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RESEARCH

Knowledge about medical ethics and conflict resolution during undergraduate courses

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Abstract

This descriptive cross–sectional study aimed to evaluate the medical student's perception of the importance of medical ethics being taught and to measure their knowledge about the subject in a public university in the Northeast of Brazil. Through a questionnaire, applied to 230 undergraduates, it was possible to evaluate deficits caused by the absence of formal medical ethics education and to discuss the need for diversified approaches to the subject during graduation. Results show a higher rate of correct answers among undergraduates who attended at least one discipline on medical ethics; whereas they indicated an unsatisfactory rate of success in both groups. One third of the undergraduates who did not have contact with the subject revealed that they did not feel put at a disadvantaged by this gap, and 25.6% of the sample did not value the importance of the subject in comparison to other undergraduate subjects. Therefore, it is necessary to review medical education strategies to ensure better professionals in the future.
Keywords: Ethics, medical. Curriculum. Education, medical, undergraduate. Knowledge.

Resumo

Conhecimento sobre ética médica e resolução de conflitos na graduação

Estudo quantitativo transversal descritivo que tem o objetivo de avaliar a percepção do graduando em medicina sobre a importância do ensino da ética médica e mensurar seu conhecimento sobre a temática em universidade pública do Nordeste brasileiro. Por meio de questionário aplicado a 230 estudantes foi possível avaliar deficiências provocadas pela ausência do ensino formal da ética médica e discutir a necessidade de abordagens diversificadas do tema durante a graduação. Resultados mostram maior taxa de acertos entre graduandos que cursaram ao menos uma disciplina sobre ética médica, mas índice insatisfatório em ambos os grupos. Um terço dos discentes que não tiveram contato com a temática revelaram não se sentir prejudicados por essa lacuna e 25,6% da amostra sequer valorizou a importância do tema em relação a outras disciplinas da graduação. Assim, torna-se necessário rever as estratégias do ensino médico para garantir melhores profissionais no futuro.
Palavras-chave: Ética médica. Currículo. Educação de graduação em medicina. Conhecimento.

Resumen

Conocimiento sobre ética médica y resolución de conflictos en la carrera de grado

Estudio cuantitativo transversal descriptivo que tiene el objetivo de evaluar la percepción del estudiante de medicina sobre la importancia de la enseñanza de la ética médica y mensurar su conocimiento sobre la temática en una universidad pública del Nordeste brasileño. A través de un cuestionario aplicado a 230 estudiantes fue posible evaluar las deficiencias provocadas por la ausencia de la enseñanza formal de la ética médica y discutir la necesidad de abordajes diversificados del tema durante el grado. Los resultados muestran una mayor tasa de aciertos entre los estudiantes que cursaron al menos una disciplina sobre ética médica, pero un índice insatisfactorio en ambos grupos. Un tercio de los estudiantes que no tuvieron contacto con la temática revelaron no sentirse perjudicados por esa laguna, y el 25.6% de la muestra ni siquiera valora la importancia del tema en relación con otras disciplinas de la carrera. Así, se hace necesario revisar las estrategias de la formación médica para garantizar mejores profesionales en el futuro.
Palabras clave: Ética médica. Curriculum. Educación de pregrado en medicina. Conocimiento.

Declaram não haver conflito de interesse.

In the health area, the professional's ability to solve dilemmas is often challenged, and it is essential to know guiding principles of ethical conduct. Thus, it is necessary to study medical ethics from the beginning of the medical course, advancing during the internship [1-4], medical residency [5] and the practice of profession [6]. Ethics is part of philosophy and constitutes rational knowledge based on three main pillars: the first one involves awareness or perception of conflicts; the second deals with the autonomy and ability of the individual to position himself or herself between reason and emotion; and the third is based on the coherence of the individual [3,7].

The formal teaching of ethics represents a crucial point for health professionals, especially considering the perspective of humanization of their professional training. Despite its significance and the natural interaction between ethics and medicine, as cited in the Hippocratic oath, only recently disciplines related to ethics were included in the curriculum of medical schools [6,8], after the Associação Médica Mundial – AMM (World Medical Association) have considered its teaching to be mandatory in all academic curricula from 2015 [2,7].

Therefore, in this context due to lack of adequate planning, a gap was opened in the teaching of ethics to medical students at the public university of northeastern Brazil in which this research was developed. The curriculum of the course taught at this university was changed in 2017, adding in the first period the discipline Medical Ethics and Communication Skills and transferring the discipline Legal Medicine, Ethics and Medical Assessment from the eighth to the fifth period of the course. Thus, some of the most advanced classes at the time of the alteration had no contact with the theme, nor are they expected to attend academic disciplines linked to ethics. This change may have caused learning deficits for those who did not attend at least one of these academic disciplines.

Thus, the objectives of this article were to evaluate the perception of students about the importance of teaching ethics, as well as measuring their knowledge about the Código de Ética Médica – CEM (Code of Medical Ethics) [9] and their ability to resolve ethical conflicts, comparing the results obtained among those who attended these disciplines with those who did not have the same opportunity, considering the changes in the curriculum.

Materials and method

This is a descriptive cross-sectional study with quantitative methodology. The data were obtained through a questionnaire created by the authors, adapted from other tools validated in the literature and based on the CEM [9-14]. The tool was divided into three sections: the first covered sociodemographic data of the sample; in the second there were 26 theoretical questions about medical ethics; and the third was composed of 15 questions that dealt with ethical dilemmas in clinical cases in the practice of the profession.

Considering the hypothesis that 80% of the population of 390 students who attended one of the academic disciplines had sufficient knowledge about medical ethics, statistical calculations [15] with 95% confidence interval and 5% margin of error showed that the sample of this group required for the study would consist of 152 students. Among the 150 students who had no discipline related to medical ethics the final sample resulted in 73 students, taking into account the same parameters and the hypothesis that 10% of them had good knowledge of the subject.

The questionnaire was then applied in the first half of 2018 to 230 medical students at a public university in northeastern Brazil. The sample was divided into two groups, the first (G1) contemplating students who attended during graduation at least one of the academic disciplines that address the theme of medical ethics, and the second (G2) constituted of those who had no contact with any of those disciplines. G1 is composed of classes of the 2nd, 5th, 6th, 11th, 12th and part of the 10th semester, and G2 consists of the 7th, 8th, 9th and also part of the 10th semester, since only a few students of the latter attended the discipline Legal Medicine, Deontology and Medical Assessment.

The statistical analysis described the data at simple and percentage frequencies, and the associations between variables were evaluated using Pearson's chi-square test. The significance level of 5% (p<0.05) and the R Core Team 2018 software were adopted.

Results

The mean age of the participants was 23.5 years, of which the majority were male (60.3%) and Catholic (40.8%, followed by 28.1% who declared they had no religion). Regarding contact with the theme of medical ethics, 55.2% attended the discipline Legal Medicine, Ethics and Medical examination, 9.1% attended the

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discipline Medical Ethics and Communication Skills, and 35.7% did not attend any of them. 90.4% of the students stated that they did not read the CEM, 18.1% did not know the Hippocratic Oath, 76.5% did not know about the existence of *Nüremberg Code*[16] and 81.9% did not know the *Declaration of Helsinki*[17].

The students were divided into two groups: 147 (63.9%) students who attended the academic discipline Medical Ethics and Communication Skills or Legal Medicine, Ethics and Medical Assessment composed G1; and 83 (36.1%) who did not attend disciplines involving medical ethics composed G2. Of all respondents, 7.9% said that lecturers in other disciplines never cited issues related to medical ethics as something important for professional performance, against 1.3% who said that their lecturers always emphasised this topic. Table 1 compares the results between G1 and G2.

Table 1. Comparison between sample groups on perception and knowledge of medical ethics

	Group 1 n (%)	Group 2 n (%)	p
Have you read the Code of Medical Ethics in full?			
Yes	18 (12,2)	4 (4,8)	0,066
No	129 (87,8)	79 (95,2)	
Do you consider having enough knowledge to deal with ethical dilemmas?			
Yes	35 (24,0)	7 (8,4)	0,003
No	111 (76,0)	76 (91,6)	
Do you consider the absence of medical ethics in the medical curriculum harmful?			
Yes	141 (96,6)	78 (94,0)	0,355
No	5 (3,4)	5 (6,0)	
If you don't have medical ethics as a discipline, how harmed do you feel about it?			
None	2 (3,6)	3 (3,6)	0,576
Little	19 (34,5)	23 (27,7)	
Very much	30 (54,5)	45 (54,2)	
Extremely	4 (7,3)	12 (14,5)	
Do you find medical ethics as important as other medical undergraduate curriculum components?			
Yes	129 (88,4)	61 (74,4)	0,007
No	17 (11,6)	21 (25,6)	
How do you evaluate your level of knowledge in medical ethics?			
Poor	4 (2,7)	30 (36,6)	<0,001
Reasonable	84 (57,1)	39 (47,6)	
Good	57 (38,8)	13 (15,9)	
Very good	2 (1,4)	0 (0,0)	
How important do you consider the medical record in solving ethical dilemmas?			
Very important	144 (98,6)	80 (97,6)	0,555
Not important	0 (0,0)	0 (0,0)	
I don't know	2 (1,4)	2 (2,4)	
What is your university's ethics committee for?			
To promote symposia on medical ethics	0 (0,0)	0 (0,0)	
To oversee animal and human research	47 (32,2)	17 (20,7)	0,017
To ensure the ethical practice of lecturers	7 (4,8)	0 (0,0)	
All previous	75 (51,4)	48 (58,5)	
None of the previous	0 (0,0)	2 (2,4)	
I don't know	17 (11,6)	15 (18,3)	
During the course, outside of ethics-related disciplines, how often has a lecturer cited ethics as important in a medical career?			
Never	14 (9,5)	4 (5,0)	0,183
Sometimes	90 (61,2)	42 (52,5)	
Almost always	41 (27,9)	33 (41,3)	
Always	2 (1,4)	1 (1,3)	

continues...

Tabela 1. Continuation

	Group 1 n (%)	Group 2 n (%)	p
Do you think there is a possibility of denying care to a person in your clinic?			
Yes	120 (81,6)	70 (88,6)	0,341
No	26 (17,7)	9 (11,4)	
I don't know	1 (0,7)	0 (0,0)	
Do you think there is a possibility of denying care to a person in the emergency room of a hospital?			
Yes	28 (19,0)	10 (12,5)	0,207
No	119 (81,0)	70 (87,5)	
I don't know	0 (0,0)	0 (0,0)	
Do you consider the informed consent form essential in clinical and research practice?			
Yes	143 (97,9)	78 (97,5)	0,828
No	3 (2,1)	2 (2,5)	
I don't know	0 (0,0)	0 (0,0)	
What does the Spikes protocol mean?			
Communication skills between physicians and children	0 (0,0)	2 (2,5)	<0,001
Brain death protocol	7 (4,8)	3 (3,8)	
Bad News Protocol	92 (62,6)	14 (17,5)	
I don't know	48 (32,6)	61 (76,3)	
Are you required to give a death certificate to a patient who died at home and who attended the clinic?			
Yes	16 (10,9)	9 (11,3)	0,155
No	103 (70,1)	47 (58,8)	
I don't know	28 (19,0)	24 (30,0)	
Are you required to give a certificate of death of a UBS patient accompanied by you and who passed away at home? UBS – Unidades Básicas de Saúde (Basic Health Unit)			
Yes	58 (39,7)	32 (40,0)	0,076
No	58 (39,7)	22 (27,5)	
I don't know	30 (20,5)	26 (32,5)	
Should health care staff, when confirming brain death, communicate to the family about the possibility of organ donation?			
Yes	112 (77,2)	74 (92,5)	0,001
No	31 (21,4)	3 (3,8)	
I don't know	2 (1,4)	3 (3,8)	
Do you know the Hippocratic oath?			
Yes	128 (87,1)	58 (72,5)	0,006
No	19 (12,9)	22 (27,5)	
Do you know the Nüremberg Code?			
Yes	41 (27,9)	12 (15,2)	0,032
No	106 (72,1)	67 (84,8)	
Do you know the Declaration of Helsinki?			
Yes	34 (23,1)	7 (8,8)	0,007
No	113 (76,9)	73 (91,3)	
How did you get your knowledge of medical ethics?			
During undergraduate education	104 (88,9)	17 (25,4)	<0,001
Reading	3 (2,6)	10 (14,9)	
In lectures, symposiums or seminars	5 (4,3)	4 (6,0)	
Others (internet, newspapers, reports, court cases, etc.)	5 (4,3)	15 (22,4)	
I have no knowledge in medical ethics	0 (0,0)	21 (31,3)	

continues...

Tabela 1. Continuation

	Group 1 n (%)	Group 2 n (%)	p
Does your university have separate committees to review animal and human research projects?			
Yes	54 (36,7)	29 (36,3)	0,570
No	8 (5,4)	2 (2,5)	
I don't know	85 (57,8)	49 (61,3)	
How would you act by witnessing a violation of ethical conduct by your future colleagues?			
I feel obligated to report them to the medical council	37 (26,1)	16 (19,5)	0,002
I would talk to them	95 (66,9)	47 (57,3)	
I'd refuse to take any action	0 (0,0)	0 (0,0)	
I wouldn't know what to do	10 (7,0)	19 (23,2)	
Do you consider theoretical teaching sufficient to learn medical ethics?			
Yes	29 (19,7)	15 (18,5)	0,736
No	117 (79,6)	66 (81,5)	
I don't know	1 (0,7)	0 (0,0)	
How important do you consider the practical learning to build knowledge in medical ethics?			
Not relevant	0 (0,0)	2 (2,4)	0,275
Not very relevant	0 (0,0)	1 (1,2)	
Lightly relevant	10 (6,8)	5 (6,1)	
Moderately relevant	20 (13,7)	13 (15,9)	
Very relevant	73 (50,0)	42 (51,2)	
Extremely relevant	43 (29,5)	19 (23,2)	
Do you consider that the teaching of ethics is sufficient in the basic course or it is insufficient and should be included in the clinical course and during internship?			
It is sufficient, no need to include it in clinical and internship periods	12 (8,2)	9 (11,1)	0,001
It is insufficient and it needs to be included in the clinical and internship periods	118 (80,3)	48 (59,3)	
I don't know	17 (11,6)	24 (29,6)	
What is the maximum tolerance for the professional on duty and waiting for the colleague who will replace him?			
15 minutes	4 (2,7)	2 (2,4)	<0,001
30 minutes	4 (2,7)	3 (3,7)	
60 minutes	2 (1,4)	4 (4,9)	
Do not leave the duty shift	128 (87,1)	47 (57,3)	
I don't know	9 (6,1)	26 (31,7)	

n: absolute frequency; %: percentage frequency in relation to the total answers of each question; Chi-square test. Participants were allowed to answer only questions that made them comfortable, justifying items whose total absolute frequency does not correspond to the number of participants in each sample.

Considering the total, 49% of the answers to the technical questions were correct. The results were divided according to gender, pointing out that women correctly answered on average 51% of the theoretical questions and men were correct approximately 48%. By analysing the groups in isolation, it can be seen that G1 got about 55% of the questions right, while G2 got 39% of them right. In G1 it was also measured the success rate of undergraduates who had attended the course Medical Ethics and Communication Skills (52%) and those who attended Legal Medicine, Deontology and Medical Assessment (59%).

Among the students of the 10th period, the part contained in G1, which had contact with some discipline related to medical ethics, answered correctly an average of 65% of the questions, while in G2, composed of students who did not have this contact, a rate of correct answers of 39% was obtained.

In the second part of the questionnaire, 15 questions related to 11 clinical cases involving ethical conflicts in the daily life of the health professional were addressed (Table 2). Patient's autonomy, physician's autonomy, professional secrecy and conflicts of interest stand out among the various topics addressed.

Table 2. Comparison of ways to address ethical conflicts between sample groups

	Group 1 n (%)	Group 2 n (%)	*p*-value
Scenario 1: Adolescent patient admits suicidal ideations. Should the professional preserve the patient's privacy, respecting the bioethical principle of autonomy, keeping the report confidential?			
Yes	23 (15,6)	10 (12,2)	0,623
No	114 (77,6)	68 (82,9)	
I don't know	10 (6,8)	4 (4,9)	
Scenario 2: According to the Code of Medical Ethics, should the physician amputate a patient member in emergency, even with refusal of family member?			
Yes	50 (34,2)	30 (36,6)	0,032
No	75 (51,4)	30 (36,6)	
I don't know	21 (14,4)	22 (26,8)	
Scenario 3: Conflicts of interest between industry and physicians can be ethically tolerated?			
Yes	8 (5,4)	10 (12,2)	<0,001
No	137 (93,2)	58 (70,7)	
I don't know	2 (1,4)	14 (17,1)	
Scenario 4: A life-threatening Jehovah's Witness patient and the physician does not respect his or her autonomy regarding blood transfusion. Is the physician's behaviour correct and legal?			
Yes	63 (42,9)	36 (43,9)	0,001
No	77 (52,4)	30 (36,6)	
I don't know	7 (4,8)	16 (19,5)	
Scenario 5: Should the physician overlook religious beliefs of the family of a Jeovah Witness minor and perform blood transfusion?			
Yes	81 (55,1)	37 (45,1)	0,013
No	56 (38,1)	29 (35,4)	
I don't know	10 (6,8)	16 (19,5)	
Scenario 6: Physician assisting terminal patient hides information about experimental treatment. Is this physican's conduct ethical and legal?			
Yes	42 (28,6)	27 (32,9)	0,176
No	93 (63,3)	43 (52,4)	
I don't know	12 (8,2)	12 (14,6)	
Scenario 7: Terminally ill patient wishes to die and asks to administer morphine himself or herself, using an infusion pump. In place of this physician, would you fulfill the patient's wish?			
Yes	81 (55,1)	30 (36,6)	0,005
No	47 (32,0)	29 (35,4)	
I don't know	19 (12,9)	23 (28)	
Scenario 8a: Requesting abortion related to rape by the means of the Sistema Único de Saúde (Unified Health System) Should the physician require any legal document attesting the crime to perform the procedure?			
Yes	72 (49,0)	51 (63,0)	<0,001
No	57 (38,8)	11 (13,6)	
I don't know	18 (12,2)	19 (23,5)	
Scenario 8b: As for the legal aspect in scenario 8a, the physician should:			
Call the police immediately, testify, and collaborate with State legal proceedings against the woman	26 (17,7)	22 (27,5)	<0,001
Should not call the police or give any details about the consultation with the patient.	93 (63,3)	24 (30,0)	
I don't know	28 (19,0)	34 (42,5)	

continues...

Tabela 2. Continuation

	Group 1 n (%)	Group 2 n (%)	*p*-value
Scenario 8c: As for the procedure requested in scenario 8a, the physician may:			
Refuse to carry it out, leaving the woman in charge of the next physician, claiming that the procedure goes against his or her religious principles	89 (62,2)	22 (27,5)	<0,001
Perform the procedure, even going against his or her religious precepts, for the good of the patient	31 (21,7)	17 (21,3)	
I don't know	23 (16,1)	41 (51,3)	
Scenario 9a: Insurer wants the physician's testimonial about patient before paying life insurance to the patient's family. The physician is called. How should he or she behave?			
The physician should not provide any details about what happened during the consultation.	42 (29,6)	9 (11,3)	0,001
Must collaborate by telling the truth about the patient's "blackouts" prior to the accident	78 (54,9)	46 (57,5)	
I don't know	22 (15,5)	25 (31,3)	
Scenario 9b: Insurance sues the hospital for access to the medical record, in which the physical reports what happens in the consultation. Should the hospital then provide the medical record?			
The hospital must provide medical record to insurer	6 (4,0)	3 (4,1)	<0,001
The hospital must provide medical record to insurer after court decision	102 (68,0)	55 (74,3)	
The hospital should not provide medical record to insurer	21 (14,0)	10 (13,5)	
I don't know	21 (14,0)	6 (8,1)	0,144
Scenario 10a: Do you think the physician should take into account a facially disfigured patient's request to keep confidential his or her desire for suicide?			
Yes	107 (70,9)	60 (69,8)	
No	17 (11,3)	15 (17,4)	
I don't know	27 (17,9)	11 (12,8)	0,267
Scenario 10b: What else should be considered when deciding about scenario 10a? (choose only one alternative)			
The patient's dignity	10 (5,5)	11 (10,5)	
The patient's human rights	32 (17,7)	22 (21,0)	
The law	3 (1,7)	4 (3,8)	
Meus princípios	66 (36,5)	29 (27,6)	
The risks	3 (1,7)	2 (1,9)	
Other	67 (37,0)	37 (35,2)	0,001
Scenario 11: Patient with indication for tubal ligation procedure. Do you think the physician should ethically ignore the husband's opinion and take into account his or her perception of the indication, along with the patient's desire?			
Yes	71 (92,2)	29 (65,9)	
No	6 (7,8)	15 (34,1)	
I don't know	0 (0,0)	0 (0,0)	

n: absolute frequency; %: percentage frequency in relation to the total answers of each question; Chi-square test. Participants were allowed to answer only questions that made them comfortable, justifying items whose total absolute frequency does not correspond to the number of participants in each sample.

Discussion

Currently, medical curricula are dedicated to the training of technical professionals, neglecting, in most cases, medical ethics and bioethics [7]. These elements are inseparable from the good practice of the profession, because there will always be ethical factors to be considered in decisions associated with the best interests of the patient [8].

At the university studied, the discipline Medical Ethics and Communication Skills was belatedly included as a mandatory academic discipline, aimed at newly entered students in the undergraduate course, while the discipline Legal Medicine, Deontology and Medical Assessment was moved from the eighth to the fifth semester. Due to the change, a gap was created in the curriculum of undergraduates of the 7th, 8th, 9th and 10th semesters that, if not

corrected, can impair the ability of undergraduates to deal with ethical dilemmas in the daily life of the profession. This lapse in medical training is reflected in the growing number of lawsuits against professionals in the Federal Council of Medicine and in Courts of Law [4], which sometimes present decisions contrary to the CEM [9], sometimes show weaknesses and shortcomings of the legal system to respond satisfactorily to new and growing health demands [18].

The teaching of ethics has a dual function. The first contributes to improve and develop the student's bioethical reflection capacity, so that they make faster and more correct decisions when faced with dilemmas and ethical issues. The other aims to train citizens in order to make them aware of the common good and their commitment as professionals [7]. The theoretical knowledge of ethics is put into practice in the daily life of the physician, materialising in real cases that are judged according to principles and values internalised in the person [3,11,19-21].

Theoretical questions section

The technical questions section of the collection instrument of this research compiled students' perception of their ability to resolve conflicts in the light of medical ethics. Surprisingly, only 24% of students who have attended some related discipline consider themselves able to deal with ethical impasses, although paradoxically 95.9% have classified their knowledge of medical ethics as between reasonable and good.

On the other hand, it is not surprising that 91.6% of the undergraduates of the group 2 consider themselves unprepared to solve ethical dilemmas, since they did not attend any discipline that dealt with the subject. Nevertheless, contradictorily, 63.5% of these students consider knowledge of ethics as good or reasonable. Thus, students generally consider it unnecessary to study ethics to apply it in the profession, as well as invest in the subject and instruct themselves on the subject, believing it to be expendable to examine the CEM, laws and resolutions, as if common sense were sufficient. These values differ from that observed by Silverman and collaborators [22], whose article addresses the self-perception of students regarding the ability to resolve ethical issues: 60.8% of their respondents considered themselves able to solve them in clinical practice.

In the article, more than 90% of the interviewees from both groups realised that the absence of medical ethics is harmful to their training. However, despite this response, 31.3% of the students from the group 2 responded that they did not feel harmed at all or just a little by the absence of the theme in the curriculum. Another report reveals that 25.6% of this group did not consider ethics as important as other curricular components. These numbers reflect the deficiency in medical education, although ethics and bioethics are expressly recommended in the curricular guidelines of medical courses [23].

When asked whether, during the course and in unrelated disciplines, lecturers cited ethics as something relevant in the career, almost 10% of respondents indicated that lecturers ignored the theme in G1, and 5% in G2. In this regard, it is worth mentioning the need for a cross-sectional and multidisciplinary approach to ethics in teaching [3], recognised in the literature and ignored by some lecturers. Among the learning methods pointed out by the students, it is noted that the majority of G1 (88.9%) states that they learned medical ethics during undergraduation. The same response was given by 25.4% of G2 students, compared to 31.3% who claim not to know the precepts of medical ethics. Self-teaching is observed [12] as a way to compensate for the traditional education gaps: 14.9% of the latter group read on the subject and 22.4% surveyed the theme on the internet, newspapers, reports and judicial cases.

Regarding professional responsibility, some issues revealed important results. In G1, 26.1% of respondents would report colleagues who acted unethically, against 19.5% in G2. In Silverman's and collaborators study [22], only 22.4% adopted the same stance. It is worth stressing the legal and ethical implications related to patient safety; it is not only about knowledge of the CEM [9], but also of judgment of values and corporatism among colleagues, which sometimes entails less commitment to ethics.

Therefore, the results of the present research corroborate the study of Godbold and Lees [12], which points to more subjective ethical scenarios distorted by the values themselves, neglecting deontology, unlike conflicts in more technical contexts. The Brazilian Code of Medical Ethics (CEM) is explicit when it states in Article 57 on the relationship between physicians, where the professional *is prohibited to stop denouncing acts that contradict ethical postulates to the ethics committee of the institution in which the physical carries out his or her professional work and, if necessary, to the*

Conselho Regional de Medicina (Regional Council of Medicine)[9].

Another issue denoted the lack of knowledge of the respondents about the CEM. Specifically regarding the ethical posture of the professional in clinical practice, 19% of G1 students and 12.5% of the G2 said it was possible to refuse to treat patients in emergency and emergency services. However, CEM's Article 33 prohibits *the professional from failing to attend patients seeking their professional care in cases of urgency and emergency, when there is no other physician or medical service in a position to do so*[9].

It is observed, in another question, that the majority of respondents in G1 (87.1%) acknowledges that leaving the duty shift constitutes serious ethical violation, and the physician is prevented from doing so. However, only 57.3% of G2 students indicated such understanding. As the CEM prays in article 9, both the abandonment on duty shift without the presence of a substitute and non-attendance are ethical infractions[9].

As for the legal documents, there was no marked difference between G1 and G2. Both defined the medical records as very important to solve ethical issues, respectively 98.6% and 97.6% frequency. These data converge with the same high score rate of 89.8% found in the work of Babu, Venkatesh and Sharmila[24]. The percentages of correctness remained high on issues that dealt with the use of the informed consent form: approximately 97% of both groups considered it important in clinical practice and research. Silverman and collaborators[22] showed that 87.8% of the participants in their study felt safe when they obtained a legally valid consent form. Regarding the obligations of issuing death certificate, the students of the two groups of this research indicated that they are not known, in line with the research by Neves Júnior, Araújo and Rego[7], which came to the conclusion that legal documents are one of the least discussed topics in Brazilian colleges.

Regarding the Hippocratic Oath, 12.9% of G1 and 27.5% of G2 responded negatively. This finding surprises, considering that G2 is composed of participants from very advanced stages of the medical course. In another moment, when asked about the *Nüremberg Code*, the theoretical basis of informed consent[25], only 27.9% of G1 and 15.2% of G2 knew it. Finally, few students from both groups (23.1% of G1 and 8.8% of G2) said they knew the *Declaration of Helsinki*, an international document regulating medical research involving human subjects[26]. It is extremely important that this failure in the required curriculum be corrected.

Undergraduates were also asked about the Spikes protocol, used in the communication of bad news. It is considered bad news any information given by the physician, which changes, sometimes in an unavoidable way, the patient's life project[27]. This protocol deals with communicative skills in the relationship between physician and patient, favouring the preparation of the scenario to give the bad news; the perception about the knowledge of the diagnosis or the patient's desire to have more information; the way in which the physician deals with the patient's emotions; and, finally, the establishment of future strategies.

In this context, the difference in knowledge between both groups was evident: G1 correctly defined the Spikes protocol in 62.6% of the questionnaires, while only 17.5% of G2 students indicated the appropriate option. Although most students from the group 1 have answered correctly, this group signals an unsatisfactory rate of formal awareness about bad news compared to Silverman and collaborators[22] study, in which 73.5% of undergraduates felt more comfortable communicating bad news. The low rate of correct answers in G2 points to great ignorance about the Spikes protocol, revealing gaps in the academic formation of this group.

Students were asked whether the teaching of ethics in the basic cycle was sufficient or if it should be supplemented later. Most students who attended any discipline related to medical ethics (80.3%) considered it insufficient and should include the discipline in the clinical period and internship. Thus, it is perceived that these participants value and understand that more in-depth theoretical reflections throughout the course generate more satisfactory results[26]. This way, the character and ethics of the physician are built since entering college and in the course of the entire course[20].

59.3% of the participants in the G2 considered the teaching of ethics insufficient and 29.6% could not evaluate. It is apparent from these results that students who have studied specific subjects value the theme more, feeling that it is necessary to continue studying and learning the subject. Other research shows that many students prefer broader ethics teaching[6,22] and with active methodologies[28-31].

When asked about the role of the University's Research Ethics Committee, few undergraduates were able to answer this question (32.2% of G1 and 20.7% of G2). These results infer that the theme is not even addressed by lecturers from any disciplines during the

development of research projects with students. This scenario is similar to that described in another study with 371 students, in which 89.1% of Midnapore medical college graduates did not even know the existence of the institutional ethics committee [32].

Dilemmas section in clinical cases

In most questions regarding clinical cases, a higher rate of correct answers was found in G1 when compared to G2. The questions on which one could notice this difference dealt with important topics such as patient autonomy. It is shown in the CEM [9] that no procedure can be performed to the detriment of the autonomy of the patient and his/her family, except in cases where the patient is underage or incapable and there is a risk of death.

In the issues that deal with autonomy, including Jehovah's Witnesses, students who have already attended a discipline related to medical ethics have done better. It is likely that the result will be related to debates and lectures held at the university on this subject. Studies indicate that the inclusion of a discipline on ethics in the medical curriculum, in addition to training theoretically professionals to deal with the sick who refuse to receive blood transfusion, provides more security to undergraduates and residents in these cases [22].

The G1 also obtained a higher average of correct answers in cases of conflicts of interest, which affect the physician-patient relationship by allowing the pharmaceutical industry to influence medical practice, promoting interaction or dependence on pharmaceutical medicines and equipment whatever its nature is [9]. Good correct answer rates were also achieved by G1 undergraduates in palliative care scenarios, physician autonomy, abortion and ligation, medical confidentiality and especially in psychiatric issues. In the case involving medical records and its confidentiality, the difference in correct answers between G1 and G2 was less than 2.5%, justified by passive learning of the entire sample in emergency rooms, outpatient clinics, hospitals and even on group talks between professionals and colleagues [2,4,7,28]. However, deficiencies in formal ethics teaching are visible, being insufficient for the learning of a subject so complex [1,2,30,32].

Unexpectedly, in the issues that dealt with suicidal ideation the panorama reversed, with a slightly higher rate of correct answers of G2 (82.9%) compared to G1 (77.6%). It is likely that the knowledge of these participants on the subject was influenced by the public campaigns of the Brazilian Psychiatric Association [33], which even clarified to the public at large the fact that suicide attempts are medical emergency of compulsory notification. The experience with preceptors in the medical services attended throughout the course would be another possible explanation [28,34].

It is noteworthy that even G1 students did not read the CEM in full, as pointed out by 87.8% of the respondents of this group, and it is not surprising that 95.2% of G2 members have not read it either. This justifies part of the gap in learning and the inability to deal with certain ethical conflicts. Thus, even though they studied a formal discipline, the deontological norms were not internalised, since undergraduates did not consider the reading of the CEM as mandatory. The devaluation of disciplines on ethics in relation to others of a technical and procedural nature explains this attitude.

It is essential to seize concepts of medical ethics in training, given their extreme need in the preparation of physicians [5,21,35-38] when establishing ethical conduct in the scientific, technological, biological and health fields [2,7]. However, this research revealed low overall performance of G1, which, when added to the cases of superior performance of G2, shows that the instruction of students, even among those who attended at least one of the two disciplines that address medical ethics, is insufficient to deal with other dilemmas. To reverse this situation, medical ethics should be addressed in more than one moment in graduation, facilitating the clinical application of the concepts learned [1,2,30-32,39]. The university where this research was conducted seeks to correct this flaw with the inclusion of the academic discipline Medical Ethics and Communication Skills.

Currently, there are several methods to address ethics. Due to the plurality and heterogeneity of medical schools, no method should be considered ideal or unique, being natural to have methodological differences between institutions as a result of different pedagogical resources [6,40]. Knowledge of ethics was higher in the classes submitted to the traditional learning method in the university curriculum when compared to classes that did not have access to these disciplines, which evidences the need to study ethics in some compulsory curriculum training [2-4,40].

At the university where this study was conducted, the teaching of ethics is diluted in other curricular components, such as in the discipline Legal Medicine, Deontology and Medical Assessment, in which topics such as traumatology, thanatology, toxicology and medical assessment compete with specific topics of medical ethics. The approach to ethics in conjunction

with other subjects makes some students not properly value it [24], but their autonomic teaching in medical curricula has grown very little in recent years [6,7].

In addition to offering specific discipline on ethics, it is up to universities to approach the topic in a transversal way at other times, and this is another appropriate alternative to teach medical ethics satisfactorily [2,3,5,7]. The medical curriculum should be complemented by round tables, lectures, summer courses and direct experience exchanges among professionals, since the greater the exposure to ethics content, the better the learning and solving of dilemmas. Thus, medical ethics should be included in the student's daily life since his or her university entry, going through all his or her academic education [1-4], encompassing medical residencies [5] and along the professional practice [6].

It is necessary, in addition to longer time of contact with the theme, that diversified methods be used in the learning process. There are several non-traditional teaching resources that can be applied in this case, such as movies, dilemma scenarios, casuistry, stagings, theatre plays, simulations, video conferences, seminars, lectures, workshops and case discussions [1,3,5,29-32,34,38,39,41].

The study of ethics should go beyond the limits of the classroom, emphasising to the student its need in daily life, as well as in the future work environment [4,6]. By breaking through the barriers of traditional teaching, summarised to texts and theories, it can be possible to awaken the attention of previously disinterested students [29]. Expanding the collection on the subject with specialised books and empowering lecturers also significantly improves lecturer qualification and consequently the teaching of ethics [8,30] to train good professionals [2-4,40], since the poorly prepared physician can cause irreparable harm to patients and everyone around [40].

As a limitation of this study, the authors point out that they could have used, in addition to the questionnaire applied, qualitative approach tools, such as in-depth interviews in focus groups. New research is also suggested that point, from the students' point of view, methodological failures of training that cause lack of interest in such a relevant topic.

Final considerations

We concluded that G2 undergraduates performed less than students from the G1 group regarding the ability to solve ethical problems and global knowledge about medical ethics, especially when comparing the rates of students on the 10th semester. Despite the best result of the group, the average correct answers of G1 (55%) was below the desired and therefore insufficient for future professional practice. It is also worth mentioning that eight out of ten G1 undergraduates considered the teaching of medical ethics insufficient only during the basic period.

More than 90% of undergraduates realise that the absence of content on ethics in the curriculum is harmful to professional training, but about a third of students who did not attend specific academic disciplines revealed they did not feel too harmed by this absence. Also, approximately a quarter of this latter group did not value the theme of ethics compared to other curricular components.

It is necessary to immediately employ the research data in the elaboration of strategies aimed at making better use of the theme throughout the course, emphasising the importance of its practical application in ensuring non-maleficence to patients. It is expected that these results will collaborate with the teaching and valorisation of medical ethics in Brazilian universities, detecting possible failures in the training of professionals, who can in the future better care of their patients, respecting rights and others ethical values.

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