



PRELIMINARY STUDY ON THE COMMUNICATION BETWEEN DENTIST - PATIENT - DENTAL TECHNICIAN IN THE PROCESS OF DESIGNING AND CREATING IMPLANT-PROSTHETIC RESTORATIONS

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Abstract: A strong and efficient communication between the clinical department represented by the dental office and the technical department represented by the dental laboratory is the key to success in making a prosthetic restoration, regardless of whether we are talking about fixed, mobile, implant-supported prosthetic restorations, but also about different orthodontic appliances. Thus, in this material we tried to present various aspects of a theoretical and practical nature on the communication between dentist - patient - dental technician in the process of designing and creating implant-prosthetic restorations.

INTRODUCTION

Firm and efficient communication between the dental office and the dental laboratory is the key to the success of a quality implant-prosthetic therapy. And here we are actually talking about the specialized medical team that performs this implant-prosthetic therapy: the implant specialist (performs the surgery of inserting dental implants), the dental prosthetist (the dentist who designs and makes, in collaboration with the dental technician, implant-supported prosthetic restoration), the office nurse – they represent the staff of the dental office and who perform all the clinical work – and the dental technician – the one who actually performs the laboratory stages of an implant-supported prosthetic restoration. However, there are also clear situations in which the dentist who inserts the dental implants is the same person who designs and makes the implant-supported prosthetic restorations, in collaboration with the dental technician.(1-6)

AIM

The key figures involved in the design and creating of a quality implant-prosthetic restoration are represented by the dentist and the dental technician. Of course, these implant-supported prosthetic restorations cannot be performed without the participation of another character, in fact the beneficiary of these prosthetic restorations: it is about the patient himself.

These 3 basic characters involved in the technology of creating an implant-supported prosthetic restoration, represent the main triangle of communication between the dental office (clinical compartment) and the dental laboratory (technical compartment). Frequently, to these 3 main actors - dentist, patient, dental technician - is added a secondary character, dental nurse, with a very well-defined role in the specialized medical team, including the communication of certain details

between the dentist and the patient and/or between the dentist and the dental technician. Specifically, there are many prosthetic specialists, including those involved in the design and manufacture of implant-supported prosthetic restorations which, most often out of convenience, involve the auxiliary staff of the specialized medical team in important matters of the communication flow between the members of the respective triangle: dentist - patient - dental technician (professional, confidential, etc. which normally should not be known by the dental office nurse). In fact, each administrator of the health unit, each dentist sets the limits of the activity of this auxiliary staff, including in the process of communication with patients and/or the technical department (dental laboratory).(1-14)

Thus, the objectives of this study are to establish clear and concise principles of communication between the dentist, patient and dental technician, in case of designing and creating implant-supported prosthetic restorations, regardless of their type: fixed and/or mobile.

MATERIALS AND METHODS

In conducting this study, the questionnaire method was used, a very simple, convenient, but also extremely effective method of investigation.(1-3) The application period of the questionnaire was one month (1 October 2021 - 1 November 2021).

The questionnaire, containing a number of 10 questions, was applied online to both dentists and dental technicians who design and create implant-supported prosthetic restorations. All participants in the study carry out their activity on the Romanian territory. The use of the data in this questionnaire has been made, while maintaining confidentiality. Thus, the statistical processing of these data was performed, without individual reference. This questionnaire was completed

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by 84 subjects, dentists and dental technicians, aged between 26 and 64 years, distributed as follows: 45 of the subjects were dentists (53.57%) (in neither case was not the same person who inserted the dental implants) and 39 people participating in the study were dental technicians (46.43%) (figure no. 1). The gender distribution of the subjects involved in the study was as follows: 51 of the subjects participating in the study were female (60.71%), while the remaining 33 subjects were male (39.29%) (figure no. 2).

Figure no. 1. The distribution of the subjects involved in the study, according to the professional training.

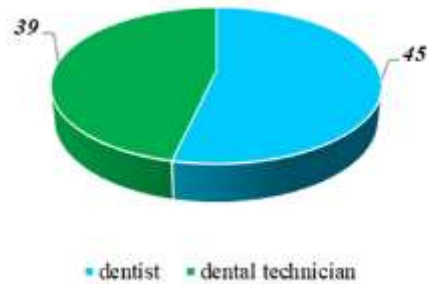
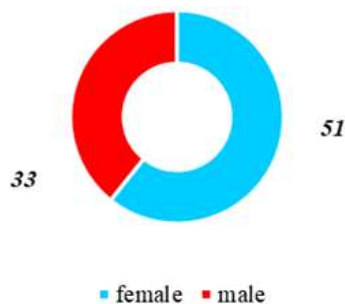


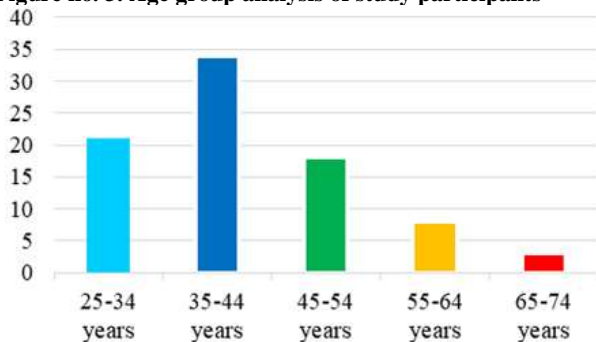
Figure no. 2. Gender distribution of practitioners involved in the study



At the same time, age group analysis was performed, as follows (figure no. 3):

- for the age range 25-35 years, there were 21 people (25%);
- for the age range 35-44 years, there were 34 people (40.48%);
- for the age range 45-54 years, there were 18 people (21.43%);
- for the age range 55-64 years, there were 8 people (9.52%);
- for the age range 65-74 years, there were 3 people (3.57%).

Figure no. 3. Age group analysis of study participants



The questionnaire used was as follows. "Study on the communication dentist - patient - dental technician in the process of designing and creating fixed and / or mobile implant-prosthetic restorations"

1. Please specify the environment in which you carry out your activity:

- a. Urban;
- b. Rural.
2. Please specify your workplace:
 - a. Private dental practice / clinic.
 - b. State clinic.
 - c. State hospital.
 - d. Private dental laboratory.

3. How do you appreciate the communication with the dental laboratory that makes your implant-prosthetic restorations (for dentists) or with the dental office that you collaborate with (for dental technicians):

- a. Non-existent (score 0);
- b. Very poor (score 1);
- c. Poor (score 2);
- d. Average (score 3);
- e. Good (score 4);
- f. Very good (score 5).

4. What are the communication methods you use in relation to your dental team partners?

- a. Direct communication (face to face);
- b. Communication by telephone;
- c. Written communication (e-mail, WhatsApp, worksheet or written communication methods);
- d. Written communication often supplemented by direct (face-to-face) communication and / or telephone communication, where appropriate.

5. In order to develop a complex and correct treatment plan for implant-prosthetic rehabilitation, it is necessary to:

- a. The dentist should decide for himself;
- b. Based on a good communication, the team of dentist - dental technician must decide;
- c. Based on a good communication, the team of dentist - dental technician - patient, must decide.

6. How often do you communicate with patients (more specifically, their opinion) when making implant-supported prosthetic restorations:

- a. Always;
- b. Very common;
- c. Medium frequency;
- d. Low frequency;
- e. Never.

7. When using written communication between the partners of the dental team (dentist - dental technician), what methods do you use:

- a. Handwritten laboratory sheet and sent by courier;
- b. Digital laboratory sheet, printed and sent by courier;
- c. Handwritten laboratory sheet and sent as a photo via email or WhatsApp;
- d. Digital laboratory sheet sent directly via e-mail or WhatsApp.

8. What do you consider to be for your activity, the useful methods of communication dentist - patient - dental technician in foreshadowing future implant-prosthetic treatments:

- a. Use of Digital Smile Design;
- b. Use of functional and aesthetic wax-up;
- c. Use of Digital Smile Design and functional and aesthetic wax-up;
- d. Use of Digital Smile Design, functional and aesthetic wax-up and photography in the dental laboratory.

9. When determining the colour for an implant-supported prosthetic restoration, this operation must be performed:

- a. By the dentist;
- b. By the dental technician;
- c. By the dentist in collaboration with the patient, based on a good communication;
- d. By the dental technician in collaboration with the patient, based on a good communication;

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- e. By the dentist, in collaboration with the dental technician, based on a good communication;
- f. By the dentist, in collaboration with the dental technician and the patient, based on a good communication.

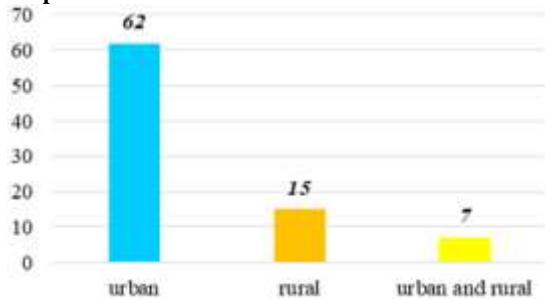
10. The establishment and communication of the colour for an implant-supported prosthetic restoration must be done:

- a. Only using a colour key, taking into account only the opinion of the medical staff;
- b. Only using a colour key, following a good communication between the medical staff and the patients;
- c. Only using photographs, taking into account only the opinion of the medical staff;
- d. Only using photographs, following a good communication between the medical staff and the patients;
- e. Using both the colour key and the photos, taking into account only the opinion of the medical staff;
- f. Using both the colour key and the photos, following a good communication between the medical staff and the patients.

RESULTS

Analysing the answers related to the work environment, the existence of three distinct groups was noticed. The first group, which includes the majority of respondents (62 representing 73.81%), operates in urban areas, which is a normal thing for the evolution of dentistry in Romania. The second group, which includes 15 respondents (representing 17.86%), is represented by those who work in rural areas. The last group, with a smaller number of respondents (7 representing 8.33%), is represented by those who carry out their activity both in urban and rural areas (figure no. 4).

Figure no. 4. The activity environment of the study participants



Regarding the workplace, it is noted that the vast majority of study participants work in a private environment. Thus, 44 participants (representing 52.38%) work in private dental offices/ clinics, 38 participants (representing 45.24%) work in private dental laboratories and only 2 participants are employed in state clinics (figure no. 5).

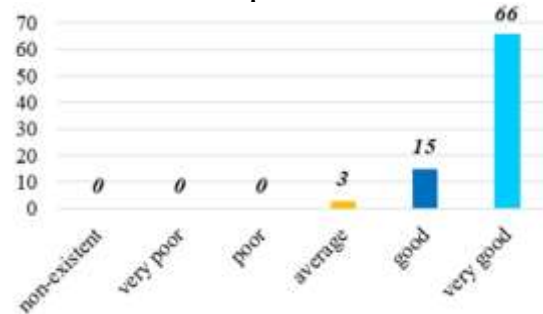
Figure no. 5. The organizing form of the activity



The communication between the dentist and the dental

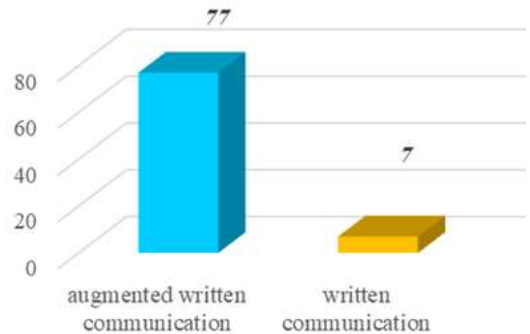
technician was appreciated by the subjects participating in the study as follows: the majority of subjects (66 representing 78.57%) considered the communication to be very good; 15 subjects considered it to be good and only 3 subjects considered the communication to be of average level (figure no. 6).

Figure no. 6. Assessment of the communication between the clinical and the technical department



The analysis of the communication modalities between the clinical and the technical department showed that the majority of respondents (77 representing 91.67%) considered as the optimal communication way the written variant often augmented with direct communication (face to face) and/ or telephone communication, when the needs impose this. Only 7 respondents considered that only written communication is sufficient for communication between the two departments (figure no. 7).

Figure no. 7. Ways of communication between the doctor and the dental technician



To question number 5, all 84 participants involved in the study agreed that decisions in developing a complex and complete treatment plan for implant-prosthetic rehabilitation should be made based on good communication between the three factors involved in this process (dentist, dental technician, patient).

The sixth point of the questionnaire really shows the patient's involvement in the technological process of performing implant-supported prosthetic restorations. Thus, the majority of respondents 49 (representing 58.33%) always communicate with patients, 25 of the respondents (representing 29.76%) have a very frequent communication with patients and only 10 respondents have an average communication with patients (figure no. 8).

Regarding the methods used for written communication between the partners of the dental team, most of the participants in the study (50 representing 59.52%) opted for the laboratory sheet designed on the computer and sent further through digital channels (email or WhatsApp), 18 participants (representing 21.43%) opted for the laboratory sheet written on the computer, printed and sent by courier, and 16 participants opted for the laboratory sheet written by hand and sent by courier (figure no. 9).

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Figure no. 8. Frequency of communication with patients in the process of creating implant-supported restorations

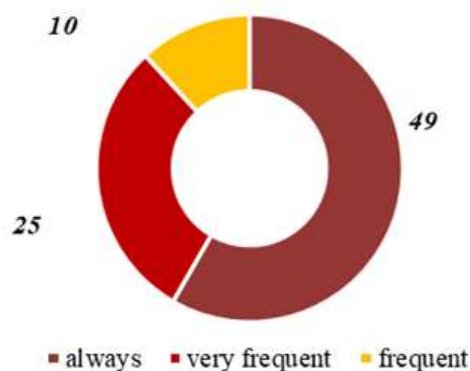
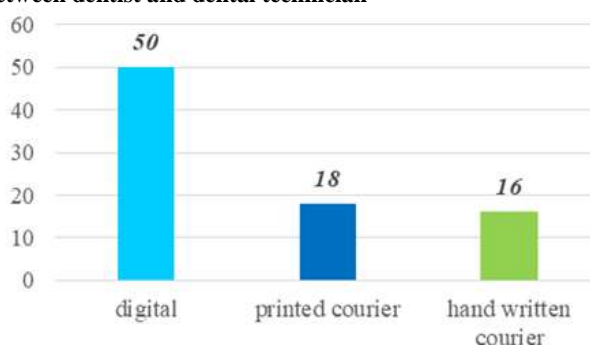
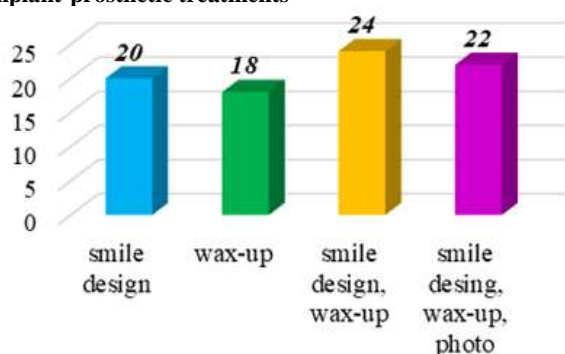


Figure no. 9. Methods used in written communication between dentist and dental technician



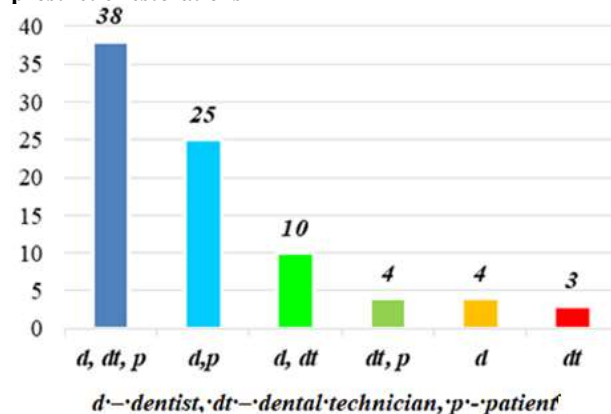
Another important aspect in performing prosthetic restorations on the implant is the foreshadowing of future prosthetic works. The answers to this question are balanced, 20 subjects opted for the use of Digital Smile Design, 18 subjects opted for the use of functional and aesthetic wax-up, 24 subjects opted for the combined version of the first two options and the remaining 22 subjects added to the combined version the photos taken in the dental laboratory (figure no. 10).

Figure no. 10. Useful elements in foreshadowing future implant-prosthetic treatments



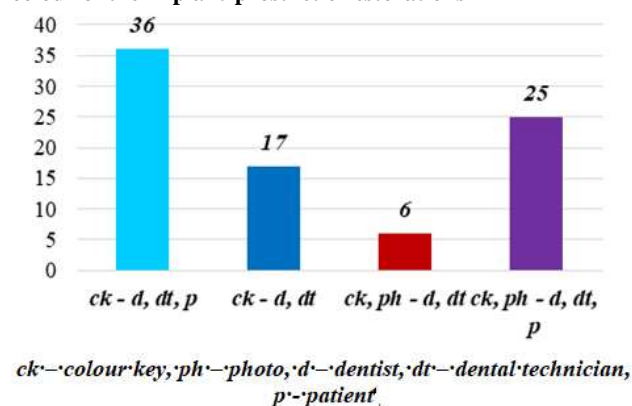
Regarding the color determination for implant-supported prosthetic restorations, the answers are very varied. Thus, only 38 respondents considered that all the factors involved in the process (dentist - *d*, dental technician - *dt*, patient - *p*) should participate in determining the color. In addition to this situation considered normal, there were respondents who opted for the other answer options as follows: 25 respondents - dentist and patient, 10 respondents - dentist and dental technician, 4 respondents - dental technician and patient, 4 respondents - dentist and 3 respondents - dental technician (figure no. 11).

Figure no. 11. Involvement of the three factors in establishing the colour of future implant-supported prosthetic restorations



For the last question related to the tools and methods to determine the colour of future implant-supported prosthetic restorations, most answers (36 representing 42.86%) focused on the use of the colour key and the involvement of all decision factors (medical team and patient). Apart from this answer, which is the most correct, there were participants in the study who answered: the colour key by the medical staff (17 representing 20.24%), the colour key and photos by the medical staff (6 representing 7.14 %) and the colour key and photos by the medical staff together with the patient (25 representing 29.76%) (figure no. 12).

Figure no. 12. The elements and the way of establishing the colour of the implant-prosthetic restorations



DISCUSSIONS

Creating prosthetic restorations involves the appropriate collaboration between doctor, technician and patient. Because the dental office and the dental laboratory are not located, in most of the cases, in the same location, the presence of the technician in the office during the stages of prosthetic restorations is not always possible or even non-existent. For these reasons, communication between the doctor and the technician must be supplemented by various communication procedures.

The oldest way of communication that also acts as a forensic document is the dental file.(15-17) Through it are transmitted data regarding the type of work to be performed, the materials recommended for use and the colour of the aesthetic component used.(18-20)

The evolution of technology has required the improvement of communication methods through the use of digital channels (e-mail, messaging programs) but also the equipment used for colour recording or prediction of future

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prosthetic works.(20-23) Implant prosthetic restorations involve superior professional training but at the same time require much better communication to achieve superior results.(24-27)

The method of training for doctors and technicians should not be neglected either, in both cases, the study programs do not include special courses to facilitate and improve the doctor-technician communication.(25-27)

CONCLUSIONS

If there is no real and correct communication between dentists and dental technicians, quality prosthetic restorations will never be able to be made.

Any method of communication that improves the performance of prosthetic restorations should not be excluded from the communication process.

A prosthetic restoration cannot be performed, including an implant-worn prosthetic restoration, without the patient being involved in the communication process, thus achieving that triad or triangle of communication dentist-patient-dental technician, both often mentioned in the scientific literature with a profile in dentistry.

Specific courses for communication and how to achieve this should be introduced into the curricula of both future dentists and future dental technicians, which would substantially influence the communication triad of dentists - patient - dental technician.

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