

Original Article

Implementation of a Medical Ethics Course in Undergraduate Dental Education and Assessment of Knowledge and Attitudes

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ABSTRACT

Objectives: A medical ethics course was launched in 2012 in a French University Dental School. We compared knowledge and attitudes, before and after implementation of that course. The aim of this study was to compare students who received an ethics course (third year) to those who did not have such training, however, most of them did have some clinical traineeship. **Materials and Methods:** An anonymous questionnaire was sent to the second-, third-, and sixth-year students. It comprised questions with Likert item format answers and clinical vignettes with open responses. The results were analyzed by two approaches: a statistical analysis (chi-square or Fischer exact tests) and a content analysis using a predefined grid. **Results:** A total of 299 respondents replied (75% students) the questionnaire. The analysis showed a statistically significant association between knowledge of the law and information procedures ($P < 0.0001$), access to medical files ($P = 0.004$), and recording consent ($P = 0.049$). It was also significant between knowledge of the law and the principles of biomedical ethics ($P < 0.0001$ for autonomy and beneficence). The third-year students could state the principles of medical ethics with their percentage always greater than the sixth-year students. After the third year, the students' attitudes switched from a social to a medical emphasis, and their point of view regarding patient's autonomy evolved. Patient's refusal of care raised potential conflicts between autonomy, professional judgment, information, and consent. **Conclusion:** Ethics teaching could offer a way to turn positive attitudes into real competencies and should be considered at an early stage.

KEYWORDS: Attitude of health personnel, education dental professional, ethics, informed consent, personal autonomy

INTRODUCTION

Many bodies in charge^[1-3] of training health-care professionals have made recommendations on the need to develop students' awareness of ethics and professionalism in the practitioner-patient relation.^[4-6]

In daily practice, the exercise of health-care professionals, beyond demanding technical and scientific excellence, increasingly requires competence in the values of care, in new modes of decision-making, and in finding ways to resolve complex situations.^[7] Future health-care professionals should consider their role not as imposing a ready-made

response^[8] when problematic situations are met, but as constructing and arbitrating a response with all the people involved.^[9]

A medical ethics course was launched at the dentistry school of a French University elaborate by two teams: the Human and Social Department of Odontology Faculty and the Medical Ethics and Forensic Medicine Laboratory.

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This teaching was developed with an initial hypothesis that student's knowledge in the field of ethics would condition their attitudes with the patient and improve clinical experience.^[10]

With this course, we sought to provide students with a framework for reflection about the meaning of care,^[11] the values^[12] involved, and a guide for decision-making.^[13]

The main objective of this study was to examine the relative part of teaching ethics about attitudes and representations. We had two specific objectives: (1) knowledge assessment and (2) attitude assessment.

MATERIALS AND METHODS

ETHICAL APPROVAL

The Scientific Committee of the Dental School University Paris Descartes was contacted for the ethical approval of the present study and related necessary approval letter (med.ad.unistra.fr_002283) was obtained. The students (18 years old +) answered in an anonymous and on a voluntary through the university e-learning website interface. They were informed of the purpose of the study and their consent was required. There were no participant identifiers or codes to identify or re-identify students, and we did not collect any personal data of the students. There was no sensitive information recorded or collected.

STUDY DESIGN

This presented interventional study was conducted at Dental School, Paris Descartes University, Paris, France.

The study lasted 2 years.

All the second-, third-, and sixth-year students were invited to participate in the study.

The survey was voluntary.

We compared both the students' knowledge and attitudes between those who received the course (G1) with those who did not have the medical ethics course (G2–G3) [Table 1].

Group G1 was exposed to the intervention: medical ethics course, in their second and third years. The two other groups were not exposed to the intervention.

DENTAL SCHOOL CURRICULUM DETAILS

The dental curriculum lasts six years. The first year is a competition year common to the students who want to start medical, dental, or midwifery studies. In the

second year, the dental students only have theoretical and fundamental classes. In the third year, they start observation traineeships. In the fourth, fifth, and sixth year, they have clinical traineeships at the dental clinic (tutored practice).

STUDIED POPULATION

Three student classes (groups G1, G2, and G3) were included in this survey [Table 1].

DESCRIPTION OF THE ETHICS TEACHING

The first year of the course was organized with e-guided reading and theoretical teaching about the Patients' Right Act of March 4, 2002, and elements about biomedical ethics principles proposed by Beauchamp and Childress.^[14]

The second year of the course was organized with tutored teaching session in small groups. The objective of this course was to give practical illustration of the clinical ethics^[15] principles (respect of patients' dignity, consideration of social and physical vulnerability, and decision-making process). The students were suggested to work on virtual clinical situations (clinical vignettes).^[16] The vignettes offered a way to explore participants' intended actions and decision-making and evaluate their ethical awareness.^[17] It helped us to separate intuition drawn from the experience or mere common sense from competence taught in the course. The medical description was not greatly detailed, the aim being to direct the participant toward the components of the carer–patient relation, without eliciting any medical or technical commentary. For each vignette, we focused on how to manage situations when values conflict by using the approach of “analysis by principles” described by Beauchamp and Childress.^[14] All clinical data were reviewed, and alternative care solutions were identified. The ethical repercussions of each solution were determined. Finally, we determined the “fairest” ethical decision in view of all the various constraints.^[18]

Table 1: Ethics teaching in the three groups and time of data collection tool

Survey year	Ethics course	No ethics course	Data collection tool
T1	G1		
T2	G1		End of the year
T2		G2	Beginning of the year
T2		G3	End of the year

T1 = first year of the survey, T2 = second year of the survey, G1 = second-year students at T1 and third- year students at T2, G2 = second-year students at T2, G3 = sixth-year students at T2

Table 2: Description of the clinical vignettes

	Notions addressed in the clinical vignette	Legends of clinical vignette
V1	Beneficence or non-maleficence Reception Treatment for pain Social precariousness	"A patient comes to you who has been in pain for several days and is not relieved by Painkiller. On arrival, he explains to your assistant that he has hardly any money on him, certainly not enough to pay for the consultation. What do you do?"
V2	Autonomy Information Consent Guidance and care pathway	"A patient comes to you regularly, but hates going to see the dentist, and hopes at each yearly checkup that he will not need any care. Unfortunately, this time, a large filling has broken. You know the patient well and you are sure that whatever you say, he will ask you to extract the tooth, even though it can easily be conserved. What do you do?"

DATA COLLECTION TOOL

They were two data collection tools: a "questionnaire" to estimate knowledge (A) and a set of two "vignettes" to explore participants' attitudes (B).

Knowledge assessment

Two variables of interest were defined:

1. Legal framework (information process, consent, and access to medical files)
2. Biomedical ethics principles (principle of autonomy, beneficence, non-maleficence, and justice)

The questions were multiple choice and presented in a five-level Likert items.

Attitudes assessment

The two vignettes (V1 and V2) [Table 2] were built from examples of dental clinical situations, which implied ethics values in relation with patients.^[8,9]

1. V1 concerned a patient presenting as an emergency but unable to pay for the consultation.
2. V2 concerned a patient's request that is not justified medically.

At the end of each vignette, the participant was asked what would have been his decision and to comment on it.

Two variables of interest were defined:

1. The "intended action" corresponded to what the participant "would do" or "would not do." Following four items were selected for V1: unconditional care, care on condition on later payment, refuse to receive the patient, and do not know, and for V2: decision not to extract, decision to extract, postpone the decision, and don not know.
2. The "discourse" was what the participant indicated around the action chosen. Following four items were selected for V1: focus on social aspect, directs patient toward others public health structure, focus on physical, distress, pain, and invokes duty, rights,

and professional conduct, and for V2: information on cost or benefit or risk, principle of patient autonomy, of beneficence, and patient's consent.

The vignettes were tested the previous year to ensure their understanding, the relevance of the situations, and adherence to the exercise.

STATISTICAL ANALYSIS

We conducted two types of analysis:

1. *A descriptive analysis*: The chi-square or Fisher exact tests' statistical analysis methodology was used to compare the answers of the three groups and to estimate association between them. A *P* value below 0.05 was considered statistically significant.
2. *A content analysis of the verbatim of the vignettes*:^[19] The grids were drawn up in advance, based on the variables that we had opted to study in each vignette.

Data were collected directly via the faculty's online platform in the form of Excel spreadsheets. They were analyzed by the Department of Epidemiology, Biostatistics, and Clinical Research of a teaching hospital. Statistical analysis was performed with the STATA software, version 11, for Windows (StataCorp, College Station, Texas).

RESULTS

A total of 299 students participated: 77 second-year, 81 third-year, and 91 sixth-year students (66%, 74%, and 87.5% of their class, respectively).

KNOWLEDGE ASSESSMENT**Legal framework**

Comparison between third-year (G1) and second-year (G2) students: The third- and second-year students had similar answers about the law; they declared more often (60%) that they could state the Patients Right Act than the sixth-year students (G3). The third-year students

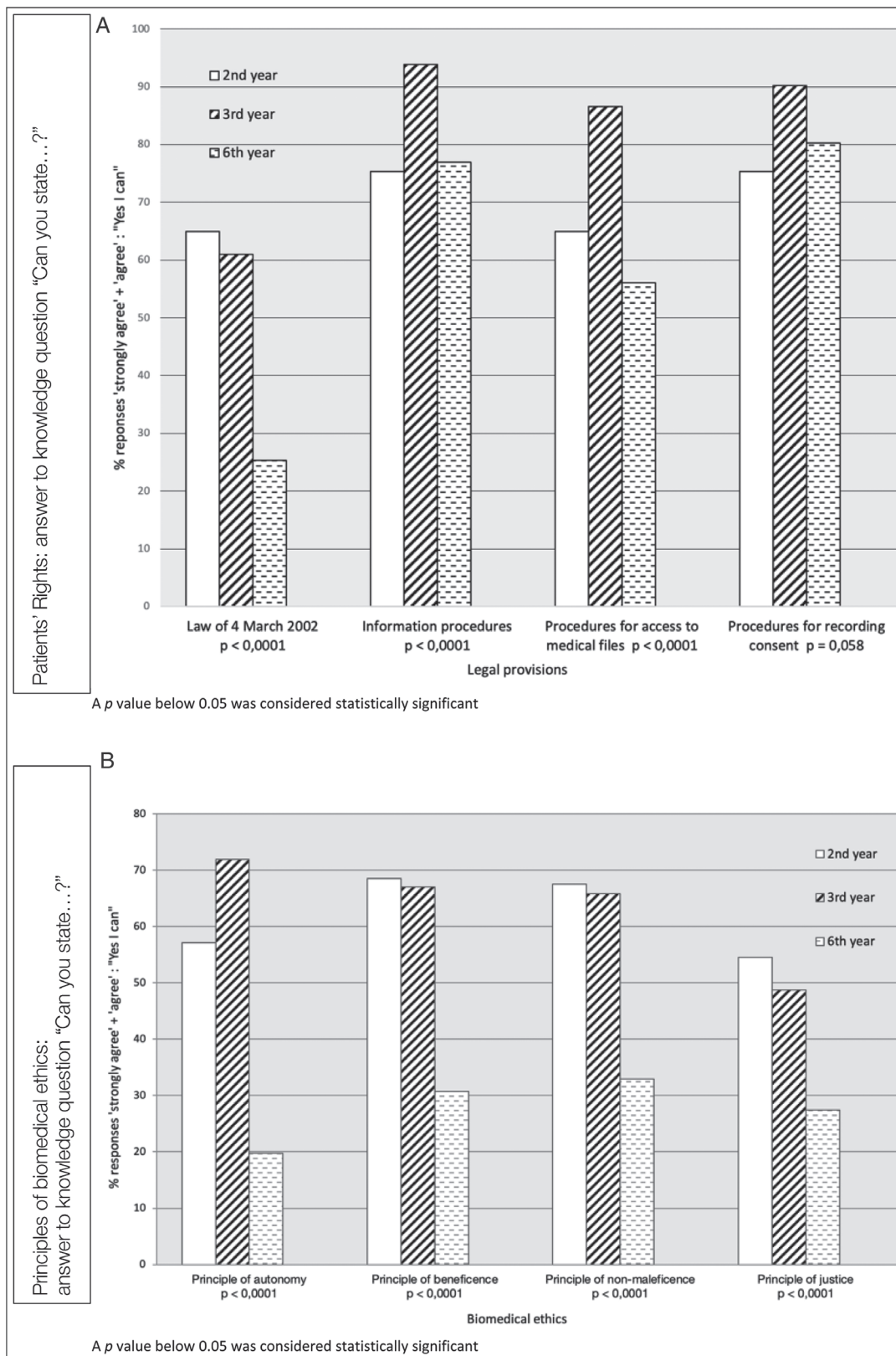


Figure 1: Knowledge assessment. (A) Knowledge assessment of patient rights. (B) Knowledge assessment of principles of biomedical ethics

distinguished themselves from the second-year students for all the procedures: information 94% vs. 75%, access to medical file 87% vs. 75%, and recording consent 90% vs. 75%, respectively.

Comparison between third-year (G1) and sixth-year (G3) students: The third-year students distinguished themselves from the sixth-year students for all the questions: law 61% vs. 25%, procedures 94% vs. 77%, access to medical file 87% vs. 56%, and recording consent 90% vs. 80%, respectively.

The analysis showed a statistically significant association between knowing the law of March 4, 2002 and information procedures ($P < 0.0001$), access to medical files ($P = 0.004$), and recording consent ($P = 0.049$) of the three students' groups [Figure 1]. The persons who were able to state the law were more likely able to state the three procedures.

Biomedical ethics principles

Comparison between third-year (G1) and second-year (G2) students: The third-year students distinguished themselves from the second-year students for the principle of autonomy, 72% vs. 57%, respectively. The third- and second-year students had similar answer for the principle of beneficence and non-maleficence.

Comparison between third-year (G1) and sixth-year (G3) students: The third-year students distinguished themselves from the sixth-year students for all the principles: autonomy 72% vs. 20%, beneficence 67% vs. 31%, non-maleficence 66% vs. 33%, and justice 49% vs. 28%, respectively.

The second- and third-year students could state the four principles of biomedical ethics with percentages always appreciably greater than the sixth-year students.

An analysis of the association between knowledge of the law and ability to state the four principles of biomedical ethics of the three students' groups showed a significant association ($P < 0.0001$ for autonomy, beneficence, and non-maleficence and $P = 0.001$ for justice). The persons who claimed to know the law were more likely to state the principles. The second- and third-year students displayed similar profiles, they both showed a high level of awareness.

If we compare each of the principles independently, we observe that the sixth-year students were those who were most likely to have no opinion on these questions.

ATTITUDES ASSESSMENT

1. The clinical vignette 1 concerned a patient for a visit of emergency but was unable to pay for the consultation [Table 3].

Table 3: Grid of the answers to the clinical vignette 1 and vignette 2

Year group (number of participants)	Clinical vignette 1		
	Second-year students, G2 (N = 77)	Third-year students, G1 (N = 82)	Sixth-year students, G3 (N = 91)
Intended action			
Unconditional care	65%	60%	63%
Care on condition on later payment	23%	24%	24%
Refuse to receive the patient	5%	7%	6%
Do not know	7%	9%	7%
Discourse			
Focus on social aspect	27%	31%	6%
Directs toward other care providers (hospital, health centers, etc.)	10%	26%	38%
Focus on physical, distress, and pain	26%	36%	28%
Invokes duty, rights, and professional conduct	23%	13%	3%
Year group (number of participants)	Clinical vignette 2		
	Second-year students, G2 (N = 77)	Third-year students, G1 (N = 82)	Sixth-year students, G3 (N = 91)
Intended action			
Decision not to extract	14%	39%	55%
Decision to extract	54%	36%	21%
Postpone the decision	12%	15%	23%
Do not know	20%	10%	1%
Discourse			
Information on cost or benefit or risk	84%	96%	80%
Principle of patient autonomy	18%	17%	5.5%
Principle of beneficence	3%	1%	1%
Invokes patient's consent	5%	7%	7%

Table 4: Clinical vignettes: students' statements

Clinical vignette 1	
Themes	Verbatim
Unconditional care	<p>"Our job, as health-care professionals, is to help persons in pain and to relieve their discomfort. I treat this patient without hesitation, gladly even." (3)</p> <p>"First, we must take care of his pain. We practice a humanist and altruistic profession, it is our duty to treat him." (2)</p> <p>"I take him, I treat him free of charge, and no differently from how I would treat somebody who would pay" (6)</p> <p>"After an interview to understand and diagnose why the patient is suffering, I treat him and prescribe the appropriate medications. The consultation is free in consideration to the distress and pain of the patient." (2)</p>
Care on condition	<p>"He either gives me a guarantee that he can pay me later, or he goes and sees another dentist." (6) "I treat him, and ask for a guarantee for a later payment (he gives me his ID card for guarantee during the time he goes to get some money)." (2) "It depends on whether I know him. If I don't know him, then he'll have to find the money somehow, or otherwise produce exceptional empathy." (6) "I try to take into account his needs, but I will not take as much time to take care of him as I would with another patient." (2)</p>
Focus on social aspect	<p>"I first take the time to look at the clinical situation and then suggest a solution so that the pain stops. Then, if he cannot pay for the next consultation, I help him obtain social benefits." (2)</p> <p>"Emergency care to calm the pain, then referral to social assistance structures that can take care of dental care." (6)</p>
Directs patient toward other public health structures	<p>"I ask him what health insurance cover he has. Or I refer him to a hospital emergency service. I explain that treatment doesn't come free, just as he can't just go into a shop and come out with something without paying for it." (6)</p>
Clinical vignette 2	
Themes	Verbatim
Beneficence	<p>"I explain that I can not carry out a dental care that I know not to be the best for him." (6)</p> <p>"I try to convince him. I explain that as a health-care professional, I can tell what needs to be done, and I'm bound by medical duty to do what's best for him, and if he insists he wants the tooth out, and if that's really the wrong solution, then I tell him to go and see another dentist." (2)</p>
Patient autonomy, decision-making, and practitioner status	<p>"I must explain to him the best course of action and try to convince him without any obligation. If the patient maintains his opinion, I am obliged to respect him and to do what he wants." (2)</p> <p>"I describe his dental condition, that his tooth can be kept, that the conservative treatment is less damaging than an extraction, and I assure him that I'll do all I can to make sure he won't feel anything (topical anesthetic, etc.). If he insists, we talk about it and I tell him about the different options. In the end, it's up to him to choose, even if I don't approve his choice." (3)</p>
Care consumer patient	<p>"I try to convince him, if I really can not, I do what the patient asks, after all it's his mouth." (3)</p> <p>"The patient comes to appeal to our skills, he is a 'consumer' so we must bring him what he wants, even if it's not our way of thinking (except if life and death situations). I will therefore bend to the choice of the patient." (3)</p>
Superiority of dentist over patient or paternalism	<p>"We again explain that this tooth can be kept, that it is not necessary to carry out an extraction. We are a doctor, we judge what to do and the patient accepts or will go elsewhere. The patient does not govern our opinion." (6)</p> <p>"I explain again that the tooth can be conserved, and that there's no need to have it out. I'm a dentist and I decide what should be done, and the patient just must accept that or go and see someone else. It's not for the patient to decide for us." (6) "We explain why extracting the tooth would be a big mistake. In any case, the patient can not force us to perform this act. So if he persists, it must be reoriented to another practitioner who, perhaps, will agree to extract this tooth. The practitioner, in this sector, has a certain 'superiority' toward the patient; we must not grant a request if it seems unreasonable." (3)</p>
Postpone the decision	<p>"We precisely explain to him that there are other alternatives and he is given a period of reflection to change his mind." (2)</p> <p>"I calmly explain the situation with the risks and benefits of proposed treatment. I try to answer his questions and try to level the information according to the patient. If we do not agree, I explain that I can not perform an inappropriate medical procedure and I propose another appointment to give us time to think." (3)</p> <p>"I think we need to take time to explain the different solutions available. The advantages and disadvantages of each solution must be explained. It must also be made clear that extraction has aesthetic and functional consequences. It may also be wise to give the patient time to reflect and make a decision. We can offer another appointment and we can suggest that someone, whom he trusts, come with him." (3)</p>

(2) = second-year student, (3) = third-year student, (6) = sixth-year student

In this document table, all references to "him" meant the patient

Decision: For two-thirds of each group, this care was unconditional, and was felt as a professional duty under the moral obligation to receive emergency patients free of charge. Some even declared that they would treat the patient no differently from a patient who paid for [Table 4]. For other participants, it depends on the nature of the link forged between the carer and the patient. Although they agreed to see the patient, they would not spend the same time with him as they would on another patient [Table 4].

Argumentation: About one-third of each group focused on the aspects of physical distress, pain, and discomfort. However, social aspects were mostly addressed by second- and third-year students. Trends in social and medical emphasis crossed from the third year of studies [Figure 2]. After the third year, the students switched from a social to a medical emphasis. The sixth-year students addressed the

patient's social rights and insurance coverage less. The sixth-year students directed the patient more often to other care providers such as hospitals than the second- or third-year students [Table 4].

2. The clinical vignette 2 concerned a patient's request not justified medically [Table 3].

Decision: We observed a gradient about the distribution of responses in the groups: of the 95 participants who said they would comply with the patient's decision (action: extract), most of them were second- and third-year students; of the 124 participants who refused to comply with the patient's decision (action: not extract), most of them were sixth-year students. Trends in the intended action (extract or not) change from the third year of studies [Figure 2].

Argumentation: If we compare third-year students to the others, they distinguished themselves from

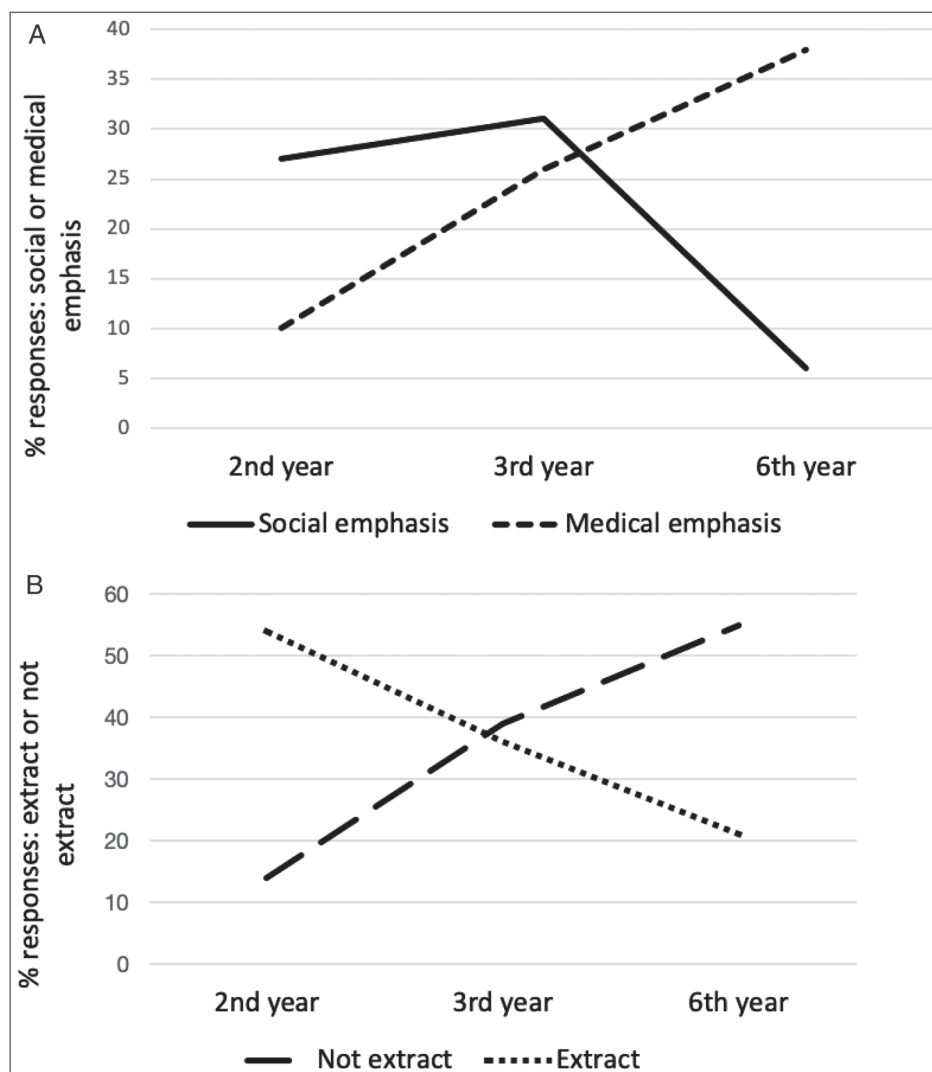


Figure 2: Attitude assessment. (A) Attitude assessment of social or medical emphasis. (B) Attitude assessment of decision taking

the other groups about their proportion to discuss information with the patient (96% vs. 84% for the second-year students, 80% for the sixth-year students). The second- and third-year students more often referred to the principle of autonomy and respect for the patient's wishes (18%) than the sixth-year students. Overall, the theme of consent and the principle of beneficence were seldom cited.

Two types of reaction were observed among the participants: (1) compliance with the patient's decision, even if this means carrying out an unjustified act (extraction) or (2) imposing appropriate treatment for the patient's "good" and refusing the patient's request as being inappropriate to the clinical situation [Table 4].

Some students decided to postpone the decision and we find that the postponing attitude grows with the clinical experience [Table 3].

DISCUSSION

Bringing ethics into the care relation implies reflecting on the purpose^[20] of medical practice, on the underlying reasons for our actions, and on the consequences for others of our choices and our decisions.^[21,22] Our reactions when faced with situations raising ethical dilemmas are probably dictated by our own personal values. However, the choices of some may conflict with the wish of others.^[23] It is therefore essential to agree on a set of basic ethical principles.

In this study, our aim was to analyze the association between knowledge and attitude. We already knew that students' attitudes evolve.^[24,25] The third-year students (G1) had more knowledge than the others about the Patient's Rights (which shows the impact of the teaching) and they knew, like the second-year students (G2), much more than the sixth-year students (G3) about the principle of biomedical ethics. The graph "social or medical emphasis" showed that the curve "social emphasis" reverses after the third year. The graph "planned action: extract or not" showed that the curves intersect at the third year. The third-year students' discourses focused more on the social aspect, on physical distress and pain, and cost or benefit or risk. Their reactions to the clinical vignettes contained more discourse items in support of the patient. These results partially confirm our initial hypothesis that knowledge in the field of ethics could condition student's attitudes with the patient.

- The participants' discourse in vignette 1 clearly shows that the levels of empathy toward others were wide-ranging. The patient in pain is a

vulnerable person with both its integrity and dignity affected. The findings suggest that the further the participants progressed in the curriculum and became professionally more experienced, the less sensitive they were to the social dimension; and the most they seemed to consider that the patient's social issues need not be addressed when providing care.

Answers to the vignette 2 show the difficult experience of students when faced with a patient refusing care. It reveals potential conflicts between the exercise of a patient's autonomy and the professional's judgment and shows how conflicting values can make decision-making difficult.^[26] The situation requires assessing the medical benefit or risk balance of carrying out the better treatment or not, and the beneficence or non-maleficence balance of respecting or challenging the patient's autonomous wish. This vignette brings into play the concepts of patient information and consent not only as legal constraints but also from an ethical standpoint via the concept of autonomy.

- The participants had two types of reaction. Some considered they should give the most appropriate treatment (i.e., not extract the tooth). Their therapeutic option did not consider the patient's request, a position they justified by their professional competence and their wish to provide care in accordance with the state of scientific knowledge. By contrast, some participants considered that it was up to the patient to make the choice, and that they should respect the patient's decision whatever it was (extract the tooth). They justified this position by respect for the patient's autonomy. The principle of autonomy and beneficence could be interpreted and applied widely. The further the participants were from clinical practice, the more likely they were to decide to extract the tooth, invoking respect for the patient's decision. By contrast, the more clinical experience the participants had, the more likely they were to choose the tooth conservation. Even though every participant considered they were acting in the best way for the patient,^[27] the patient's chances were unevenly distributed and depended on the health professional's ability to integrate these concepts into the care relation.

During the dentistry training, it appears that the need to acquire technical competence runs parallel to a diminishing ability to feel concerned by the relational dimension of patient care.^[28] The need to perform and to validate^[29] their clinical training causes the students to concentrate more on their personal objectives rather

than the patient needs.^[30,31] This lowered empathy may also serve as an unconscious protective barrier for the students when they first meet patients but are still inexperienced. Compassion is reported to undergo gradual erosion, whereas successive hospital traineeships slowly give way to cynicism, a certain psychological detachment, and a vision of the patient as an object of study.^[32] According to Martimianakis *et al.*,^[33] most of the determinants of the medical identity are not transmitted by the teaching, but instead by the subtler and less acknowledged influence of a hidden curriculum. "A lot of what the students will interiorize in terms of values, attitudes, beliefs, and behavior that is considered appropriate will come not from the formal curriculum, but from a latent curriculum, based on the force of example." The teaching staff acts fundamentally as a set of role models, with a positive or negative impact on the students.^[34]

For the past three years, the sixth-year students had been dispensing care to patients in dental clinic. Though still not professionally mature, they had already built the foundations of their future practice. About the information procedure, we could have expected different scores among participants in proportion to their respective clinical experience. If the concept of information provision is not well mastered, patient consent can lose some of its validity because it is not supported by full information.^[35] About the principles of biomedical ethics, less than 30% were able to state them. The results also showed that the clinical traineeship is not enough to develop ethical attitude toward the care relationship, which confirms our initial hypothesis.^[36]

Those initial results attest that there will be an interest in further developing this teaching^[37] and focusing even more on the principles of beneficence and consent.

Limitations: This study was considered as a pilot study as we made it right after the first two years of the course. It was important to start the survey before students of different years talked together about this course and before third-year students' started treating patients. The three students' groups were different concerning knowledge and clinical competence, age, and maturity level. However, first-year odontology students come every year, in the same proportions from different universities. They were similar: the distribution by age and gender was comparable as well as their social backgrounds and cultural models. We formed the hypothesis that they would have evolved in a similar way.

It could be valuable to conduct more research, integrating longitudinal study design to follow students' progress.

CONCLUSION

Dental student's professional vision evolved during their training. The students starting their training had a positive attitude to the human dimensions of the care relationship. An academic course could offer a way to turn this "ethics attitude" into real competence. That entails setting out a pathway for the development of ethical thinking. This necessarily implies that the teaching staff should be convinced of the need for such teaching and take on the role of a relay between preclinical academic learning and hands-on experience with the care team.^[38]

Teaching care ethics should reflect the evolution of medical decision-making modes^[39] within a democratic vision of health care.

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Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

AUTHOR CONTRIBUTIONS

Study conception: Annabelle Tenenbaum, Grégoire Moutel, Maryse Wolikow. Data collection: Annabelle Tenenbaum, Maryse Wolikow. Data acquisition and analysis: Annabelle Tenenbaum, Amandine Vial-Dupuy. Data interpretation: Annabelle Tenenbaum, Grégoire Moutel, Maryse Wolikow, Sylvie Azogui-Levy. Manuscript writing: Annabelle Tenenbaum, Grégoire Moutel, Maryse Wolikow, Sylvie Azogui-Levy. All authors approved the final version: Yes.

ETHICAL CONSENT FROM INSTITUTIONAL REVIEW BOARD

The study was approved by the scientific committee of the dental school in Paris Descartes University, Paris, France.

PATIENT DECLARATION OF CONSENT

The students were informed of the purpose of the study. Their consent was required in writing in order to participate to the study.

DATA AVAILABILITY STATEMENT

The data set in the current study is available. Available on request from (Annabelle Tenenbaum, email: annabelle.tenenbaum@univ-paris-diderot.fr)

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