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RESEARCH ARTICLE

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Training Satisfaction of Moroccan Dental Residents at the Center of Dental Consultation and Treatment in Casablanca/ Morocco

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ABSTRACT

Objective: The aim of this study was to evaluate the degree of satisfaction of resident doctors regarding their university hospital training at the Casablanca Dental Consultation and Treatment Center (CDCT) in Casablanca, Morocco, to improve the quality of teaching and educational tools.

Method: We conducted a descriptive and transversal study in the University Hospital Center of Dental Consultation and Treatment of Casablanca between November 2021 and June 2022. All residents received an anonymous satisfaction questionnaire (N=40) with 31 questions. The analysis was carried out using Jamovi software.

Results: 40 residents responded to the questionnaires, giving an overall response rate of 100%. The proportion of women was 85% (sex ratio M/F was 0.17). The age mean was 27.3± (1.5). The majority of the respondents were 1st-year residents with a percentage of 37.5%. Approximately 80% of residents were satisfied to very satisfied with their training. The supervision during the clinical internship was considered effective by the residents in 82.5% of the cases. The number of teachers was considered sufficient by 87.5% of the participants. The degree of satisfaction with the general atmosphere and the interpersonal relationship was 70%. Among the difficulties encountered, was the availability of dental chairs with a 67.5% satisfaction rate.

Conclusion: The majority of the students find the supervision in our center satisfactory. This type of supervision is to be valued in the interest of the teacher and the student and consequently for the benefit of the population.

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Introduction

The study of dentistry in Morocco is organised in six years during which a first cycle of medical studies of two years is separated from a second cycle of medical studies of four years. The third cycle of medical studies constitutes the basis of the specialized training of dental doctors. It is part of a university course with alternating hospital activities allowing a progressive professionalisation.

In 1994, the residency in dentistry came into force in Morocco. Since then, the four-year residency has been the main route to a university hospital career and also to graduate specialists in dentistry [1].

The access to the functions of resident in dental medicine takes place on title for the interns having validated two effective years of internship or on competition opened to the doctors in dental medicine having one year of exercise effectively in this status [2].

Seven specialized training programs were created: Periodontology, Surgical Odontology, Conservative Odontology, Fixed Prosthodontics, Removable Prosthodontics, Pedodontics, and Orthodontics. The preparation of the specialty diploma in dentistry includes theoretical and practical training under the responsibility of the head of the department of the specialty concerned. The hospital internship is integrated into the training. Its objective must have close links with the theoretical training received in the lecture theatre. It takes place within the department of the same discipline and/or complementary disciplines according to a training and rotation program of the student set by the specialty commission. During the course, the formation is the subject of a continuous control of knowledge, which is taken into account at the time of the final examination to obtain the diploma of speciality [3].

The dental resident, by his dual status, is a practitioner in specialist formation and a student in the third cycle of medical studies. This is particularly relevant as it has an impact on the

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professional qualities of future medical specialists and the pedagogic skills of future teachers. The evaluation of resident's satisfaction towards their training during residency is important in terms of pedagogy for the teacher and the student. It helps to identify the strengths and weaknesses of the supervision system and subsequently to better adapt the supervision. Students at Harvard University are considered to be the first to have evaluated their teaching in 1926. Since then, student evaluation of teaching has spread throughout North America and Europe. This movement has taken place in parallel with greater student representation in university bodies [4].

In 2010, a study assessed the satisfaction of medical students at the Denis-Diderot-Paris-VII faculty regarding their training in obstetrics and gynecology [5].

Another study in 2015 evaluated the theory instruction in the third cycle of medical studies in France in a national framework [6].

In Morocco, a national survey conducted in 2015 assessed the satisfaction of resident doctors in the University Hospital Centers [7].

No national data are currently published on the evaluation of dental residents' training. The objective of this study was to evaluate the degree of satisfaction and the perception of the skills of dental residents at the end of their training at the CDCT Casablanca, to improve the quality of the training course as well as the pedagogical tools useful to it.

Materials and Method

We conducted a descriptive transversal study at the dental consultation and treatment center between November 2021 and June 2022, using a questionnaire, which was drawn up and sent to the dental residents who did their training at the CHU Ibn Rochd Casablanca dental consultation and treatment center during the academic year (2021-2022).

All residents were given an anonymous self-administered questionnaire with 31 questions that assessed different aspects of the hospital internship. We addressed the objectives of the internship, expectations, theoretical and practical training of the residents, effective supervision by the teachers, and learning methods. The analysis was carried out using Jamovi software version 1.6.23.0.

Results

In terms of demographic and general results, 40 residents responded to the questionnaire, giving an overall response rate of 100%. The proportion of women was 85% (sex ratio M/F was 0.17). The average age was 27.3 years ± 1.5. The majority of participants were first-year residents with a percentage of 37.5% (Table 1).

In terms of theoretical training and practical workshops, the overall satisfaction of the resident physicians with the quality of theoretical training was high. About 80% of the residents were somewhat satisfied while 20% were not at all satisfied. More than half of the residents (63,2%) had stated that they had strongly and very strongly achieved their residency objectives (Table 2).

Table 1: Demographic and general results.

	N	(%)
Sex		
Female	34	(85)
Male	6	(15)
Age		
25 to 27 years old	23	(57,5)
28 to 31 years old	17	(42,5)
Service		
Removable prosthodontics	3	(7.5)
Pedodontics	5	(12.5)
Periodontology	5	(12.5)
Oral Pathology	5	(12.5)
Conservative dentistry	7	(17,5)
Dentofacial orthopedics	7	(17.5)
Fixed Prosthodontics	8	(20)

Table 2: Percentages of Global Satisfaction and Achievement of Internship Objectives.

Global satisfaction	**N**	**%**
Very bad	1	(2.5)
Bad	7	(17.5)
Good	23	(57.5)
very good	9	(22.5)
Achievement of the internship objectives		
Very slightly	1	(2.6)
Slightly	13	(34.2)
Strongly	19	(50)
Very Strongly	5	(13.2)

Regarding the frequency of participation of the residents in scientific workshops and events, overall 67,5% of the residents stated that they participated in scientific workshops and events frequently to always (Table 3).

Table 3: Participation of CDCT Casablanca residents in workshops and scientific events.

Participation in workshops	**N**	**(%)**
Yes, always	10	(25)
Very often	17	(42.5)
Sometimes	11	(27.5)
No, never	2	(5)

The supervision during the clinical internship was considered effective by the residents in 82.5% of the cases. The main training methods were case discussion groups (57.5%), seminars (45%), mini-courses (35%), and webinars (42,5%). Problem-based learning and clinical reasoning were used infrequently by the teachers (Table 4).

Of the residents, 85% preferred the concept where the student is at the center of the teaching and involved in his or her training, while 15% chose the classical teaching concept where

the teacher teaches without reflecting on the needs felt by the students. As regards the general atmosphere and difficulties encountered, the number of teachers was considered sufficient by 87.5% of the residents. The degree of satisfaction with the general atmosphere and the interpersonal relationship was 70%.

Table 4: The main training methods.

Pedagogical methods	N	(%)
Clinical staffs	23	(57.5)
Clinical Reasoning Learning (CRL)	14	(35)
Webinars	17	(42.5)
Minicourses	14	(35)
Seminars	18	(45)
Simulation workshops	10	(25)
Problem-based learning (PBL)	8	(20)

The main difficulties encountered by the residents during their studies were the availability of chairs (67.5%) and the availability of equipment (56.4%) (Table 5).

Table 5: Principal difficulties encountered by the residents.

Difficulties encountered	N	(%)
Availability of dental chairs	27	(67.5)
Availability of materials	22	(56.4)
Quality of products and/or materials	21	(52.5)
Availability of patients	9	(25)
Relationship with medical and paramedical staff	8	(20)
Number of supervisors	5	(12.5)

In terms of continuing education and proposals, in response to the open-ended question, the respondents proposed solutions from their point of view to improve their training, the most cited was the use of new training methods, particularly medical simulation, the organization of interactive interdisciplinary workshops and training in terms of scientific research.

Discussion

Our survey described the satisfaction of the residents of the University Center for Dental Consultation and Treatment in Casablanca. We explored the state of training and the opinion of the residents regarding their training.

Dentistry is a profession that is getting younger and more female [8]. The female demographics of the residents in our study are dominant with a sex ratio of 0.17. This is similar to France where dentists aged 50 years or older are predominantly male, but 50% of dentists aged 45-49 years are female, and feminization reaches almost 55% for those aged 30-34 years [9].

In our study, about half of the residents reported high achievement of their clerkship goals. The proportion of residents satisfied with the quality of their theoretical and practical training was 80%.

A study conducted by ADEBAYO ET and Coll, analyzing the work experiences, expectations, and attitudes of dental residents to training in Nigeria showed that 30% of Nigerian dental residents had a low level of satisfaction with the quality of their training, indicating the need for a holistic review of the training program and the conduct of trainers [10].

Frequent attendance at workshops and scientific events was reported by 67.5% of the residents. The most frequent teaching methods were clinical case discussion groups (57.5%), seminars (45%), mini-courses (35%), and webinars (42.5%). These results are consistent with those found in another study, at the University Hospital of Morocco where the most used teaching methods according to the interns were bedside visits (72%) and clinical staff (69%) [7].

A study evaluating the performance and satisfaction of students at the Faculty of Dentistry in Casablanca with problem-based learning in pediatric dentistry reported that the majority of participants (90.9%) found the PBL sessions very interesting and almost all (97%) expressed a wish to extend it to other courses. For most students (90.9%), the problem situations were clear and encouraged group discussion [11].

Another study carried out at the Faculty of Dentistry in Casablanca, evaluating the learning of clinical reasoning in prosthodontics among medical interns, reported that after the implementation of our model of supervision of clinical reasoning, the interns' reasoning improved and became more structured [12].

In addition to professional competence, it would be interesting to introduce into the resident's training curriculum other disciplines, namely management and administration, psychosociology, ethics, and new information and communication technologies [13,14].

It is demonstrated by the work of cognitive psychology that the resident in training must be active during the training sequence, be confronted with clinical problems to be solved and be placed in a situation that allows him/her to better articulate his/her declarative knowledge and to act on his/her prior knowledge [14,15]. This demonstrates the value of learning by diagnostic problems (PBL) and clinical reasoning (CR), which were reported by only 20% and 35% respectively. Another study reported that these two methods are very little used by teachers [7].

The number of teachers per hospital ward is considered sufficient by 87.5% of residents. The purpose of this anonymous evaluation is to improve the quality of training and the awareness of the faculty regarding the provision of care in which residents actively participate, the succession of future teachers since a certain number of residents wish to pursue an academic career in addition to the clinical competence of future Moroccan specialists. Teacher evaluation is not yet a rule, unlike what is organized in medical schools abroad.

Two conceptions of teaching have always been opposed depending on whether the teacher or the student is placed at the center of teaching: the teacher is at the center of teaching when he/she teaches without reflecting on the needs felt by the students, the way they receive and use the knowledge. This mode of teaching works with students who are highly motivated by the subject being taught. The student is at the center of teaching when students are led to actively appropriate

knowledge, thanks to pedagogical techniques that make them feel needed, motivate them, and give them the pleasure of discovering new data and experiences [16]. In our study, 85% preferred the concept of the student being at the center of the teaching and involved in his or her training.

In fact, both the teacher and the student must be at the center of the teaching to have a good result for the benefit of the population.

In 2005, a team of family medicine teachers at Laval University (Quebec) implemented a system that paired each resident with a faculty advisor for the duration of the residency. They found that the relevance of this system in a medical training environment was based on the importance of pedagogical tutoring and professional support from a continuity perspective, aspects that were considered to be of concern in the previous program. The function of the educational advisor thus became that of a guide accompanying a resident in his or her training course using a privileged and institutionalized interpersonal relationship [17].

As part of the promotion of scientific research, innovation and technological development, the Moroccan government has made Information and Communication Technologies (ICT) a major concern by adopting the "Digital Morocco 2013" strategy, the main objectives of which are to make them a vector for socio-economic and human development and a means of access to the world of information and knowledge [18].

A study determining the degree of integration of Information and Communication Technologies (ICT) in Moroccan faculties of dentistry, and the factors and tools that encourage pedagogical innovation, highlighted the degree of student awareness of the impact of these technologies on training and medical practice. It also showed the possibility of real integration of ICT in several forms: whether by a real use of "e-learning" platforms with all the possibilities they offer or other innovative techno-pedagogical means [19].

Obviously, in dentistry and implantology, the vital risk is less often involved than in the field of anesthesia or other types of surgery. However, the irreversible nature of the majority of surgical procedures performed in dentistry obliges the future practitioner to acquire a high level of expertise both in theory and practice, enabling him to provide quality care while limiting the risk of morbidity [20]. In dentistry, the early acquisition of clinical skills is not performed on a patient but on models called phantoms [21]. Indeed, simulation has been at the heart of the training of future dentists for many years. Simulation can take on different aspects. It can be physical systems mainly typodonts, made of plaster, resin, or other types of materials, that allow reproduction of the anatomy of the maxilla, teeth, and gums, or virtual systems as Simodont, the Virtual reality dental training system VRDTS, the Individual dental education assistant, Virteasy®, Voxelman®, Periosim®) which allow students to work on their manual dexterity in an environment that is as close to clinical reality as possible. They are generally made up of a digital interface allowing the display of clinical situations in 3D coupled with an electronic-mechanical device allowing the provision of haptic sensations.

These systems will open up a new way of learning and updating professional skills, enable a new pedagogy based on reasoning and validation of professional practice in action, and thus contribute to improving medical practice and teaching professional skills.

Conclusion

The majority of the residents consider the supervision of their internship in our department to be satisfactory. The hospital internship is an opportunity for the resident to acquire attitudes and skills that will be useful throughout his or her career. It allows them to ask themselves questions to develop their clinical reasoning towards complex cases and question their tutors who can provide them with case-by-case solutions. The perfect success of the internship depends on a systematic organization with the definition of tasks and expected and controlled skills. The resident must therefore know, from the start of the traineeship, what he or she is entitled to expect and how to progress. The teacher and the resident must be at the center of the teaching to have a good result for the benefit of the population. This type of supervision is to be valued in the interest of the teacher and the resident, and consequently for the benefit of the population.

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