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Assessment of Dental Professional's Knowledge and Attitude Towards Green Dentistry in Kottayam Kerala: A Cross-Sectional Investigation

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ABSTRACT

Introduction: Green dentistry is a cutting-edge approach to dental care that uses the most recent methods and treatments to reduce waste, save energy, and lessen pollution while also being environmentally friendly and saving money and time.In, this study the objective was to assess dental professionals' knowledge and attitudes toward green dentistry in Kottayam. Materials and Methods: The study was designed in a questionnaire format in online mode which was sent among practicing dentist in Kottayam district Kerala in which 250 dentists participated. The Questionnaire consists of questions based on Knowledge attitude and practice of green dentistry and a period of one week time was given to complete the survey. Results:While the majority of dentists understand the urgent need for environmentally friendly methods even in dental care, the state of current dentistry practices presents a slightly different picture. In their clinic, 65.6% and 68.4% of respondents utilize throwaway cups and drapes. On the other hand, 83.4% of dentists prefer digital radiographs to traditional ones. To reduce trash, 72.7% of people are also willing to utilize towel drapes and steel cups. In addition to being more cost-effective, green dentistry will save 63.5% of costs.Therefore, 92.5% would like to try out implementing these eco-friendly practices in their daily routine. Conclusion:Thus, the study concludes that green dentistry is a relatively new idea, dentists are aware of it, open to implementing it, and eager to do so in their daily work.

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1. INTRODUCTION

The world's two biggest issues nowadays are climate change and the ever-increasing pollution everywhere. The global economy and industry have expanded rapidly during the past 30 years. In addition, approximately 300 million hectares of forest lands that have been lost since 1990, the world's survival is now in jeopardy due to the increasing sea levels brought on by retreating glaciers[1]. There are many different types of pollution, including air, water, plastic, noise, visual, car, hospital waste, and radioactive contamination. It is

extremely dangerous not only for the environment but also for human and animal health and well-being. Nine million people worldwide died as a result of pollution in 2015.The increase in global warming has been attributed to the ongoing release of greenhouse gases[1].

The trajectory of future climate and environment is impacted by these global changes, which also have an impact on the terrestrial and marine ecosystems. According to estimates, between 2000 and 2050, the Phosphorus and nitrogen effluents could rise by 180% and 15%, respectively. For instance, there's a chance that, between 2000 and 2050, the phosphorus released into the Pacific Ocean each year may nearly double[2].

The globe is shifting towards "Green Practices" to do their part to curb the hazardous state the earth is currently in and prevent any additional damaging downhill. Increasing recycling rates, commercializing renewable energy sources, consuming more organic foods, and minimizing plastic waste are a few of these initiatives. Globally, there is a growing consensus in favor of growing green economies that promote lower carbon emissions and more economical waste management[3].

An essential component of the healthcare system is dentistry. This area of dentistry utilizes a lot of resources, including amalgam, energy, water, and other dental supplies. Consequently, it is our responsibility as dentists to protect the environment and encourage the wise use of these resources[4]. The modern world requires us to embrace an organic lifestyle and be environmentally conscious in all aspect of our lives, including dentistry. Green dentistry is an effective method of practicing dentistry that reduces pollution, biowaste, and energy use during dental procedures.

Even though many western nations have embraced similar policies, this is a relatively novel idea in emerging nations like India[5]. Therefore, it is essential to evaluate dental practitioners' knowledge and attitudes toward green dentistry in Kottayam using a cross-sectional study. The purpose of our study is to evaluate the Same's consciousness.

2. MATERIALS AND METHODS

STUDY SETTING AND POPULATION

A cross sectional study was conducted among practicing dentist in Kottayam District Kerala India. The sample size was estimated from a previous study and was determined as 250 dentist population. In this study we have used a snowball sampling technique by referral from one dentist to another in the district practicing dentist.

QUESTIONNAIRE

A questionnaire was constructed with 11 items in English language encompassing Knowledge Attitude and Practice regards to greendentistry was framed in a simple manner for easy understanding and reproducing. A pilot testing of the questionnaire was done to check the reliability and validity in which 20 samples were taken into analysis and kappa statistics was done in which kappa value of 0.89 was obtained which gives a good agreement inference.

DATA COLLECTION

The purpose of the study was to determine how much the people in Kottayam, India, knew about green dentistry. The questionnaire constructed was converted into a Google form and the link was used to collect the data from the study population.Every participant in the poll provided their consent for willingness in participating in the survey. They were also informed that the survey information they provided would be utilized for policy making purposes. The questionnaires were sent to all known dentist for a week period of time to fill the forms and send to their known contacts. As a result there were 250 responses through the google forms sent for data collection. The results were assessed using the interphase offered by the widely used survey software conducting site that is accessible online.

3. RESULTS

According to the results of 250 people, 65.6% of respondents stated they used disposable cups in their private dental office, whereas 34.4% of dentists claimed they didn't. While 31.6% of respondents claimed to have reused their drapes, nearly 68.4% reported using disposables for their patients. 83.4% of respondents think digital radiographs are far more environmentally friendly than traditional ones, whereas 3.6% disagree and 13% aren't sure. According to 72.7% of respondents, switching to reusable products like steel glasses and cloth draperies is a step toward the green practices shown. 63.2% of people believe that adopting green dentistry will enable them to operate their dental office more profitably. Additionally, demonstrates that 94.9% of dentists think that green practices are urgently needed and promote environmental conservation. Unexpectedly, every dentist strongly

agrees that they ought to move toward more environmentally. Advantageous supply.Since, few people have attempted green dentistry, 39.5% of respondents were unaware of the costs and resources required for the fundamental infrastructure of the practice. 81.8% of respondents think energy management is a good eco-friendly activity .87% of dentists concur that as people's awareness of environmental issues grows, they could decide to visit dentists who employ Such green techniques in the future. Furthermore, 92.5% of dentists believe that a trial run of integrating green practices into their setup is necessary before going forward and doing.

4. DISCUSSION

Such understanding is vital in the field of dentistry as the globe moves toward eco-friendly environments and practices6. The goal of the current study was to assess dentists' opinions regarding green dentistry and whether or not these methods are now accepted in their offices. In her review study, Siddhi Passi et al.7 said that the use of disposable materials in dentistry is the main source of pollution. Actually, 65.6% and 68.4% of dental surgeons in this study used disposable cups and drapes. Disposable waste is produced in large quantities while using non-green practices.83.4% of dentists thought that digital radiographs were superior than traditional ones, although in a related study by Bharghav et al.8 only In a related survey conducted in Thailand9, 54.4% of respondents said that adopting green practices would raise their financial burden, whereas in this study, 63.2% of respondents considered that becoming green would be more cost-effective.In contrast to the 94.9% of dental practitioners in this survey who share this belief, only 58.9% of dental practitioners in the Bhargav et al study felt that green dental practices aid in environmental conservation. This demonstrates the dentists' strong environmental conservation motivations. In the Thai study, over half of the participants said they had trouble finding materials appropriate for green dentistry. However, 100% of respondents in the current poll thought that switching to more environmentally friendly supplies was a good idea. According to Bhargav et al. (2008), 73.5% of people believe that green measures help with energy conservation. By contrast, 81.8% of respondents to the current study agreed with the same.In the current study, 87% of dentists held the belief that patients in the future would be aware of and selective about receiving care, mostly from Green Practices, while 74% of dentists in the Bhargav et al. study had the same belief.Despite their lack of experience in green dentistry, a higher percentage of dentists—92.5% in the current study and 80.9% in Bhargav et al.—are willing to adopt green practices on a small scale before establishing them in their practices. This indicates a high acceptance rate of such practices. In response to the question of whether such a practice would need minimal infrastructure and expenditure, 79.9% of dentists in the Bhargav et al. survey agreed8. When compared to the current study, where only 46.6% agreed, this outcome appears to be significantly different. Although the necessity of green practices is acknowledged, the main obstacle facing modern dentistry is the unpredictability and lack of expertise with them.

5. CONCLUSION

Dentists are sensitive to their surroundings and their patients' conversations, even though dentistry is still a relatively new idea that hasn't been widely adopted in India. The majority of dentists are willing to implement green dentistry in their offices and think it might even be more cost-effective. Patients may soon be increasingly inclined to visit dentists that practice green dentistry due to the widespread awareness of the need to do our part to protect the environment. The availability and understanding of eco-friendly dental products is the main barrier to green dentistry practices. Therefore, there has to be a greater knowledge of environmentally friendly dentistry supplies and materials, as well as an increase in their availability.

TABLE 1. DISTRIBUTION OF STUDY RESPONSES BY THE DENTAL PRACTITIONERS FOR THE CORRESPONDING QUESTIONS

Questions	Yes	No	Maybe
Disposable cup users	65.6%	34.4%	-
Disposable drape users	31.6%	68.4%	-
Do you have the knowledge of digital radiographs on green dentistry	83.4%	3.6%	13%
Shift to stainless steel glasses and cloth drapes	72.7%	4.8%	22.5%
Shifting of the green practice is profitable	63.2%	10.7%	26.1%
Role of green practice in environment conservation	94.9%		
Shift to more environment suitable supplies	100%	-	-

TABLE 2. DISTRIBUTION OF STUDY RESPONSES BY THE DENTAL PRACTITIONERS FOR THE CORRESPONDING QUESTION

Questions	Agree	Disagree	Not sure
Green practice requires minimal resources and no additional cost of basic infrastructure	46.6%	13.8%	39.5%
Energy management beneficial in green dentistry	81.8%	1.2%	17%
Before switching to green dentistry, test the adoption on small scale and products compatible with green dentistry	92.5%	2%	5.5%
Increase in awareness among people regarding environment, patients in future might select providers based on their green practice	87%	1.5%	11.5%

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