | |
| Composite | GIC | |
| 84 | 51 | |
| 62.2% | 37.8% | |
| Q10. Opinion on emphasis to be made on implementing these strategies? | | |
| Yes | 124 | 91.8% |
| No | 11 | 7.2% |

DISCUSSION: The present study was conducted to assess the knowledge and practice regarding eco-friendly dentistry among dental postgraduate students of D.J College. In this study it is seen that majority of students 80% are aware of the term green dentistry and harm done to the environment due to dental practice. This is in accordance with dentists (73.1%) of King Khalid University of Saudi Arabia who had the knowledge about the same (Al-Qarni *et al*, 2016) and much higher than reported in study conducted by Boricha, *et al* 2021 in Mumbai where only 54.29% of postgraduates had heard the term. In the present study very few participants 8.2% were aware of correct flooring type to be used in green dentistry but 90.4% preferred digital radiography over conventional to prevent pollution. In a previous study conducted by Sharat *et al* 70.2% preferred digital radiography. Chopra A *et al.*, found that most of the dentists (98%) followed eco-friendly dental practices including the alternatives to amalgam filling. In the present study 62.2% participants used Composites and GIC was used as a filling material by 37.8% participants as an alternative to amalgam for restoration. In this study 58.5% of postgraduate students disposed mercury in liquid and in a study by Shivangi Verma *et al.* 67.5% postgraduates had properly disposed mercury in the liquid.

Conclusion : Lack of knowledge of green dentistry amongst the dental fraternity is highly prevailing. The findings also indicate that ecofriendly dental strategies were not implemented adequately by the study population. In the coming future a new subject should be incorporated in dental curriculum. It should be highly emphasized in the dentistry program throughout the dental schools in order to accomplish the goal of making green dentistry a global phenomena and contribute in reducing global hazards.

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