

Use of digital technologies in diagnosis and treatment planning

More than six years ago, we started using an intraoral scanner in our dental office Studio Rossini Odontoiatri in Monguzzo. Ever since its integration, we had the impression that – in combination with other digital technologies – it had positive impact on the communication with our patients, their understanding of the treatment plan and their decision to accept the proposed treatment. In order to investigate the differences in how our patients perceive the diagnostic and treatment planning processes when traditional or digital technologies are used for data acquisition and presentation of the treatment plan, we conducted a survey in our practice.

Digital versus traditional workflows

We selected 60 patients visiting our dental office for rehabilitation of their anterior teeth and randomly assigned them to one of two groups. The first group (average age: 42) was treated in the traditional way starting with an alginate impression. A series of photographs was taken, a model produced and a diagnostic wax-up created in the dental laboratory. The proposal was presented to the patient and finally evaluated intraorally using a mock-up.

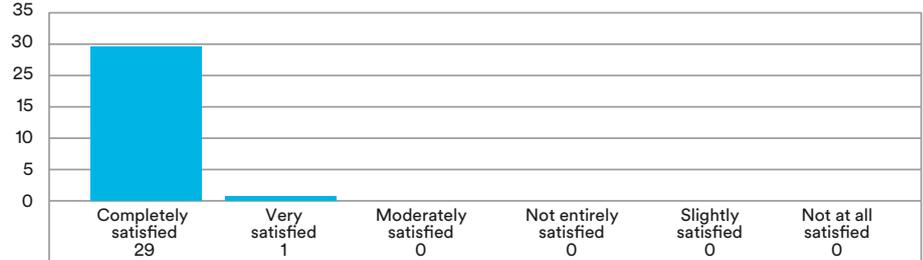
For the second group (average age: 43), a digital procedure was selected. The preliminary impression was taken with the 3M™ True Definition Scanner and presented to the patient on the touchscreen. Then, digital photographs were taken and the data sets superimposed to create a virtual wax-up that was shown to the patient. If desired, a mock-up was produced on the basis of the digital data.

Traditional workflow	Digital workflow
Alginate impression	Digital impression
Photographs	Photographs
Model production and creation of a wax-up	Creation of a virtual wax-up
Transformation into a mock-up	Production of a mock-up
Try-in of the mock up	Try-in of the mock up

The patients of both groups were asked to answer a questionnaire after having decided whether or not to accept the proposed treatment plan. The questions focused on the way they obtained information about dental procedures, their level of satisfaction and the clarity of the information provided at the dental office also with regard to individual questions. Apart from their answers, the number of proposals accepted was recorded for each group.

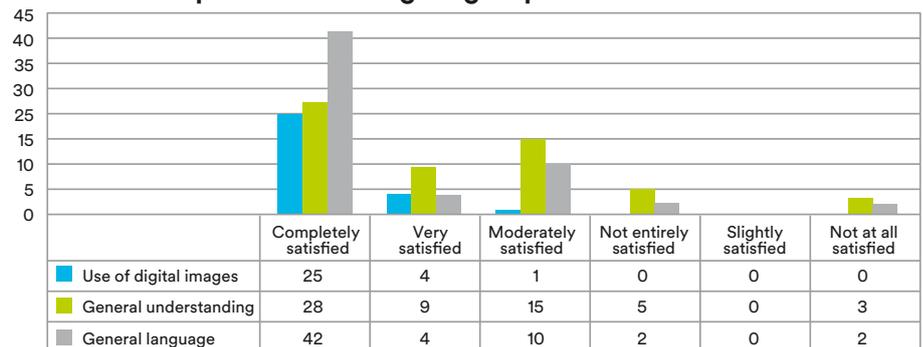
Positive impact of digital technologies

Satisfaction



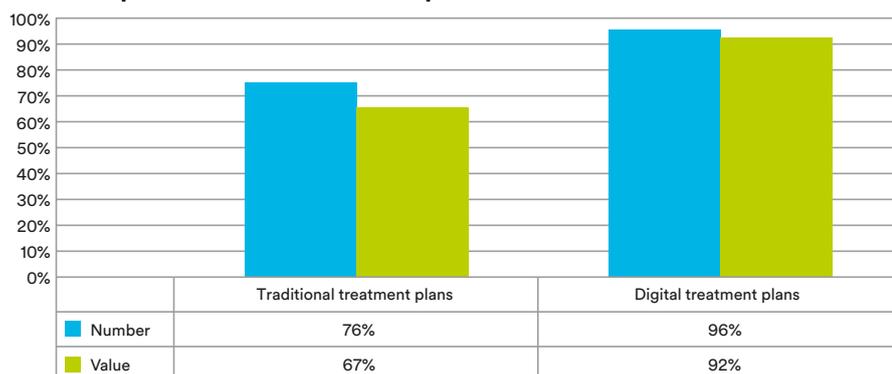
Answers of the digital group to the question: Are you satisfied with the diagnostic and planning procedure using specific digital equipment?

General responses of the digital group



Answers of the digital group to the questions: Did the dental practitioner and his team do everything in their power to explain the treatment plan and the course of the treatment to you? Was a precise and understandable language used?

Acceptance of the treatment plans



Number and value of the proposed treatment plans that were accepted by the traditional and the digital group.

The group treated in the traditional way tended to accept the proposed treatment after try-in of the mock-up, while the group treated using digital technologies took their decision earlier, when the case was presented virtually on the screen. A mock-up was not needed in many cases of this group. The overall level of satisfaction with the digital approach was high.

Altogether, 96 percent of the patients from the digital group accepted the treatment plan, while the percentage of acceptance was 76 in the traditional group. The difference was even greater when assessing the economic value of the proposed treatment.

Discussion

It appeared that the acceptance of the treatment plan in the digital group was not influenced by the age of the patient. This indicates that the digital information was very well understood even by senior patients not as familiar with digital technologies as the younger patients. In the group that was treated in the traditional way, the average age of the patients who did not accept the proposed treatment plan was 31.3 years, thus more than ten years under the average age in the group. This leads to the assumption that non-use of digital communication technologies has a negative impact on the understanding of information for young patients. What seemed to be highly important was the language and communication channel used to present the treatment plan to the patient.

Time to go digital

Based on the results of the survey, we can conclude that the use of digital technologies in diagnosis and treatment planning has a positive impact on the patient's understanding of the proposed approach. Moreover, it increases the efficiency of the procedure and leads to high patient satisfaction.



Contact

Dr. Michele Rossini
Monguzzo, Italy
michele@rossiniodontoiatr.it