

AWARENESS REGARDING INTRA ORAL SCANNERS AMONG DENTAL STUDENTS IN CHENNAI

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ABSTRACT

Introduction: Intraoral scanners (IOS) are equipment used in dentistry to capture direct optical impressions. They project a light source onto the object to be scanned, such as dental curves, including aligned teeth and implants, just as standard three-dimensional (3D) scanners. Although IOS are becoming widespread in clinical dental practice, only a few are aware of the advantages and limitations of the intra oral scanners. The aim of the study was to assess the awareness of intra oral scanners among undergraduates of dental school in Chennai.

Materials and methods: This was a cross-sectional survey done among the age group of 18-25 years to analyse knowledge, attitude and practice on intraoral scanners among undergraduate students. A self administered questionnaire was prepared which included 15 questions and was circulated among the students through google docs. The data was collected and statistically analysed using spss software. The survey was conducted among 261 study populations.

Results and discussion: From the survey, 68.97% of the undergraduates responded that intraoral scanners provided high quality mapping of the intraoral structures; 75.10% responded that intra oral scanners give a more accurate view. The results show that the interns have adequate knowledge when compared to the students of other years.

Conclusion: From this survey, it was concluded that the majority of the participants (86.21%) were aware of intraoral scanners. There is a good knowledge among the interns when compared to students of other years.

Keywords: carestream; Intraoral scanner; meditt; trios; innovative survey; innovative technique .

INTRODUCTION

Digital impressions that are made using dental scanners are becoming increasingly popular and essential in the industry for digital orthodontics. (1) Digital orthodontics is the practice of using digital technologies in the alignment correction of teeth. The first digital impressions dental scanner was introduced in the 1980s. Its main purpose is to map the oral cavity. (2) Since its introduction to dentistry, intraoral scanners have continued to advance in its technologies to help orthodontists identify teeth ailments. (3) conventional impressions are gradually being replaced by digital scans. It consists of a wand-like device that connects to an orthodontist's computer through a cord. The computer has scanning software installed and provides results of a dental scan. (4) The wand is inserted into a patient's mouth and is glided, by the orthodontist, across the bridge of the top and bottom teeth. As the wand moves, the software will capture the digital impression of the oral cavity. The intraoral scanner replaces traditional impression materials. (5)

Intraoral scanners have taken the orthodontics market by storm because they are easy to use and provide patients with more comfort than traditional impression materials. (6) The usage of an intraoral scanner has numerous benefits for patients. One of the advantages of optical impressions is their capacity to directly capture all of the patient's dental arch information and to recreate models without the use of conventional impressions. In reality, conventional impressions can make patients uncomfortable, especially those with a strong gag reflex or children. For such patients, replacing conventional impression materials with light is advantageous; optical impression is thus valued.

When a patient needed an impression, an orthodontist had to place an alginate cast into the patient's mouth before digital impression scanners were introduced. The semi-solid mold material would imprint the teeth and soft tissues of the patient. The impression was removed once it had set, revealing a duplicate of the patient's mouth cavity. (7) Although taking a traditional impression should be painless, it might be unpleasant for the patient. It's possible that removing the mold will be a little messy. Digital impressions, as contrasted to traditional dental impressions, make life considerably easier for patients and orthodontists. (2) One of the primary disadvantages of digital equipment for dental practises is the initial expenses. It can be expensive to buy computer equipment and software, as well as digital imaging sensors. patient comfort and limited

positioning of the sensor intraorally due to patient anatomy, is one disadvantage that prohibits some dental practices from considering purchasing hard sensors.(7) Our team has extensive knowledge and research experience that has translate into high quality publications(8),(9),(10),(11),(12),(13),(14),(15),(16),(17),(18),(19),(20–24),(25),(26),(27)The aim of the study was to assess the awareness regarding intra oral scanners among undergraduate students in dental school in chennai.

MATERIALS AND METHODS

Study Design, Area and Study Population

An Online survey was conducted among dental students to assess the awareness of intraoral scanners. The survey was conducted in the month of February 2021.The sample size of this survey is a total of 261 people. Participation in this study was voluntary and no incentives were provided to the participants.

Study Instruments

After a thorough review of the existing literature, a questionnaire was developed. The questionnaire was re-evaluated, and changes were made to increase the clarity of relevant questions and remove ambiguous responses. A structured questionnaire with closed-ended questions served as the survey instrument. It includes a brief introduction to the study's purpose, questions about demographic data, and questions about the study objectives. A google form was used to distribute 15 questions to the participants. The data is represented in the form of a pie chart.

Data Analysis

Only completely filled online forms were included in the study.The full response was verified by two reviewers and the controlled data was entered on the same day. The entered data were analyzed using SPSS version 2.0. Descriptive analysis was performed to calculate frequencies of categorical variables. Chi square analysis was used to determine the association. The level of significance was set at $p < 0.05$.The independent variables are age,sex.The dependent variables are knowledge and attitude.

RESULTS AND DISCUSSION

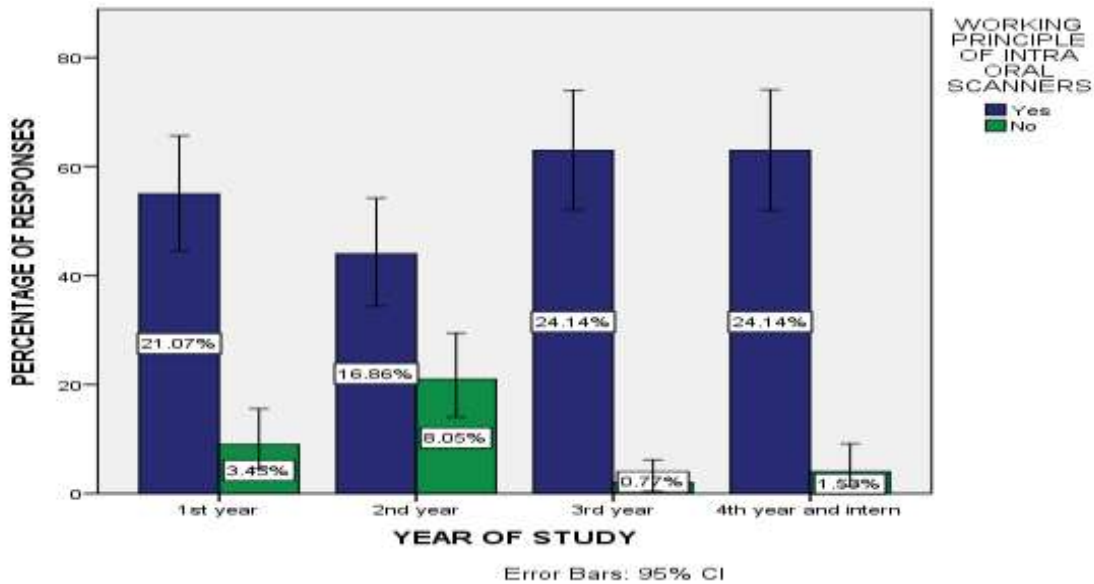


Fig 1: Bar graph depicts the association between the year of study and their student’s knowledge on the working principle of intraoral scanners.X axis represents the year of study of the participants and Y axis represents the number of responses. 4th year and intern students are more knowledgeable about the working principle of intraoral scanners, followed by 2nd years and 1st and 3rd year students are least knowledgeable about the working principle of intraoral scanners.Pearson’s Chi Square value:0.75, P value: (>0.05), Statistically not significant.

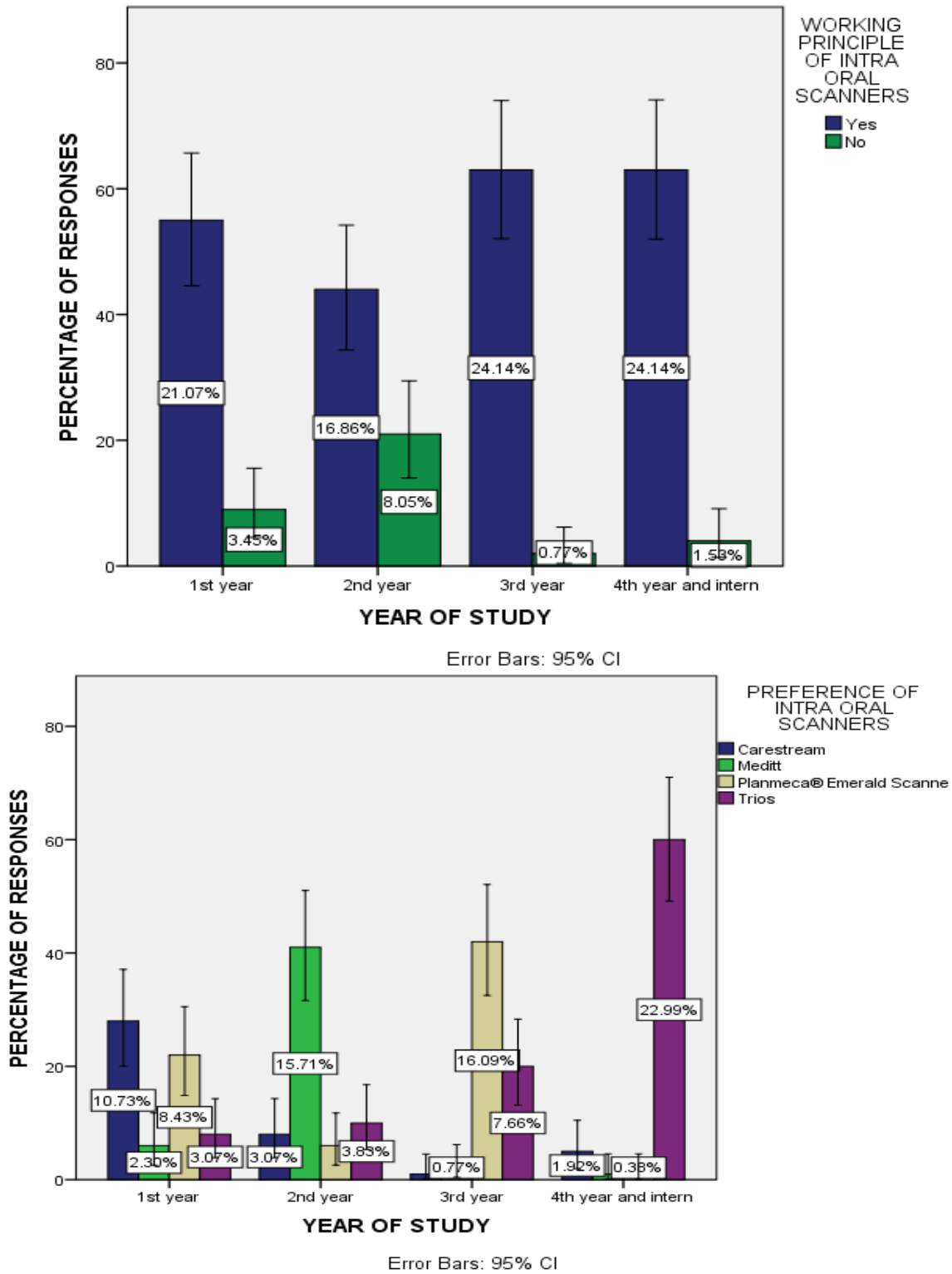


Fig 2: Bar graph depicts the association between the year of study and students preference of intraoral scanners. X axis represents the year of study and Y axis represents the number of responses. First years (41) preferred carestream intraoral scanners compared to other scanners. Second years (48) preferred Medit intraoral scanners compared to other scanners .Third years (43) preferred Planmeca intraoral scanners compared to other scanners .Final years and Interns (58) preferred

Trios intraoral scanners compared to other scanners. Pearson's Chi Square value:0.82 , P value: (>0.05), Statistically not significant.

DISCUSSION

The study was conducted to assess the awareness among undergraduate students about intraoral scanners in a dental school in Chennai. The study was conducted among 220 study participants which include both males and females.

Of the total study population,73.18% of the study participants were female and 26.82% of them were males. 66.67% belong to the age group 24-25 years, 14.18% belong to the age group 22-23 years ,9.58% belong to the age group 20-21 years and 9.58% belong to the age group 18-19 years.61.69% belong to 4th year and interns,12.64% belong to 3rd year,13.41% belong to 2nd year and 12.26% belong to 1st year. 24.90% feel that they are used for accuracy,14.18% are feel that they are used for digital storage ,9.58% feel that it is a simplified procedure ,11.88% are feel that it is time saving and 39.46% feel of all the above.41.76% feel it is medico legal ; 13.41% feel it is easy manipulative 19.16% feel it is expensive,25.67% feel it has limited parameters. 86.21% have said that they are aware of the working principle of intraoral scanners; 13.79% said they are not aware of the working principle of intraoral scanners. 68.97% feel they provide high quality mapping; 17.62% feel they provide low quality mapping,13.41% feel they provide medium quality mapping. 58.24% feel they have slight discomfort, 30.27% feel they have moderate discomfort and 11.49% feel that they have severe discomfort.75.10% have told intra oral scanners give more accurate view, 24.90% have told optical scanners give more accurate view. 89.27% have told that intra oral scanners enhance the practice; 10.73% told that they can't enhance the practice. 43.30% prefer Trios,6.90% prefer 3M tru def, 14.94% prefer carestream ,24.14% prefer planmeca emerald scanner and 10.73% prefer meditt. 51.72% prefer Trios,9.20% (4-6,28-30)prefer 3M tru def, 29.50% prefer carestream ,9.58% prefer planmeca emerald scanner. From the above bar graphs we can conclude that there are more participants among interns compared to the other year dental students.It also shows that many students from 4th year and intern are aware of the working principle of the intraoral scanners.it also shows that many students from 4th year and interns preferred trios than other intraoral scanners. Other studies done by(1,2,5,31)Previously,similar studies (4-6,28,29) were done to assess the knowledge of intraoral scanners among medical students.(2,7) The present study shows the similar relevant results when compared to the previous study. When compared to the study done by(1,32)there is significant increase in the awareness of the current study.

Optical impression decreases patient discomfort significantly when compared to traditional physical impression. In fact, it eliminates the need for materials and impression trays, which are often unwelcome to the patient.Patients tend to prefer optical impressions rather than conventional impressions, as reported by the literature

CONCLUSION

From this survey, it was concluded that the majority of the participants(86.21%) were aware about intraoral scanners among undergraduate students in a dental school in Chennai. There is a good knowledge among the 4th years and interns when compared to other students As the digital scanners show more significant mapping than the conventional methods , it is important to bring awareness and bring intraoral scanners into practise.

AUTHOR CONTRIBUTIONS

Author 1: Lasya Ganta, carried out the study by collecting data and drafted the manuscript after performing the necessary statistical analysis and in the preparation of the manuscript.

Author 2: Remmiya Mary Varghese, aided in conception of the topic, designing the study and supervision of the study, correction and final approval of the manuscript.

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CONFLICTS OF INTEREST

None declared.

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