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Training needs analysis in Fixed Prosthodontics Department for senior year dental students in Casablanca

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Abstract

Aim: The objective of our study was to establish a preliminary training needs analysis for dental students at the end of their training in a University Hospital Center Ibn ROCHD Casablanca in order to highlight the cognitive, psychomotor and affective domains to be developed.

Methodology: We conducted a cross-sectional study. Forty-six senior dental students responded to a questionnaire assessing daily demand for fixed prosthodontics. A quantitative analysis of the need for training in 6 relevant topics performed in the daily life of the student has been done by an FSP grid (Frequency, Severity, Problems).

Results: For the cognitive problems, the demand for training in implant-supported fixed prostheses had the highest scores. Future dentists expressed a need for theoretical knowledge for implant-supported prosthetics (1.37±0.70). The need for composite prosthetics was rated at 0.76±0.72. For the other items, the scores ranged from 0.17 to 0.67. For the psychomotor domain, the students expressed problems in the following 4 items: implant-supported fixed prostheses, composite prosthesis, cemented dental bridge and glass fibre posts. They were rated respectively at 1.46 ±0.71, 1.02 ±0.76, 0.98±0.61, 0.96±0.64 For the affective domain, the

students mastered this component for all subjects except implant-supported fixed prostheses.

Conclusion: Continuing education in implant-supported prosthetics should be planned. Our study also showed the necessity to develop the psychomotor domain in composite prosthesis, cemented bridge and glass fibre posts. Further comparative studies between students and residents should take place in the future.

Keywords: Training needs analysis, Competency, Students, Fixed prosthodontic, Continuing education.

Introduction

Fixed prosthodontic is an odontological discipline in perpetual evolution and requires different levels of knowledge and practice before being worked on by the student in an autonomous way (1). The future dentist must master the knowledge of fixed prosthodontic and other related disciplines (surgical dentistry, orthodontics, periodontology ...) In the majority of clinical situations, interactions with colleagues are necessary and the time required for the care of patients allows for a follow-up of patients, which enriches the doctor-patient relationship. The mastery of the affective domain is essential to the success of any treatment. In addition to the clinical management of patients, technical skills are required to make the correct diagnosis and establish the appropriate treatment plan (1,2).

Throughout the academic training in the Department of fixed prosthodontics, the student learns by following several phases:

- Theoretical education for 5 years to acquire dental knowledge and master the cognitive domain.
- A phase of practical education for 2 years.

A phase of clinical practice where the student takes care of patients in the service of fixed prosthodontics and Occlusion at the UHC Ibn ROCHD in Casablanca. During the 3 years of practice, the future doctor must develop the cognitive, psychomotor and affective domains. In his last year of study, the clinical internship in the CHU and private dental offices allows him to master all the three components of competency. This mastery is critical to improve the quality of dental care provided.

This basic training must be supplemented afterwards by continuing education to fill any gaps and update the information already acquired. A study conducted on 41 physicians (24 medical interns, 13 general practitioners and 4 specialists in rheumatology) in 2020 showed the interest of regularly supporting practitioners throughout their practice and the authors confirm that the continuing education of health professionals must be closely followed (3). That is why it is important to analyze the need for training, it will ensure the relevance of subjects of continuing education, which improves the effectiveness of this discipline in everyday practice. (3,4,5)

The objective of our work was to analyze the needs for continuing education among dental students at the end of their training in the University Hospital Ibn ROCHD Casablanca. Our results will allow us to orient them afterwards for a specific continuous training according to the need.

Methodology

We conducted a Cross-sectional study between January 15, 2022 and February 13, 2022. Our study was approved by the Department of fixed Prosthodontics and 46 dental students at the end of their training consented to participate and were included. Before starting the investigation, consent was obtained from all the participants. Collected data were kept confidential, and responses were anonymous.

Data collection

First, we conducted group interviews in order to assess the daily demand for fixed prosthodontics. This step allows us to highlight the continuing education needs felt by the trainees at the end of their training. During these interviews, six relevant topics performed in the daily life of the student and the prosthodontist were selected. According to the degree of complexity, we classified the subjects in the FSP analysis grid (Frequency, Severity, Problems). This grid is proposed by Ivernois and all (3). The FSP grid is frequently used in the context of continuing medical education in several countries around the world. Our goal was to identify the subjects that could be included in a prosthodontics training program.

After this first step, the grid was distributed as an anonymous questionnaire to the participants. The questionnaire consisted of a single page containing questions on personal data (age and gender) and the FSP grid. After consent, each student participating in our survey was asked to rate the frequency (F), severity (S), and problems encountered (P) for each topic according to his personal experience. The numbers assigned to the three FSP columns for each topic were then summed on the questionnaire by the participant (Table 1).

The grid was scored as follows:

- Frequency (F): 0 (Rare), 1 (moderately frequent) or 2 (very frequent)

- Severity (S): 0 (mild), 1 (moderately severe) or 2 (very severe)

- Problems (P): 0 (no problems), 1 (medium problems) or 2 (many problems)

Problems)

Data analysis

The data entry and statistical analysis were done using Excel and were used for statistical analysis. Data for quantitative variables were expressed as mean value with standard deviation (SD).

Results

Forty-six students completed the FSP grid, 63% of whom were female (Fig. 1)

- The results obtained, summarized in Table 2, shows that:
- The highest average Frequency was for single tooth treatment (1.24) and for Cast metal posts (1.30). A score of 0 was given to the implant-supported fixed prostheses
- For Severity, the highest scores were given to the implant-supported fixed prostheses, followed by the composite prosthesis, the cemented dental bridge, and the glass fibre posts.
- For cognitive Problems, students expressed a need for theoretical knowledge for implant-supported fixed prostheses (1.37 ±0.70). The need for composite prosthetics was rated at 0.76±0.72.
- Concerning the psychomotor problems, the students expressed problems in the following topics: implant-supported fixed prostheses, composite prosthesis, cemented bridge and glass fibre posts.
- In the affective domain, problems were expressed for the implant-supported fixed prostheses.

Discussion

This preliminary study allowed us to evaluate the level of need for continuing education in the fixed prosthodontic department. To establish a preliminary training needs analysis, several evaluation tools are available. In our study, we choose to use the FSP grid. This grid is widely used in the context of continuing medical education. It is simple and easy to carry out and should be completed by direct discussion with the participants (3,4,5,6).

According to the grid, the highest mean frequency is rated for single tooth reconstruction (1.24) and Cast metal posts (1.30). All participants give a mean of 0 for implant-supported fixed prostheses. The other topics are rated between 0.39 and 0.85. The fixed prosthodontic department recommends the management of single and multiple prostheses under the supervision of residents, specialists and professors. The most complex situations are preferably reserved for interns and residents assigned. This is the example of implant prostheses which requires a pre-implant study, a surgical phase and a healing phase between 2 and 3 months before proceeding to the final step. Although they are supervised by experienced doctors, students may consider the management of implant prostheses as a delaying factor in the validation process and thus motivate them to manage patients requiring conventional prosthesis.

For the estimated **severity** based on the same grid, the highest scores are assigned to the implant-supported prostheses followed by the composite prosthesis, cemented bridge, and the glass fibre posts. The order of severity found is justified by the complexity of the clinical situations. `

For **the cognitive, psychomotor and affective problems**, the results obtained shows that future dentists express a major need for training in implant-supported fixed prostheses in all the three levels of knowledge. Despite the module provided for students in their 5th year (lectures and practical workshop), students still need to reinforce their knowledge. This deficit could be explained by the almost absent management and the lack of clinical experience in this topic during the 3 years of study. All the knowledge acquired must be correlated with the actual management to be well integrated and assimilated. For composite prosthesis, cemented bridge and glass fibre posts, despite the mastery of knowledge and skills, the management of these prostheses is very dependent on the clinical situation. The degree of complexity can vary and be challenging for the student. For example, in the rehabilitation of a partial edentulous tooth, several cases are presented with different levels of difficulty (simple or complex composite prostheses/ cemented bridge of 3 elements with favorable abutments or cemented bridge of long extension...). For glass fibre posts, the control of bonding in root dentin still remains a challenge for the practitioners despite the codification of the protocol.

The results of our study will allow us to highlight the need to plan continuing education courses whose objectives would be:

- To improve the theoretical, practical and affective skills in implant-supported fixed prostheses.
- To master the psychomotor skills of composite prostheses, cemented bridge and glass fibre posts.

Our study certainly has limitations: First, the number of participants is small and corresponds to half of the promotion studied (46). In addition, the response to the FSP grid is still subjective and must be completed by discussions with the studied groups, Other tools can be used to complete the work (7).

Conclusion

In our study, we identified the need for training in a few topics performed in the daily practice of the dentist. A training plan in implant-supported fixed prostheses must be envisaged. Educational strategies such as problem-based learning, clinical reasoning training in combination with other disciplines (such as removable prosthodontics for composite prosthodontics, periodontics and surgical odontology for implant prostheses) will help to reinforce the skills and ensure the correlation between theory and practice. Further

comparative studies between students and residents should take place in the future.

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Legend Tables and Graph

Topic	F	S	P			Total
			Cognitive	Psychomotor	Affective	
Treatment for single tooth using or not corono-radicular reconstruction	2	0	0	0	0	2
Corono-radicular reconstruction: Cast metal posts	2	0	0	0	0	2
Corono-radicular reconstruction : Glass fibre posts	1	1	0	1	0	3
Dental Bonded Bridge	2	0	0	0	0	2
Dental Cemented Bridge	1	2	1	1	0	5
Fixed and removable prostheses	1	1	0	1	1	4
implant-supported fixed prostheses	0	2	2	2	2	8

Table 1: FSP Grid of a participant

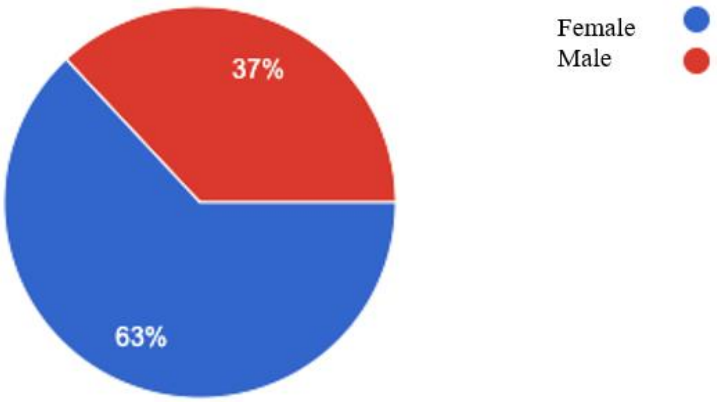

Figure 1: Gender distribution

Item	F	S	P		
			Cognitive	Psychomotor	Affective
Treatment for single tooth using or not corono-radicular reconstruction	1.24 ±0.59	0.74 ±0.56	0.22 ±0.46	0.65 ±0.63	0.46 ±0.53
Corono-radicular reconstruction: Cast metal posts	1.30 ±0.68	0.91 ±0.64	0.17 ±0.43	0,74 ±0,67	0.50 ±0.61
Corono-radicular reconstruction : Glass fibre posts	0.50 ±0.61	1.02 ±0.64	0.67 ±0.62	0.96 ±0.64	0.57 ±0.64
Dental Bonded Bridge	0.85 0.65	0.65 ±0.51	0.39 ±0.61	0.67 ±0.66	0.57 ±0.64
Cemented Dental Bridge	0.39 0.61	1,11 ±0.53	0.67 ±0.69	1.02 ±0.76	0.78 ±0.77
Fixed and removable prostheses	0.67 0.66	1,17 ±0.66	0.76 ±0.72	0.98 ±0.61	0.78 ±0.71
implant-supported fixed prostheses	0.00 ±0.00	1.54 ±0.64	1.37 ±0.70	1.46 ±0.71	1.07 ±0.79

Table 2: FSP grid with total values and means ± standard deviation.