Ciência & Saúde Coletiva
cienciaesaudecoletiva.com.br
ISSN 1413-8123. v.31, n.10
DOI: 10.1590/1413-812320263110.06452025EN

Dentistry taught outside college: spaces, actors and contested ground

Ricardo Ferreira de Paula https://orcid.org/0000-0002-1575-2905 [1]; Enoque Fernandes de Araújo https://orcid.org/0000-0003-3239-1467 [1]; Marcelo de Castro Meneghim https://orcid.org/0000-0003-2673-3627 [1]; Pedro Augusto Thiene Leme https://orcid.org/0000-0003-3894-3189 [1]

Abstract *This study investigated how the ideology of the medical/dental-industrial complex shapes social representations in the dentistry field, driving consumerism and advertising in the dental sector. The data were obtained using semi-structured interviews conducted with 16 dental surgeons working in public and private services and 25 dental students from public and private dental schools and analyzed using the collective subject discourse (CSD) method. We also used field observations at universities, professional associations, conferences and academic seminars, and of social media accompanied by field diary notes. We analyzed the social media accounts mentioned by the interviewees (40 personal, 29 from the educational sector, and 21 of companies in the dental sector) and constructed a CSD with six categories related to the topic. It can be concluded that the medical/dental-industrial complex influences dentists and dentistry students and that social media emerges as an unregulated space for a new dominant actor: the dental surgeon influencer, who uses their popularity on social media to promote consumerism and push the market's agenda, showing indifference to traditional academia and science. The promotion of ethical scientific dissemination is essential. Policies governing the regulation of public health and dental education should address the role played by social media in education.*

Key words *Education, Dental, Social networking, Medicalization, Marketing*

[1] Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas. Av. Limeira 901, Areião. 13414-903 Piracicaba SP Brasil. rfpaula@gmail.com

Introduction

Training of dental surgeons begins with an undergraduate degree in dentistry, during which time students are immersed in academia, an environment structured around mandatory policies and curriculum guidelines[1]. However, these students are also immersed in a specific historical context mediated by online networks, meaning they also begin to interact in a field of dentistry that goes beyond the borders of the university[2], including virtual environments such as social media, which can influence their behavior, opinions and perceptions[3]. Although students already interact in these virtual spaces before entering college, from the moment they become aspiring dentists they begin to engage in specific environments such as the social media of large companies in the sector, training schools and influential professionals.

Empirical observation of these environments suggests that they play a significant role in training and the reproduction of a particular dental culture or *habitus*, with new actors taking over dominant positions in the field previously filled by agents closer to academia and research.

According to the concept introduced by Pierre Bourdieu, a field is a structured space where individuals occupy social positions according to differences in the specific capital they hold. Right of entry to a given field is granted through recognition of its values, rules and history. In other words, dominant agents require aspiring members to possess capital and behave in accordance with the *habitus* of the field, which is like a social microcosm with its own specific values, objects and interests[4].

According to Bourdieu's theory, *habitus* refers to the deeply ingrained set of dispositions that shape how we see the world, feel, act and think. These dispositions emerge unconsciously through the assimilation of social structures and manifest themselves as behaviors that feel natural in specific situations. *Habitus* guides what is regular and predictable behavior in a given social field[4].

Thus, the problematization of the characteristics and *habitus* of graduate dental surgeons should address socialization and the acquisition of knowledge beyond that which is envisaged in curriculums, especially in the current context, in which aspiring dentists can connect with the field of dentistry with just a few clicks.

This study analyzes knowledge acquisition, taste formation and professional preferences in the field of dentistry, considering virtual social networks and other concrete spaces contested by dominant agents in the field. Driven by the medical/dental-industrial complex, the media and dental conferences seek to occupy various spaces, including the academic sphere, making the social representations of those who are active in this field a pertinent research topic[5,6].

This research is warranted by the need to broaden our understanding of the elements of the dental field that shape the *habitus* of dental surgeons during and after education and socialization in undergraduate programs. The objective of this study was to highlight influences that go beyond formal/traditional education and to broaden understanding of the occupation of spaces of domination within the field.

A more in-depth understanding of this situation can provide a basis to inform public policies on professional training, national curriculum guidelines and course education plans. This analysis assumes that the educational process is not neutral but rather permeated by power relations that reproduce inequalities and exclusion, proposing a critical view of the limitations of thinking about curriculum structure that does not address invisible mechanisms of domination in the field.

Methods

This study was approved by the research ethics committees of the universities involved (reference code: CAEE 68298423.3.0000.5418 and 68298423.3.3002.0295). The data were obtained using different methods and combined for the purposes of discussion: I) semi-structured interviews with 16 dental surgeons working in the public and private sector and 25 dental students from two universities (one public and one private). The interviews were analyzed using the collective subject discourse (CSD) method[8]; II) field observation at universities, professional associations, conferences and academic seminars; and III) field observations of social media accompanied by field diary notes.

The interviews were conducted by the lead researcher, a white, male dental surgeon living in the state of São Paulo who has 21 and 10 years' experience, respectively, of working in the private and public sector. During the research project development phase, the lead researcher had meetings with professionals from other areas (psychologists and psychiatrists, researchers

with experience of using the method), who provided guidance and helped the researcher prepare for the interviews.

To ensure the inclusion of a broad range of dental practitioners in the study, representatives from four different niches were sought: public college students; private college students; dental surgeons working exclusively in private practices; and dental surgeons employed in the public sector (including dentists who also work in the private sector). The convenience sample was made up of dentistry students, regardless of gender or race, who had completed at least one semester of study and qualified dental surgeons aged 60 years and under.

Public college students were invited in-person to participate. Those who signed an informed consent form (ICF) were interviewed in a classroom. The private college students were approached by a college professor, who asked them to provide their phone number so that the lead researcher could text them. Those who signed the ICF were interviewed via video call. The college professor was not aware of who participated in the study. The lead researcher did not know the students who participated in the study. The dentists were invited to participate via email. Those who accepted the invitation signed an ICF and scheduled an interview. The participants knew the researcher but did not have a relationship of dependence with him, and other colleagues were unaware of who participated in the interviews.

The participants were interviewed alone by one researcher. Each participant chose whether they wanted to do the interview in-person or via video call, according to their availability. The participants interviewed via video call were asked to do the interview in a private room.

Chart 1 shows how many face-to-face and video call interviews were conducted, the average duration of the interviews in each group and the sociodemographic characteristics of the 41 interviewees (25 students and 16 dental surgeons). Those who did not want to participate in the survey were not counted and were not asked to provide a reason why they did not want to take part. The interviews were recorded (audio only) and none of the interviews were redone. The research was conducted solely for scientific purposes and there were no conflicts of interest. The interviews were conducted using an interview guide consisting of a sociodemographic questionnaire and trigger questions, creating a conversational dynamic focused on the research objectives. The trigger questions are listed in Chart 2.

The beginning of the interview was used to get to know the participants, asking them to explain the main reasons why they chose dentistry and main motivations, likes and dislikes in relation to the field. The interviewer also asked about the interviewee's thoughts in relation to the market in which they worked or wished to work, prompting them to convey their perceptions about the role of the dental complex in their careers, future prospects and investment in knowledge. The questions regarding social media led the conversation in this direction. Knowing which social media accounts the interviewees followed provided an important basis for understanding the teaching of dentistry beyond the borders of the university and the topics addressed by dental conferences, seminars and trade fairs.

During the interviews, the interviewer observed the participants, noting behaviors, expressions, tone of voice, concerns or displays of humor. This information was added to the transcribed texts to help the other researchers analyze the discourses.

The interviews were conducted between May 13, 2023 and November 7, 2023. During the process, data saturation was discussed by the researchers. None of the participants requested the interview transcripts, so no feedback was given. There was no evidence of secondary topics unrelated to the main topic. There was consistency between the collected data and results. The statements in the DSCs were kept anonymous. The study followed the guidelines of the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist[8].

Qualitative research is a method of scientific inquiry that aims to understand the meanings that individuals attribute to concrete phenomena. It extends the focus to the participant's voice, emphasizing their background/education, environments and/or how interviewees manage their experiences[7].

The data from the CSDs were analyzed using a qualitative-quantitative data processing technique[9] grounded in social representation theory[10]. The method regards the object of study (a group opinion) as both a qualitative and quantitative variable. Qualitative because, according to Lefévre & Lefévre (2010)[7], what people have to say should be treated as an unknown, and quantitative because opinions have different measurable degrees of sharing within the studied

Chart 1. Interviewee profile and interview details

Interviewees			**Year of course / Mean age (years)**						**Interview type and mean duration**	
Students	F	M	1st year	2nd year	3rd year	4th year	5th year	Total	P	V
Public	7	3	2 / 20.5	2 / 19	2 / 22.5	2 / 22.5	2 / 22.5	10	10 / 7m35s	0
Private	12	3	3 / 19.6	4 / 24	3 / 23	5 / 26	-	15	0	15 / 10m2s
			Years of experience since graduation / Mean age (years)							
Professionals	F	M		1-10	11-20	21-30				
Public	4	4		2 / 32.5	1 / 35	5 / 47.8		8	3 / 5m42s	5 / 10m25s
Private	3	5		2 / 23.5	3 / 43	3 / 45		8	5 / 8m6s	3 / 7m2s
Total	26	15						41	18 / 7m27s	23 / 9m9s

Convenience sample. F: female, M: male. P: in-person, V: videocall.

Source: Authors.

Chart 2. Interview trigger questions

a)	Tell me who are you. What do you do in the field of dentistry?
b)	Tell me why you chose the dental profession.
c)	What in your opinion is "good" dentistry?
d)	Tell me about the areas you like most and least about your profession (or course).
e)	Have you participated or do you intend to participate in specialization, refresher or hands-on courses?
f)	Tell me about the courses you have done and the ones you would really like to do.
g)	Do you follow famous dentists on social media? Which ones?
h)	Do you follow accounts of dental schools, training centers, courses on social media? Which ones?
i)	Do you follow brands of dental or oral hygiene products on social media? Which ones?
j)	Do you often attend academic conferences? If so why?
k)	Do you attend or have you ever attended a dental trade fair? What do you think of them?

The questions were divided into four groups to obtain data on the interviewee's personal relationship with dentistry; professional aspirations (especially in relation to courses); engagement in social media; participation in dental conferences, academic events and trade fairs.

Source: Authors.

group. CSD is a method for analyzing responses to open-ended questions, ultimately resulting in collective statements made up of different individual statements with a view to producing the directly expressed effect of the collective[10]. Degree of sharing (DS) is a numerical representation of the proportion of the group who share similar ideas (categories). The DS of the categories found in the CSDs is shown in Chart 3. These results were obtained by text mining[10].

The transcriptions, data compilation, and identification of key expressions, central ideas and categories were carried out using Google Docs and Google Sheet. The field diary is a critical tool for effective participant observation, systematically documenting the everyday reality of a population sample[11]. In this study, the field diary was used before, during and after the interview phase so that the interviewer could document his observations in various settings (universities, professional associations, conferences and academic seminars).

The personal social media accounts mentioned in the interviews were cross-checked with the regional dental councils to verify who actually had a degree in dentistry and/or was a specialist in a field of dentistry. A search of the account holder's CV on the Lattes CV Platform was also performed to obtain information on postgraduate studies and work experience as a university professor.

Results

To illustrate the data compiled in the field diary, two excerpts describing an academic event at a university and an international dental congress are outlined below. We then go on to present the data extracted from the interviews.

1. 5/31/2023: Academic event, Piracicaba-SP:

There was a clear division: a trade fair with few exhibitors, where students just passed by and, naturally, demonstrated their curiosity in trying out materials and equipment; and the scientific

Chart 3. Categories and respective degree of sharing

	Categories	Students (%)		Professionals (%)		Total DS (%)
		DS Public	DS	DS Public	DS	
1	People close to me and dentists influenced my decision to study dentistry	100	73.33	75	62.5	78.04
2	I need to constantly update my skills and knowledge	10	26.67	50	100	41.46
3	In public services, I don't need to specialize so much	-	-	62.5*	-	62.5*
4	I interact with a lot of dentistry-related content on social media	80	86.67	50	31.25	73.17
5	The conferences are weak, a lot of marketing	20	6.67	25	62.5	24.39
6	The positive side of conferences and trade shows	100	93.33	50	37.5	75.6

DS: degree of sharing.

Source: Authors.

part, with panel displays and various lectures. In these areas there were more visitors and greater enthusiasm. The event sponsors, companies from the oral hygiene industry, advertised their brands using physical media such as leaflets, and offered lectures designed to promote their products, handing out gifts after the presentations.

2. 1/21/2024: International dental congress, São Paulo-SP:

It was clear from the moment you entered the venue that the focus was on the trade fair, which featured lavish stands, many providing sponsored talks that were highly sought after by conference goers. The companies attracted the conference goers' attention with food, drinks, gifts and even by using the image of famous people. The talks were quick and had a high audience turnover, advertising the sponsors' products and brands. In contrast, the scientific lectures emphasized academic content and were cautious when mentioning brands and products during the presentation.

The study participants were asked which social media accounts they followed, with a total 40 personal accounts being mentioned in five social media platforms. Most participants had accounts in more than one social media platform, and some said they had multiple accounts: of the 38 participants who had Instagram accounts, 30 also used Facebook, 25 YouTube, 22 TikTok and 18 LinkedIn. Only two people did not have an Instagram account, but both used Facebook and LinkedIn. An additional 50 social media accounts were mentioned by the interviewees: 29 university accounts, college or teaching-related accounts, such as courses, professional associations, academic congresses and academic societies; 21 accounts of companies from the dental sector.

All accounts mentioned by the interviewees, and other relevant accounts suggested on the social media platforms used by the interviewees, were visited and "followed" by the lead researcher and screenshots accompanied by comments were added to the field diary notes. While some interviewees reported little use of and limited interest in social media, all said that they followed accounts related to the field of dentistry. Both students and professionals followed the accounts of professors and places where they had studied. Four personal accounts mentioned by the interviewees had more than one million followers, ten had more than 100,000 followers and 26 had fewer than 100,000 followers.

Figure 1 shows a word cloud of the personal accounts mentioned. The larger the font size, the more the accounts were mentioned in the interviews. This count was performed immediately after the interview transcripts were completed.

Graph 1 shows the qualifications (Master's, Doctorate and above and university links) of the account holders based on information extracted from the Lattes Platform and regional dental council websites (degree in dentistry and specialties).

Of the ten accounts holders with only an undergraduate degree, none reported being a university professor, even though six offered online courses. Six accounts belonged to specialists, one of whom was a university professor, while two account holders offered online courses. Of the nine account holders with a Master's degree, five were university professors and six offered

online courses. Finally, of the 15 account holders with a PhD, 11 were also university professors and six offered online courses.

A total of 29 different accounts belonging to educational institutions, professional associations and faculty assessment groups were mentioned, with 34 interviewees citing the places where they study or had studied. Twenty-one interviewees mentioned Brazil's largest dental conference, 14 mentioned professional associations and six mentioned other educational institutions. Of the companies mentioned, 24 were companies in the oral hygiene sector, 12 dental product brands, 10 dental product stores, five dental instrument brands and four dental equipment brands.

The CSD categories are outlined below together with some observations from the field diary for illustrative purposes, demonstrating the combination of methods used by the researcher to gain an in-depth understanding. Box 3 shows the DS for each category.

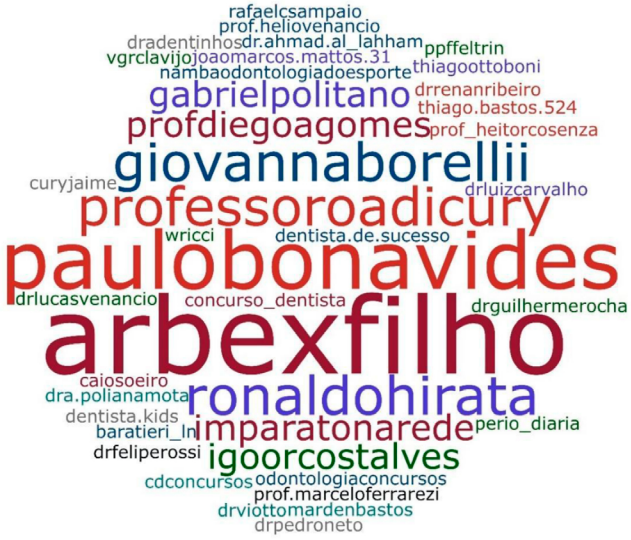
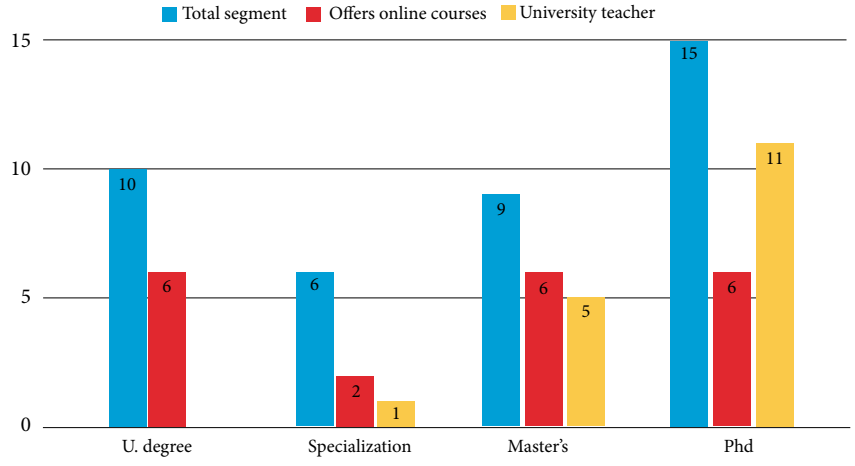


Figure 1. Word cloud showing the personal profiles mentioned.

Source: Authors.

Category 1 – People close to me and dentists influenced my decision to study dentistry

CSD: *I was influenced by friends and family, who said to me, "Why don't you give it a try? Dentistry is a really good area." And I remember having a dentist when I was a kid who I thought was amazing because of how caring she was when she treated me. I want to provide the same care to my patients and make a difference. It's a field that I identify with a lot, and I love what I do. When I finished high school, I started watching a load of videos on YouTube and Instagram and fell in love*



Graphic 1. Academic qualifications of the individuals behind the identified profiles, based on data from the Lattes Platform.

Note: The figures represent the total number of individuals surveyed in each stratum.

Source: Authors.

with it. I started following dentists, and I think social media influenced me even more.

Field diary:

6/30/2024: Screenshot of an influencer showing a message received from a follower saying: "*You inspired my daughter to study dentistry, she is finishing her first year.*"

Category 2 – I need to constantly update my skills and knowledge

CSD: *We always have to keep up to date with things, have a wider range of options. I see a lot of course adverts, and they interest me a lot, even some online courses. I've done advanced training courses in several areas. I like to do shorter hands-on courses, and I would like to take others in areas that were lacking in my undergraduate program. At the beginning of my career, like every recent graduate, I thought I had to take courses in everything. I took several, you can't stop, can you?*

Field diary:

1/9/2023: Screenshot of the influencer showing a photo of himself on stage holding a microphone with the *words "The show is about to begin*" and telling viewers that they can receive step-by-step instructions on how to deal with child patients.

Category 3 - In public services, I don't need to specialize so much

CSD: *Public services are different, a different career path, that is, helping the population that most needs [dental care]. The pathways [I took] in the city council led me to the areas where I practice most. I have advanced training courses, refreshment courses, and I know what I need for my everyday practice. My intention in taking a new course would be to improve my technical skills for what I do outside here. Private practice is another focus.*

Field diary:

1/26/2024: screenshot showing the professional expressing outrage and writing, *"those who attend the congress are not concerned with those who work in the SUS (...) only those who have money attend."*

Category 4 – I interact with a lot of dentistry-related content on social media

CSD: *I follow my teachers, some famous dentists, and accounts promoting dentistry in general. I like to watch them working. Sometimes I watch a procedure performed with a material that interests me to see if they give any tips. I also follow my college and other institutions that offer courses. And brands of instruments, dental and oral hygiene companies. I've done online product consultations, and they send me samples, provide assistance in the clinic, tips, and send me information by email. Ads pop up and I see a lot of stuff without following [a particular account].*

Field diary:

12/16/2023: screenshot showing a student, his university's logo and a comment saying he will become a "future professional" ambassador for a brand of oral hygiene products.

Category 5 – The conferences are weak, a lot of marketing

CSD: *You have to filter what appears on the market. They come up with revolutionary products, but I get a bit lost. I tend to be a bit suspicious of products that are very different. The conferences are very weak, and the courses are brief and superficial. Lately, the largest stands focus on harmonization, and you can see that "dentistry itself" has been sidelined. I don't see any advantage in the prices at the fair. These days, you receive information in different ways, and when it gets there [to the fairs], it's no longer new. There's a lot of marketing; they try to push you to buy things, and in the end you realize it's just to sell products. Trade fairs used to be much better! There are queues to get in, queues for the lectures. It's discouraging.*

Field diary:

1/24/2024: screenshot of the professional showing a queue of people waiting for gifts and commenting on the "atmosphere" of the conference.

1/27/2023:

I attended a 30-minute lecture on botulinum toxin. It was a dense subject that requires more time. I was given a stress ball, pen and bag to advertise the brand.

1/27/2024:

The company's orofacial harmonization stand is one of the largest at the conference.

Had to queue for more than half an hour to attend a lecture and receive gifts from the oral hygiene company.

Category 6 - The positive side of conferences and trade shows

CSD: *I've learned about areas I didn't know anything about, broadening my view of dentistry. At trade shows you can ask questions about ma-*

terials, hold them and try out equipment. Before the lectures, you can pick up samples, brochures and raffle tickets. There are a lot products that have nothing to do with our reality and you have the opportunity to meet leading professionals that we follow. The market drives research and companies to do better things. Conferences are a very reliable way of gathering information about new research and different techniques.

Field diary:

1/27/2024:

I attended an hour-long paid lecture. The professor emphasizes that he is not sponsored. He demonstrates his commitment to science and criticizes the "worship of biomimicry gurus."

27/01/2024:

I found the dental mannequin company mentioned by some interviewees. People handle the products, and they can be purchased.

Discussion

Academia is certainly not the only field that influences the professional training of dental surgeons[2,3]. Tesser *et al.*[5] report that the media and dental conferences driven by the medical-dental industrial complex seek to occupy various spaces, including academia, seducing future professionals. As seen in Category 1 (DS = 78.04%), admiration for a professional and their work environment can influence the future dental surgeon from the moment they decide on their profession.

Discussing what they define as the commodification of the profession, Bortoli *et al.*[6] observed that the problems addressed by dentistry have become confused with marketable services and products, with a faithful commitment to the market. They also propose that advertising products and services by handing out gifts, courses and self-promotion during workshops at conferences is also a driver of medicalization. The authors emphasize that "dentistry needs to direct its actions politically toward promoting well-being", be less market-oriented and more focused on promoting human emancipation. In contrast, the following was noted in the field diary on 1/21/2024:

There is also a large panel showing a mouthwash that promises to stain teeth less next to a teeth whitening brush and an advertisement for desensitizing toothpaste. Looks perfect: stain, whiten, desensitize.

Similarly, Category 4 included accounts of exposure to advertising on social media by companies, institutions and even influencers selling courses, while Category 5 clearly shows that being aware of market influence does not necessarily neutralize or protect someone from that influence.

Leme *et al.*[12] highlight that while the National Oral Health Policy emphasizes the importance of "health promotion", dental surgeons in public dental services show counterproductive attitudes, maintaining practices that are typical of the hardcore of market-oriented dentistry rather than adopting a public health approach. Public policies therefore need to identify the limitations of dentistry and optimize the health of the population. Category 2 reveals an emphasis on training, or hyperspecialization, either to make up for deficiencies in undergraduate programs or to satisfy the market. In contrast, in Category 3, some public sector professionals reported a lack of interest in training, as if public services did not deserve the incorporation of new technologies.

According to Chaves *et al.*[13], a sociological perspective can contribute to a better understanding of the medical/dental-industrial complex and its relevance to institutions linked to the health services field in Brazil. The authors identify two poles in the dentistry field: the universal pole, which focuses on public health and health protection, promoting the oral health for all discourse; and the market pole, constituted of power relations within the industry and between companies and distributors, who seek to monopolize the market.

Manfredini and Botazzo[14] suggest that the dental equipment industry is given precedence at conferences organized by dental associations to advertise materials, techniques and equipment, with little physical space being allocated to technical and scientific developments at trade shows in comparison to that occupied by the industry.

Our observations show that companies use their space to hold brief sponsored talks often with the support of influencers who are not academics but rather figures who hold specific capital in the field on social media.

This was also found in the interviews, particularly in Category 4, which addresses issues related to social media, and categories 5 and 6, which deal with dental conferences and trade shows. These discourses illustrate the dynam-

ics of the market pole, which appropriates academic spaces and social media in an attempt to influence even those who do not participate in conferences or rarely use social media platforms, thereby promoting consumption.

Spallek *et al.*[3] highlight that social media have a significant impact on personal and professional relationships, including the way we work. The authors analyzed how the world of social media has changed dental education, suggesting that, unlike formal teaching methods, when using social media students communicate in real-time and in a spontaneous, multiple and fragmented manner, trusting the information retrieved in this way and acquiring knowledge beyond the borders of the school, meaning that "the time has passed when a faculty member is considered to have the final word in more than a small area of specialization." This was documented in the field diary:

The influencer did a live stream, presented clinical cases in detail, teaching "his" technique step by step, recommending materials, holding raffles and also promoting his online courses. The audience immediately began asking questions. Both the presenter and viewers responded together, but not always using scientific references.

As Curtis *et al.*[15] highlight, the way to attract future applicants has changed. For example, Instagram can be used to upload pictures and videos of cases and procedures and to share pertinent information, which generates engagements. Ooi and Kelleher[16] call this trend in social media advertising "Instagram Dentistry", suggesting that the use of the platform for educational purposes is a rapidly growing reality. This was also shown in our findings, with accounts capable of interacting with hundreds of thousands of dental surgeons combining humor, controversy and entertainment while encouraging professionals to show their own photos of clinical cases.

Dental surgeons now have a wealth of information at their fingertips, unlike the past, when they relied on looking up information in specialized journals or books[3]. Likewise, it is evident that new actors have emerged who are occupying new dominant positions in the field of dental education, which until recently were occupied by professors at traditional universities or schools, and occasionally researchers in institutions[3,16].

The observation of social media also revealed the presence of some older actors – teachers and researchers from academia – who have incorporated contemporary digital forms of dissemination and interaction into their routine. It is worth noting that the analysis of post content shows what Bourdieu[17] described as an open field of struggle or dispute, an ongoing battle for the occupation of dominant positions in the dental field, where representatives of traditional academia or research take public positions in response to emerging actors or narratives, as illustrated by the field diary notes taken on October 29, 2024:

Screenshots (Instagram posts) showing:

1. Struggle to occupy dominant spaces in the dentistry field —in this case, a research professor vs. the ideas of emerging actors—illustrated by opposition to the term "'transgressive'" biological dentistry vs. "classical dentistry", and by expressions such as "we are defending science"; "we have reached a crucial point"; "we are trying to warn you" (representing "us", scientists vs. "them", emerging actors").

2. The comments "new narratives"; "There is a way, there is a path for you to know what is truly right" (scientific). The message highlights the idea that there is therefore another "wrong" way/path, certainly the non-scientific one emerging from social media.

3. A dispute within the field, with the author using the terms "battles" and "combative videos", and the first person plural: "us" (scientists) vs. "them" (influencers).

4. The dispute within the field between "renowned influential professors" vs. "the other side", "competent colleagues who show the scientific truth of the facts."

The use of social media for health education is discussed by Douglas et al.[18], who show that there has been a significant increase in the number of followers of health-related accounts. However, none of the accounts explicitly stated there was a procedure to ensure quality control of the content, and 27.5% of the accounts seemed to adopt some kind of advertising within their content.

Grassia *et al.*[19] highlight that patients use social media to share treatment experiences, demonstrating high expectations in relation to clear aligner treatment, which is probably due to the extensive marketing that surrounds this treatment modality. In this respect, interactions between influencers and patients involving explanations about treatments and promoting companies that manufacture clear aligners was a common observation noted in the field diary.

In a study of the use of Facebook as a pedagogical tool for university education, Lima *et al.*[20] concluded that the platform was a viable resource for post-graduate education but that students showed limited participation in discussion forums. Marocolo *et al.*[2] highlight that obtaining high-quality technical information has expanded from scientific conferences or college classes to web-based resources such as social media due to the low cost and potentially large reach of social media platforms. However, many posts are based on opinion or marketing and not supported by scientific evidence. Furthermore, influencers often provide information without any reliable source, resulting in information of low scientific quality. This situation was also observed in the field:

9/15/2022*:*

Digital influencer not from the field of dentistry hired by an oral hygiene company to promote a product that rejuvenates the gums. The product comes in packaging and has a brand name that alludes to makeup.

Ramos *et al.*[21] proposed the use of educational interventions on TikTok to improve the knowledge of Peruvian dentistry students, with results showing improvement in knowledge. Our findings show that many university professors on social media, and even science-related social media accounts, often take a combative stance against other actors:

3/20/2024

Screenshot showing an influencer (a dental surgeon) praising a colleague who is teaching about dentistry and saying: "*renewed hope in education and science.*"

Conclusions

The dental-industrial complex exerts an influence on the perceptions of dental surgeons and students. At the same time, social media is emerging as an environment that provides new actors freedom to spread the consumerist agenda widely pushed by dental companies, which is often a far cry from traditional academia and science. A new dominant actor is emerging in the field: the dental surgeon influencer, who holds "digital capital" accumulated independently from academic capital and cultivates and uses their popularity on social media to promote dental brands, ideas and techniques. Professionals and students tend to follow their teachers and colleges on social media but also promote the consumption of dental products through paid advertising or at conferences and events aimed at students and dental professionals. It is important that actors in the dental field observe the influence of the medical-dental complex plays in the field so that they are able to reflect on its commercial intentions and become aware of "proposals" for overdiagnosis, medicalization and planned obsolescence. Similarly, science-based social media accounts that understand their role in society as political agents should be encouraged. Policies governing the regulation of public health, oral health and curriculum guidelines should address the activities of the medical/dental-industrial complex in formal and informal academic settings and the role social media plays in dental education.

Collaborations

RF Paula and PAT Leme: contributed to study conception, analysis, data, investigation, methodology, and writing, and approved the final version. EF Araújo: contributed to analysis, data, and writing, and approved the final version. MC Meneghim: contributed to study conception, analysis, investigation, methodology, and writing, and approved the final version.

Data availability statement

The data sources adopted in the research are indicated in the article's body.

References

1. Brasil. Conselho Nacional de Educação (CNE). Câmara de Educação Superior. Resolução CNE/CES nº 3, de 21 de junho de 2021. Institui as Diretrizes Curriculares Nacionais do curso de graduação em Odontologia e dá outras providências. *Diário Oficial União* 2021; 22 jun.
2. Marocolo M, Meireles A, Souza HLR, Mota GR, Oranchuk DJ, Arriel RA, Leite LHR. Is social media spreading misinformation on exercise and health in Brazil? *Int J Environ Res Public Health* 2021; 18(22):11914.
3. Spallek H, Turner SP, Donate-Bartfield E, Chambers D, McAndrew M, Zarkowski P, Karimbux N. Social media in the dental school environment, Part A: benefits, challenges, and recommendations for use. *J Dent Educ* 2015; 79(10):1140-1152.
4. Thiry-Cherques HR. Pierre Bourdieu: a teoria na prática. *Rev Adm Publica* 2006; 40(1):27-53.
5. Tesser CD, Pezzato LM, Silva EN. Medicalização social e odontologia: possíveis aproximações. *Saude Soc* 2015; 24(4):1349-1361.
6. Bortoli FR, Kovaleski DF, Moretti-Pires RO. Medicalização social e bucalidade: a busca pela superação da técnica. *Cad Saude Colet* 2019; 27(1):67-72.
7. Lefevre F, Lefevre AMC. *Pesquisa de representação social*. Brasília: Liberlivro; 2010.
8. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007; 19(6):349-357.
9. Jodelet D. Représentations sociales: un domaine en expansion. In: Jodelet D, editora. *Les représentations sociales*. Paris: Presses Universitaires de France; 1989. p. 31-61.
10. Lefevre F, Lefevre AMC. O sujeito coletivo que fala. *Interface (Botucatu)* 2006; 10(20):517-524.
11. Cachado R. Diário de campo: um primo diferente na família das ciências sociais. *Sociol Antropol* 2021; 11(2):551-572.
12. Leme PAT, Vedovello SAS, Bastos RS, Turato ER, Botazzo C, Meneghim MC. How Brazilian dentists work within a new community care context? A qualitative study. *PLoS One* 2019; 14(5):e0216640.
13. Chaves SCL, Aguiar MRS, Lima AMFS, Santos CTB, Santana SF, Barros SG, Rossi TRA, Soares CLM. The dental equipment industry in Brazil: origin, structure, and transformations of the space of the dominant companies. *Res Soc Dev* 2022; 11(3):e53911326812.
14. Manfredini MA, Botazzo C. Tendências da indústria de equipamentos odontológicos no Brasil entre 1990 e 2002: notas prévias. *Cien Saude Colet* 2006; 11(1):169-177.
15. Curtis CM, Grau MJ Jr, Hooker KJ, Krishnan DG. Instagram as a marketing tool for oral and maxillofacial surgery residencies: overcoming resident recruitment challenges in the year of COVID-19. *J Oral Maxillofac Surg* 2021; 79(6):1188-1190.
16. Ooi HL, Kelleher MGD. Instagram dentistry. *Prim Dent J* 2021; 10(1):13-19.
17. Bourdieu P. *A economia das trocas simbólicas*. São Paulo: Perspectiva; 2007. p. 167-170.
18. Douglas NKM, Scholz M, Myers MA, Rae SM, Elmansouri A, Hall S, Border S. Reviewing the role of Instagram in education: can a photo sharing application deliver benefits to medical and dental anatomy education? *Med Sci Educ* 2019; 29(4):1117-1128.
19. Grassia V, D'Apuzzo F, Alansari RA, Jamilian A, Sayahpour B, Adel SM, Nucci L. Instagram and clear aligner therapy: a content analysis of patient perspectives. *Semin Orthod* 2024.
20. Lima AAS, Moura SAB, Fernandes A, Araujo MR, Machado MAN, Soares SKP. Use of Facebook as a pedagogical tool for university education: student adherence and reactions. *Rev ABENO* 2021; 21(1):1525.
21. Ramos MRV, Sermeño GC, Monteiro PMD, Castro DEM. Uso del TikTok para mejorar el conocimiento de acreditación peruana en estudiantes de estomatologia. *Aten Primaria* 2024; 56(4):102812.

Article submitted 09/04/2025
Approved 21/09/2025
Final version submitted 23/09/2025

Chief editors: Maria Cecília de Souza Minayo, Romeu Gomes, Antônio Augusto Moura da Silva, Vania de Matos Fonseca

This is an Open Access article distributed under the terms of the Creative Commons Attribution License