



RESEARCH ARTICLE

NATIONAL SURVEY OF THE USE OF NEW TECHNOLOGIES IN THE DENTAL OFFICE (PART 2)

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ABSTRACT

Objective: This national survey aims at providing data on the use of new technologies in the dental offices of Morocco. **Materials and method:** In order to meet the aforementioned objectives, a cross-sectional descriptive study was conducted in Marrakech during the second edition of the National Dental Conference "Moroccan Dental Meeting" held on 26-27-28 November 2017. The type of sampling adopted is of a non-probabilistic or empirical type. This is the second part of a work of two parts; in this paper we will study the evaluation of these technologies: Implantology equipment, CAD / CAM equipment, lasers, meeting and archiving management software, aesthetic analysis equipment and software, digital photography, the material of tooth shade assessment. **Results:** The results of this study showed that for a total of 385 dentists, only 47 practiced implantology (12.2%). Concerning the rate of dentists using CAD/CAM equipment on this study, the rate remains limited, with a percentage of 4.10%. The study revealed that 90.13% of the dentists surveyed do not have a laser. Only 41 dentists (10.65%) had tooth shade equipment, Barely 18.18% of dentists from sample use appointment management and archiving software. Only 3.4% of participants had aesthetic analysis software. While 30.1% use digital photography to document their clinical cases. out of which 25.4% of dentists who with Flash Phonebook, 7% with Side Flashes and 3.1 with Polarizing Flashes of the total sample.

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INTRODUCTION

Based on computer data that has progressed with the industrialization of processors and computers, the evolution of digital has not failed to dazzle the field of dentistry. Indeed, the use of perfectly adapted computer software is synonymous with saving time, comfort and new management possibilities. The evolutions are almost daily, whether in practice in the office or in the laboratory, therefore many practitioners and dental laboratory technicians take the plunge and invest in these new tools.

This digital revolution in the dental office leads us to ask ourselves the following questions:

- What are the trends in terms of equipment in new technologies in dental practices?
- What is the utilization rate of these new technologies among Moroccan dentists?

To answer these questions, a national survey was conducted on the use of new technologies in dental practices or clinics, with 385 private dentists during the National Congress of the "Moroccan Dental Meeting 2017" (MDM17) in Marrakech.

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On this article, we will present the second part of this study dealing with the following new technologies: Implantology equipment, CAD / CAM equipment, lasers, meeting and archiving management software, aesthetic analysis equipment and software, digital photography, the material of tooth shade assessment.

MATERIALS AND METHODS

In order to meet the aforementioned objectives, a cross-sectional descriptive study was conducted in Marrakech during the second edition of the National Dental Conference "Moroccan Dental Meeting" held on 26-27-28 November 2017. The type of sampling adopted is of a non-probabilistic or empirical type. The study interested Moroccan dentists attending the National Congress of the National Council of the Order of Dentists of Morocco.

Inclusion criteria: Have been included in this study, Moroccan dentists practicing in the private sector, all specialties combined.

Exclusion criteria: Dentists not wishing to answer the questionnaire, as well as foreigners and those from the public sector attending the Moroccan Dental Meeting were excluded from this study.

Support of the study: To answer the objectives of the study, the questionnaire was inspired by a Greek study conducted in 2017 on: Applying Marketing Tools in Dental Practice: The Case of Greek Dentist. The questionnaire focused on socio-demographic data on gender, age, year of graduation, years of experience, place of practice, region of installation, level of education and training. It also dealt with the use of new technologies in everyday practice including X-Ray digital equipment, magnification devices, apex locator, Nitti rotary instruments, hot gutta gun, bleaching device in the first part of this work, as well as implantology equipment, CAD / CAM equipment, lasers, meeting and archiving management software, software and aesthetic analysis equipment, photography digital, the material of tooth shade assessment which are the object of this second part.

Course of the study: A pre-survey was conducted with 7 teachers from different specialties of the Faculty of Dental Medicine of Casablanca, in order to ensure the validity of the questionnaire content and the clarity of the questions.

RESULTS

Five hundred questionnaires were distributed at the MDM17 conference, and a total of 385 usable questionnaires were obtained for this study, with a response rate of 77%.

- The results of this study showed that for a total of 385 dentists, only 47 practiced implantology (12.2%).
- Concerning the rate of dentists using CAD/CAM equipment on this study, the rate remains limited, with a percentage of 4.10%. Among the 16 dentists with this equipment: 8 dentists (2.1%) have an intra-oral scanner and a model scanner, 9 dentists (2.3%) have a milling machine and 7 dentists (1.8%) have a sintering oven.
- The study revealed that 90.13% of the dentists surveyed do not have a laser. The majority of dentists who had it, used it in conservative dentistry (38 dentists, 100%).
- On a sample of 385 dentists surveyed, only 41 dentists (10.65%) had tooth shade equipment, of which 43.90% (4.6% of the total sample) using the Colorimeter, 29.27% (3.11% of total sample) using Smile lite and 24.39% (2.6% of total sample) using the Spectrophotometer.
- Only 18.18% of dentists from sample use appointment management and archiving software. The software mentioned by these dentists are mainly:
 - Orthalis with a percentage of 25.7% (4.6 E.T)
 - Customized software with a percentage of 24.3%. (4.4 ET)
 - Excel with a percentage of 20%, (3.6 ET)
 - Ident with a percentage of 10%, (1.8 ET)
 - Windent with a percentage of 8.6%, (1, 5 ET)
 - Dentalis with a percentage of 2.9%, (0.5 ET)
 - Dental Evo, google diary, Julie, maevi, mediadent, Trophy Windows with a percentage of 1.4% each, (0, 25 ET)
- Out of a sample of 385 dentists surveyed, only 3.4% of participants had aesthetic analysis software. The aesthetic analysis software mainly used by these dentists is the Digital Smile Design (DSD) with a percentage of

2.85%, followed by Orthalis and Cara Smile with a percentage of 0.25% each of the total sample.

- On a sample of 385 respondents, only 30.1% use digital photography to document their clinical cases. 25.4% of dentists who use digital photography practice it with Flash Phonebook, 7% with Side Flashes and 3.1 with Polarizing Flashes of the total sample.

DISCUSSION

This survey is the first of its kind in Morocco, conducted on the use of new technologies by Moroccan dentists. The sample of this study and its distribution on the territory correspond to the number of Moroccan dentist practitioners and its distribution on the national territory, which can be considered of good intrinsic value. However, the sampling methodology and the sample size are to be improved by adopting a probabilistic method.

Use of implantology equipment: In this study, 47 of the 385 dentists surveyed (12.2%) used implantology equipment. A study conducted in New Zealand on 407 dentists shows that 41.6% used it (11). The Moroccan practitioner must provide more interest in the use of implantology equipment.

Use of CAD/CAM equipment: In our study, 16 of 385 respondents (4.1%) used CAD/CAM equipment, and 19 practitioners had an intraoral scanner, 5% of the sample. A study conducted in Greece shows that among 111 dentists covered by the survey, 5.4% use CAD/CAM equipment (5). Another study in the Netherlands shows that among 313 dentists surveyed, 12% had an intraoral scan. In conclusion, we note the CAD/CAM technology is in its beginning in private Moroccan offices compared to its Greek counterpart, and that the acquisition of intraoral scanner is very small compared to Dutch counterparts. This can be explained by the expensive price of this equipment.

Laser Use: In this study, only 9.87% used the laser. A survey of 79 dentists surveyed in Japan found that 68% used it in their daily practice. (10) The Diode and Nd-Yag are the most used by dentists confirming the use of the laser with a percentage of 50%, and 36.84% respectively. The same study done in Japan shows that 13% used the Diode and 21% uses the Nd-Yag. By observing these results, we find that the Moroccan dentist is under-equipped in terms of laser use.

Use of tooth shade assessment equipment: In this work, 10.65% of the dentists involved in the survey use tooth color survey equipment. A study in the Netherlands shows that 6.8% use this technology (12). The Moroccan practitioner and his Dutch one do not distinguish themselves in the use of tooth color equipment. The percentage observed is explained by the fact that many practitioners use the shade guide to transmit the color. Visual choice aids and objective color determiners such as spectrophotometers and colorimeters are still very little used by practitioners.

Use of appointment management and archiving software: In our study 18.18% of dentists surveyed use an appointment management and archiving software. A study in Thames-Valley (a region in the south of England) shows that among 356 respondents, 60% used an appointment management

software (7). In Greece, among 111 dentists covered by the survey, 52.3% used it (5). A study in the Netherlands shows that among 313 dentists, 34.5% had this type of software (12). The software most used by Moroccan dentists in our survey is Orthalis (25%) (7). In Thames-Valley (England) TMS Arthur is the most used (36%) (7). The use of appointment management software and archiving by the Moroccan dentist is less important compared to his counterparts English, Greek and Dutch. The use of Orthalis software by Moroccan dentists can be explained by the presence of sellers, after sales service, and maintenance in case of problems. Note that the percentage obtained during our study (18.18%) is due to a lack of management of appointments by computer tools.

Use of digital photography for documentation of clinical cases: In this study, 30.1% of Moroccan dentists, covered by the sample, use digital photography. A study conducted in Greece shows that among 111 respondents, 33.3% use this technology (5). Our results are consistent with those of the study conducted in Greece on the use of digital photography to document clinical cases. Knowing that this essential technology for the good management of file is regarded as proof of authenticity and has a medico-legal value, it will allow an argumentation in the event of disagreement, especially in the field of the aesthetic dentistry. Costs have also decreased considerably and most practitioners have been able to acquire this equipment for the daily exercise of their function.

Conclusion

The new technologies have undergone a very important evolution during the last decades. They are now installed in the dental offices and assist the daily practice; the major developments in this area are the predominantly digital technologies. This national survey, the first of its kind in Morocco, yielded the following results: The RVG is the most used by dentists with a rate of 91.3%, followed by continuous rotation motor and apex-locators with respectively 85% and 75.6%. Saving time and ease of work are the reasons that lead Moroccan practitioners to use at least one or more new technologies to this is added free training offers or paid, provided by manufacturers or their representatives or companies. This subject deserves to be examined in more depth categories and by the integration of financial parameters related to billing and the costs of acts using a particular technology. An update of the databases of practitioners at the level of ordinal bodies associated with a mobilization of practitioners to collaborate in this kind of work can only be beneficial for a better knowledge of this problem and its evolution in the years to come.

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