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### RESEARCH ARTICLE

#### GREEN DENTISTRY: AN AWARENESS STUDY

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#### Abstract

**Aim:** To evaluate the knowledge and awareness of green dentistry among interns of dental colleges .

**Materials And Methods:** A questionnaire based survey was conducted among 150 interns to assess knowledge and awareness about green dentistry. A prefabricated questionnaire was distributed among the target population containing 20 questions on assessment of knowledge and awareness regarding green dentistry. All questions in the questionnaire were close-ended. Data was entered in the excel spread sheet.

**Results:** In the current study, out of the total population studied only 18% had a good awareness about the practices adopted in green dentistry while 66% had average and 16% had very less awareness about green dentistry.

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#### Introduction:-

Efforts by oral health professionals to reduce the environmental impact of dental practices has been coined as “green dentistry” or “eco-friendly dentistry.” It is the largest movement toward ecologically sustainable health care. The Eco Dentistry Association was founded by Dr Fred pockrass and his wife, in 2008. EDA provides “education, standards and connection” to patients and aims to help dentists “come up with safe and reusable alternatives that lower a dentist’s operating cost by replacing paper with digital media whenever possible.<sup>[1]</sup> The color green has healing power and is understood to be the most restful and relaxing color.

Green can help enhance vision, stability and endurance. Renewal, growth, and hope are related to this color and it indicates safety in the advertising of drugs and medical products.<sup>[2]</sup> Eco-dentistry, a term trademarked by the Eco-Dentistry Association (EDA), incorporates high-tech innovations that enhance efficiency and effectiveness while reducing the amount of waste and pollution in the environment. Green dentistry reduces waste and pollution, saves energy, water and money, incorporates high tech innovations and focuses on wellness and integrative practices.<sup>[3]</sup> The key concepts of a green dental practice include conservation of water and energy, use of non-toxic products, reduction of waste and elimination of hazardous toxins that negatively affect patients and the environment and promote ‘green’ products.<sup>[4]</sup> It is the wave of the future.<sup>[3]</sup> The Aim of this study was to evaluate the knowledge and awareness of green dentistry among dental interns.

#### Materials and Methods:-

The study was based on questionnaire based survey containing 20 questions to assess knowledge and awareness about green dentistry. The target population was 150 dental interns of different colleges. Ethical clearance was

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obtained from the institutional ethical committee. A self structured, closed ended questionnaire was designed after literature review and content validity was done by experts in this field. The participating interns were asked to answer the questionnaire which was personally given to them. Data's were entered in excel spread sheet and descriptive statistics were calculated.

### Results:-

(1) Amalgam waste management practices	
Awareness about amalgam separators	56.7%
Usage of sealed containers to store scrap amalgams	64.7%
Usage of high volume evacuation system while removing amalgam restoration	54%
(2) General Waste management practices	
Awareness about the waste management protocols	69.3%
Awareness about liquid waste management	52%
(3) Reusable practices	
Use of metal suction tips rather than plastic suction tips	54%
Use of biodegradable drape than a plastic drape	78.7%
Use of biodegradable cups rather than a plastic cup	77.3%
Awareness on environment.	42%
Digital paperless communication with patients	65.3%
(4) Radiographic waste management	
Role of digital radiography in reducing the silver waste.	68.7%
Recycling of lead shields in film packet	58.7%
Impact of radiographic fixer solution in environment	63.3%
(5) Energy saving practices	
Turning off tap while lathering during hand washing	61.3%
Electricity consumption in dental practice	70.7%
Awareness about dry dental vacuum pumps	46%
(6) Role of green practice in environment conservation	76.7%

In the current study ,out of the total population studied only 18% had a good awareness about the practices adopted in green dentistry while 66% had average and 16% had very less awareness about green dentistry .

### Discussion:-

Green dentistry is an environmental friendly practice to be adopted by the dental professionals who share the responsibility for elimination or reduction of toxic wastes that could harm human health as well as the environment<sup>[1]</sup>. The waste materials generated from the dental settings include amalgam restoration materials ,plastic covers, radiographic chemicals, lead foils and disinfectant solutions which may end up in land fills and water bodies. Therefore, the present study was conducted among the dental interns who are the next generation to enter in to dental practice .

According to the Eco Dentistry Association ,the practice of green dentistry reduces the waste as well as pollution thereby saving energy , water , and money. Green dentistry is an approach to reduce the environmental impact of dentistry and it is based on the model of four R's - Reduce,Rethink,Reuse and Recycle.<sup>[6]</sup>

In our study, awareness about the concept of 4R'S were evaluated and 60 % of the studied population were found to be aware. The preference of reusable materials among the studied population was found to be 70%.

Radiographic wastes pose a potential challenge to the environment. Radiographic wastes includes xray processing solution, xray lead foils /shields, used and unused films.

Digital xrays can be practised to overcome these problems thereby eliminating the need for processing chemicals. In addition it has a benefit of reducing patient radiation exposure.<sup>[7]</sup>

In the current study, we evaluated the awareness about the recycling of lead shields as well as the role of digital radiography in reducing the amount of silver waste generated and was found to be 58.7% and 68.7% among the studied population respectively. The awareness about the impact of fixer solution in environment was about 63.3%

Dental amalgam is one among the various materials used in restorative dentistry. It contains mercury, silver and other metals which can be released in to the environment during its handling. The environmental impact of dental mercury is mainly due to its poor management.

Hence as dental professionals we should follow the simple guidelines for the mercury waste handling and thereby it helps in reducing the concerns of dental amalgam on environment.<sup>[8]</sup> The ultimate goal in managing amalgam waste should be to minimize the amount discharged into the environment, which is best achieved by minimizing the amount generated and recycling as much as possible.

This study assessed the awareness about the amalgam separators and the use of sealed containers to store amalgam scraps, use of high volume evacuation system while removing amalgam restoration and the result was found to be 56.7% 64.7% and 54% respectively among the tested population. The study thus throws a light on the existing knowledge, attitude and awareness about green dentistry among the dental interns of different colleges.

### **Conclusion:-**

The awareness about the eco-friendly dentistry has to be promoted by conducting programmes in the dental colleges, thereby a greater change can be brought in the future. Within the limitations of this study, it is evaluated that the dental students should be educated more about the green practices so as to bring changes in our society.

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