Students evaluation of University teaching: Case of the clinical prosthodontics training

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Abstract

Introduction: Student assessment of teaching aims to identify the strengths and weaknesses of teaching. This study aimed to analyze the evaluation of the clinical prosthodontics teaching by students of the Institute of Odontology and Stomatology of the Cheikh Anta Diop University of Dakar.

Material and Methods: This was a cross-sectional descriptive study of 103 Master 1 and Master 2 students in dental surgery. The variables were related to items concerning framing, clinical teaching and assessment of clinical prosthodontics learning during the last 2 years of dental studies. Using the Likerts scale, the student had to make a quantitative assessment by assigning a score ranging from 1 to 5, depending on the degree of accreditation. The SPSS® software version 17.0 was used for statistical analysis. The comparison of averages used the Student t test at 5% risk of error.

Results: The majority of the sample (79.6%) felt that the number of teachers was insufficient. Teachers were not available according to 51.4% of students. Training objectives were clearly defined for 81.5% of students. For 44.7% of them, the number of course hours was sufficient for clinical learning. Concerning the certification evaluation of learning, 66% of the students disapproved of the single final formula.

Conclusion: The practice of clinical teaching evaluation by students is an essential pillar of the overall approach to improve the prosthodontics teaching.

Keywords: Prosthodontics, Clinical teaching, Assessment, Students.

Introduction

Student Assessment of teaching aims to identify and analyse the strengths and weaknesses of an education in order to improve its quality. While evaluation provisions prevail in Canadian and American universities, where they constitute a reliable tool for assessing the quality of teaching, there is resistance in Europe to students taking ownership of the evaluation process.[1,2] In sub-Saharan universities, approaches supporting the pedagogical development of teachers should be adopted along the lines of Cheikh Anta Diop University in Dakar where was initiated the process to promote performance in higher education.

The objective of this work was to analyze the students' evaluation of the clinical prosthodontics teaching in the Institute of Odontology and Stomatology (IOS) of Cheikh Anta Diop University of Dakar.

Material and Methods

This was a cross-sectional descriptive study among Master 1 and Master 2 dental students at the IOS in Dakar. The anonymity of consenting respondents has been preserved. The variables were related to socio-demographic data such as age, sex, and grade of study as well as items concerning supervision, clinical teaching and evaluation of prosthodontics clinical training during the last 2 years of dental studies. The survey was carried using a self-administered questionnaire developed from pedagogical assessment models used in other studies.[3-5] A pilot survey among a random sample of 10 Master 2 students allowed to correct and readjust the questionnaire in order to facilitate understanding of the items. Using the Likerts scale[6], the student had to make a quantitative assessment by assigning a score ranging from 1 to 5, depending on the degree of accreditation. The responses were organized into 3 groups:

1. Disagree for "Strongly Disagree" and "Disagree";
2. Neutral for "Neither disagree nor agree;
3. Agree for "Strongly Agree" and "Agree".

The quantitative variables were described by their means and standard deviations. The judgment made by the students on the prothodontics clinical teaching was translated into absolute and relative frequencies in an evaluation report. The statistical analysis was performed using SPSS® software version 17.0. The structure underlying the items was evaluated by Principal Component Factorial Analysis with Varimax rotation. Items in educational areas that had a factor load greater than 0.35 were considered relevant to the evaluation of prothodontics clinical teaching. The search for the internal consistency of the items allowed to analyse the psychometric qualities of the questionnaire. The coefficient α of Cronbach used varies between 0 and 1 : 1 corresponded to a redundancy of items in the domain studied and 0 corresponded to a lack of consistency between items. It is all the greater as the items are correlated with each other. It must be greater than 0.6 for the internal consistency of a domain to be correct.[6]

Student's t-test compared age averages by sex. The risk of error was set at 5%.

Results

Among the 120 students enrolled, 103 correctly completed the questionnaire, i.e. a response rate of 85.8%. Students had an average age of 26.6 ± 2.2 years with a maximum of 33 years and a minimum of 23 years. Age was significantly higher for males at 27.3 ± 1.9 years than for females at 25.8 ± 2.3 years (p = 0.01). The sample consisted of 56 men (54.4%) and 47 women (45.6%), i.e. a sex-ratio of 1.2. (Table 1) There were 50 students in Master 1 and 70 in Master 2. The response rates were 68% in Master 1 and 98.6% in Master 2. Master 2 students constituted 66.9% of the sample. Girls represented 61.8% in Master 1 and 37.7% in Master 2. (Table 2)

Factor load was greater than 0.35 for all items used to evaluate the clinical teaching of prosthodontics. (Table 3) The search for internal item consistency gave the "Clinical Teaching" area a coefficient α of Cronbach aqual to 0.37 and an average of 3.5 ± 0.64. (Table 4)

Students who felt that the number of teachers was insufficient represented 79.6% of the sample. Teachers were not available during clinical sessions according to 51.4% of them. Clinical objectives were clearly defined at the beginning of teaching for 81.5% of students and assessment modalities were specified according to 41.7%. For 44.7% of them, the number of class hours was sufficient for clinical training. Concerning the certificative training assessment, 66% of the students disagreed with the final single formula. (Table 5)

Table 1 : Age and gender distribution

Gender	Age (years)				P-value
	Mean	Standard deviation	Minimum	Maximum	
Male (n = 56)	27.3	1.9	23	31	0.01
Female (n = 47)	25.8	2.3	23	33	
Total	26.6	2.2	23	33	

Table 2 : Distribution by gender and academic level

Gender	Academic level				Total	
	Master 1		Master 2			
	n	%	n	%	n	%
Male	13	38.2	43	62.3	56	54.4
Female	21	61.8	26	37.7	47	45.6
Total	34	33.1	69	66.9	103	100

Table 3 : Relevance factor analysis of evaluation items

Pedagogical area	Items of assessment	Factor load
Supervising rate	The number of teachers is sufficient	0.732
	Teachers are available in clinics	0.529
Clinical teaching	Training objectives are clearly defined	0.452
	Assessment procedures are specified	0.548
	The number of course hours is satisfactory	0.395
Certificative evaluation	The final evaluation is a good formula	0.529

Table 4 : Psychometric analysis of assessment areas

Pedagogical area	Mean ± standard deviation	Cronbach's coefficient α
Supervising rate	2.28 ± 0.41	0.7
Clinical teaching	3.5 ± 0.64	0.37
Certificative evaluation	2.6 ± 0.52	0.56

Table 5: Evaluation report on prosthodontics clinical teaching

Pedagogical area	Clinical Evaluation Items	Assessment		
		Agree	Neutral	Disagree
		n (%)	n (%)	n (%)
Supervising rate	The number of teachers is sufficient	11 (10.7)	10 (9.7)	82 (79.6)

	Teachers are available in clinics	35 (34)	15 (14.6)	53 (51.4)
Clinical teaching	Training objectives are clearly defined	84 (81.5)	5 (4.9)	14(13.6)
	Assessment procedures are specified	43 (41.7)	20 (19.4)	40 (38.9)
	The number of course hours is satisfactory	46 (44.7)	15 (14.6)	42 (40.8)
Certificative evaluation	The final evaluation is a good formula	23 (22.3)	12 (11.7)	68 (66)

Discussion

Given their factorial load, the items chosen to evaluate the clinical teaching of prosthodontics are relevant.[6-8] However, the internal consistency of the items composing the areas corresponding to clinical teaching and certificative evaluation is low, subsequently reducing the performance of the assessment carried by the students. This needs to be addressed by improving the wording of items, the format of questionnaires or the survey process. Moreover, the use of other approaches such as documentary research, investigation among teachers and consultation of students around focus groups, can facilitate the identification of more relevant items and better internal coherence.[6,9]

The worldwide propensity for feminization of medical studies in general and odontological studies in particular is not confirmed by this study characterized by a predominantly male sample. This situation is due to the fact that the survey concerns students from the last two years while the other works related to students from the entire odontological cycle.[7]

Almost 4/5 of the students consider that the ratio of clinical teaching staff is low by giving it the lowest average. This assessment seems erroneous given that the teacher/student ratio is 1:5 at IOS. In fact, only prosthodontics teachers participate in the clinical supervision of students and the number of supervised students can be equal to 8 for each teacher in a 4-hour shift. Thus, the availability of clinical teachers is satisfactory for only about 1/3 of students. Indeed, their workload is increased by other pedagogical activities such as classroom lectures, practical instructions and direction of doctoral theses and dissertations. The recruitment of new teachers with good clinical experience in prosthodontics will ensure an overall improvement in the quality of clinical teaching.

A large majority of students stated that teachers clearly articulated the learning objectives of clinical teaching as reported by Abraham[10] in a survey carried among medical students.

However, most students are divided about the amount of time allocated to the classroom lecture and the accuracy of the assessment modalities with still slightly more students approving these two items. These pedagogical provisions do not seem sufficient to enable the student to better ensure his learning and to prepare effectively for its evaluation.

The final single assessment was disapproved by almost 2/3 of the students. This assessment is justified by the nature of prosthetic treatments, which are divided into several equally important clinical and laboratory learning stages. Each of these processing steps is evaluated singly. The final single formula is therefore not a valid instrument for a rigorous and reliable process of evaluating student clinical prosthodontics training.

Given the frequent resistance to the adoption of the student assessment of teaching to evaluate "teaching performance", it seems appropriate to call on other information relays such as the teaching unit and coaching for young teachers, in order to implement a more adapted evaluation approach of teaching performance.[11-13]

Conclusion

The practice of clinical teaching evaluation by students, the management of their assessments and the adoption of appropriate corrective measures are the essential pillars of the overall approach to improving, regulating and enhancing the prosthodontics teaching.

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