



ORIGINAL ARTICLE

# Factor analysis of a motivation questionnaire adapted to predoctoral French dental students



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## KEYWORDS

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**Abstract** *Background/purpose:* The motivations of dental students for their studies have largely been investigated in numerous countries using psychometric questionnaires. This is not the case in France since validated tools are still lacking. The aim of the present work was dedicated to the psychometric validation of a motivation questionnaire adapted for predoctoral French dental students.

*Material and methods:* The design corresponded to a monocentric study realized at the dental school of Nantes University, France. A 14-item questionnaire was translated into French and adapted for dental studies. It was autoadministered by the students between March 2014 and May 2014. Exploratory and confirmatory factorial analyses were used to investigate the psychometric properties of the French version.

*Results:* The rate of reply was 88.7% with a sex allocation consisting of 44.4% men and 55.6% women. The internal reliability and the item-sampling adequacy of the questionnaire reached acceptance thresholds. Exploratory and confirmatory factorial analyses established a four-factor structure with good internal reliability. The factors consisted in "altruism," "status and incomes," "scientific curiosity," and "educational advantages." Factors correlated well

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with the overall questionnaire. The overall motivation score did not differ between male and female students, although "altruism" was best scored by female students while "status and incomes" obtained a higher score in the population of male students. Both male and female students displayed similar "scientific curiosity" and "educational advantages" scorings.

*Conclusion:* Our data establish that the French motivation questionnaire has good psychometric properties and that it is relevant for further studies.

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## Introduction

Economically developed societies usually question the efficiency of their healthcare system.<sup>1,2</sup> Professionalism is a critical quality that is related to different environmental and personal factors including motivations.<sup>3</sup> Understanding the students' motivations and their career projects has been recognized to improve health formation programs.<sup>4</sup> In many reports, students committed into medicine, nursing, pharmacy, or physiotherapy curriculum are attracted by the high salary and economic security, prestigious social status, and desire to help.<sup>5–8</sup> Previous works have investigated the reasons for choosing dental studies, and have established that students from Asia,<sup>9–11</sup> Europe,<sup>12–18</sup> Middle East,<sup>19–21</sup> North Africa,<sup>22</sup> North and South America,<sup>9,23–25</sup> and Oceania<sup>26</sup> are attracted for economic, professional, vocational, altruistic, and personal reasons.

In France, the practice of dentistry requires being a PhD. French dental formation is provided in 16 dental schools. The selection of predoctoral students occurs during the 1<sup>st</sup> year of study common to medicine, dentistry, pharmacy, midwifery, and physiotherapy. Before 2010, 1<sup>st</sup>-year students were ranked on the basis of their academic results and were asked to choose between medical, dental, and midwifery studies. Jover et al<sup>27</sup> have reported that dental studies did not correspond to a deliberate choice for 41% of the students, although this has been contested for Nantes dental students (Alliot-Licht, unpublished results). Since 2010, the conditions of recruitment for French dental studies have been modified. The selection still occurs after the 1<sup>st</sup> year of health studies. A first ranking is carried out at the end of the first semester, after which up to 15% of the students are discarded. The students continuing on to the second semester register into one curriculum or combine several curricula (i.e., medical and/or dental and/or pharmaceutical and/or midwifery and/or physiotherapy studies). At the end of this second semester, each student undergoes academic tests and is ranked in the different chosen curricula. In 2013, 1200 students among 56,141 were recruited in one of the 16 dental schools of France.<sup>28</sup>

The understanding of the motivations of French dental students is noteworthy lacking. This prevents the improvement of educational strategies in dental studies. In the present work, we aimed to adapt and validate a French questionnaire in order to investigate the motivations of predoctoral students at the dental school of Nantes University, France.

## Material and methods

The present work consists of an observational study. It has received an ethical accreditation from the Université de Nantes legal and ethics committee (reference number ST/BB 14-772).

### Recruitment of the participants and questionnaire administration

Second year to 6<sup>th</sup> year students of Université de Nantes dental school ( $n = 387$ ) were eligible. We contacted dental students by e-mail (3 times), and invited them to answer the electronic version of the questionnaire. The access (between March 2014 and May 2014) to the electronic version was made possible after an electronic validation of an informed consent, in which means and goals of the study were described. Answering the paper version of the questionnaire was also proposed at the end of course sessions to students who did not answer the electronic version (between March 2014 and May 2014). In these conditions, the informed consent was validated on paper. Data were only accessible to researchers and anonymity was ensured.

### French translation of the motivation questionnaire

Socioeconomics and demographic information were collected for all students registered at the Université de Nantes dental school. Furthermore, we asked 2<sup>nd</sup>-year students whether their registration resulted from a 1<sup>st</sup> year curriculum exclusively devoted to dental studies, or to dental/medical, dental/pharmaceutical, and dental/midwifery curricula.

A French version of a motivation questionnaire<sup>29</sup> was elaborated according to the procedure described earlier.<sup>30</sup> The original version of the questionnaire was translated and back-translated by an English speaking team composed of a scientist, a psychologist, two dentists, and a French/English translator. The students were invited to answer the following question concerning each item: "To what extent do you agree with the following proposal?" Scoring was based on a 4-points Likert scale with 0 corresponding to "not at all" and 3 corresponding to "full agreement."

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