Representations of the dental surgery profession and the motivations given by secondyear French students for applying for dental surgery
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Abstract

Objective. The aim of the present study was to evaluate the representations odontology students had with regard to the career they enter. Second year students in odontology were questioned about their own motivations and the motivations they attributed to dentists in choosing this profession.

Methods. The students were asked to complete a questionnaire during the first course and again five months later. It was thus possible to study the evolution of the participants’ motivations after five months of interactions with their fellow students and professors.

Results. Whether or not the students could have chosen their career path following the selection exam at the end of the first year of their medical programme constituted an important variable. The students attributed different motivations to dentists depending on whether or not they were able to choose their orientation. In addition, the individual motivations given by the students differed between the two groups. For example, students who were unable to choose their orientation reported that they would have like to work in the public health system, while those who were able to choose said they chose odontology as a vocation. This difference, which evolved during the period between the two questionnaires, highlighted the increasing cohesion of the group.

Conclusions. Beyond the differences between the motivations provided, this study showed that students who had not planned to become dentists before the selection exam needed some time to familiarize themselves with the situation and accept the change in their career plan.
Representations of the dental surgery profession and the motivations given by second-year French students for applying for dental surgery

1 Introduction

In France, the odontology specialization lasts 5 years and is available after one year of general medical studies. At the end of this general year, a selection exam allows students to turn towards dentistry or medicine, each programme being restricted to a certain number of students. The sharing out of students according to their results between the medical and the dental faculties varies each year in a hardly understandable way. Each year, students who have the worst results do not have any choice and have to go where there is place left.

During group discussions about the best way to teach difficult restorative dental techniques to second-year students, we suspected the selection process to disturb the agreement between the representations and motivations of students and teachers, which is essential to establishing an effective training climate (1).

The motivation of students for choosing dentistry as a career has been studied in many countries, as well as the effect of social background, race, gender and country on this choice (2, 3, 4, 5, 6, 7, 8). For example, a recent study showed that motivation depends on race in America: African-American students appeared more motivated to serve the public while White-American students were more motivated to become dentists based on factors related to family commitments (9).

During the course of a curriculum, several studies revealed major changes in professional representations (10). The students’ representation and perception of the dental surgery profession also tend to change. One can observe it on student website (French language; http://www.dentaire.sante.univ-nantes.fr/): [The] few students, who begin the year disappointed, come to see their future with enthusiasm; despite an extremely hard second year” This phenomenon has been studied by researcher and except one (11), all studies
showed that many students’ attitudes and representations evolve during the course of the curriculum (12, 13, 14, 15). For example, Bourrassa (16) showed that representations of odontology students of potentially stressful situations evolved over the years. Skelly and Fleming (17) explored the impression of profession in final year undergraduate students and in potential entrants. Their conclusion was that final year students had a less idealistic view of dentistry: knowledge of the positive aspects of private practice and identification the job stresses. Authors most often correlated these changes in students’ representation with an improvement in technical skills and an increase in practical knowledge.

Odontology faculties as social groups may also influence students representation through integration and differentiation mechanisms (18) (*dentists are a bit like a clan*). Integration into a group is, for individuals, a means of evolving personally, interacting with others, and comparing themselves with people they meet. On the other hand, differentiation is the means by which individuals set themselves apart from the group, by which they are integrated and demand recognition of their uniqueness.

When the incoming students interact with professors and fellow classmates, a social influence acts, so that a group identity exists. Individual perceptions of events and others are largely dependent on the group to which they belong (19, 20). Conformism is the mechanism by which individuals gradually or suddenly modify their behaviour, attitudes, and opinions to bring them into line with what they perceive are the behaviours, attitudes, and opinions of the group they want to integrate. Once the group exists, its members share a social norm which defines positive and negative behaviours, attitudes, and values (20). The mechanisms of social influence allow students, when they enter the faculty, to build their self-image both as students and as future dentists based on the models with which they can identify or conform professionally.
This study examined the specificity and evolution of the student’s representations when they entered the faculty of odontology. The questions addressed by this study are multiple. What representations do the students have of dental surgeons? How do these representations evolve during their studies? Did the students feel comfortable or uncomfortable with the proposed professional model?

The objective of this study was to evaluate the representations of odontology students with respect to the dental profession and dentists at the beginning of their dental curriculum.

2 Materials and Methods

Two questionnaires were designed by the authors. Both were anonymous and were composed of fifty questions about the programme and the expectations, motivations, and opinions of the students as well as about certain educational aspects. The questionnaire used the forced-choice technique. The present article only analyses the answers to three questions regarding the choice as dentistry curriculum and professional motivations (Figure 1).

The first question, related to the choice of odontology as a career plan, allowed to identify two independent groups, that is, students who answered NO (“no choice” NC group) and students who answered YES (“choice” C group).

Questions 2 and 3 explored the motivations for entering the profession in order to obtain subjective representations and the personal point of view of the students regarding dentists and the perceived fit between the norms of dentists and their own.

Students were asked to choose two arguments from ten possible answers. The ten answers were divided into two categories of arguments: (i) appeal of the medical profession, i.e., meticulous manual work, vocation, caring for teeth, entering the public health system, teaching dental hygiene, and (ii) appeal of the social standing of the profession, i.e., money
and standard of living, private practice, peer and family pressure, prestige. The answer length of programme did not correspond to the above arguments and was labelled “other.”

The questionnaires were distributed to students entering the dentistry programme (2001–2002). They answered the fifteen-minute questionnaires individually. The first questionnaire (Q1) was distributed during their first restorative dentistry course in October 2001. The second questionnaire (Q2) was distributed five months later in February 2002. Seventy-five students responded to the two questionnaires.

The results were analyzed by the Chi-square test of the Statistica software platform (StatSoft) with p < 0.05.

3 Results

3.1 Ranking in the selection exam and choice of odontology

For question 1 (Did you choose odontology as your career path?), 41.3% (Q1) and 45.3% (Q2) of the students answered “NO.” Two groups were thus identified in the subsequent statistical analysis, that is, students who answered NO (“no choice” NC group) and students who answered YES (“choice” C group). The answers of five students changed between Q1 and Q2.

3.2 Why do dentists become dentists?

Table 1 shows the frequency of the various answers proposed in question 2 for both questionnaires. Figure 2 is a graph of the results in two categories.

Questionnaire Q1: Groups C and NC differed significantly (Chi²=79.18, p<0.001). While the C group prioritized standard of living, private practice, and meticulous manual work, the NC group replaced meticulous manual work by vocation.
The distribution of the two categories of responses varied between the two groups, with the C group citing more arguments with respect to their interest in health than the NC group (Chi²=6.07, p<0.05).

**Questionnaire Q2:** The responses varied according to the group (C vs. NC, Chi²=83.96, p<0.001). The C group most often cited *standard of living, vocation,* and *private practice* while the NC group most often cited *standard of living, private practice,* and *meticulous manual work.*

The difference between the groups was significant when the categorial responses were taken into consideration (Chi²=6.44, p<0.04). For the NC group, dentists were more motivated by the prestige of their profession, e.g., the appeal of *social standing.*

**Comparison of Q1 and Q2:** For the C group, the differences in responses between Q1 and Q2 were not statistically significant. *Vocation* was, however, cited more often in Q2. Also, there was no difference between the categorial responses for Q1 and Q2. For the NC group, the difference in responses between Q1 and Q2 was statistically significant (Chi²=48.36, p<0.001). The frequency of the *social standing* arguments increased significantly, generating an inversion of the proportion of categorial responses (Chi²=20.1, p<0.001).

In summary, the response to question 2 depended on whether or not the students had been free to choose their career path (groups C and NC). In addition, the responses for Q1 and Q2 were statistically different for the NC group, which was not the case for the C group.

### 3.3 Motivations of students for becoming dentists

Question 3 asked the students about their motivations for choosing odontology (Figure 1). Table 2 presents the frequency with which the various motivations were cited.

**Questionnaire Q1:** The difference between groups C and NC was statistically significant (Chi²=83.63, p<0.001). The C group frequently cited *meticulous manual work,* *private...*
practice, and standard of living. Vocation was in fourth position. The NC group cited private practice, meticulous manual work, entering the public health system, and standard of living. Entering the public health system was only cited by the NC group, while vocation was almost never cited by this group.

**Questionnaire Q2:** The difference between groups C and NC was somewhat attenuated and was no longer statistically significant. The responses of the C group did not change from Q1 to Q2. The closing of the gap between groups C and NC was thus mainly due to changes in the responses of the NC group (Chi$^2=17.56$, p<0.03). In this group, standard of living and length of the programme were cited much more often in Q2 than in Q1.

### 3.4 Motivations of the students and the motivations they attributed to dentists

The responses to questions 2 and 3 provided by groups C and NC were compared. For Q1, the C group gave similar responses to both questions. The difference between the motivations of the students and those they attributed to dentists was not statistically significant. For The NC group, however, the students cited different motivations for themselves than for dentists (Chi$^2=97.66$, p<0.001).

For Q2, the difference between the responses to questions 2 and 3 was statistically significant for the two groups (C: Chi$^2=17.41$, p<0.05; NC: Chi$^2=41.5$, p<0.001). Among the four most commonly cited responses to the two questions, the students attributed the motivations of vocation and standard of living to dentists while they attributed meticulous manual work and entering the public health system to themselves.

### 4 Discussion

In this study, the students were questioned on the motivations that they attributed to dental surgeons, i.e. their perceived motives of practitioners. In a comparable study, Wittemann and
Currier (21) observed that good salary and community reputation where often cited. In this study, whether or not students chose odontology following the first-year selection exam could clearly be linked to distinct representations of the motivations that lead dentists to choose their profession. The students who chose to enter the faculty cited social standing as students did in Witemann and Currier (21) study; but they also mentioned arguments related to medical practice. On the contrary, students who had not chosen odontology often attributed vocation to dentists, that is, an abstract notion of attraction, a general inclination for the profession. Arguments related to social standing were less frequently cited. When compared to their peers, these students thus had an idealized view of the dentists’ motivations, that is, an attraction for dentistry rather than a desire for a better social standing. After five months, the students who had not chosen odontology reversed their representations and were dominated by a very pragmatic and somewhat mercenary view of the motivations of dentists, abandoning the idea of appeal of the medical profession. The difference between the two groups remained significant and suggests that the second-year students did not share a common representation.

The exploration of student motivations to enter the dental curriculum has already been studied (2, 3, 4, 5, 6, 7, 8, 9). Our goal was to search differences between student who chose dentistry and those who did not. Students’ responses differed between the two groups with the first questionnaire. Those who mentioned that they had chosen their career path cited, by a large majority, arguments which fit perfectly with the dental profession and which indicate a good match between motivations and the career path. On the contrary, students who did not choose their orientation mostly checked answers that were non-specific and applied to many medical professions (entering the public health system, private practice). However, the fact that they checked meticulous manual work revealed their willingness to provide motivations that were compatible with odontology. This result indicates that motives for entering the
odontology curriculum depend of the students’ initial decision, as Romberg and collaborators (6) observed with dentist and non-dentist parents or Butter and Winter (9) for race.

Five month after the first questionnaire, the responses of the students of the NC group changed. Modifications of the attitude and representation are frequent during a curriculum. For example, Skelly and Fleming (17) showed that representations of the curriculum and the profession differ between successful applicants for dentists and senior students: applicants considered dental career as a positive contribution to the society, thought learning mathematic is useful and considered manual skills as contributing to a “good dentist”. Witteman and Currier (13) also observed differences among four classes of dental students with regard to their most important motives factor. In this study, changes took place in 5 months and only concerned students who did not chose their path. The mention of social standing arguments increased while those tied to medical practice decreased slightly. These changes induced the disappearance of the difference between the two groups. We think this result indicates that a common norm had developed in the five months between the two questionnaires (20). The effectiveness of the normalization phenomena must be praised because sharing the same representations ensures the long-term cohesion of the group (20, 22) and allowed a student to write the following: “personally, I wanted to be a veterinarian but the idea of dentistry as a vocation came during an internship. I don’t regret anything” (http://www.mediajunior.com/).

One can also note that the majority of the students adopted material motivations between the two questionnaires. The working conditions and social status of dentistry often appear in the reason for choosing dentistry as a career. For instance, Scarbecz and Ross (4) observed that self employment and business related motives were frequently cited. Hallissey and coll. (8) listed perceived ease of employment, being self employed, working regular hours followed by the opportunity of good income and the opportunity to help people, as reasons to enter the dental profession. During the curriculum, Casada and coll. (12) also noticed that
students placed greater value on passing licensure examination and personal satisfaction whereas the faculty (instructors) placed greater value on patient care. Vigild and Schwarz study was the only one to observe altruistic motives in student entering the dental curriculum (7).

Comparing motives given by the students and motives they perceived for practitioners allowed us to determine the concordance between the representations students had of themselves and of the reference group —dentists. Wittemann and Currier (23) already showed that the motive perceived by dental students as important for dentists was “salary” whereas their self-motive was “to learn to develop a full potential”. In this study the motives perceived by dental student for themselves also differed from those they perceived for dentists. In the first questionnaire, the concordance was good for students who had chosen their career path. The dentists were a strong reference group with which the students identified by interiorizing its values and representations (19, 24). The students who indicated that they had been forced to take this career path mentioned, and this is logical, different motivations than what they perceived for practitioners. Vocation was cited more often as a motivation for dentists and non-specific motivations such as entering the public health system for themselves. According to us, these students did not identify with dentists.

After five months, both groups gave different motivations for themselves and for dentists. Students who had chosen their career path made a significant distinction between the motives they gave for themselves and for dentists. This pointed to a differentiation of the students with respect to the “practitioner membership group”. Student may feel they belong to this social group and therefore, could set themselves apart by several nuances (19). Subtle difference could arise from their desire to conserve their uniqueness and freedom with respect to dentists, i.e., the membership group. Students who did not choose their career path gave responses that did not lead to greater concordance between students and dentists. Integration
into the faculty seemed to be difficult for these students and some still had trouble feeling comfortable in the profession and defining the models with which they could identify (19, 25).

5 Conclusions

Second-year students could, for all intents and purposes, be divided into two equal groups depending on whether or not they were free to choose odontology following the selection exam. This phenomenon is of major psychological importance insofar as half the students did not choose their curriculum. As Jouquan (25) noted, the outcome of the exam forced the students to accept, in the event of failure, a change in their career path. On the other hand, it is important to limit the number of student which discovers late that clinical dentistry is not for them.

The goal of our research was to make teaching staff aware that they should not ignore that fact that some of their students do not choose the programme and thus do not have a reliable, stable representation of the profession. Professors must thus, in addition to teaching the technical aspects, explain the profession and bring students to appreciate it (26). This does not have to result in a greater workload but does require being attentive to the task of communicating their own passion for the profession. Defining a goal and setting and attaining objectives make it easier for students to succeed and become dentists. To achieve this, we must ensure that the representations of students and professors match.

Acknowledgments:

We would like to thank Dr. Nicolas Ferrari and Séverine Dubuc for their valuable assistance and the Cercle Européen de Dentisterie Restauratrice et d'Endodontie for its support.
References:
Q1 (October 2001): The purpose of the questionnaire you have just received is to match as closely as possible the second-year practical training courses with your knowledge and expectations. It is totally anonymous and will only be of use to us if you answer the questions as honestly as possible. Thank you for taking a few minutes to answer the questions.

Q2 (March 2002): The purpose of this second questionnaire is to update your impressions of your second-year practical training courses. It is totally anonymous and will only be of use to us if you answer the questions as honestly as possible. Thank you for taking a few minutes to answer the questions.

1. Your choice of odontology
Did you choose odontology as your career path?
- Yes
- No

2. According to you, what are the 2 main motivations of dentists for choosing their profession?
   - a Vocation
   - b Money and standard of living
   - c Private practice
   - d Teach hygiene and disease prevention
   - e Take care of teeth
   - f Prestige
   - g Enter the public health system
   - h Peer and family pressure
   - i Meticulous manual work
   - j Length of programme

3. What are your 2 mains motivations for choosing this profession?
   - a Vocation
   - b Money and standard of living
   - c Private practice
   - d Teach hygiene and disease prevention
   - e Take care of teeth
   - f Prestige
   - g Enter the public health system
   - h Peer and family pressure
   - i Meticulous manual work
   - j Length of programme

Figure 1: Introduction to the two questionnaires distributed to students (Q1 in October 2001 and Q2 in March 2002) and questions that were analyzed for the purposes of this article
Figure 2: Distribution of answers (into three categories) to the question “According to you, what are the two main motivations of dentists for choosing their profession?”

The differences between the C and NC groups with respect to Q1 and Q2 were statistically significant. The difference between Q1 and Q2 was statistically significant for the NC group only.

C for students who chose odontology and NC for students who did not choose odontology

* p<0.05 and ** p<0.001
Table 1: Distribution (%) of answers to question 2 “According to you, what are the two main motivations for dentists in choosing their profession?” as a function of questionnaire (Q1 and Q2) and group (C and NC)

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Questionnaire Q1 October 2001</th>
<th>Questionnaire Q2 March 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NC Group</td>
<td>C Group</td>
</tr>
<tr>
<td>Money and standard of living</td>
<td>22.95</td>
<td>24.39</td>
</tr>
<tr>
<td>Private practice</td>
<td>19.67</td>
<td>26.83</td>
</tr>
<tr>
<td>Vocation</td>
<td>19.67</td>
<td>10.98</td>
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<tr>
<td>Meticulous manual work</td>
<td>14.75</td>
<td>23.17</td>
</tr>
<tr>
<td>Enter the public health system</td>
<td>9.84</td>
<td>1.22</td>
</tr>
<tr>
<td>Take care of teeth</td>
<td>6.56</td>
<td>6.10</td>
</tr>
<tr>
<td>Teach hygiene and prevent disease</td>
<td>4.92</td>
<td>2.44</td>
</tr>
<tr>
<td>Length of programme</td>
<td>1.64</td>
<td>1.22</td>
</tr>
<tr>
<td>Prestige</td>
<td>0</td>
<td>1.22</td>
</tr>
<tr>
<td>Peer and family pressure</td>
<td>0</td>
<td>2.44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100 **</td>
</tr>
</tbody>
</table>

| **Total social standing**               | 42.62     | 54.88   | 57.35     | 47.56   |
| **Total medical practice**              | 55.74     | 43.91   | 35.29     | 47.56   |

C for students who chose odontology and NC for students who did not choose odontology
The difference between the C and NC groups for the two questionnaires was statistically significant.
The difference between the two questionnaires was statistically significant for the NC group only.

** = p<0.01
Table 2: Distribution (%) of answers to question 3: “What are your two main motivations for choosing this profession?”

<table>
<thead>
<tr>
<th></th>
<th>Questionnaire Q1</th>
<th>Questionnaire Q2</th>
</tr>
</thead>
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<td>October 2001</td>
<td>March 2002</td>
</tr>
<tr>
<td>NC Group</td>
<td>C Group</td>
<td>NC Group</td>
</tr>
<tr>
<td>Private practice</td>
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<td>24.42</td>
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<td>Meticulous manual work</td>
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<tr>
<td>Money and standard of living</td>
<td>18.03</td>
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<tr>
<td>Enter the public health system</td>
<td>18.03</td>
<td>3.49</td>
</tr>
<tr>
<td>Teach hygiene and prevent disease</td>
<td>6.56</td>
<td>2.33</td>
</tr>
<tr>
<td>Vocation</td>
<td>3.28</td>
<td>10.47</td>
</tr>
<tr>
<td>Take care of teeth</td>
<td>3.28</td>
<td>4.65</td>
</tr>
<tr>
<td>Prestige</td>
<td>3.28</td>
<td>1.16</td>
</tr>
<tr>
<td>Peer and family pressure</td>
<td>0</td>
<td>1.16</td>
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<tr>
<td>Length of programme</td>
<td>0</td>
<td>2.33</td>
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<tr>
<td>Total</td>
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<td><strong>100</strong></td>
</tr>
<tr>
<td>Total social standing</td>
<td><strong>47.54</strong></td>
<td><strong>47.67</strong></td>
</tr>
<tr>
<td>Total medical practice</td>
<td><strong>52.46</strong></td>
<td><strong>50.01</strong></td>
</tr>
</tbody>
</table>

C for students who chose odontology and NC for students who did not choose odontology

The difference between the C and NC groups was statistically significant for Questionnaire 1 only.

The difference between the two questionnaires was statistically significant for the NC group only.

** : p<0.01