

Original Article

Patients Perception on Dental Radiographs: A Questionnaire-based Study

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ABSTRACT

Objective: The aim is to assess the prevalence of knowledge of patients' dental radiography and safety measures of radiation. **Background:** Dental radiographs are being used frequently in dental practice. They are being used excessively. There exists a panic among dental patients about the safety issues about dental radiography. The knowledge and behavior of patients toward radiographic examination can affect the patient's exposure to radiation. This study gathers information about the knowledge of patients have toward dental radiographs. **Materials and Methods:** A questionnaire with 16 questions regarding dental radiography and radiation protection were asked to the patients. **Results:** There was 100% response rate. Although most of them (82%) said it was for tooth decay, 54% of the patients believed it was for gum diseases and only 19% of the patients said it was for routine checkup and 22% said they were taken for impacted teeth. A small percentage of the patients mentioned it was for all the reasons (16%). 80% felt radiography should be avoided for pregnant ladies. 37% of the patients felt radiographs should be avoided for children. **Conclusion:** The results shows the patients do not have a clear understanding why x-rays are taken or their benefits. There is also a definite lack of knowledge regarding the safety of dental radiographs.

KEYWORDS: *Dental radiographs, dental radiology, radiation protection*

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INTRODUCTION

Dental radiographs are used frequently in dental practice. There exists a panic among the dental patients about the safety issues regarding dental radiography. A survey was done in the United Kingdom estimated that nearly 19 million intraoral radiographs are being taken per year.^[1]

Patients are well aware of the adverse effects of radiation through newspapers, social media, internet, and friends. It is vital to obtain informed consent from the patient before carrying out radiographic examinations. This survey was conducted with the view of obtaining the patients' awareness of dental radiography.

MATERIALS AND METHODS

This study was carried out in Chennai, India. One hundred patients who visited Saveetha Dental College and Hospitals as outpatients from January 2016 to April 2016

were randomly selected and interviewed. A questionnaire with 16 questions regarding dental radiography and radiation protection were asked to the patients. This study was approved by the Institutional Review Board.

RESULTS

All 100 questionnaires were returned because the interviews were done personally, thus having a response rate of 100%. Of the 100 patients, 43 were female and 57 were male.

As seen from Figure 1, the skilled workers make up 46% of the patients we interviewed. The professional group was the smallest group which represented 5% of the total patients we surveyed.

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Figure 1: Occupation

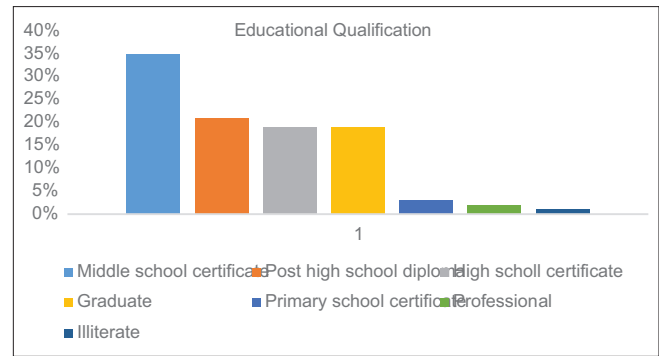


Figure 2: Educational qualification

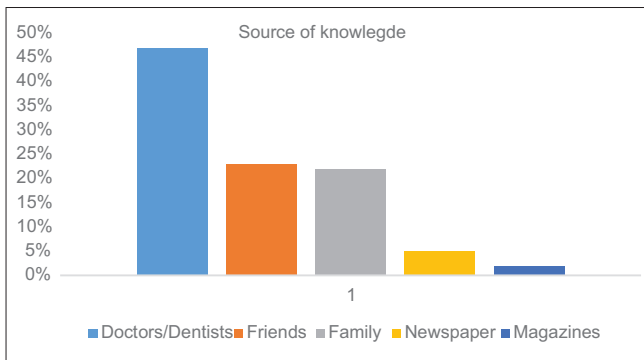


Figure 3: Source of knowledge of dental radiographs

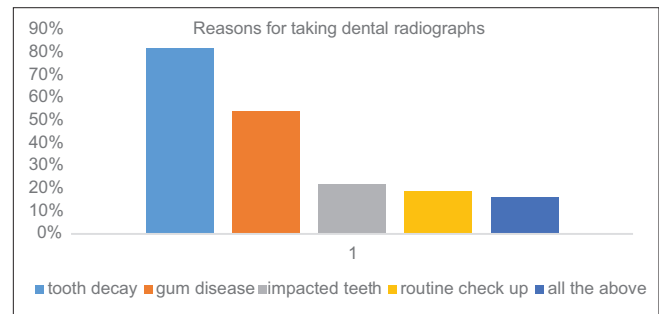


Figure 4: Reasons for taking dental radiographs

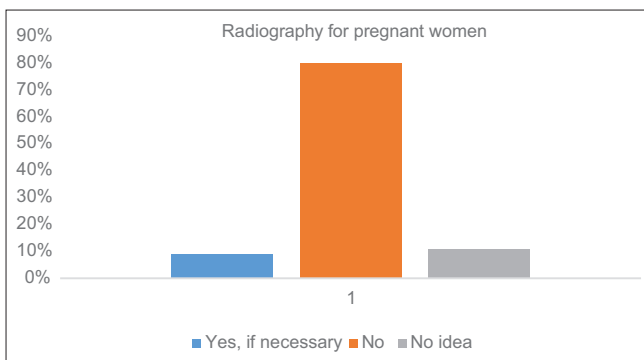


Figure 5: Radiography for pregnant women

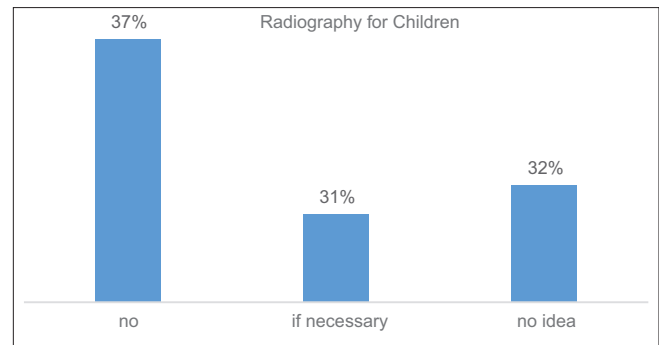


Figure 6: Radiography for children

All the participants had at least primary school education; therefore, communication was not a problem [Figure 2]. The majority of the patients had education up to middle school level (35%). There were only a small group of people (2%) who had master's level education.

Next part of the questionnaire was regarding the patients' knowledge, experience, and perception on dental X-raying. Interestingly, 99% of the people knew what dental radiographs were and the rest 1% had no clue about it.

Most of the patients received the information regarding dental radiographs from their dentists or doctors (47%). Only a small number of patients (22%) relied on their family members for information. 23% of the patients

said they relied on their friends and another 5% said they relied on newspapers. Only 2% of the people gained knowledge from magazines regarding dental radiographs [Figure 3].

With regard to experience having undergone dental radiographic examination, 85% of the patients had radiographs taken on them (a mean of 2.58 times). Of these 85% patients, only 73% of the patients received proper explanations regarding diagnoses from the radiographs. When we inquired whether they were aware why the dental radiographs were taken, 65% of the patients said they knew the reason while 35% said they did not.

Although most of them (82%) said it was for tooth decay, 54% of the patients believed it was for gum diseases and only 19% of the patients said it was for

routine checkup and 22% said they were taken for impacted teeth. A small percentage of the patients mentioned it was for all the reasons (16%) [Figure 4].

About 68% of patients felt that taking radiographs was necessary, but 32% of the patients felt that they were hazardous to their health.

Regarding safety measures during radiation, few questions were put forward. When asked if patients notice any signboards outside the X-ray room, only a small amount of patients of about 8% had noticed the signboard while the rest 92% had not. Sadly, 100% of the patients had not noticed any light indication when the X-ray was in progress. Only 14% of the patients were given safety clothing while taking the X-ray. Moreover, only 8% of the doctors had safety clothing for themselves.

We also inquired specifically how the patients felt about radiography for pregnant ladies and children.

Majority of the patients, 80% felt radiography should be avoided for pregnant ladies. Strangely, a high percentage of the patients (11%) also did not have any idea about the role of X-rays for pregnant ladies and another 9% felt if it was necessary then it should be alright [Figure 5].

About 37% of the patients said they would not allow X-raying for their children, whereas 31% of patients would permit only if it was really necessary. A high percentage of (32%) said that they did not have any idea on dental radiography for children [Figure 6].

DISCUSSION

The questionnaire given to the patients were simple and easy to understand. The majority of them were male (57%) and most of them were skilled workers. The division between skilled and unskilled was based on whether the individual had any formal training to do a specific job. Furthermore, the large majority of them had only a middle school graduate certificate. With regards to the majority of the people based on their occupation, educational qualification, and lower income groups perhaps might not have been able to afford the high cost of dental treatment elsewhere.

Almost all of the patients (99%) knew what dental radiographs are. Most of them obtained information from their dentists/doctors. This highlights the important role dentists play in dissemination of knowledge with regard to dental radiographs.

About 85% of the people interviewed already had the experience of taking a dental radiograph with a mean of at least 2 times. However, what is worrying was that

only 73% of the patients were given proper explanation on the results of the radiographic examinations. Patients need to be educated on the result of the findings so that they can appreciate having radiographs taken. When patients were asked the reason for taking radiographs, 82% of them felt that they were taken only for tooth decay, 54% for gum diseases, 19% for routine checkup, 22% for impacted teeth, and only 16% of them mentioned all the above-listed reasons.

We asked the participants generally if they think dental radiographs are harmful or not. 63% of the participants felt it was not harmful and 32% felt that generally it was harmful. Those who said it was not harmful indicated that it can give a better view of structures beneath the gums which cannot be seen clinically, whereas those who said it was harmful stated that it might cause harm to the body. What needed to be stressed is that there is always a risk in any procedure but if the benefit of the procedure outweighs the risk, then it should be recommended and the patients should be educated on this matter likewise.

Regarding safety measures during radiation few questions were put forward. The light indication seen when the radiograph was in progress was not noticed by anyone indicating that there was no light indication during the exposure. The signboards regarding the radiation were noticed only by 8% of the people, meaning the improper location of the signboard and probably not very much visible.^[2]

When asked specifically on their opinion about taking dental radiographs on pregnant patients 80% of them said they would not allow it and only 11% said they would agree. This shows their ignorance about the dosage in dental radiography. Dental radiographs may be prescribed for pregnant patients because the dose is very low and the beam is not directed toward the developing fetus.^[3] There is also no need to use a lead protection apron. However, the use of lead apron continues to be advised on the grounds that it reassures the patient.^[4] A study by Hujuel *et al.*^[5] is frequently quoted to show the effects of dental radiographs to the developing fetus.

They reported that dental radiography is associated with low birth weight. This study was severely criticized by the dental community because of its inadequacies. Brent^[6] exposed the deficiency of that study. He also mentioned that epidemiologic and animal studies that involved radiation to the thyroid, pituitary, and head did not cause fetal growth retardation as a result of these exposures.

When we asked if it is alright to expose children to dental radiography, their opinions were divided. 37% said that radiographs should not be taken for children, 31% said if only necessary, and 32% had no idea on radiographs

taken for children. Usually, there will be no damage of clinical significance caused by low-level X-rays used in dental radiography.^[7]

However, the younger the individual, the higher is the vulnerability to radiation. This is because of the large number of cell divisions occurring in small children. Children also have a higher proportion of the bone marrow located in the skull than adults have. Smith^[8] has shown in a calculation of risk estimates that about one induction of malignant disease per one million dental exposures of a 5-year-old children can be expected.

CONCLUSION

As most of them rely on their dentist for information regarding this matter, the dental surgeon has to alleviate any fear the patients would have regarding dental radiographs by providing accurate and evidence-based facts. They also need to inform the patients on the reasons for radiographs to be taken and their interpretations after the procedure. A definite lack of knowledge on the possible harmful effects of dental X-rays or the benefit derived from dental radiography; the limitation of this study was that random sampling was done in a teaching institution based in urban area. The result might be different if it was done in a private clinic setting or a rural area. The result shows the

patients do not have a clear understanding why X-rays are taken or their benefits. There is also a definite lack of knowledge regarding the safety of dental radiographs.

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Conflicts of interest

There are no conflicts of interest.

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