

ORIGINAL ARTICLE

DIGITAL IMPRESSION VERSUS CONVENTIONAL IMPRESSION FROM THE POINT OF VIEW OF DENTIST PREFERENCES

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Abstract: Nowadays digital impression represents a new breakthrough for dental offices, since more and more dentists use dental scanners. From the point of view of the dentist's preferences, there are not many studies regarding the use of the digital impression in comparison with the conventional impression. (1) *Background:* The aim of this study was to make a comparison between the digital impression and the classic impression and highlight the advantages and disadvantages of using the two methods, both in terms of the patient and the dentist; (2) *Methods:* To fulfill the objectives of this study, the Google Forms Platform was used to distribute a questionnaire regarding digital impression and classic impression. The questionnaire included 14 questions with the possibility of choosing only one answer and was addressed to dentists. (3) *Results:* 42 responses were recorded to the 14 questions contained in the questionnaire; (4) *Conclusions:* Intraoral scanning dental impression compared to traditional impression has less effect on patient gag effect, breathing difficulties, stress and anxiety, and results in better patient perception and comfort.

Keywords: digital impression, analog impression, dentist preferences.

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1. Introduction

CAD-CAM systems consist of 3 components: a digitizing tool-scanner that transforms the geometry into digital data that can be processed by the computer, a software that processes the digital data and, depending on the application, produces a data set to be manufactured the desired product and a product technology that transforms the data set into that product [1,2].

Intraoral scanners are devices for obtaining an optical impression of dental arches able to replace conventional techniques with impression trays and impression materials that cause discomfort to patients [3,4,5]. For this reason and for their multiple uses such as establishing the diagnosis and making the study model [6], fixed prostheses [4,5], orthodontics [7], surgery with guided implants [8], are increasingly present in dental practices and an increasing number of dentists are purchasing intraoral scanners and using this technology [3-7, 9-12].

In the field of dental medicine, the scanner is a data collection device that measures three-dimensional structures of the oral cavity and transforms them into digital data [2].

The intraoral scanner projects a light source, which can generally be a laser beam or a structured light network with a known geometry, on the surface of the oral tissues and captures its deformation with high-performance cameras, and with the help of the acquisition software, generates a cloud of

points and then triangulation produces a 3D surface model (mesh) [3,4].

Accuracy [7,13-16] and resolution [17] are the most important mathematical characteristics that an intraoral scanner must have.

When discussing the accuracy of dental impressions, the terms "accuracy," "true" and "precision" should be distinguished from one another. According to the International Organization for Standardization (ISO 5725-1) definition of 1994, "accuracy" indicates the combination of "correctness" and "precision", where "correctness" is defined as "the closeness of agreement between the arithmetic mean of a large number of test results and true or accepted reference value". Meanwhile, "precision" has been defined as "the closeness of agreement between different test results" [18].

In other words, an ideal intraoral scanner should be able to reconstruct and therefore reproduce as faithfully as possible the surface of the scanned oral tissues, which means that it should have a high accuracy and in addition it should also have a high precision, thus providing consistent and repeatable results without deviations from scanning the same surface [15,16].

As for measuring the accuracy of an intraoral scanner, in vivo, it can be done very easily by performing different consecutive scans of the same arch saved as 3D models and with the help of reverse engineering software to be superimposed and the minimal deviations between the models indicate a high accuracy of the scanning device [14,15].

Regarding the assessment of the accuracy of an intraoral scanner, in vivo, it is more difficult, because to do this operation with the help of reverse engineering software we need a reference model (RM) on which to superimpose the intraoral scans [14 ,15]. A reference model can only be obtained using complex technology such as articulated arms or coordinate measuring machines (CMMs), devices that physically probe the surface to collect detailed 3D information, or alternatively industrial optical scanners or strong office [15]. Considering that the patient's dental arches cannot be detached to be placed inside a coordinate measuring machine or an industrial optical scanner to obtain a reference model, it is impossible to calculate the accuracy of an intraoral scanner in vivo [19,20].

The resolution is given by the density of the number of points generated by the acquisition software's processing of the scan data which are then triangulated resulting in a number of triangles, which leads to the conclusion that the resolution is also given by the number of triangles of the 3D surface model (mesh) [17]. Resolution has particular importance in visualizing details such as the margin or preparation limit of the natural tooth [17].

The aim of this study was to make a comparison between the digital impression and the classic impression in order to highlight the advantages and disadvantages of using the two methods, both in terms of the patient and the dentist, but also to evaluate

the limitation regarding the use digital impression technique by intraoral scanning.

2. Materials and method

To fulfill the objectives of this study, the Google Forms Platform was used to distribute a questionnaire regarding digital impression and classic impression. The questionnaire included 14 questions with the possibility of choosing only one answer, and was addressed to dentists. Dentists received all relevant information about the purpose of the study.

QUESTIONNAIRE QUESTIONS:

1. Are you familiar with the classic intraoral impression method?

- a) yes;
- b) no.

2. Have you experienced intraoral impression technology?

- a) yes;
- b) no.

3. How many years have you been practicing dentistry in the office?

- a) 0-5 years;
- b) 5-10 years;
- c) 10-15 years;
- d) 15-25 years;
- e) more than 25 years.

4. Consider that, from the point of view of the gag reflex caused to patients, a lower impact has:

- a) impression by intraoral scanning;

b) the classic impression;
c) there are no differences between the two methods.

5. Consider that from the point of view of breathing difficulties caused to patients, a lower impact has:

a) impression by intraoral scanning;
b) the classic impression;
c) there are no differences between the two methods.

6. Consider that, in terms of stress and anxiety caused to patients, a lower impact has:

a) impression by intraoral scanning;
b) the classic impression;
d) there are no differences between the two methods.

7. Consider that in terms of perception and comfort generated for patients, better results are obtained using:

a) impression by intraoral scanning;
b) the classic impression;
c) there are no differences between the two methods.

8. Consider that the adaptation of fixed prosthetic works and inlays in the oral cavity is better using:

a) impression by intraoral scanning;
b) the classic impression;
e) there are no differences between the two methods.

9. Consider that in the course of rehabilitation of total edentulous where the treatment solution consists of restoration with total removable prosthesis, better results are obtained using:

a) digital impression by direct intraoral scanning;
b) the classic impression made with high-precision impression materials;
c) there are no differences between the two methods.

10. Consider that during the rehabilitation of total edentulous where the treatment solution consists of supported restoration on multiple implants, better results are obtained using:

a) digital impression by direct intraoral scanning;
b) the classic intraoral impression made with high-precision impression materials.
c) there are no differences between the two methods.

11. Consider that for the performance of an implant-supported single-unit dental fixed prosthesis, better results are obtained using:

a) impression by intraoral scanning;
b) the classic impression made with high-precision impression materials;
c) there are no differences between the two methods.

12. Consider that from the point of view of execution time regarding the

impression phase in oral rehabilitation a shorter time is obtained by using:

- impression by intraoral scanning;
- the classic impression;
- there are no differences between the two methods.

13. Consider that the transmission of the intraoral impression from the dental office to the dental laboratory is easier and cheaper using:

- impression by intraoral scanning;
- the classic impression;
- there are no differences between the two methods.

14. Do you consider an impediment to the use of intraoral scanning impression to be:

- the purchase price of the technology;
- learning curve.

3. Results

42 responses were recorded to the 14 questions contained in the questionnaire.

Question 1 highlights the fact that all doctors participating in the questionnaire used the classic impression method (100%) (Figure 1).

Question 2 highlights the fact that 37 participants (88.1%) used the digital impression method by intraoral scanning and 5 participants (11.9%) did not use this method (Figure 2).

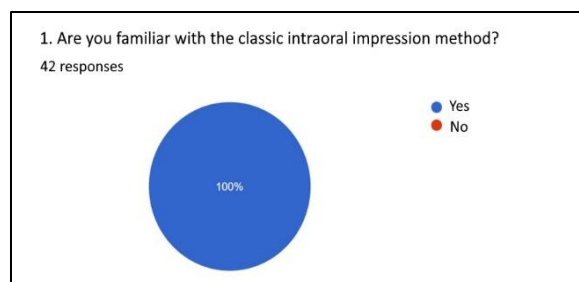


Figure 1. - The answers to question 1

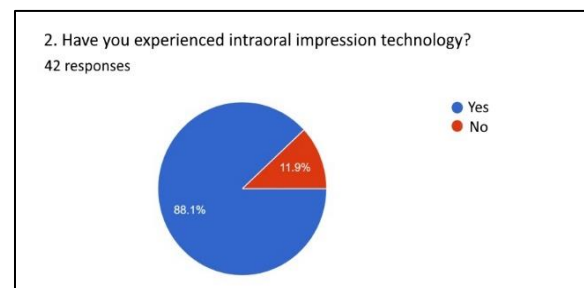


Figure 2. - The answers to question 2

The following answers were recorded to Question 3 regarding the years of practice of dental medicine in the office:

- 0-5 years: 15 people (35.7%)
 - 5-10 years: 9 people (21.4%)
 - 10-15 years: 7 people (16.7%)
 - 15-25 years: 7 people (16.7%)
 - more than 25 years: 4 people (9.5%)
- (Figure 3).

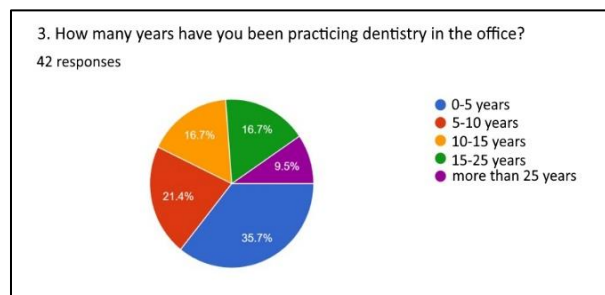


Figure 3. - The answers to question 3

Question 4 was designed to find out which of the 2 impression methods has a lower impact in terms of gag reflex in patients and the following responses were recorded:

- impression by intraoral scan: 40 responses (95.2%)
- classic impression: 0 answers
- there are no differences between the 2 methods: 2 answers (4.8%) (Figure 4).

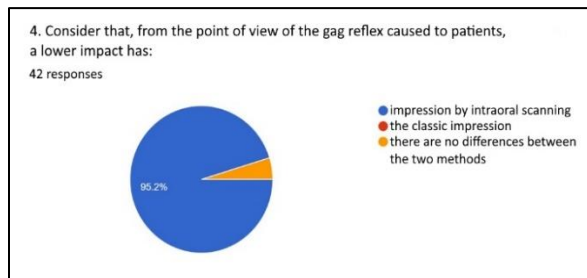


Figure 4. - The answers to question 4

Question 5 was designed to find out which of the 2 dental impression methods has a lower impact in terms of breathing difficulties caused to patients and the following answers were recorded:

- impression by intraoral scan: 39 responses (92.9%)
- classic impression: 1 answer (2.4%)
- there are no differences between the 2 methods: 2 answers (4.8%) (Figure 5).

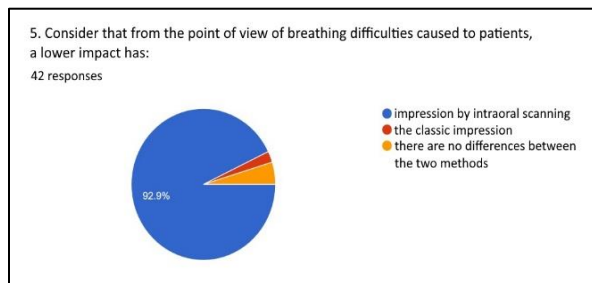


Figure 5. - The answers to question 5

Question 6 was designed to find out which of the 2 dental impression methods has a lower impact in terms of stress and anxiety caused to patients and the following responses were recorded:

- impression by intraoral scan: 37 responses (88.1%)
- classic impression: 1 answer (2.4%)
- there are no differences between the 2 methods: 4 answers (9.5%) (Figure 6).

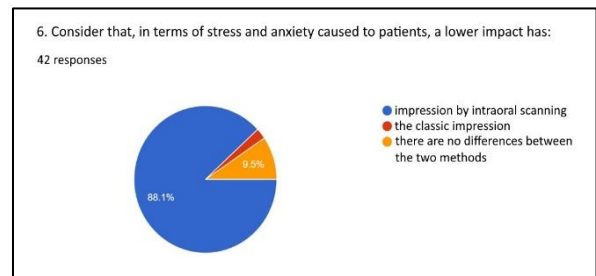


Figure 6. - The answers to question 6

Question 7 was designed to find out which of the 2 dental impression methods generates better results in terms of patient perception and comfort, and the following responses were recorded:

- impression by intraoral scan: 39 responses (92.9%)
- classic impression: 0 answers
- there are no differences between the 2 methods: 3 answers (7.1%) (Figure 7).

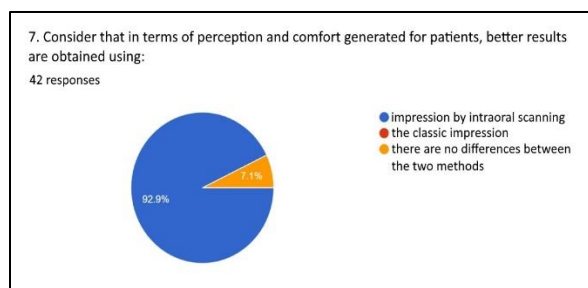


Figure 7. - The answers to question 7

Question 8 was designed to find out which of the 2 dental impression methods has the effect, after use, of a better adaptation in the oral cavity of fixed prosthetic works and inlays, and the following answers were recorded:

- impression by intraoral scan: 21 answers (50%)
- classic impression: 10 answers (23.8%)
- there are no differences between the 2 methods: 11 answers (26.2%) (Figure 8).

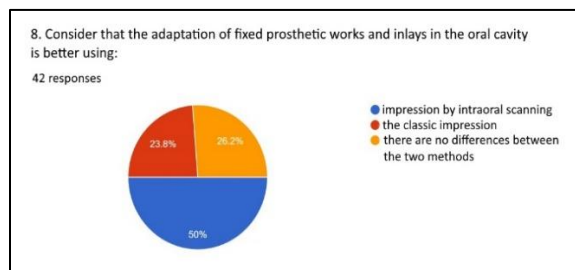


Figure 8. - The answers to question 8

Question 9 was designed with the aim of finding out which of the 2 dental impression methods produce better results during the rehabilitation of total edentulous where the treatment solution consists of restoration with a removable total prosthesis and the following answers were recorded:

- impression by intraoral scan: 3 responses (7.1%)
- classic impression made with high-precision impression materials: 36 responses (85.7%)
- there are no differences between the 2 methods: 3 answers (7.1%) (Figure 9).

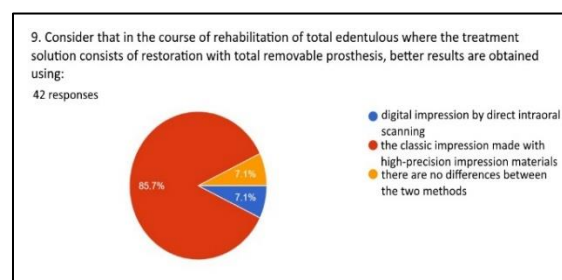


Figure 9. - The answers to question 9

Question 10 was designed with the aim of finding out which of the 2 dental impression methods produce better results in the course of total edentulous rehabilitation where the treatment solution consists of supported restoration on multiple implants and the following answers were recorded

- impression by intraoral scan: 13 answers (31.7%)
- classic intraoral impression made with high-precision impression materials: 23 responses (56.1%)
- there are no differences between the 2 methods: 12 answers (28.2%) (Figure 10).

Question 11 was designed to find out which of the 2 dental impression methods produce better results when a single-unit

implant-supported fixed prosthesis is desired, and the following responses were recorded:

- impression by intraoral scan: 28 responses (66.7%)
- classic impression made with high-precision impression materials: 3 answers (7.1%)
- there are no differences between the 2 methods: 11 answers (26.2%) (Figure 11).

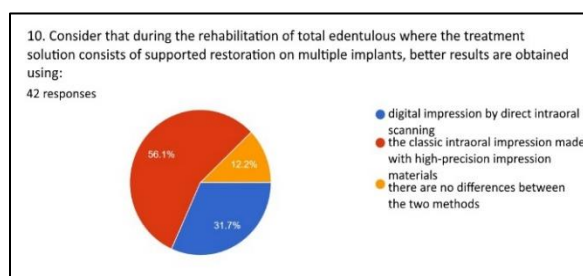


Figure 10. - The answers to question 10

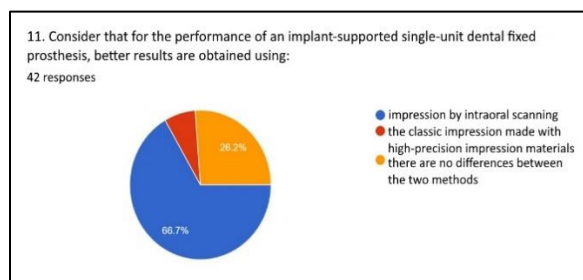


Figure 11. - The answers to question 11

Question 12 was designed to find out which of the 2 dental impression methods has a shorter execution time in terms of the impression phase in oral rehabilitation and the following responses were recorded:

- impression by intraoral scan: 29 responses (69%)
- classic impression: 7 answers (16.7%)

- there are no differences between the 2 methods: 6 answers (14.3%) (Figure 12).

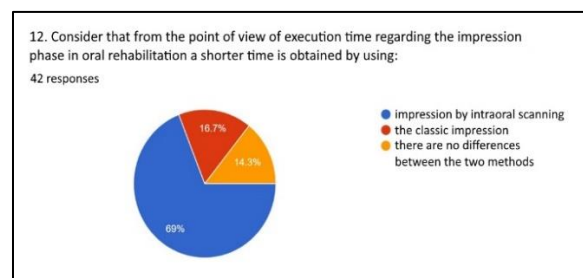


Figure 12. - The answers to question 12

Question 13 was designed to find out which of the 2 dental impression methods are easier and cheaper to transmit to the dental laboratory and the following responses were recorded:

- impression by intraoral scan: 39 responses (92.9%)
- classic impression: 2 answers (4.8%)
- there are no differences between the 2 methods: 1 response (2.4%) (Figure 13).

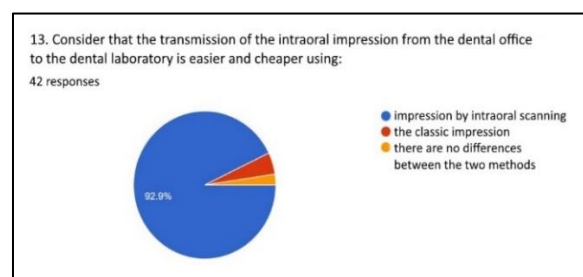


Figure 13. - The answers to question 13

Question 14 was designed to highlight the impediments that could prevent the use of intraoral scanning impression, and the following answers were recorded:

- the purchase price of the technology: 38 responses (90.5%)

- learning curve: 4 answers (9.5%) (Figure 14).

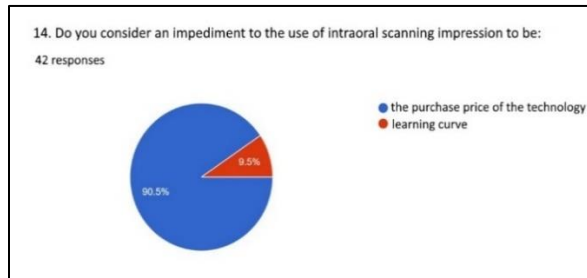


Figure 14. - The answers to question 14

4. Discussions

In a literature review study by Paris Matos T et al. [21] regarding patients' preferences in relation to the digital impression versus the classic impression concluded that for patients presenting sensitivity to taste, gag reflex and breathing difficulties digital presence by intraoral scanning is a more suitable solution than the conventional impression technique [21].

In another study by Mangano A et al. [22] on 30 patients with orthodontic problems in whom both a digital impression and a classic impression with alginate were taken concluded that most patients preferred intraoral scanning as the impression method, which improved the patient's comfort, and had better results good regarding the gag reflex and breathing problems, while requiring a bit more execution time than the classic alginate impression, and the two techniques were comparable in terms of stress [22].

Bosoni C et al. [23] in a clinical study carried out on 24 child patients between the

ages of 6 and 11 we concluded that 75% of the patients opted for the digital impression, which compared to the alginate impression had a better impact on patients in terms of comfort, gag reflex and difficulty breathing. Newer intraoral scanning technology and the lack of second molars in pediatric patients led to a shorter execution time of the digital impression made with the intraoral scanner compared to the classic alginate impression [23].

In a study by Yiyang Wang et al. [24] who aimed to analyze the specialized literature up to that point concluded that direct intraoral digital impressions cannot be considered to replace the classic impression of completely edentulous arches, in vivo, because in the peripheral areas the accuracy is poor and the location and morphology of mobile tissues in their functional state cannot be determined, which leads to the difficulty of establishing a fully digital workflow for the fabrication of total prostheses, requiring more in vivo studies [24].

Alfaraj A. et al. al. [25] in an in vitro study to evaluate the impact of the extent of the edentulous area on the accuracy of the intraoral scanning impression taken with two different types of intraoral scanners concluded that the accuracy of the impression was influenced by the length of the edentulous areas and the scanner used, this fact leads to an in-depth analysis regarding the selection of the scanner in specific clinical situations, since the accuracy of the intraoral scan can be different depending on the scanner and the edentulous situation [25].

In a study carried out by Ahmed S. et al [9] they stated that the poor development of the infrastructure or the lack of financial means of some dental offices to buy digital impression systems can limit the use of this technology and at the same time it is possible that certain users cannot cover the expenses associated with the implementation and maintenance of digital impression systems, and in conclusion they showed that digital intraoral scanning impression have the advantages, compared to the classic impression, of improving the comfort of the patient as well as of the operator, reducing the number of visits and improving the efficiency of the practice the operator [9].

Unkovskiy A. et. al [26] in a presentation of a case study in which direct intraoral digital scans were performed for the purpose of designing the total mandibular prosthesis resorted to a realignment of the impression, for the total determination of the prosthetic field, by scanning a record by the classical method, noting that the scanning process of the edentulous mandible required more time, being devoid of anatomical landmarks, and using a recording of the prosthetic field by the classical method improves the retention of the total prosthesis made, but at the same time, limits the completely digital workflow [26]. Jamjoom Z. F. et al [27] in an in vitro study to determine the effects of scanning strategy and the accuracy of fully edentulous arches impressions taken with 2 different intraoral scanners concluded that the type of scanner and the scanning strategy has an important effect on the accuracy of the

impressions of the fully edentulous arches, there being a significant link between the scanner and the scanning strategy, and the scanned fully edentulous arch had a major effect on the accuracy of the scan without influencing the correctness, the maxillary arch generating an accuracy better than the mandibular arch [27].

In a study by Srivastava G. et. al. [28] who aimed to review the literature up to that point, concluded that, within the limits of this study, intraoral scanners provide clinically accepted impressions, but some improvements need to be introduced in the registration of mobile mucosa, and studies should standardize methods for evaluating discrepancies and quantifying the clinical effects of these deviations on the clinical correctness and comfort of the resulting total prosthesis. The digital impression by intraoral scanning is not recommended when the fully edentulous prosthetic field presents an unfavorable anatomy as well as when a compressible impression is needed [28].

5. Conclusions

Intraoral scanning dental impression compared to traditional impression has less effect on patient gag effect, breathing difficulties, stress and anxiety, and results in better patient perception and comfort, and the time required to take the digital intraoral scanning impression depends on each individual clinical situation.

However, current evidence suggests that patients are more likely to prefer the digital workflow than the conventional techniques.

References

1. Cicciù M, Fiorillo L, D'Amico C, Gambino D, Amantia EM, Laino L, Crimi S, Campagna P, Bianchi A, Herford AS, Cervino G. 3D Digital Impression Systems Compared with Traditional Techniques in Dentistry: A Recent Data Systematic Review. *Materials* (Basel). 2020 Apr 23;13(8):1982. doi: 10.3390/ma13081982. PMID: 32340384; PMCID: PMC7215909.
2. Beuer F, Schweiger J, Edelhoff D. Digital dentistry: an overview of recent developments for CAD/CAM generated restorations. *Br Dent J*. 2008 May 10;204(9):505-11. doi: 10.1038/sj.bdj.2008.350. PMID: 18469768.
3. Mangano F, Gandolfi A, Luongo G, Logozzo S. Intraoral scanners in dentistry: a review of the current literature. *BMC Oral Health*. 2017 Dec 12;17(1):149. doi: 10.1186/s12903-017-0442-x. PMID: 29233132; PMCID: PMC5727697
4. Joda T, Zarone F, Ferrari M. The complete digital workflow in fixed prosthodontics: a systematic review. *BMC Oral Health*. 2017 Sep 19;17(1):124. doi: 10.1186/s12903-017-0415-0. PMID: 28927393; PMCID: PMC5606018.
5. Mangano F, Veronesi G. Digital versus Analog Procedures for the Prosthetic Restoration of Single Implants: A Randomized Controlled Trial with 1 Year of Follow-Up. *Biomed Res Int*. 2018 Jul 18;2018:5325032. doi: 10.1155/2018/5325032. PMID: 30112398; PMCID: PMC6077568.
6. Lee H, Cha J, Chun YS, Kim M. Comparison of the occlusal contact area of virtual models and actual models: a comparative in vitro study on Class I and Class II malocclusion models. *BMC Oral Health*. 2018 Jun 19;18(1):109. doi: 10.1186/s12903-018-0566-7. PMID: 29921259; PMCID: PMC6009969.
7. Mühlemann S, Kraus RD, Hämmerle CHF, Thoma DS. Is the use of digital technologies for the fabrication of implant-supported reconstructions more efficient and/or more effective than conventional techniques: A systematic review. *Clin Oral Implants Res*. 2018 Oct;29 Suppl 18:184-195. doi: 10.1111/clr.13300. PMID: 30306680
8. Mangano FG, Hauschild U, Admakin O. Full in-Office Guided Surgery with Open Selective Tooth-Supported Templates: A Prospective Clinical Study on 20 Patients. *Int J Environ Res Public Health*. 2018 Oct 25;15(11):2361. doi: 10.3390/ijerph15112361. PMID: 30366435; PMCID: PMC6266226.
9. Ahmed S, Hawsah A, Rustom R, Alamri A, Althomairy S, Alenezi M, Shaker S, Alrawsaa F, Althumairy A, Alteraigi A. Digital Impressions Versus Conventional Impressions in Prosthodontics: A Systematic Review. *Cureus*. 2024 Jan 2;16(1):e51537. doi: 10.7759/cureus.51537. PMID: 38304652; PMCID: PMC10834103.
10. Fasbinder DJ. Digital dentistry: innovation for restorative treatment. *Compend Contin Educ Dent*. 2010;31 Spec No 4:2-11; quiz 12. PMID: 21049823.
11. Papadiochos I, Papadiochou S, Emmanouil I. The Historical Evolution of Dental Impression Materials. *J Hist Dent*. 2017 Summer/Fall;65(2):79-89. PMID: 28777510.
12. Porter JL, Carrico CK, Lindauer SJ, Tüfekçi E. Comparison of intraoral and extraoral scanners on the accuracy of digital model articulation. *J Orthod*. 2018 Dec;45(4):275-282. doi: 10.1080/14653125.2018.1500773. Epub 2018 Jul 19. PMID: 30024348.
13. Abduo J, Elseyoufi M. Accuracy of Intraoral Scanners: A Systematic Review of Influencing Factors. *Eur J Prosthodont Restor Dent*. 2018 Aug 30;26(3):101-121. doi: 10.1922/EJPRD_01752Abduo21. PMID: 29989757.

14. Imburgia M, Logozzo S, Hauschild U, Veronesi G, Mangano C, Mangano FG. Accuracy of four intraoral scanners in oral implantology: a comparative in vitro study. *BMC Oral Health*. 2017 Jun 2;17(1):92. doi: 10.1186/s12903-017-0383-4. PMID: 28577366; PMCID: PMC5455075.
15. Mangano FG, Veronesi G, Hauschild U, Mijiritsky E, Mangano C. Trueness and Precision of Four Intraoral Scanners in Oral Implantology: A Comparative in Vitro Study. *PLoS One*. 2016 Sep 29;11(9):e0163107. doi: 10.1371/journal.pone.0163107. PMID: 27684723; PMCID: PMC5042463.
16. Medina-Sotomayor P, Pascual-Moscardó A, Camps I. Accuracy of four digital scanners according to scanning strategy in complete-arch impressions. *PLoS One*. 2018 Sep 13;13(9):e0202916. doi: 10.1371/journal.pone.0202916. Erratum in: *PLoS One*. 2018 Dec 20;13(12):e0209883. doi: 10.1371/journal.pone.0209883. PMID: 30212498; PMCID: PMC6136706.
17. Nedelcu R, Olsson P, Nyström I, Thor A. Finish line distinctness and accuracy in 7 intraoral scanners versus conventional impression: an in vitro descriptive comparison. *BMC Oral Health*. 2018 Feb 23;18(1):27. doi: 10.1186/s12903-018-0489-3. PMID: 29471825; PMCID: PMC5824445.
18. Sanda M, Miyoshi K, Baba K. Trueness and precision of digital implant impressions by intraoral scanners: a literature review. *Int J Implant Dent*. 2021 Jul 27;7(1):97. doi: 10.1186/s40729-021-00352-9. PMID: 34312701; PMCID: PMC8313656.
19. Mangano FG, Hauschild U, Veronesi G, Imburgia M, Mangano C, Admakin O. Trueness and precision of 5 intraoral scanners in the impressions of single and multiple implants: a comparative in vitro study. *BMC Oral Health*. 2019 Jun 6;19(1):101. doi: 10.1186/s12903-019-0792-7. PMID: 31170969; PMCID: PMC6555024.
20. Parize H, Dias Corpa Tardelli J, Bohner L, Sesma N, Muglia VA, Cândido Dos Reis A. Digital versus conventional workflow for the fabrication of physical casts for fixed prosthodontics: A systematic review of accuracy. *J Prosthet Dent*. 2022 Jul;128(1):25-32. doi: 10.1016/j.prosdent.2020.12.008. Epub 2021 Feb 5. PMID: 33551140.
21. de Paris Matos T, Wambier LM, Favoreto MW, Rezende CEE, Reis A, Loguercio AD, Gonzaga CC. Patient-related outcomes of conventional impression making versus intraoral scanning for prosthetic rehabilitation: A systematic review and meta-analysis. *J Prosthet Dent*. 2023 Jul;130(1):19-27. doi: 10.1016/j.prosdent.2021.08.022. Epub 2021 Oct 28. PMID: 34756424.
22. Mangano A, Beretta M, Luongo G, Mangano C, Mangano F. Conventional Vs Digital Impressions: Acceptability, Treatment Comfort and Stress Among Young Orthodontic Patients. *Open Dent J*. 2018 Jan 31;12:118-124. doi: 10.2174/1874210601812010118. PMID: 29492177; PMCID: PMC5815028.
23. Bosoni C, Nieri M, Franceschi D, Souki BQ, Franchi L, Giuntini V. Comparison between digital and conventional impression techniques in children on preference, time and comfort: A crossover randomized controlled trial. *Orthod Craniofac Res*. 2023 Nov;26(4):585-590. doi: 10.1111/ocr.12648. Epub 2023 Mar 20. PMID: 36891891.
24. Wang Y, Li Y, Liang S, Yuan F, Liu Y, Ye H, Zhou Y. The accuracy of intraoral scan in obtaining digital impressions of edentulous arches: a systematic review. *J Evid Based Dent Pract*. 2024 Mar;24(1):101933. doi: 10.1016/j.jebdp.2023.101933. Epub 2023 Oct 18. PMID: 38448118.

25. Alfaraj A, Khanlar LN, Lin WS, Zandinejad A. Exploring the impact of the extent of the partially edentulous area on the accuracy of two intraoral scanners. J Prosthet Dent. 2024 Jan;131(1):163.e1-163.e8. doi: 10.1016/j.prosdent.2023.10.002. Epub 2023 Oct 25. PMID: 37891042.
26. Unkovskiy A, Wahl E, Zander AT, Huettig F, Spintzyk S. Intraoral scanning to fabricate complete dentures with functional borders: a proof-of-concept case report. BMC Oral Health. 2019 Mar 13;19(1):46. doi: 10.1186/s12903-019-0733-5. PMID: 30866892; PMCID: PMC6417141.
27. Jamjoom FZ, Aldghim A, Aldibasi O, Yilmaz B. Impact of intraoral scanner, scanning strategy, and scanned arch on the scan accuracy of edentulous arches: An in vitro study. J Prosthet Dent. 2024 Jun;131(6):1218-1225. doi: 10.1016/j.prosdent.2023.01.027. Epub 2023 Feb 24. PMID: 36841708.
28. Srivastava G, Padhiary SK, Mohanty N, Molinero-Mourelle P, Chebib N. Accuracy of Intraoral Scanner for Recording Completely Edentulous Arches-A Systematic Review. Dent J (Basel). 2023 Oct 18;11(10):241. doi: 10.3390/dj11100241. PMID: 37886926; PMCID: PMC10605168.

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The authors declare no conflicts of interest concerning this study.

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Will be provided on request.

Ethics statement

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