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Medical advertising in times of network medicine

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Abstract

This article aims to evaluate doctors' knowledge on medical marketing through a prospective cross-sectional study, using a self-applied questionnaire that included sociodemographic data, knowledge and opinion on the topic. Results show that 60.7% and 67.5% of doctors graduated from private and public institutions, respectively, claimed having no contact with the subject during their undergraduate studies; 62.9% said they had faced difficulties due to lack of knowledge regarding the topic; and 94.5% felt the need to learn more after answering the questionnaire. The participants showed good knowledge, with specific difficulties regarding the dissemination of works, products and population-wide health warnings. In conclusion, undergraduate courses should include the topic in their formal curriculum and elaborate more objective educational measures.

Keywords: Marketing of health services. Ethics, professional. Education, medical.

Resumo

Publicidade médica em tempos de medicina em rede

Este artigo objetiva avaliar o conhecimento de médicos sobre *marketing* de serviços de saúde. Trata-se de estudo prospectivo transversal com formulário autoaplicado que abarcou dados sociodemográficos, conhecimentos acerca da publicidade e opinião sobre o tema. Os resultados apontam que 60,7% e 67,5% dos médicos formados em instituições privadas e públicas, respectivamente, afirmam não ter tido contato com o tema durante a graduação, 62,9% declararam já ter enfrentado dificuldade por falta de conhecimento no assunto, e 94,5% sentiram necessidade de se atualizar depois de responder ao questionário. Os médicos participantes mostraram bom conhecimento, com dificuldades específicas sobre divulgação de títulos, produtos e informações de alerta à população. Conclui-se ser necessário abordar o assunto no currículo formal durante a graduação e elaborar medidas educativas mais objetivas.

Palavras-chave: Marketing de serviços de saúde. Ética profissional. Educação médica.

Resumen

Publicidad médica en tiempos de la medicina en red

Este artículo tiene como objetivo evaluar el conocimiento de los médicos sobre *marketing* de servicios de salud. Se trata de un estudio prospectivo transversal con un formulario autoaplicado que incluyó datos sociodemográficos, conocimientos sobre publicidad y opinión sobre el tema. Los resultados muestran que el 60,7% y el 67,5% de los médicos formados en instituciones privadas y públicas, respectivamente, afirman no haber tenido contacto con el tema durante su carrera; el 62,9% manifiestan que ya han enfrentado dificultades por desconocimiento del asunto; y el 94,5% sienten la necesidad de actualizarse después de responder el cuestionario. Los médicos participantes mostraron buen conocimiento, con dificultades específicas en la difusión de títulos, productos e información para alertar a la población. Se concluye que el currículo formal de la graduación debe abordar el asunto y desarrollar medidas educativas más objetivas.

Palabras clave: Comercialización de los servicios de salud. Ética profesional. Educación médica.

The authors declare no conflict of interest.

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According to article 1 of Resolution 1,974/2011 of the Federal Council of Medicine (CFM) “advertising” or publicity can be understood as *communication to the public (by any means of dissemination) of a professional activity arising from the initiative, participation or consent of the physician*¹. In the universe of medicine, advertising was initially addressed at the 3rd General Assembly of the World Medical Association, in 1949, held in England². Since then, the medical community and society in general have posited how doctors may exercise their right to disseminate knowledge without harming ethical values².

With the development of new means of communication and the expansion of social media, the way in which medical professionals relate to society and promote their work has changed dramatically³. This context has led to the emergence of “Health 2.0,” a type of network medicine characterized by wide access to data on health and by doctor-patient interactions in the virtual environment⁴. Besides radio and television, websites, blogs, e-mails, Facebook, Twitter, Instagram, YouTube and WhatsApp are just some of the instruments doctors use to attract and help patients^{3,5}.

Such change in the doctor-patient relationship has heightened the need to discuss medical advertising, whose inadequate use has been increasing the number of health-related legal processes⁶. According to the law firm Assis Videira, data from the Superior Court of Justice show that between 2000 and 2014 *there was an increase of 1,600% in the number of lawsuits involving doctors*⁷. In the legal field, the term “medical error” refers to healthcare professionals’ civil liability when their professional conduct is irregular and to the patient’s detriment. Such expression may refer to incorrect diagnosis, procedure or care, as well as breach of confidentiality and for-profit practice of medicine⁸.

Professionals who violate the rules guiding professional advertising are legally obliged to repair the civil damage inferred, also suffering the criminal, administrative-disciplinary and ethical-disciplinary sanctions applied by the Regional Council of Medicine (CRM), with appeal to CFM². According to Alves and collaborators, *4.7% of the lawsuits filed at Cremesp [Regional Council of Medicine of the State of São Paulo] refer to illegal medical advertising*⁹.

Considering this panorama, CFM established guidelines to aid medical professionals, complementing, according to Souza and collaborators³, the Code of Medical Ethics. CFM Resolution 1,974/2011¹ establishes criteria and limits for advertising in medicine, categorizing sensationalism and self-promotion and defining the rights of professionals. Its 1st article defines “medical advertising,” “ad” or “publicity” as *communication to the public (by any means of dissemination) of a professional activity arising from the initiative, participation or consent of the physician*¹. Included in this category are prescriptions, medical certificates, declarations, instructional pamphlets, forms, billboards and advertisements printed or aired on the radio, television or Internet, among other materials.

CFM Resolution 1,974/2011 also states in its preamble *that medical advertising must exclusively obey ethical principles of educational guidance, not being comparable to the advertising of products and other purely commercial practices*¹. CFM also determined that each CRM must have a Medical Affairs Disclosure Commission (Codame), whose objective is to guide, oversee and supervise all forms of disclosure related to medicine².

The unrestrained inauguration of new medical schools in Brazil further exacerbates the “medical marketing” controversy, since the fierce market competition amplifies the professional’s eagerness to stand out⁶. In fact, between 2017 and 2018 alone, 45 new medical schools were created in the country¹⁰. Considering this, studies on this topic are important for gaining a better understanding of healthcare professionals’ perspectives on the topic, encouraging greater reflection on ethical advertising in times of network medicine, and for proposing strategies to improve health workers’ training and continuing education.

Thus, the overall objective of this study was to assess doctors’ knowledge on health services marketing. More specifically, we sought to correlate the professionals’ knowledge with their main areas of activity, time since graduation and graduation in a public or private institution; identify the main questions physicians have regarding the topic; assess the need to improve the dissemination of advertising resolutions and guidelines; and inquire about the need to improve education and professional update on the topic.

Materials and method

This is a prospective cross-sectional study to evaluate doctors' perception of professional advertising, its limits and associated responsibilities in the current medical context. We developed a questionnaire (see Appendix) with 26 questions distributed into three blocks: 1) socio-professional aspects; 2) interviewee's professional experience with the topic; 3) knowledge of the rules of medical advertising, with "true," "false" or "I do not know" as possible answers.

Time since graduation was grouped to assess the results according to the answers submitted: less than 2 years, from 2 to 5 years, from 6 to 10 years, and more than 10 years. The 15 questions aimed at evaluating the participant's knowledge were grouped according to their respective topics: social media (questions 1, 2 and 7); general aspects of medical advertising (questions 3, 4, 5 and 13); communication with patients and the community (questions 6 and 15); use of the patient's image (questions 9 and 10); and personal publicity (questions 8, 11, 12 and 14). The last question was aimed at assessing respondents' perception of their need for more knowledge on the topic. Upon questionnaire completion, respondents were offered the possibility of immediately self-assessing their performance using a commented answer sheet, based on the regulations currently in force. The content of the Portuguese-language version of the instrument was previously validated by ten physicians, excluded from the sample, for the analysis of clarity and objectivity of the questions.

The form was published on the internet via Google Forms, and physicians who accepted to participate voluntarily were included in the study. We excluded those who did not accept to participate or failed to fill out the entire questionnaire. Data were collected between April 2 and September 30, 2019, and organized in a Microsoft Excel spreadsheet, being applied numeric codes. The IBM SPSS Statistics v.20.0 program was used for statistical analysis, with descriptive (means) and analytical (chi-square and Fisher's exact test) statistics, considering as significant $p < 0.05$.

Results

Socio-professional aspects

The sample comprised 329 physicians, with a greater participation of women (55%). Participants' average age was 43.1 years, their average time since graduation was 19.1 years, and there was a similar distribution of graduation in public (50.8%) and private (49.2%) institutions. Among medicine's major areas, gynecology and obstetrics (14.9%) were the most frequent specialties, followed by pediatrics (14%), internal medicine (7.3%), general surgery (5.8%), and family and community medicine (3.3%). Resident physicians represented 6.4% of the total, and general practitioners only 4%. The remaining participants (44.4%) were specialists in other areas.

Personal experience with medical advertising

Most participants (60.5%) claimed they had never had specific contact with the topic of "medical advertising" during their undergraduate studies, 33.7% declared that they had had some contact, and 5.8% said that they did not remember. Among those who answered affirmatively, 39.6% reported that their contact with medical advertising had taken place out of their own personal curiosity, 28.8% in class during undergraduate studies, 19.8% when participating in congresses, 9% when participating in courses, and 2.7% said they did not remember. When relating this data to the type of educational institution, we had similar results: 60.7% of those who answered affirmatively studied at private medical schools, and 67.5% in public institutions. When subjecting the participants who answered "I do not remember" to the same analysis, we found no significant difference between doctors from private institutions (13.6%) and doctors trained in public universities (11.6%) ($p = 0.016$).

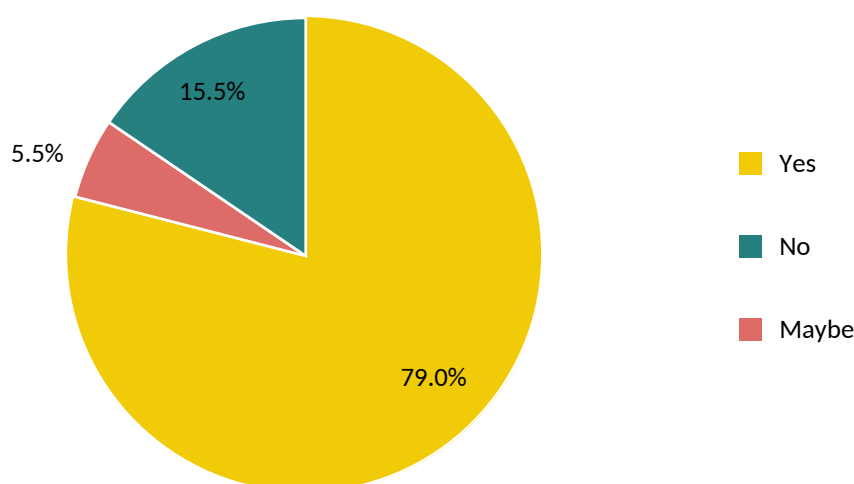
Although 62.9% of the respondents stated that they had previously faced some kind of difficulty due to lack of knowledge on the topic, only 14.9% consulted the Codame at the time. We found a statistically significant correlation between field of work and difficulty caused by lack of knowledge on the topic: most gynecologists/obstetricians (87.8%) said they had already faced some kind of difficulty,

while 61.5% of general practitioners denied having any obstacle ($p=0.007$).

Correlating time since graduation and difficulties regarding the topic showed that 58.6% of the professionals who had graduated two years ago or less claimed to have previously faced problems. The group with training completed between 2 and 5 years ago had the highest prevalence of difficulties (74.1%), while the groups who had completed their course between 5 and 10 years ago and more than 10 years ago showed similar results, indicating issues in 65.4% and 61.5% of cases, respectively. However, this relationship was not statistically significant ($p=0.575$).

Most respondents knew about the continuing education projects offered by Paraná's Regional Council of Medicine (CRM-PR), regardless of area of activity: all specialists in general surgery as well as internists, 91.8% of gynecologists/obstetricians, 90.9% of family and community physicians and 84.6% of general practitioners, 87% of pediatricians, 71.4% of residents and 87% of participants from other specialties. However, in almost all specialties – excepting family and community physicians – the number of negative answers concerning effective participation in any project was greater than the number of positive answers. Finally, Graph 1 shows the proportions of responses regarding the need for obtaining up-to-date knowledge on the topic.

Graph 1. Answers to the instrument's final question (perception of the need to obtain up-to-date knowledge on medical advertising)



General knowledge on medical advertising

The participants could evaluate the instrument's statements by choosing one of three options: "true," "false" or "I do not know." Table 1 presents the results in both absolute numbers and percentages.

Question 1 was answered correctly by most participants (87.5%). Question 2 had the highest number of incorrect answers (72%), while question 3 had the highest number of "I do not know" responses (28.9%). In question 4, 171 (52%) doctors were correct by regarding the statement as true, while 101 (30.7%) were wrong. Almost one fourth of the respondents (19.5%) did not know

how to analyze the statement corresponding to question 5, while 43.8% wrongly evaluated it. In question 6, incorrect answers predominated (43.8%), and questions 7 and 8 had the same error rate (10.6%). Addressing the same theme, questions 9 and 10 were answered correctly by 260 (79%) and 268 (81.5%) participants, respectively. Most respondents (52.3%) answered question 11 wrongly. Question 12 had the highest number of correct answers (96%), while only 1 participant (0.3%) incorrectly answered question 13. Questions 14 and 15 had 255 (77.5%) and 286 (86.9%) correct answers, respectively.

Table 1. Distribution of answers regarding knowledge of the current rules on medical advertising (n=329)

Questions	Did not know n (%)	Right answer n (%)	Wrong answer n (%)
Social media			
1. The doctor is allowed to maintain social media profiles and use them to make general health information available (T)	20 (6.1)	288 (87.5)	21 (6.4)
2. Doctors are allowed to disclose addresses and/or phone numbers on social media (F)	27 (8.2)	65 (19.8)	237 (72.0)
7. Scheduling appointments via email or WhatsApp is prohibited (F)	41 (12.5)	253 (76.9)	35 (10.6)
General aspects of medical advertising			
3. Hiring actors or famous people is permitted while advertising for a clinic, for example, as long as they do not claim to use the clinic or recommend its services (T)	95 (28.9)	148 (45.0)	86 (26.1)
4. The doctor is barred from participating in any advertising activity by healthcare-related companies or products (T)	57 (17.3)	171 (52.0)	101 (30.7)
5. Doctors are prohibited from carrying out advertising campaigns announcing the arrival of new equipment at their clinic (F)	64 (19.5)	121 (36.8)	144 (43.8)
13. The medical advertising manual (Resolution CFM 1.974/2011) has specific criteria to guide publicity and advertising (T)	62 (18.8)	266 (80.9)	1 (0.3)
Communication with patients and community			
6. A doctor has discovered a new epidemic in their area. The doctor is allowed to publicly disclose such a finding to alert the population (F)	52 (15.8)	133 (40.4)	144 (43.8)
15. Doctors are allowed to ensure or insinuate good treatment outcomes, as well as changes in the patient's intellectual, emotional and sexual appearance (F)	22 (6.7)	286 (86.9)	21 (6.4)
Use of patient image			
9. The doctor is allowed to expose the patient's image to publicize a technique, method or treatment outcome, as long as there is clear patient authorization (F)	12 (3.6)	260 (79.0)	57 (17.3)
10. The doctor is allowed to expose the patient's image in scientific works and events when such exposure is essential, but only with authorization by the patient or by the patient's legal representative (T)	10 (3.0)	268 (81.5)	51 (15.5)
Personal advertisement			
8. A nephrologist, for example, working in a region where the population has a low level of education, may announce – if this appears necessary for proper communication – that he is a kidney specialist (T)	48 (14.6)	246 (74.8)	35 (10.6)
11. Doctors are allowed to include other areas of expertise in their advertising materials. Example: "plastic surgeon with a graduate degree in dermatology" (F)	47 (14.3)	110 (33.4)	172 (52.3)
12. Doctors are allowed to announce their specialty and titles (T)	2 (0.6)	316 (96.0)	11 (3.3)
14. If they so desire, doctors may attach their academic curriculum's electronic address to their business cards (T)	62 (18.8)	255 (77.5)	12 (3.6)

T: true; F: false

To analyze the hypothesis of specialization influencing the doctors' knowledge on the topic, we compared practice areas regarding their percentages of correct answers per question. In all areas, question 2 was answered wrongly by most participants, especially general practitioners (92.3%), but this correlation was not statistically significant ($p=0.6$). Question 7 had a high success rate, regardless of specialty, with all residents, internists and general practitioners answering it correctly. The area with the highest error rate (23.1%, $p=0.041$) was general surgery, in considering that scheduling appointments via e-mail or WhatsApp is prohibited.

Answered correctly by most participants across all areas, question 9 had a lower rate of correct answers among general practitioners (53.8%, $p=0.013$), while all general surgeons answered question 10 correctly, presenting a statistically significant finding ($p=0.028$). Question 11 was answered incorrectly by most physicians across all areas; the fact that all general practitioners analyzed the statement incorrectly was statistically significant ($p=0.043$). Most family doctors (63.6%) did not know how to answer question 13 ($p=0.022$). We found no statistical significance when correlating areas of expertise and questions 1, 3 to 6, 8, 12, 14 and 15.

For statistical purposes, we also compared data on time since graduation with the percentage of "I do not know" and correct answers, but the results were not statistically relevant, with $p=0.257$ and $p=0.243$, respectively.

Discussion

For a long time, medical advertising was neglected due to the misconception that marketing is necessarily equivalent to misleading advertising and could not be carried out by healthcare professionals in an ethical manner. Today, with the intense development and expansion of communication and information technologies, professionals have realized that, without seeking ways to publicize their services, they face competitive disadvantage in the globalized world of work. As such, CFM has sought to ensure the quality of the

medical service and the category's honest and dignified conduct, defending ethical values against sensationalism and self-promotion – for instance, the publication of the *Medical Advertising Manual*¹¹.

While still mostly male (54.4% in 2017), the medical population in Brazil has been undergoing a gradual shift towards a more female composition as well as a professional rejuvenation¹². This study reflects these changes, considering the predominant participation of women (55%) and respondents with an average age of 43.1 years, even though the national average is 45.4 years¹². The average time since graduation (19.1 years) made the sample a good representation of the country's medical population, in which, among the 414,831 active professionals in 2017, more than half entered the job market after 2000. The sample was homogeneous as to professionals' origin from public or private institutions.

In 2018, 37.5% of physicians working in Brazil lacked a specialist title, being classified as general practitioners¹². In our study, only 10.4% of the participants had no title, comprising the sum of general practitioners (4%) and residents (6.4%). The distribution of professionals across the five major areas of medicine was representative of national indicators¹². The differences in specialist categories' adherence to this study may be due to issues regarding access to the form and/or interest in the topic.

Social media

A survey conducted by GlobalWebIndex in 2019 found that the time spent on social media around the world has increased by an average of almost 60% in the last seven years. Brazil is the second country in terms of per-capita time spent connected to these services – about 225 minutes per day¹³. The trend towards virtualization of interpersonal relationships also extends to the medical field, in which social media are receiving an increasing number of professional profiles¹⁴. Our study corroborates this observation by highlighting the expressive rates of correct answers regarding this topic, with 87.5% for question 1 and 76.9% for question 7. Moreover,

all general practitioners, internists and residents answered question 7 correctly.

However, question 2 is an exception, presenting a 72% error rate. This finding is explained by the fact that, although CFM Resolution 1,974/2011¹ expressly prohibited doctors from disclosing addresses and telephone numbers on social media, the text was changed by CFM Resolution 2,133/2015, making disclosure in *journalistic reports published on social media*¹⁵ the new object of prohibition, which allows for other interpretations. Considering this modification, the rate of correct answers for this question changes from 19.8% to 72%, making the rate of correct answers consistent with the ones found for other questions in the category¹⁶.

General aspects of medical advertising

Among all questionnaire items (see Annex), question 3 had the highest rate of participants who declared they did not know the answer (28.9%). When comparing this result with other variables, we found that the longer the time since graduation, the lower the occurrence of "I do not know" answers ($p=0.022$). Data from Scheffer¹⁷, who showed that 79.2% of graduates prefer working in a hospital environment, help understand the greater difficulty professionals who graduated less than two years ago had in answering this question, as it addresses advertising in the private network and most newly graduates choose to start their careers in hospitals, which limits the doctor's need to deal with the topic. On the other hand, we observed similar statistics irrespective of having been trained at public or private universities.

For question 4, 52% of the sample answered correctly, 30.7% answered incorrectly, and 17.3% did not know how to answer. The proportion of physicians who claimed to know the answer increased gradually together with time since graduation ($p=0.091$).

Silva¹⁶ refers to the pharmaceutical industry's power over doctors who, often induced by advertisements, take actions contrary to article 10 of the Code of Medical Ethics¹⁸. Thus, one possibility is that graduate professionals are more susceptible to persuasive actions towards promoting healthcare-related companies and products.

Communication with patients and community

Incorrect answers predominated (43.8%) in question 6, regardless of time since graduation. This question addressed the veracity on dissemination of medical information in large-scale media vehicles, which should be conducive to community clarification and education – not personal promotion –, limiting itself to disclosing knowledge that is relevant for public health. In the example given, the epidemic would have to first be confirmed by the Health Surveillance agency, and its disclosure cannot be based on a single doctor's experience¹⁹.

Question 15 addresses promises regarding treatment outcomes. Only 6.4% of the participants answered it incorrectly, and the success rate across almost all specialties was above 90% – except for general practitioners (76.9%). In this sense, it is clear that most participants understand it is forbidden to make promises regarding outcomes or to guarantee treatments. Doctors are expected to clearly and simply provide the patient with information on the benefits and risks of each procedure, considering their civil responsibility, without, however, promising that a certain outcome will be achieved².

Use of patient image

Due to ongoing technological advances, the patient's image is increasingly exposed to the possibility of being captured and reproduced, contradicting ethical criteria²⁰. Question 9 sought to identify whether professionals knew about the prohibition of using patients' images as a way to disclose methods, techniques or outcomes, even when previously authorized; 79% of the respondents showed that they were indeed aware of such prohibition. Question 10 had a slightly higher rate of correct answers (81.5%).

The difference in the number of correct answers can be explained by the fact that question 10 addresses the use of the patient's image in scientific works and events. Caires and collaborators²¹ showed that most health professionals use images of patients in clinical cases and studies, which explains their greater knowledge regarding this topic. The fact that all general surgeons in our study answered question

10 correctly may be related to the more frequent use of the patient's image – as it is commonly needed for surgical planning, documentation of procedures and demonstration of techniques – when compared to family and community physicians, for example (whose rates of correct answer reached 53.8%).

Personal advertisement

Most physicians answered questions 8, 12 and 14 correctly, with emphasis on the percentage of correct answers in question 12 (96%). Doubts arose when answering question 11, however, with 52.3% of incorrect answers. CFM¹¹ prevents doctors from associating academic titles to their specialty when these titles are from different fields, due to the risk of confusing the patient. When analyzing question 11 according to area of activity, all general practitioners answered incorrectly, a statistically significant finding ($p=0.04$). Since these are non-specialized doctors who are not in the habit of advertising titles, their ignorance regarding this specific topic is understandable.

Interviewee's personal experience with the topic

Given the large amount of information that medical students are exposed to during their academic life, it is common for medical advertising – a subject that remains controversial – to be entirely left out of the formal curriculum. Research carried out with medical students showed that only 16.8% of them had already discussed the topic of marketing at some point in college⁶. Our study corroborates these results by showing that 60.5% of the respondents did not study the topic during their undergraduate studies, leaving it up to the elective curriculum and their own personal interests to fill this gap – 39.6% stated that they had contact with the topic out of their own curiosity. This shortcoming appears to be common in both public and private institutions.

The rate of “I do not know” answers was also similar among professionals graduated from public (13.6%) and private (11.6%) medical schools, showing the proximity between these two groups. Such findings highlight the

importance of investing in medical marketing as part of the curriculum, since the pillars of the national curriculum guidelines are healthcare, health education, and health management.

A survey conducted by Cremesp's Codame²² showed that the number of investigations opened due to irregularities in medical advertising increased between 2013 and 2017. These data converge with ours, considering the large percentage of doctors who declared having previously faced some difficulty due to lack of knowledge on the topic (62.9%). According to the Cremesp survey²², the specialties with the most complaints are the “various clinical specialties” (21%), followed by dermatology (20%). Gynecology and obstetrics ranked only sixth, with 6% of complaints²², differing from the data found in this study, in which 87.8% of professionals in this area stated that they had previously faced advertising-related difficulties.

In this study, although most participants (62.9%) had previously faced difficulties due to lack of knowledge about medical advertising, only 14.9% of the sample declared having previously consulted the Codame, whose objective is precisely to assist the doctor regarding this topic. When asked if they knew about CRM-PR's continuing education program, 88.4% of the sample said they knew about the initiative, but only 32.5% have participated in the project.

After filling out the questionnaire, 94.5% of the respondents indicated “yes” or “maybe” in relation to the need to update their knowledge on the topic. This data allows us to infer that, despite the dissemination of programs to assist doctors in medical marketing issues, adherence to these programs is low.

This study was limited by its small sample size, as well as by potential selection and response biases. Nevertheless, the research adds knowledge on a topic that is essential to the ethical exercise of the profession, pointing out the need for the topic to be addressed in the formal curriculum of undergraduate courses, preparing physicians from the beginning of their career to carry out advertising according to ethical precepts. It also indicates the need to encourage continuing education, so this learning can be properly applied in the professional's everyday life.

Final considerations

The physicians showed good knowledge on medical marketing, answering most questions adequately, with no correlation between greater difficulty and specialty or time since graduation. Three questions from different sections of the questionnaire proved challenging for professionals: one about product dissemination in private clinics, one about disclosure of professional titles in advertising materials, and one about disclosing alarming information to the public. The type of higher education institution did not influence their knowledge on the topic, and its absence throughout the course's curriculum was a common feature of both private and public medical schools. This fact elucidates the need to include or extend

contents related to medical advertising in the formal curriculum, preparing professionals to deal with this topic from the beginning of their careers.

Despite their satisfactory performance, 94.5% of the participants declared they felt the need to update themselves on the subject. Considering that a large part of the sample declared having knowledge on programs and advisory bodies, the low adherence to them suggests a need to develop new educational measures, aiming to approach the topic in a more objective way and spark the interest of the medical community. It is essential that the rules regarding medical advertising follow the ongoing technological transformations, which also transform professional relationships, providing doctors with the opportunity to spread their knowledge without the risk of harming any ethical precepts.

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Ana Carolina Fernandes Dall'Stella de Abreu Schmidt, Gabriela Bianca Manfredini, Luara Carneiro de Brito, Marília de Souza Penido and Paulo Henrique Buch collected the data and wrote the article. Kátia Sheylla Malta Purim advised the project, outlined the experiment and revised the text.

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Appendix

Data collection instrument – online form Research title: *Medical marketing from a doctor's perspective*

General data

Gender: ☐ Female ☐ Male

Age: Time since graduation (in years):

Graduated from a: ☐ Public institution ☐ Private institution

Practice area: ☐ General surgery ☐ Internal medicine
☐ Gynecology and obstetrics ☐ Pediatrics ☐ Family and community medicine
☐ General practitioner ☐ Resident ☐ Other specialties

During your training, have you had any contact with the topic of “medical advertising”?

☐ Yes ☐ No ☐ I do not remember

If you answered “yes” to the last question, how did you first come into contact with the topic?

☐ Class during undergraduate course ☐ Course ☐ Congress ☐ Out of personal curiosity
☐ I do not remember

Have you faced any difficulties due to lack of knowledge on the topic?

☐ Yes ☐ No

Have you ever consulted the Medical Affairs Committee of the Regional Council of Medicine about questions regarding medical advertising?

☐ Yes ☐ No

Have you ever participated in the State of Paraná's Regional Council of Medicine's continuing medical education project?

☐ Yes ☐ No ☐ I know of no such program

Questionnaire

1. The doctor is allowed to maintain social media profiles and use them to make general health information available.

☐ True ☐ False ☐ I do not know

2. Doctors are allowed to disclose addresses and/or phone numbers on social media.

☐ True ☐ False ☐ I do not know

3. Hiring actors or famous people is permitted while advertising for a clinic, for example, as long as they do not claim to use the clinic or recommend its services.

☐ True ☐ False ☐ I do not know

4. The doctor is barred from participating in any advertising activity by healthcare-related companies or products.

☐ True ☐ False ☐ I do not know

5. Doctors are prohibited from carrying out advertising campaigns announcing the arrival of new equipment at their clinic.

☐ True ☐ False ☐ I do not know

6. A doctor has discovered a new epidemic in their area. The doctor is allowed to publicly disclose such a finding to alert the population.

() True () False () I do not know

7. Scheduling appointments via email or WhatsApp is prohibited.

() True () False () I do not know

8. A nephrologist, for example, working in a region where the population has a low level of education, may announce – if this appears necessary for proper communication – that he is a kidney specialist.

() True () False () I do not know

9. The doctor is allowed to expose the patient's image as a means to publicize a technique, method or treatment outcome, as long as there is clear patient authorization.

() True () False () I do not know

10. The doctor is allowed to expose the patient's image in scientific works and events when such exposure is essential, but only with authorization by the patient or by the patient's legal representative.

() True () False () I do not know

11. Doctors are allowed to include other areas of expertise in their advertising materials. Example: "plastic surgeon with a graduate degree in dermatology."

() True () False () I do not know

12. Doctors are allowed to announce their specialty and titles.

() True () False () I do not know

13. The medical advertising manual (Resolution CFM 1.974/2011) has specific criteria to guide publicity and advertising.

() True () False () I do not know

14. If they so desire, doctors may attach their academic curriculum's electronic address to their business cards.

() True () False () I do not know

15. Doctors are allowed to ensure or insinuate good treatment outcomes, as well as changes in the patient's intellectual, emotional and sexual appearance.

() True () False () I do not know

16. After answering this questionnaire, do you feel the need to update yourself on the topic?

() True () False () Maybe

Thank you for your participation!