



Motivational Factors of Resident Dentists at Dentistry Faculty of Casablanca

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Abstract

Introduction: Particularities of medical training are characterized by a high workload, and long duration make that the motivation of residents in the odontological disciplines can be put to the test. The aim of this work was to identify determining factors in decision-making for specialization in odontological disciplines and describe different types of motivation that animate resident dentists in specialization at the Dentistry Faculty of Casablanca. **Materials and method:** This is a descriptive cross-sectional study, conducted in 2024 at the Faculty of Dentistry of Casablanca. Target population was residents enrolled in the National Diploma of Dentistry Specialty during the academic year 2023/2024. An anonymous questionnaire that explores socio-demographic data and data related to academic motivation. Data collected were statistically analyzed with SPSS 16.0 software and the student t-test was used to compare quantitative variables with 5% as the significance threshold $P < 0.05$. **Results:** Female sex ($n = 35$) was the most represented with 83.33%. Intrinsic motivation to knowledge was highest in our respondents with 4.10 ± 0.76 for the female sex and 4.14 ± 0.82 for the male sex, respectively. No statistically significant differences were observed between female and male $P = 0.912$. **Conclusion:** Scientific curiosity is the main motivational factor for students at the Faculty of Dentistry in Casablanca to undertake postgraduate studies. Intrinsic motivation, by its knowledge-regulated component (MICO), followed by extrinsic motivation, by identified regulation (MEID), is the most predominant among residents; amotivation represented the lowest values of the motivational components.

Subject Areas

Dentistry

Keywords

Motivation, Students, Dentistry, Medical Pedagogy

1. Introduction

In university studies, motivation is associated with orientation to a specific field of study, commitment to learning, the discipline required to achieve one's goals, perseverance in the face of difficulties and failures [1]. According to Pelaccia and Viau, there is a “*dynamic model of motivation*”, which links intrinsic motivation to its product in terms of learning [2]. This last definition is based on three perceptions: perception of the value of educational activity, perception of its competence to conduct an activity and perception of its controllability of activity. According to the theory of self-determination (TAD), human behavior is regulated by several motivation classes. Intrinsic Motivation (MI) is the commitment to an activity because of the interesting character, satisfaction and pleasure that the individual can feel in practicing it and consists of three elements: MI to knowledge, achievement and stimulation. As for Extrinsic Motivation (ME), it is the fact of carrying out an activity in order to derive pleasure from it or to avoid something unpleasant; it is dependent on four components: ME by integrated regulation, by identified regulation, by introjected regulation and by external regulation. Amotivation refers to situations where an individual does not value an activity or behaviour and does not believe that a valid outcome will be achieved with certainty [1] [3].

Postgraduate dental studies in Morocco correspond to specialization; they are crowned by a diploma, the National Diploma of Dentistry Specialty (DNSO). Six odontological disciplines are currently open as specialties at the Faculty of Dentistry of Casablanca namely: pediatric odontology, conservative and endodontic odontology, dento-facial orthopedics, oral pathology, irremovable prosthesis, removable prosthesis. The admission to specialization in one of these disciplines can be done by several ways: by means of internal competition (internship-followed by the residue), or external (lateral way) for students of Moroccan nationality; for foreign students this is the way of inter-university cooperation. The training takes place over four years: the end of the first year is evaluated by an examination including a written test as well as the presentation of clinical cases and a document with the titles and scientific work done during the year; As for the last year, it is evaluated by an end-of-cycle examination consisting of the submission of a thesis associated with the same elements as the first examination. The particularities of medical training that is characterized by a large workload, dual training “theoretical at the faculty and practical in hospitals” and by the long duration of the training course make that the motivation of residents in specialization in the odontological disciplines can be put to the test. In our academic context, that of the Faculty of Dentistry of Casablanca, the relevance of documenting the motivation pro-

file for the learning of resident dentists emerged from the following observations: Many of them show signs of exhaustion and stress related to the workload and duration of the training that can generate disruptions in the smooth running of the latter resulting in a decrease in the desire to learn.

The aim of this work is to identify the main determining factors in decision-making for specialization in dentistry disciplines and describe the different types of motivation that animate resident dentists in specialization courses at the Faculty of Dentistry of Casablanca.

2. Material and Method

It's a descriptive cross-sectional study conducted at the Faculty of Dentistry of Casablanca in January 2024. The target population was made up of all resident dentists enrolled (all disciplines combined) in the National Diploma of Dentistry Specialty during the academic year 2023/2024. An anonymous questionnaire was delivered to residents in person and retrieved immediately after completion. The questionnaire was the subject of a preliminary evaluation with two specialists from the department of dento-facial orthopedics in order to make any necessary changes to a good understanding of the questions and to estimate the average time of answers. The questionnaire was developed from a study similar to ours, conducted by Abdelhamid H *et al.* at the Faculty of Medicine and Pharmacy of Marrakech [4]. It consisted of three parts: the first concerned socio-demographic data such as: age, sex, country of origin, profession of parents, family members practising in the field of health, the timing of the choice of dental studies as well as the discipline of specialization and the rank of the discipline as a choice of specialty (first choice or not). The second was related to the reasons why residents opted for medical studies. The third relates to academic motivation, assessed using the University Education-Studies Motivation Scale (EME-U), developed and validated by Vallerand *et al.* [5]. This 28-item measuring instrument was developed on the basis of the self-determination theory of Deci and Ryan [3]. For each of the 28 EME-U items, students must specify, on a Likert scale with five modalities (1— not at all agree; 2—somewhat agree; 3—moderately agree; 4—somewhat agree; 5—completely agree), to what extent the proposed statement corresponds to a reason for pursuing university studies. Score of a student to one of the five components of motivation corresponds to the average of the four items that constitute it. 28 items are grouped into seven dimensions corresponding to the seven types of motivation included in the self-determination continuum [6]:

Intrinsic motivation to knowledge (MICO): items 2, 9, 16, 23;

Intrinsic Motivation for Accomplishment (MIAC): items 6, 13, 20, 27;

Intrinsic motivation to stimulation (MIST): items 4, 11, 18, 25;

Extrinsic motivation by identified regulation (MEID): items 3, 10, 17, 24;

Extrinsic motivation by introjected regulation (MEIN): items 7, 14, 21, 28;

Extrinsic motivation by external regulation (MERE): items 1, 8, 15, 22;

Amotivation (AMOT): items 5, 12, 19, 26.

This instrument also distinguishes between intrinsic motivation and extrinsic motivation: intrinsic motivation comprises the sum of MICO, MIST, MIAC and MEID; extrinsic motivation encompasses the sum of MEIN and MERE.

Investigation was conducted by the principal investigator with the residents during clinical care sessions within their respective departments. Descriptive analysis consisted of calculating percentages for qualitative variables, and positioning and dispersion parameters for quantitative variables (mean, standard deviation). Data collected were statistically analyzed with the SPSS 16.0 software and the Student t-test was used to compare quantitative variables with 5% as the significance threshold $P < 0.05$.

3. Results

Our study focused on all resident dentists at the Faculty of Dentistry of Casablanca for the academic year 2023-2024. Almost all colleagues agreed to participate in the study with a response rate of 93.33% (42/45). The average age of dentists was 27.97 ± 1.77 for females and 31.14 ± 5.36 for males with extremes ranging from 25 to 40 years. Female sex ($n = 35$) was most represented with 83,33% (**Table 1**). 69,05% of cases had at least one family member working in the health field (**Table 2**). A large majority of participants (80.95%) stated that their priority (first choice) was the discipline in which they worked (**Table 3**). The main reasons that prompted residents to start dental studies are described in **Tables 4-6** according to the importance they gave to the latter. Intrinsic motivation comes first followed by extrinsic motivation and amotivation. Intrinsic motivation for knowledge was highest in our respondents with 4.10 ± 0.76 for female sex and 4.14 ± 0.82 for male sex, respectively. There were no statistically significant differences between the sexes $P = 0.912$. **Figure 1** represents a description on a five-step LIKERT scale of the seven main axes of motivation in the field of teaching that we found with residents at the Faculty of Dentistry of Casablanca.

Table 1. Distribution of residents by sex.

Gender	Percentages (%)	Number
Male	7	16.67
Female	35	83.33
Total	42	100

Table 2. Family members in the health field.

Family members in the health field	Number	Percentages%
Yes	29	69.05
No	13	30.95
Total	42	100

Table 3. Rank of discipline as first choice or not.

First choice	Number	Percentages%
Yes	34	80.95
No	8	19.05
Total	42	100

Table 4. Scientific curiosity.

Scientific curiosity	Number	Percentages (%)
Not at all important	0	0
Not important	0	0
Not out of	4	9.52
Moderately important	11	26.20
Very important	27	64.28
Total	42	100%

Table 5. Have a high income.

Have a High income	Number	Percentages (%)
Not at all important	13	30.95
Not important	9	21.42
Not at of	2	4.76
Moderately important	8	19.04
Very important	10	23.83
Total	42	100%

Table 6. Parent's desire.

Parent's desire	Number	Percentages (%)
Not at all important	5	11.90
Not important	25	59.5
Not at of	2	4.76
Moderately important	7	16.67
Very important	3	7.14
Total	42	100

Different types of motivation among residents

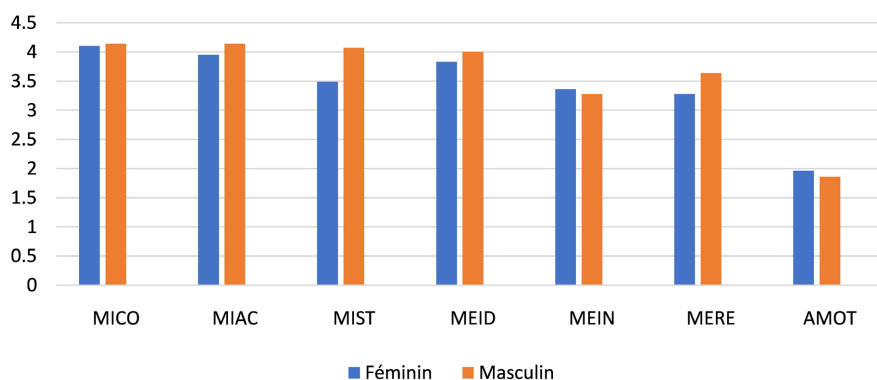


Figure 1. Overview of different types of motivation by gender among residents.

MICO = Intrinsic motivation to knowledge

MIAC = Motivation intrinsic to achievement

MIST = Intrinsic motivation to stimulation

MEID = Extrinsic motivation by identified regulation

MEIN = Extrinsic motivation by introjected regulation

MERE = Extrinsic motivation by external regulation

AMOT = Amotivation.

(blue color bar) = Female

(red color bar) = Male

4. Discussion

In our study, we found an average age of 27.97 ± 1.77 for women and 31.14 ± 5.36 for men with extremes ranging from 26 to 33 years and 25 to 40 years, respectively. Female sex was predominant among residents with 83.33%. Our results are in line with those of B Badre *et al.* among students of the Faculty of Dentistry of Casablanca in which girls represented 76.3% of students [7]. In France, National Observatory on Demography of Health Professions reported that 65% of second-year medical students were women; according to forecasts, women doctor would make up more than half of all practising by 2025 [8]. At the same time, feminization is an international trend in dentistry. McKay JC *et al.* reported that this feminization could result in a reduction in working hours of four to six hours per week and, correspondingly, a reduction in the number of patients treated and, finally, a concentration of dental offices in urban areas since women tend to prefer exercise close to their families [9]. Regarding our context, Tricha L, in an interview stated that the balance of admissions to the Faculty of Dentistry reversed in favour of girls from 1989 when the mode of access to the Faculty of Dentistry was based on the ranking of merit according to the average obtained at the baccalaureate [10]. According to this author, this feminization can be explained in our context by the fact that girls excel more than boys in their secondary education on the one hand

and on the other hand by the weakening of constraints that weighed on girls in the institution school and family, and their emancipation. Residents had at least one family member working in the health field 69.05% of cases. These results are in line with those of Calixte *et al.*, for which parents, based on their own school history and success, play a role model and teach their children the value of education, thus strengthening the child's belief in these studies and consolidating his commitment [11]. In contrast, in Nigeria, a study of 197 dental students in the four accredited dental schools found that only one-third (32.5%) of students chose dentistry as their first choice [12]. Medicine being chosen first for 63.5% of students. Of these, about 50% chose a dental education influenced by the family. This difference can be explained by the fact that there are fewer choices by default with regard to postgraduate studies unlike studies of the second cycle thus confirming the voluntary and assumed character of this career and life orientation. Dentistry studies are among the university programs that require the highest national baccalaureate average to be eligible for the entrance examination [7]. In our study, scientific curiosity was one of the most important reasons for career choices in dentistry (60%). These results are in line with those of several authors who reported that students opt for health studies because they are attracted to the scientific component, want to help and care for others, seek professional benefits such as social status and financial security [13] [14]. Other factors are also involved in the choice of this career: regular working hours, prestige and good opportunity to work abroad. Parental desire was described as a secondary reason for 59.5% of residents. However, for Sophie D *et al.*, existence of a parent who evolves in the health sector promotes the decision and the will to remain in the world in which one grew up [15]. This difference could be explained by the fact that this choice to specialize is made at a rather old age and is much more a personal decision than the orientation of the parents. Having a high income or having the same prestige as relatives in the medical field in the future were described by residents as not at all important, with 30.95% and 50.00%, respectively. Our results differ from those of Khami MR *et al.* who reported that students choose dentistry because they want to be independent, serve and help others, gain social status, financial security and flexible schedules [16]. This difference can be explained by the fact that the choice to specialize is more the pleasure and curiosity to learn more about the profession than financial reasons or social prestige.

The human behavior towards a given activity is largely determined by the desire, involvement and motivation. In university studies, motivation is associated with orientation to a specific field of study, commitment to learning, the discipline required to achieve one's goals, perseverance in the face of difficulties and failures [1]. Many research projects highlight the role of emotions in learning situations and their influence on the activation of cognitive processes. These emotional and motivational factors that may interfere with learning are important to identify and take into account when understanding the teaching-learning process. According to Viau's theoretical model of motivational dynamics it is not a stable phenomenon over time but an evolutionary phenomenon that is determined by the percep-

tion of the task and the context in which the activity is carried out [2]. Thus several factors are likely to influence the motivation of students. In addition to factors relating to the individual's personal life and society, there are also many factors related to the learning environment. To explore these factors that can influence motivation in academia, we used the self-determination theory (TAD) of Deci and Ryan modified by Vallerand *et al.* to design and validate a tool called "University Education Motivation Scale" (EME-U) which had 28 items grouped into seven dimensions corresponding to the seven types of motivation within self-determination continuum [3] [5]. This instrument also allows to stratify these seven dimensions with regard to intrinsic and extrinsic motivations namely: Intrinsic motivation to knowledge (MICO), intrinsic motivation to achievement (MIAC), intrinsic motivation to stimulation (MIST), extrinsic motivation by identified regulation (MEID), extrinsic motivation by introjected regulation (MEIN), extrinsic motivation by external regulation (MERE) and finally amotivation (AMOT) Motivation is intrinsic when the individual voluntarily and spontaneously engages in an activity because of interest and pleasure he finds in performing it, without any external reward. It is considered by many authors as the highest level of self-determination. Extrinsic motivation refers to the practice of an activity performed not because of the pleasure it provides, but for often external reasons or instrumental reasons (e.g. punishment, reward, social pressure, obtaining third party approval). Finally, regarding amotivation, Deci and Ryan define it as lack of motivation. It is the lowest level of self-determination. Learners who demonstrate motivation engage in activities without knowing the reason for their involvement and without knowing what it brings in return. Through this work, we have set ourselves the goal of finding and describing in the postgraduate students of dental studies (resident dentists) the seven dimensions of motivation in order to classify them as intrinsic, extrinsic and amotivation. To do this, we used a Likert scale with five (5) scores as a measuring instrument.

In our work, intrinsic motivation to knowledge was the most important among residents with respectively 4.10 ± 0.76 and 4.14 ± 0.82 in both female and male without any significant difference ($P = 0.912$). For some authors, intrinsic motivation is for a significant part of the teachers; the student well surrounded and well supervised sees this motivation which is peculiar to him at the start sustained and maintained, then becomes more and more autonomous, with the aim of developing a better understanding of the concepts taught, which consolidates its persistence in learning activities and gives it a sense of competence [17]. This autonomy, essential for the acquisition of new knowledge, allows an improvement of the student's perception of his competence, which can be improved if he perceives the link between theoretical and practical knowledge and if he manages to assimilate the relevance of the course in the curriculum and in relation to professional needs [18]. We observed no significant difference between the two sexes regarding the different components of motivation. These results are consistent with those of the study conducted by B Badre *et al.* at the Faculty of Dentistry of Casablanca which found no significant difference between the degree of motivation of girls

compared to boys, with a standardized median score of 55, 0 for girls and 56.7 for boys ($P = 0.908$) [7]. However, our results differ from those of Abdelhamid H *et al.* who found an intrinsic and extrinsic motivation more important in the female sex [4]. This difference could be explained by the small size of our study population. In our study, amotivation had the lowest values with 1.96 ± 0.84 and 1.86 ± 0.76 respectively for both female and male without any significant difference ($P = 0.773$). These results are inadequate with the study of Abdelhamid H *et al.* in which impairment significantly characterized male students. This difference could also be explained by the singularity of our study in terms of the place and the general context of the study on the one hand and by the small size of our study population compared to that of Marrakech.

This study has some limitations, including the small size of the study population (total of 45 residents in all listed at the Faculty of Dentistry in Casablanca). This selection bias could be at the origin of a misestimation of motivation scores among participants. In order to verify in a real way the dimensions of motivation among residents, it would be desirable to extend the study to a much larger population, therefore, more representative of residents during their training course. Further studies with a larger sample therefore remain necessary in order to accurately determine the different types of motivation that animate graduate students in the health field.

5. Conclusion

At the end of this work, we can conclude that scientific curiosity is the main motivational factor for students at the Faculty of Dentistry of Casablanca to undertake postgraduate studies. The desire of resident dentists at the Faculty of Dentistry of Casablanca to continue the deepening of their studies is mainly driven by the intrinsic motivation of its knowledge-regulated component (MICO), followed by extrinsic motivation by identified regulation (MEID). As for the lack of motivation “*amotivation*”, it represented in this study the lowest values of the motivational components. The study of a larger group of postgraduate students during their studies could give us more precise information on the components of motivation as well as its specificities according to gender and the evolution of training.

Conflicts of Interest

The authors declare no conflicts of interest.

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