



Awareness of CBCT among the Final Years and Interns- A Pilot Study

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ABSTRACT:-

Objective: *The main purpose of this study is to determine the knowledge and awareness of cone beam computed tomography among the final year dental students and interns.*

Materials and methods: *A closed ended questionnaire comprising 15 questions would be given to the final year BDS student and interns of our institution. Their responses would be analyzed and tabulated.*

Results: *This questionnaire was returned by 100 participants, out of the administered participant number of 120. The entire study was carried out among the final years and interns and hence their age was in the range of 22-24 years. Out of the total 41 interns, all 41 felt that there is a need to use CBCT in their professional career. Out of the 59 final years, 94.9% felt that they would use CBCT in their professional career while 5.1% said they would not prefer to use CBCT in their career. Among the total interns sample of 41, 19.5% wanted to use CBCT for orthodontic assessment while in final years, 10.2% wanted to use CBCT for orthodontic assessment. 48.5% in internship wanted to use for implant assessment while among final years 42.4% wanted to use CBCT primarily for implant assessment. The third option of evaluation for cyst and tumours was chosen by 17.1% of interns and 16.9% of final years. The option of evaluation of impacted teeth, 9.7% of interns had opted and 15.3% of final years had opted the option. The option 5 of trauma cases was chosen by 4.9% was opted by interns and 16.9% was chosen by final years. 19.5% interns felt that CBCT can be used for imaging TMJ disk disorders while 16.9% of final years felt that CBCT can be used. Majority of interns 48.7% and 38.9% of final years thought that they cannot use CBCT for TMJ disk disorders. While only 17.1% of interns thought CBCT may be used for TMJ disk disorders and 27.1% of final years only thought CBCT may be used for TMJ disk disorders. A minimal number of 14.6% of interns and 16.9% of final years did not know if CBCT can be used for TMJ imaging. 40 final years (67.8%) and 29 (70.17%) of interns felt that the primary advantage of CBCT is the lesser radiation required. About 13.5% of final years and 19.5% of interns felt that the rapidity of image acquisition was the primary advantage. For the option of faster image processing as the advantage only 6.7% of final years and 9.7% of interns felt it as an advantage. Only 13.7% of final years chose date reconstruction is faster as an advantage of CBCT. Among the interns only 36.5% of them were aware of dentascan and among the final years only 30.5% were aware of the dentascan. The majority of interns 68.3% and final years 67.8% felt it is mandatory to have the education at the 3rd year level. 48.7% final years and 47.5% of interns preferred to obtain information through faculty lectures. The next preferred method among the interns 31.7% was seminar*

while only 16.9% of final years felt that the preferred method was seminar. The next preferred method among final years 32.2% was internet while only 17.1% of interns preferred. Both final years 50.8% and interns 70.7% felt that the teaching of CBCT was adequate. Only 2.4% interns and 6.7% of final years felt that the teaching was not adequate. Only 26.8% of interns and 42.4% of final years felt that the method of teaching was just adequate.

Conclusion: The present study shows better awareness of CBCT among the final years and interns. The information obtained from the study also highlighted the need for CBCT for implant placement. This study also suggests that more awareness and knowledge should be gained on this emerging new technology for better diagnosis and treatment planning.

Keywords: CBCT, questionnaire, implant

INTRODUCTION

Cone beam CT [CBCT] or cone beam volumetric tomography [CBVT] is an imaging modality using ionizing radiation which has added a 3-dimensional perspective to maxillofacial imaging. Though a 3D imaging is possible through multi detector CT [MDCT], CBCT carries unique advantages in requiring lesser radiation dose to MDCT. Further CBCT machines occupy a smaller foot print and hence easily positioned in the dental office, providing rapid scan times and multiplanar visualization of the structures concerned. [1, 2]

The main indications of CBCT are in planning dental implants in 3rd molar impaction to see the relationship to the adjacent teeth and nearby vital structures, in endodontics for assessment of the number, position, course of the canals, in detecting fractures of the root, or in orthodontic for 3D cephalometric analysis. It also has applications in temporomandibular joint assessment to detect osseous changes. However it cannot be used for pathologies of the articular disc. [3] It has limited usefulness in evaluation of bone for signs of cyst, tumor. [3] The principal drawbacks of this technology are limited soft tissue contrast, scatter artefacts from metallic crowns and restorations and beam hardening artefacts.

With the increasing usage of dental implants, the need for CBCT is increasing as CBCT plays a vital role in implant planning. With the increasing availability of CBCT, the dental students should be well aware of the advantages and disadvantages of this piece of technology. With the above objective in mind, a closed ended

questionnaire survey was carried out among the prefinal and final year graduate students of Saveetha Dental College and Hospital, Chennai.

MATERIALS AND METHODS

A self administered anonymous questionnaire of 11 questions was given to the prefinal and final year BDS students. Before the administration of the questionnaire, an informed consent was obtained from the participants. A total of 100 students participated.

QUESTIONS

1. Age: -
2. Gender: -
3. Year of study:-
4. Would you like to use CBCT in your future professional carrier?
 - (a) Yes
 - (b) No
5. What are the cases for which you would advise CBCT?
 - (a) Orthodontic assessment
 - (b) Implant dentistry
 - (c) Evaluate cyst and tumors
 - (d) Evaluation of impacted teeth
 - (e) Trauma cases
 - (f) Any others specify.
6. Do you feel CBCT can be used for imaging TMJ disk disorders?
 - (a) Yes
 - (b) No
 - (c) Maybe
 - (d) Don't know
7. What according to you are the advantages of CBCT?
 - (a) Lesser radiation than spiral CT
 - (b) Rapid scan
 - (c) Faster image processing

- (d) Data reconstruction is easier
- (e) No idea
- 8. Are you aware of dentascan?
 - (a) Yes (b) No
- 9. Which year of clinical education do you feel if lectures on CBCT should be delivered?
 - (a) II year (b) III year (c) IV year
- 10. How did you obtain information on CBCT?
 - (a) Faculty lessons
 - (b) Seminar
 - (c) Internet
 - (d) Others specify..
- 11. Do you feel the teaching of CBCT for undergraduates is adequate?
 - (a) Yes (b) No (c) Maybe

RESULTS

This questionnaire was returned by 100 participants, out of the administered participant number of 120. The composition of the sample is indicated in table 1.

QUESTION 1: Age

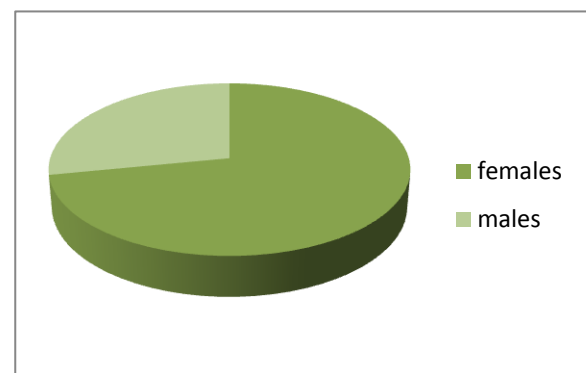
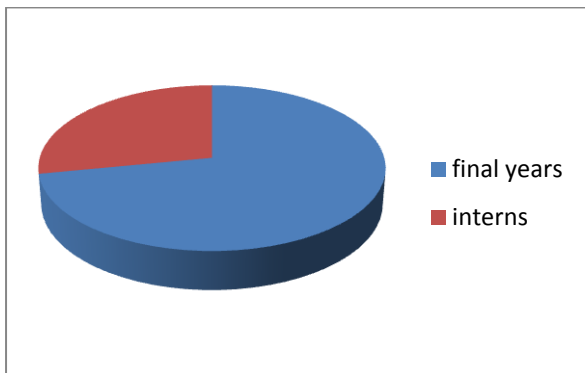
The entire study was carried out among the final years and interns and hence their age was in the range of 22-24 years.

QUESTION 2 & 3: Gender and Year of study

The sample had 59 final years of which 34 were females and 25 were males. The sample had 41 interns, 22 were females and 19 were males.

TABLE: 1

GENDER	FINAL YEARS (59 PARTICIPANTS)	INTERNS (41 PARTICIPANTS)
MALES	25	19
FEMALES	34	22



QUESTION 4: Would you like to use CBCT in your future professional career?

Out of the total 41 interns, all 41 felt that there is a need to use CBCT in their professional career. Out of the 59 final years, 56 participants (94.9%) felt that they would use CBCT in their professional career while 3 participants (5.1%) said they would not prefer to use CBCT in their career.

QUESTION 5: What are the cases for which you would advise CBCT?

For the question 5, among the total interns sample of 41, 8 participants (19.5%) wanted to use for orthodontic assessment while in final years, 5

participants (10.2%) wanted to use CBCT for orthodontic assessment. 20 (48.5%) participants in internship wanted to use for implant assessment while among final years 25 (42.4%) wanted to use CBCT primarily for implant assessment. The third option of evaluation for cyst and tumours was chosen by 7 (17.1%) of interns and 10 (16.9%) of final years. The option of evaluation of impacted teeth, 4(9.7%) of interns had opted and 9 (15.3%) of final years had opted the option. The option 5 of trauma cases was chosen by 2 (4.9%) was opted by interns and 10(16.9%) was chosen by final years.

TABLE 2:

OPTION	FINAL YEARS (59 PARTICIPANTS)	INTERNS (41 PARTICIPANTS)
Orthodontic assessment	5 (10.20%)	8(19.5%)
Implant dentistry	25 (42.4%)	20(48.5%)
Evaluate cyst and tumours	10(16.9%)	7(17.1%)
Evaluation of impacted teeth	9(15.3%)	4(9.7%)
Trauma cases	10(16.9%)	2(4.9%)
Any others	-	-

QUESTION 6: Do you feel CBCT can be used for imaging TMJ disk disorders?

For this question 8(19.5%) interns felt that CBCT can be used for imaging TMJ disk disorders while 10(16.9%) of final years felt that CBCT can be used. Majority of interns 20(48.7%) and 23(38.9%) of final years thought that they cannot

use CBCT for TMJ disk disorders. While only 7(17.1%) of interns thought CBCT may be used for TMJ disk disorders and 16(27.1%) of final years only thought CBCT may be used for TMJ disk disorders. A minimal number of 6(14.6%) of interns and 10(16.9%) of final years did not know if CBCT can be used for TMJ imaging.

TABLE: 3

OPTION	FINAL YEARS	INTERNS
Yes	10(16.9%)	8(19.5%)
No	20(48.7%)	23(38.9%)
Maybe	7(17.1%)	16(27.1%)
Don't know	6(14.6%)	10(16.9%)

QUESTION 7: What according to you is the advantage of CBCT?

For question 7, 40 final years (67.8%) and 29(70.17%) of interns felt that the primary advantage of CBCT is the lesser radiation required. 8(13.5%) of final years and 8(19.5%) of interns felt that the rapidity of image acquisition was the primary advantage. For the option of faster image processing as the advantage only 4(6.7%) of final years and 4(9.7%) of interns felt it as an advantage. Only 7(13.7%) of final years chose date reconstruction is faster as an advantage of CBCT.

QUESTION 8: Are you aware of dentascan?

Among the interns only 15(36.5%) of them were aware of dentascan and among the final years the numbers were only 18 (30.5%).

QUESTION 9: Which year of clinical education do you feel if lectures on CBCT should be delivered?

For the question on being aware of the academic year in which to incorporate the lectures on CBCT, the majority of interns 28(68.3%) and final years 40(67.8%) felt it is mandatory to have the education at the 3rd year level.

TABLE: 4

OPTION	FINAL YEARS (59 PARTICIPANTS)	INTERNS (41 PARTICIPANTS)
IIIrd year	40(67.8%)	28(68.3%)

QUESTION 10: How did you obtain information on CBCT?

The responses for the question 10 reveals a majority i.e., 20 (48.7%) final years and 28

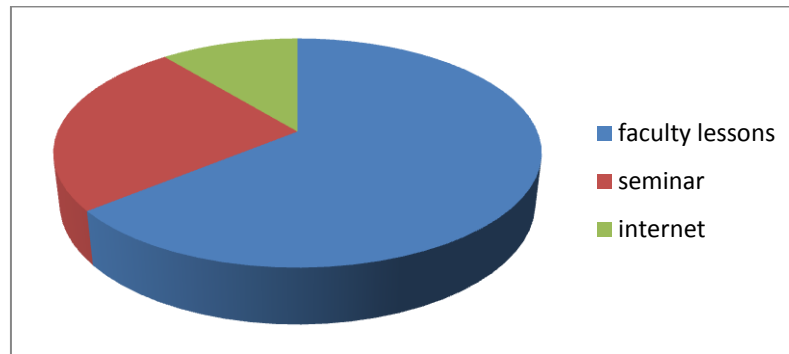
(47.5%) of interns preferred to obtain information through faculty lectures. The next preferred method among the interns 13(31.7%) was seminar while only 10(16.9%) of final years felt that the

preferred method was seminar. The next preferred method among final years 19(32.2%) was internet

while only 7(17.1%) of interns preferred.

TABLE: 5

OPTION	FINAL YEARS	INTERNS
Faculty lessons	20(48.7%)	28(47.5%)
Seminar	10(16.9%)	13(31.7%)
Internet	19(32.2%)	7(17.1%)



QUESTION 11: Do you feel the teaching of CBCT for undergraduates is adequate?

Both final years 30(50.8%) and interns 29(70.7%) felt that the teaching of CBCT was adequate. Only 1(2.4%) interns and 4(6.7%) of final years felt that the teaching was not adequate. Only 11(26.8%) of interns and 25(42.4%) of final years felt that the method of teaching was just adequate.

DISCUSSION

Cone beam computed tomography imaging has emerged as a pivotal application in 3-dimensional reconstruction for dental imaging. Though it has emerged as an innovation in dental imaging there still remains a lot of grey area regarding the application of this piece of technology. The literature has numerous structures which assess the dental practitioner's knowledge on digital imaging. [4-8]

The present study used a modified pretested questionnaire among the final years and interns of the BDS course. The study was carried out in an institution which had CBCT facilities for dental imaging. The majority of respondents were females.

The opinion in the need to use CBCT increased as the knowledge of the tool increases. It was evident

that all interns mentioned that they would be using CBCT for imaging in their clinical practice while the same question when posed to final years revealed lesser response.

The response of the students to which branch is CBCT preferably to be used was primarily in implantology. Another evidence to prove that the advancing experience, there is a clarity in the usefulness of this tool is evident by the response of the students for the question on TMJ imaging. More of interns felt that it cannot be used for imaging of TMJ. The vast majority of patients felt that the CBCT imaging provided a faster scan and the preferred year for teaching technology would be third year.

CONCLUSION

The above study was conducted in a Dental Institution with CBCT facility. It is found from the study that there is a significant awareness about the imaging modality. It is found that the interns are significantly much more aware than the final year BDS students. Some of the points noted were that it is significant to start the training on CBCT very early and later help the students attain significant decision making skills in the use of this technology.

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