Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 03, pp.47420-47423, March, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

AWARENESS AND KNOWLEDGE OF DIGITAL IMPRESSION TECHNIQUE AMONG DENTAL STUDENTS IN VARIOUS INSTITUTIONS

***,[1]Nor Syakirah Shahroom and [2]Dr. Sangeetha**

[1]II BDS Student, India
[2]Department of Prosthodontics, Saveetha Dental College, Chennai, Tamil Nadu, India

ARTICLE INFO

Article History:
Received 18th December, 2016
Received in revised form
10th January, 2017
Accepted 04th February, 2017
Published online 31st March, 2017

Key words:

Digital impression,
Trios,
Cerec Blue,
Intraoral scanner.

ABSTRACT

Aim and Objective: To determine and assess the awareness and level of knowledge on digital impression technique among dental students in various institutions.
Materials and Method: This study was done by distributing a total of 10 questionnaires through online survey to dental students among various institutions. The questionnaires were prepared to evaluate the awareness and the views on intraoral impression technique among the dental students. The data were collected and statistical analyses is done.
Result: The result showed only 59% of the students were aware about various digital impression technique in dentistry. This is because they would have experienced very less dental procedures using digital impression techniques (14%). The (91%) dental students preferred it will be helpful in dental clinics and (88%) dental students believed that digital impression technique consume less working time. But only (52%) of them rated the uses of digital impression technique as moderate. (83%) of them believed that their patient would prefer digital impression technique. In spite of their preference to use digital impression technique (78%) in the future, only (37.9%) of them rated it is moderately effective highly accurate.
Conclusion: The awareness on digital impression technique is very poor among the dental students in various institutions. Most of them does not aware about the uses and effectiveness of digital impression technique in dentistry as they never experience using it in their institutions. Therefore, various measures need to be taken to improve their awareness and knowledge on digital impression techniques.

Citation: Nor Syakirah Shahroom and Dr. Sangeetha, 2017. "Awareness and knowledge of digital impression technique among dental students in various institutions", *International Journal of Current Research*, 9, (03), 47420-47423.

INTRODUCTION

Digital technology is one of the current interest in dentistry as it can provide ease for the dental practitioners as well as develop desirable outcomes in various dental procedures. Digital impression devices have been introduced to the profession, in order to reduce the chairside time for taking conventional impressions for crown, bridges and fixed prostheses (Sharma, 2014). Computer-Aided Design/ Computer-Aided Manufacturing (CAD/CAM) system has turn out to be a new approach in taking digital impression orally. In 1973, Duret was the first one who introduced CAD/CAM concept to explore digital technology in dentistry by making Optical Impression (Sharma, 2014 and Ali, 2015). This CAD/CAM concept was further developed by Dr. Mormann and Mr. Bradestini, a Swiss Dentist and an electrical engineer (Ali, 2015).

****Corresponding author: Nor Syakirah Shahroom***
II BDS Student, India.

8 CEREC was the first commercially available digital impression system, followed by 3M Lava C.O.C., Cadent iTero, E4D Dentist and 3Shape Trios (Ali, 2015 and Christensesn, 2009). The uses of titanium dioxide or magnesium oxide powder to the abutment teeth before scanning help to eliminate reflection and create measureable surface (Ali, 2015). This can be done by CAD/CAM systems like 3M Lava C.O.S and CEREC Bluecam. The other system may not require powder as it is able to handle the glossy surface of the abutment teeth (Ali, 2015). Digital impression technique is emerging rapidly in fabricating most efficient, precise and accurate prostheses in various dental procedures. The advantages of this system include standardized protocols, improved predictability with reproducible treatment outcomes, and reduced work time with simplified production processes (Abduo, 2013; Kapos, 2014; Joda, 2015; Joda, 2015 and Joda, 2016). Various studies on the efficiency, precision and accuracy of the digital impression technique which comparing with conventional technique have been done (Yuzbasioglu,

2014; Lee, 2013; Lee *et al*., 2013; Herbst, 2000). It is also believed that, this technique may overcome the challenges and difficulties of the conventional impression which is commonly used before. However dental students are not really expose to the use of digital impression technique during their clinical years. Hence, their knowledge might be lacking. Therefore, the aim of this study is to determine and assess the knowledge and awareness of digital impression technique among dental students in various institutions.

METHOD AND MATERIALS

This study was done by distributing a total of 10 questionnaires through online survey to dental students among various institutions. A total of 100 students have taken the survey and the results were recorded. The dental students may have or may not have done any dental procedures using digital impression. The questionnaires were prepared to evaluate the awareness and the views on intraoral impression technique among the dental students. The data were collected and statistical analyses is done.

RESULTS

Digital impression technique plays an important role in dentistry nowadays in various dental procedure to provide ease and desirable outcomes in the future. Based on the study, only 57% of the students were aware while 43% were not aware about various digital impression technique in dentistry.

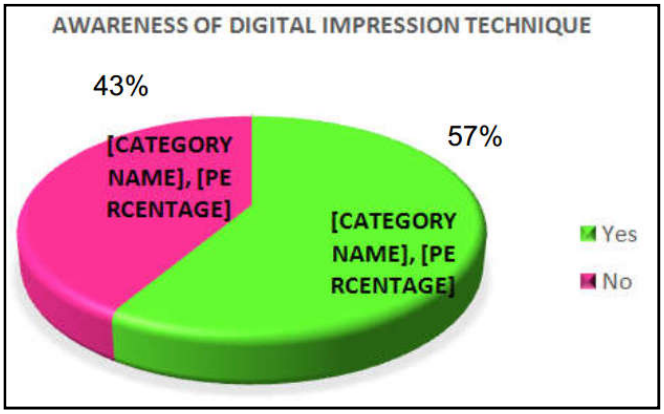

Figure 1. Shows the awareness of the dental students on digital impression technique

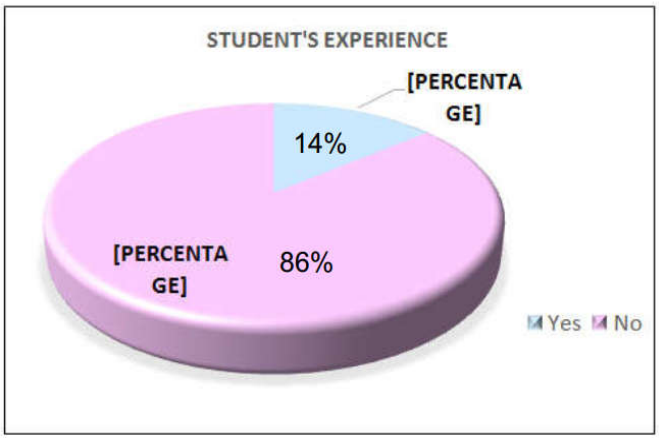

Figure 1. Shows the percentage of the dental students with any clinical experiences

Among them, only 14% of the students has experience in using the digital impression technique during their clinical years. The most popular technique among them was Cadent iTero (29%) and Trios (29%) followed by CEREC Bluecam (23%) and 3M Lava C.O.S (16%). Approximately 19% of the dental students have not heard any of the digital impression technique. 91% dental students preferred it will be helpful in dental clinics and (88%) dental students believed that digital impression technique consume less working time.

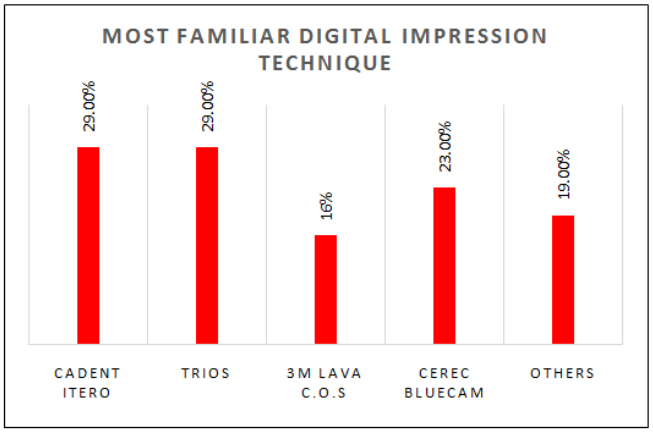

Figure 2. shows the percentage of digital impression techniques which familiar among dental students

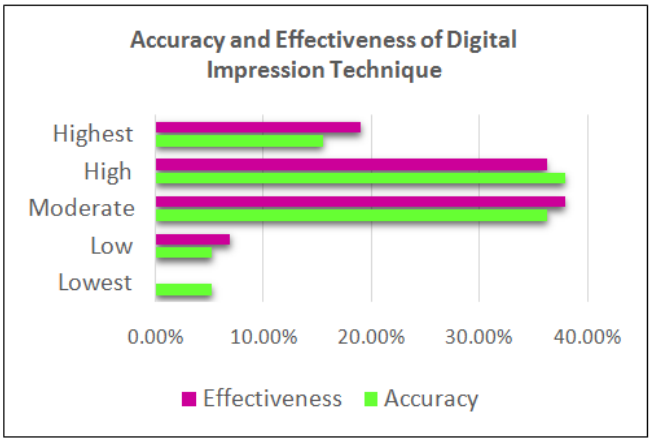

Figure 3. Shows the level of accuracy and effectiveness of digital impression technique thought by the dental students

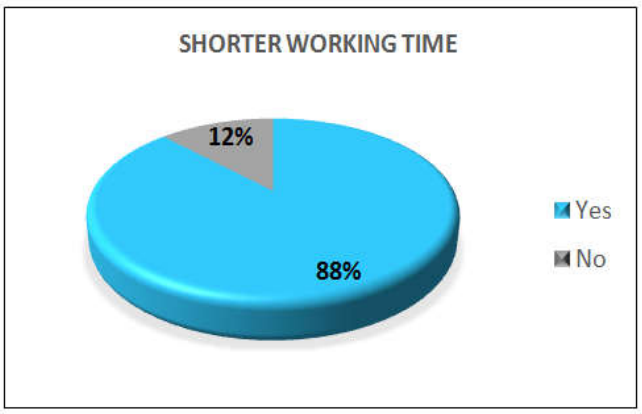

Figure 4. Shows the percentage of the dental students who thought that digital impression technique may provide a shorter working time

But only (52%) of them rated the uses of digital impression technique as moderate. (83%) of them believed that their patient would prefer digital impression technique. In spite of their preference to use digital impression technique (78%) in the future, only (37.9%) of them rated it is moderately effective and (37.9%) rated highly accurate.

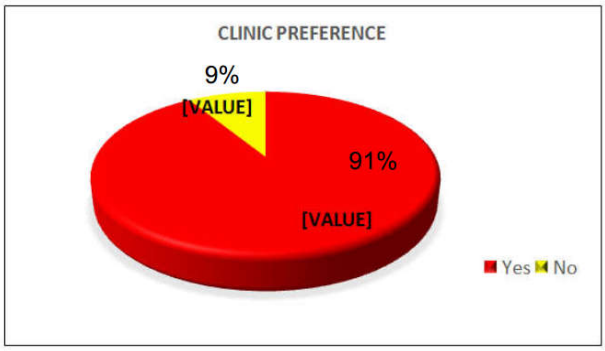

Figure 5. Shows the percentage whether digital impression technique would be helpful in the dental clinics

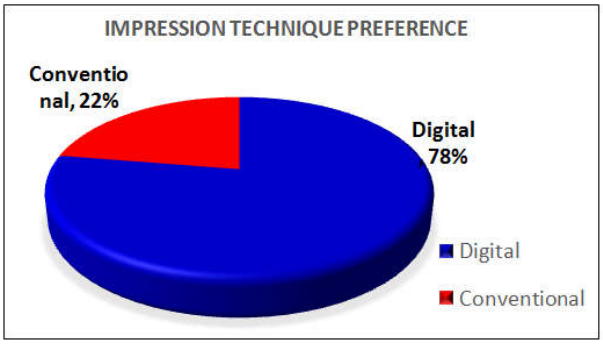

Figure 6. Shows the preference of the dental students in the impression technique

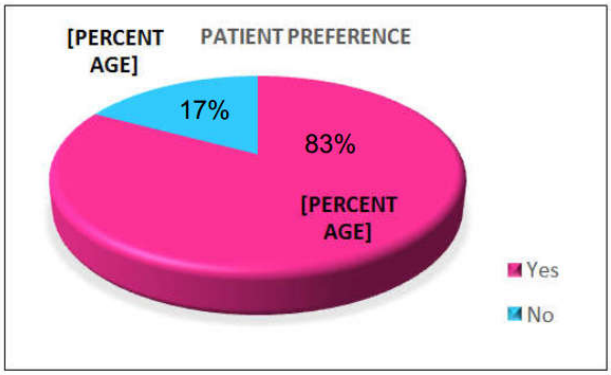

Figure 7. Shows the preference of the patient based on the dental students' opinion

DISCUSSION

This survey was done to evaluate the level of knowledge of the dental students on the digital impression technique. Dental students who participated in this study may have or may not have any clinical experiences on using the digital impression technique in various dental procedures. This study showed that only 14% of the dental students have used digital impression during their clinical study. The uses of digital impression technique is limited in the dental institutions due to the sophisticated equipment (Christensesn, 2009). Thus, the exposure towards this appealing impression technique is less among the dental students. Hence, teaching approach and various programmes on digital impression technique would be sufficient to develop the knowledge of the dental students. Conventional impression was introduced long before and currently, digital impression technique has become one of the alternative in various procedures in dentistry. Based on several previous studies done, the efficiency and patients' satisfaction were the reasons why digital impression technique appears to be engaged among the dentist and dental students who had experiencing this technique (Joda, 2016 and Birnbaum, 2008). In digital impression, the used of intraoral scanners help in creating digital image of the patient's teeth which in turn eliminate the need for traditional impression materials (Bunek, 2014). Besides, it also increase patient comfort and reduce anxiety as the use of stock trays and impression material is eliminated when using digital impression (Sharma, 2014). It was proven with this study in which 83% of dental students would suggest the used of digital impression to their patients for their convenience during treatment. Based on the study done by Patzelt *et al*. (Patzelt, 2014), patients report greater comfort when digital impression is used. Besides, the dental students also provide positive feedbacks on the effectiveness, accuracy, clinical usefulness and interest in further used (Park, 2015). 38% of the dental students thought that the accuracy of the digital impression is highly accurate and the effectiveness is moderate. However, based on the study done by Joda *et al*. (Joda, 2016), 88% of the students felt most effective when using intraoral scanner, 8% with conventional impression and 4% with either technique. The accuracy of digital impression was evaluated based on the mean difference and standard deviation of the system which found that iTero system was most accurate, followed by Lavato and CEREC (Ali, 2015 and Luthardt, 2005).Apart from that, this study showed that the student accepts that digital impression technique would have a shorter working time (88%). In the study done by Gjelvoid *et al*. it is found that the total time taken by the digital impression technique in the prepared abutment teeth is short which was 14.33min. This included the preparation and impression. Yuzbasioglu *et al* (Yuzbasioglu, 2014), has done a clinical study on dental students in which it is shown that only 4.13 min was required for digital impressions.

Based on the dental students' preference, 78% would prefer to use digital impression technique in the future in comparison to the study done by Hye-Ran Park *et al* (Park, 2015), which only 33% of the clinician would prefer digital impression technique and study done by Lee *et al* (Lee *et al*., 2013), in which students with no experience would prefer digital impression technique. This is because, the dental students perceived that digital impression was easier than conventional technique (Park, 2015). Besides, they learnt and practiced more towards conventional technique (Lee, 2013). Based on the results, 91% of the dental students thought that digital impression would be useful in the dental clinics. The intraoral scanner is easy to handle due to lightweight and small size, comfortable when handling and easy to operate during dental procedures (Park, 2015). This study had a small sample size and no training session was done by the dental students. Therefore, further studies should be conducted in order to create awareness by provide training and lessons on digital impression technique.

Conclusion

The awareness on digital impression technique is very poor among the dental students in various institutions. Most of them

does not aware about the uses and effectiveness of digital impression technique in dentistry as they never experience using it in their institutions. Therefore, various measures need to be taken to improve their awareness and knowledge on digital impression techniques. The institutions can start conducting and making their students attending CDE programmes about digital impression techniques. Besides, the institutions can also establish digital impression technique teaching in their future.

REFERENCES

Sharma, S., *et al*., Impression; digital vs conventional: a review. *Annals of Dental Specialty*, 2014. 2(1): p. 9-10

Ali, A.O., Accuracy of Digital Impressions Achieved from Five Different Digital Impression Systems. *Dentistry,* 2015. 2015.

Christensesn, G.J., Impression are changing: deciding on conventional, digital or digital plus in-office milling. The *Journal of the American Dental Association*, 2009. 140(10): p. 1301-1304.

Abduo, J. and K. Lyons, Rationale for the use of CAD/CAM technology in implant prosthodontics. *International journal of dentistry,* 2013. 2013.

Kapos, T. and C. Evans, CAD/CAM technology for implant abutments, crowns, and superstructures. *International Journal of Oral & Maxillofacial Implants*, 2014. 29.

Joda, T. and U. Brägger, Digital vs. conventional implant prosthetic workflows: a cost/time analysis. *Clinical oral implants research,* 2015. 26(12): p. 1430-1435.

Joda, T. and U. Brägger, Time-Efficiency Analysis Comparing Digital and Conventional Workflows for Implant Crowns: A Prospective Clinical Crossover Trial. *International journal of oral & maxillofacial implants,* 2015. 30(5).

Joda, T., *et al*., Time efficiency, difficulty, and operator's preference comparing digital and conventional implant impressions: a randomized controlled trial. *Clinical Oral Implants Research,* 2016.

Yuzbasioglu, E., *et al*., Comparison of digital and conventional impression techniques: evaluation of patients' perception, treatment comfort, effectiveness and clinical outcomes. *BMC Oral Health*, 2014. 14(1): p. 1.

Lee, S.J. and G.O. Gallucci, Digital vs. conventional implant impressions: efficiency outcomes. *Clinical oral implants research,* 2013. 24(1): p. 111-115.

Lee, S.J., R.X. MacArthur, and G.O. Gallucci, An evaluation of student and clinician perception of digital and conventional implant impressions. *The Journal of prosthetic dentistry,* 2013. 110(5): p. 420-423.

Herbst, D., *et al*., Evaluation of impression accuracy for osseointegrated implant supported superstructures. *The Journal of prosthetic dentistry,* 83(5): p. 555-561.

Birnbaum, N.S. and H.B. Aaronson, Dental impressions using 3D digital scanners: virtual becomes reality. *Compend Contin Educ Dent,* 2008. 29(8): p. 494-505.

Bunek, S., B. Chris Brown, and M.E. Yakas, The Evolving Impressions of Digital Dentistry. *Inside Dentistry*, 2014: p. 35-9.

Patzelt, S.B., *et al*., The time efficiency of intraoral scanners: an in vitro comparative study. *The Journal of the American Dental Association*, 2014. 145(6): p. 542-551.

Park, H.-R., *et al*., Changes in views on digital intraoral scanners among dental hygienists after training in digital impression taking. BMC Oral Health, 2015. 15(1): p. 151.

Luthardt, R., R. Loos, and S. Quaas, Accuracy of intraoral data acquisition in comparison to the conventional impression. *International journal of computerized dentistry,* 2005. 8(4): p. 283-294.

Gjelvold, B., *et al*., Intraoral digital impression technique compared to conventional impression technique. A randomized clinical trial. *Journal of Prosthodontics*, 2015.

****