

Evaluation of the Knowledge & Attitude of Dental Practitioners on Green Dentistry in Navi Mumbai – A Cross Sectional Study

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Abstract:

Aim – The aim of the study was to evaluate the Knowledge & Attitude of Dental Practitioners on Green Dentistry in Navi Mumbai

Materials and Methods: The survey included 253 responses that were disseminated via google forms. The responses were then analysed.

Results: Although most of the dental practitioners are aware about the dire need of environment friendly approach even in the dental routine, the current practices portray a slightly contrasting scenario. 65.6 % and 68.4% people use disposable cups and drapes in their clinic. However, 83.4% dentists are in favour of digital radiographs rather than the conventional ones. Also, 72.7% individuals are willing to use steel cups and towel drapes to minimize the waste generated. Not only this 63.5% thing that Green dentistry will also be more economical. As 94.9 % dentists' thing that Green Practice will encourage environment conservation and 81.8% believe that it will play a major role in energy conservation. 100% of them are ready to shift to suitable eco-friendly supplies. As this is a newer concept in India, only 46.6% agreed that turning in to Green Dentistry requires no additional cost and minimum infrastructure. Hence, 92.5% would like to do a test run on adoption of these eco-friendly approach in their everyday practice. 87% also feel that the future patients will be more appreciative of environment watchful practice and will choose to take treatment from them.

Conclusion: Green Dentistry is an emerging concept, dentists, however are aware, accepting and enthusiastic to inculcate these practices in their everyday practice.

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I. Introduction

One of the major concerns in today's world is the ever-growing pollution at all ends and the climate change. The last 30 years saw a rapid rise in the industries and the world economy. Since 1990, not only there has been a reduction of around 300 million hectares of forest areas, but also the current rise in sea-levels are influenced by the reducing glaciers, threatening the well-being of the whole world. Pollution ranges from air, water, plastic, visual, noise, automobiles, hospital waste to radioactive pollution. In addition to being hazardous to the environment it poses a great threat to the wellbeing and health of humans and animals. In 2015, pollution killed 9 million people in the world.¹ The continuous emission of greenhouse gases has contributed to rise of global warming.

These changes in the world affect the terrestrial as well as the marine ecosystems in turn affecting the trajectory of the future climate and environment. It is estimated that the phosphorus and nitrogen effluents may increase by 180 % and 150 % respectively between 2000 and 2050. One of the possibilities for example is that the amount of phosphorus discharged annually into the Pacific Ocean possibly almost doubling between 2000 and 2050.

To bridle any further damage downturn, the world is moving towards "Green Practices" to do their bit to curb the precarious situation the earth is in right now¹. Some of these practices include encouraging recycling practices, the commercialization of renewable energy and the consumption of organic products, reduced plastic

waste². Rising support for developing green economies which encourage reduction in carbon emissions and cost-effectiveness waste management is seen world over.

Dentistry is a vital part of the healthcare system. It is a branch which uses a lot of resources like water, electricity, amalgam and other dental materials. Therefore, as dentists it is imperative to look out for the environment and do our bit to promote judicious use of these resources³. Being eco-friendly and adopting to an organic way of life in every sphere of life, including dentistry is the need of the hour. The practice of Green Dentistry is an efficacious way of dental practice which promotes energy conservation, abates biowaste and pollution during any dental procedure⁴.

Albeit, many countries in the west have adopted such practices⁵, in developing countries including India this is a very fresh concept. Hence it is crucial to Evaluate Knowledge & Attitude of Dental Practitioners on Green Dentistry in Navi Mumbai – A Cross Sectional Study. Our study aims to appraise the awareness of the same.

II. Materials and Methods

The study was conducted using the Survey questionnaire (Table1) which were distributed amongst all practising dentists in the city of Navi Mumbai. The survey conducted comprised of 11 questions with closed ended questions. The study was done on the population of particularly Navi Mumbai, India to assess their knowledge on Green Dentistry. The questionnaires were distributed through online google forms. The survey carried out, had 253 responses. All the individuals participating in the survey gave their consent. They were also told the purpose of this study and informed that their responses would remain confidential. Using the interphase provided by the common survey software conducting site available on the internet the results were evaluated.

Table 1: Survey Questionnaire

Sr.No	Question	Score
1)	Do you use disposable cups?	Yes/No
2)	Do you use disposable drapes?	Yes/No
3)	Do you think Digital Radiographs are more green practice friendly than Conventional Radiographs	Yes/No/Maybe
4)	Do you think we should shift to stainless Steel glasses and cloth drapes?	Yes/No/Maybe
5)	Do you think shifting to Green Practice will be more economical to the dentists?	Yes/No/Maybe
6)	Do you think green practice plays a role in environmental conservation?	Yes/No/Maybe
7)	Do you think we should shift to more environment suitable supplies?	Yes/No
8)	The green practice requires minimal resources and no additional cost of basic infrastructure?	Agree/Disagree/Not Sure
9)	Is energy management beneficial in green dental practice?	Yes/No/I don't Know
10)	Increase in awareness among people among environment, patient in future might select providers based on their green practice.	Agree/Disagree/Not Sure
11)	Before switching over to green practice I would test the adoption on a small scale and products compatible with the green practice	Agree/Disagree/Not Sure

III. Results

The survey conducted from 253 individuals exhibits that 65.6% of people said they used disposable cups in their private dental practice where as 34.4% dentists said that they did not (FIG.1). Almost 68.4% said they used disposable drapes for their patients while 31.6% reused their drapes. (FIG.2) 83.4% believe that digital radiographs are way more eco-friendly than the conventional ones, while 3.6% disagree and 13% people were unsure of the same (FIG.3). A proportion of 72.7% think shifting to reusable items like steel glasses and cloth drapes is a step towards Green Practice which is depicted in FIG.4. 63.2% of individuals are of the opinion that switching to Green Dentistry will help them to make their dental practice more economical (FIG.5). Also FIG.6 shows that 94.9% dental practitioners believe that Green Practice encourages environment conservation and is the need of the hour. Surprisingly all the dentists strongly concur that they should shift to more environment favourable supplies (FIG.7). As not many have tried their hand at green dentistry 39.5% were unsure of the resources and cost for the basic infrastructure of Green Practice (FIG.8). 81.8% believe that energy management is favourable in an eco-friendly practice (FIG.9). 87% dentists agree that with increase in awareness among environmental issues, the patients in the future perhaps will choose to go to dentists who use such green practices (FIG.11). Not only this, but 92.5% of the dentists' feel the need for test run of incorporating Green Practices in their setup before actually implementing it (FIG.10).

Do you use disposable paper cups?

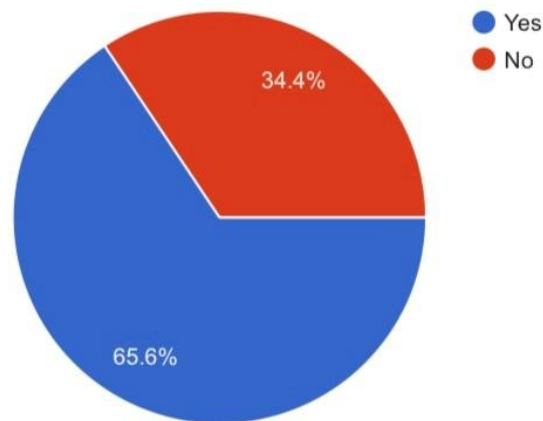


FIG.1

Do you use disposable drapes?

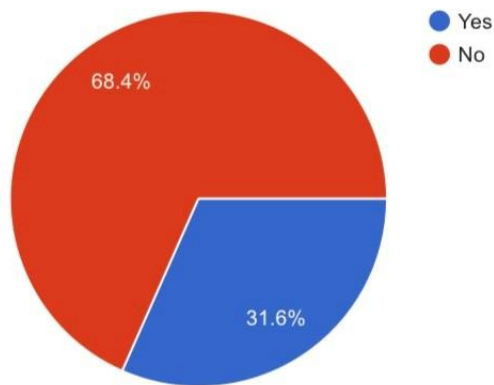


FIG.2

Do you think digital radiographs are more green practice friendly than conventional techniques?

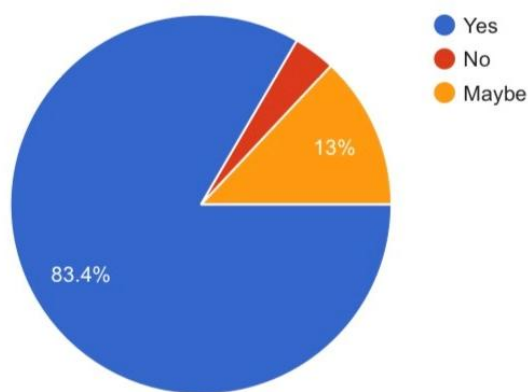


FIG.3

Do you think we should shift to stainless steel glasses and cloth drapes?

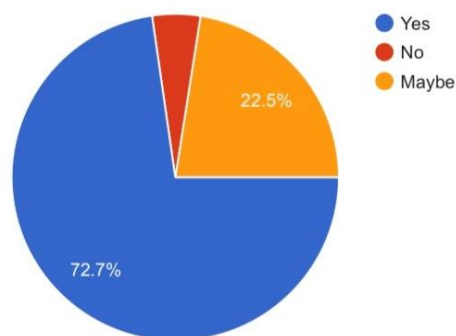


FIG.4

Do you think shifting to the green practice would be more economical to the dentist?

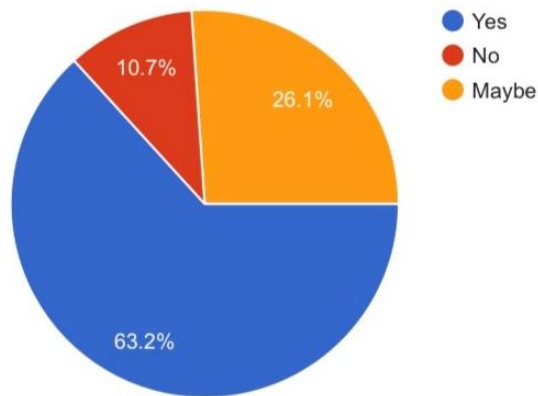


FIG.5

Do you think green practice plays a role in environment conservation?

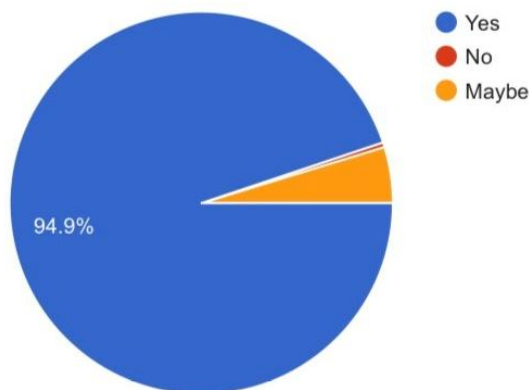


FIG.6

Do you think we should shift to more environment suitable supplies?

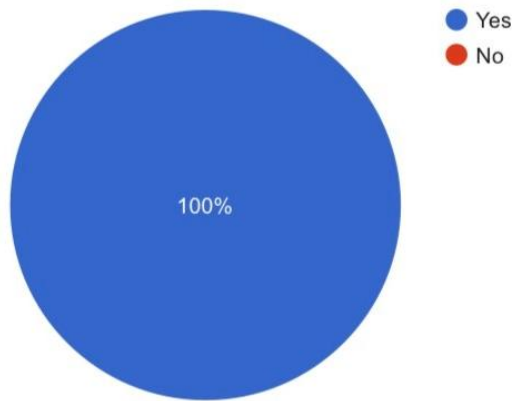


FIG.7

The green practice requires minimal resources and no additional cost of basic infrastructure

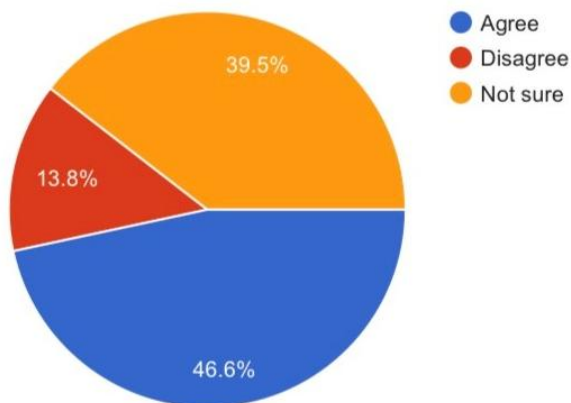


FIG.8

Is energy management
beneficial in green dental
practice?

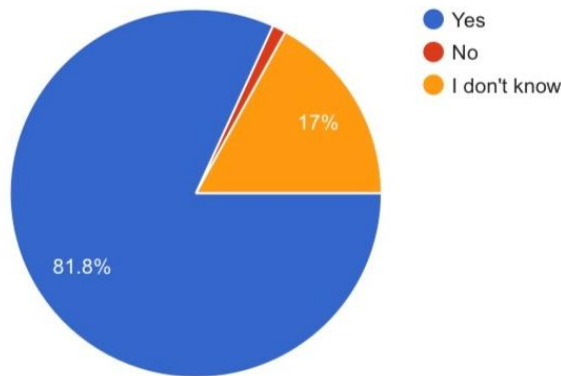


FIG.9

Before switching over to green
practice I would test the
adoption on small scale and
products compatible with green
practice

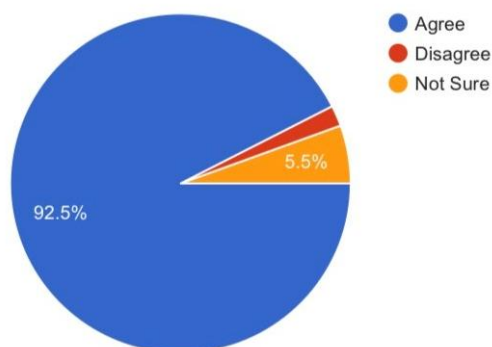


FIG.10

Increase in awareness among people regarding environment, patients in future might select providers based on their green practice

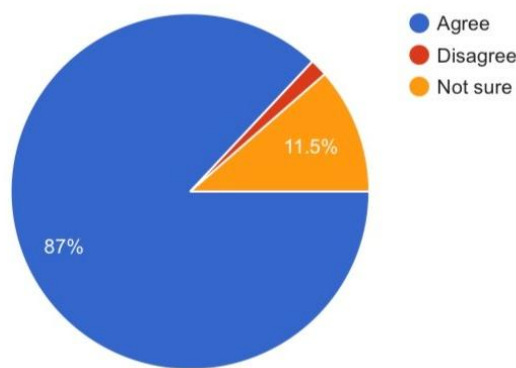


FIG.11

IV. Discussion

As the world is moving towards eco-friendly environment and practices, such an awareness in the field of dentistry is very crucial⁶. Our present study sought to evaluate the current dental practice, to dentists' views on Green Dentistry and also the acceptance of these practices in their current dental practice. Siddhi Passi et al⁷ reported in her review article that the major cause for pollution in dentistry are usage of disposable items. In fact, in this study 65.6% and 68.4% dental surgeons use disposable cups and drapes. There is a lot of disposable waste that is generated in a non-green practice. 83.4% dentists believed that digital radiographs are much better than the conventional ones as compared to a similar study done by Bharghav et al⁸ where only 79.9 % believed the same.

A similar study in Thailand⁹, 54.4% individuals thought that shifting to a green practice would increase their financial burden where in this particular study 63.2% people believed Green Practice will be more economical. Only 58.9% dental practitioners in the study by Bhargav et al agreed that Green dental practices contribute to environmental conservation in contrast to the 94.9% practitioners in this study who believe in the same. This shows how motivated the dentists are about environment preservation. In the study done in Thailand more than 50% reported that they find it difficult to find materials suitable for adopting Green dentistry. But when asked in the current study whether to shift to more environment suitable supplies, 100% agreed.

Bhargav et al⁸ reported that 73.5% individuals are of the opinion that Green practices are benefitting for energy conservation. In comparison, the present study reported 81.8% people who agree with the same. In the present study, a 87% 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% were of the same opinion.

Although they aren't experienced in Green Dentistry, in both, the present study and Bhargav et al there is a higher proportion of dentists willing to adopt green practice on a small scale first and the establishing it in their practice, 92.5% and 80.9% respectively which shows a high acceptance rate of such practices. When asked if such a practice would require minimum cost and infrastructure, 79.9% dentists in the study by Bhargav et al agreed⁸. This result seems to have huge difference when compared to the present study where only 46.6% agreed. Although, there is awareness regarding the need for green practice, the uncertainty and inexperience of such practice is the major limitation in today's dental practice.

V. Conclusion

Although the concept of dentistry is a fairly new concept, yet to be adapted on a large scale in India, there is sensitivity towards the environment and its conversation among the dental practitioners. Most of the dentists are open to try Green Dentistry in their respective practices and believe that perhaps it will be even more economical. The awareness to do out bit for the environment is well spread and soon might be a major factor for patients who will be more willingly to go to dentists who practice Green Dentistry. The major limitation for green dental practice is the availability and knowledge of Eco-friendly supplies. Hence the awareness about environment friendly dental supplies and materials and their availability needs to be increased.

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