



The relationship between Facebook behaviour and e-professionalism: A questionnaire-based cross-sectional study among Greek dental students

Ilias Karveleas¹ | Athina Kyriakouli¹ | Melina Koukou¹ | Marianna Koufatzidou¹ | Eleni-Marina Kalogirou²  | Konstantinos I. Tosios²

¹Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

²Department of Oral Medicine and Pathology, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Correspondence

Eleni-Marina Kalogirou, Department of Oral Medicine and Pathology, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece.
Email: eleni_kalogirou@hotmail.com

Abstract

Introduction: The social media attitude of health science students might affect patients' opinion about the health profession and have negative impact on e-professionalism. The aim of this study is to investigate the behaviour of Greek dental students on Facebook, focusing on potentially unprofessional posts and the online student-patient relationship.

Materials and methods: Five hundred and twelve dental students in Greece answered an anonymous, 23-item questionnaire including multiple-choice questions about various topics, including Facebook profile settings and content shared by dental students, student-patient relationship via Facebook; and students' perception about the impact of their online behaviour.

Results: 93.2% of responders had a Facebook profile and 80.5% admitted that their online attitude might affect patients' opinion about dental profession. However, 71.7% posted pictures from holidays, 41.5% from nightclubs, and 26.2% photographs wearing swimwear/underwear, while 12.8% expressed online political party predilection. One quarter of students in clinical years were Facebook friends with patients and 58% and 30% of them had online discussion about topics related or not to dentistry, respectively, while 6.8% of dental students had posted defamatory comments about the dental school, faculty members or academic staff on Facebook.

Discussion: In accordance with studies in other countries, most Greek dental students had a Facebook profile and, although the majority realised the impact of Facebook behaviour on e-professionalism, a considerable percentage posted unprofessional content.

Conclusion: Dental students might fall into pitfalls when it comes to e-professionalism. As social media are becoming an integral part of life, there is need to include e-professionalism in dental education curriculum.

KEYWORDS

dental student, dentistry, e-professionalism, Facebook, social media

Athina Kyriakouli, Melina Koukou and Marianna Koufatzidou: equal contribution

© 2020 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd

1 | INTRODUCTION

A fundamental principle of dental education is that dentistry, as a health science profession, requires a high level of “*professionalism*” in order to ensure patients' confidence to their dentists and society's trust to the dental profession.¹ Professionalism encompasses general principles, for example, altruism, integrity, compassion, as well as more professional-specific definitions, such as respect and observance of the ethics and accountability to self, patients, profession and society, by maintaining the appropriate professional boundaries.¹⁻³ The increasing popularity of social media tools in the medical field during the last decade has established the new term of digital or online professionalism, referred to as “*e-professionalism*,”^{4,5} defined as “the behaviours and attitudes reflecting typical professionalism's examples that are manifested through social media.”⁶ In contrast to physical interaction-induced professionalism, social media may disclose personal information, for example, interests and activities that can be maintained and judged by the society for an infinite period of time.²

E-professionalism represents a crossroad between health science professionalism and social networking,^{5,7,8} with Facebook (Facebook, Inc.) being the most commonly used^{9,10} and mostly associated with e-professionalism¹⁰⁻¹² online social media and social networking service worldwide. Facebook encourages users to post personal information, as well as social or work life events. When these online data, though, belong to health care professionals, the boundary between personal and professional life becomes obscure,^{10,11,13} resulting in the so-called “unprofessional” Facebook use that may be observed by medical and dental practitioners or students.^{10,14,15} Unprofessional content may affect negatively e-professionalism and includes membership in groups dedicated to controversial issues, for example, religion, political beliefs or sexual preference¹⁶⁻¹⁹; posts revealing healthcare practitioners' personal life moments, for example, pictures showing alcohol drinking, smoking, partying; and nude photographs and posts with sexually explicit material.^{2,10,18,20,21} Other concerns arising from Facebook use by healthcare professionals and students are the online patient-doctor acquaintance that might have negative impact on the patient-doctor relationship^{22,23}; disparaging comments about healthcare staff or institution that could impair the reputation of the profession in society⁷; and online sharing of medical or dental clinical cases that might threaten patients' privacy.¹⁰

Few questionnaire-based studies have evaluated the online behaviour of dental students.^{6,10,13,24} Facebook was the most popular social media tool among them,^{6,13,24} probably because it is free of charge and has an easy to use structure that enables users to create personal profiles, interact with other people and share personal information.^{9,10,25} Thus, in order to include the maximum number of social network users and to compare our results with previous studies, the present study focused on Facebook and aimed to record the attitude of Greek dental students on this online platform and their awareness about the association of Facebook behaviour with e-professionalism. The main research questions of this study

were (a) whether Greek dental students post unprofessional content on Facebook; (b) whether and how they interact with patients via Facebook; and (c) if they are aware of the impact of Facebook behaviour on e-professionalism.

2 | MATERIALS AND METHODS

The study was approved by the Research Ethics Committee of the Dental School, National and Kapodistrian University of Athens (NKUA) (IRB protocol number 421/03.07.2019). An anonymous, 23-item questionnaire was assembled based on previous studies^{6,10,12,13,15,21,24,26-29} investigating the relationship of Facebook and e-professionalism. It included multiple-choice questions regarding (a) demographics and general characteristics of responders; (b) Facebook profile settings and main reasons for its use; (c) Facebook content shared by dental students; (d) student-patient relationship via Facebook; and (e) students' perception about the impact of their online behaviour (File S1). Students could select more than one answer for some questions.

The questionnaire was distributed during a 4-week period to students from all five undergraduate study years of the Dental School, NKUA, in the beginning of mandatory courses, in order to ensure maximum participation. As educational courses about professionalism and e-professionalism are not currently included in the curriculum of our Institution, responders had no previous formal education on the study's focused issue. Following a brief presentation of the purposes of the study and clarification that participation to it was voluntary, the students were asked to return the questionnaire within five to ten minutes and give their written consent for participation. The participants knew that the questionnaires were anonymous and were reassured about it by the person collecting the questionnaires. In order to verify the questions,^{24,28} that is, about clarity or relevance to the study, the questionnaire was initially tested in ten undergraduate students. Those ten questionnaires were excluded from further analysis.

Answer data were extracted by four of the authors (IK, AK, MK and MK) and stored into a Microsoft Office Excel 2010 spreadsheet. Descriptive statistics were used to summarise data from all questions. Pearson's chi-squared (χ^2) test and Fisher's exact test were used to analyse associations between responders' preclinical or clinical year (at the time of study) and their answers on Facebook name and profile settings; main reason(s) for using Facebook; favourite Facebook pages and groups; content of Facebook posts; and perception about the impact of their online behaviour on e-professionalism. Similarly to Dobson et al⁶ that compared 2nd and 4th year students, we decided to compare the answers of preclinical and clinical students in order to investigate whether clinical experience in the latter group might have affected their perceptions about the relationship between Facebook behaviour and e-professionalism. The answers considering the doctor-patient interaction via Facebook given by the 4th and 5th year students were also compared. For all statistical evaluations, the significance level was set to $P < .05$.

3 | RESULTS

3.1 | Demographics and general characteristics of responders

Five hundred and twenty-four questionnaires were handed out and 512 were returned completed, resulting in a response rate of 97.7%, or 77% of all undergraduate students of the Dental School at that time. A total of 297 responders were attending preclinical study years, that is, 119 in 1st year, 91 in 2nd year and 87 in 3rd year, while 215 were treating patients, that is, 125 were in 4th year and 95 in 5th year of study.

Most students that completed the questionnaire were females (325, 63.4%), with a female to male ratio of 1.74:1. The gender distribution did not differ significantly among the 5 years of enrolment ($P > .05$). Age ranged between 18 and 50 years, and the total mean age was 21.7 ± 3.4 years. Among the responders, 39.5% had worked or were still working as dental assistants in a private dental office, while 47.1% of them had relatives that worked as healthcare professionals.

3.2 | Facebook profile settings and main reasons for its use

At the time the survey took place, 477 (93.2%) of the responders had a current Facebook profile; 15 (2.9%) had one in the past but deleted it; and 20 (3.9%) had never created one. Out of the 15 students that had deleted their Facebook profile, 4 (26.7%) did it because they preferred using another social network, 2 (13.3%) because they did not want to disclose personal information, 5 (33.3%) because they spent more time than they would like on Facebook and 6 (40%) for other reasons.

Among the 477 responders that admitted being active on Facebook, 277 (58.1%) were in preclinical years and 200 (41.9%) in clinical years of study (Table 1). Most of them appeared on Facebook with their real name, neither modified nor shortened (416, 87.2%), and had chosen strict privacy settings, so that their posts could be available only to their friends (399, 83.6%). When they were asked whether they were using Facebook only for socialising or entertainment purposes, or also for academic reasons, for example, information on classes' schedule, the percentage of students using Facebook for both entertainment and academic purposes was significantly higher in clinical (74.4%) than preclinical (60.7%) years ($P = .002$).

3.3 | Facebook content shared by dental students

There was no statistically significant difference among the types of favourite Facebook groups/pages between students of preclinical and clinical years ($P > .05$). As shown in Figure 1, the most popular Facebook groups/pages were associated with sports teams,

followed by 185 (38.8%) of the responders; vulnerable social groups (eg refugees) by 92 (19.3%) of the responders; or political parties by 61 (12.8%) of the responders.

"Unprofessional" content, as defined in previous studies,^{7,10,14,15,20,21} had been posted by most participants: 342 (71.7%) of students had posted pictures from holidays, 198 (41.5%) moments in nightclubs, and 124 (26.2%) photographs wearing swimwear or underwear. Alcohol consumption and smoking were published by 91 (19.1%) and 26 (5.5%) responders, respectively, while 2 (0.4%) responders admitted having posted photographs of themselves using illegal drug use. The incidence of various posts shown in Figure 2 did not differ significantly between students in preclinical and clinical years ($P > .05$), males and females ($P > .05$) and students with or without experience as dental assistants in private dental offices ($P > .05$). From 374 students that made at least one of the so-called "unprofessional" posts, 56 (15%) had a public Facebook profile.

Table 1 shows that 50 (18.1%) preclinical students and 70 (35.5%) clinical students admitted posting photographs or stories during seminars or clinics, the difference being statistically significant ($P = .000$). A significantly higher percentage of clinical students (12.6%) made personal posts with negative comments about the Dental School faculty members, compared to preclinical students (2.6%, $P = .000$). A total of 59 out of 477 (12.4%) of current Facebook users had posted on a public open-access Facebook page. In those pages, students can make anonymous posts, but must indicate via hashtag the name of their Faculty or Department. Examples of posts with hashtag #Dental School NKUA included political or religious opinions, love letters, as well as criticism about the Dental School. The incidence of students with posts on a public open-access Facebook page did not differ significantly between students in preclinical and clinical years ($P > .05$, Table 1).

3.4 | Students-patients relationship via Facebook

Table 2 summarised the answers regarding the relationship between students in the clinical study years and their patients that might be built on Facebook. A total of 64 out of 200 (33%) clinical years students admitted having received a Facebook friend request from one or more patients, regardless if they accepted it. A significantly higher percentage of 5th year students (48.3%) compared to 4th year students (20.6%, $P = .000$) had received a friend request on Facebook from their patients. Next, a significantly higher percentage of 5th year students (37.1%) compared to 4th year students (17.1%, $P = .001$) admitted that they had tried to find their patients' Facebook profile. Finally, 50 (25%) students in clinical years had been friends with some of their patients on Facebook, either on their own or patients' initiative. The incidence of students that were friends with patients on Facebook did not differ significantly between 4th and 5th year students ($P > .05$). From the 50 clinical year students that were friends with patients, 40 (80%) students had posted personal photographs from their holidays, 27 (54%) had posted moments in nightclubs, 21 (42%)

TABLE 1 Facebook attitude of dental students in preclinical and clinical years of study

Total	Years of study		Total	P-value
	Preclinical (1st-3rd)	Clinical (4th-5th)		
477	277	200		
Why did you maintain a Facebook account? ^a				
Only for socialising/entertainment reasons	108 (39.3%)	51 (25.6%)	159 (33.5%)	.002
For entertainment and academic reasons	167 (60.7%)	148 (74.4%)	315 (66.5%)	
With which name do you appear on Facebook?				
Whole real name	240 (86.6%)	176 (88%)	416 (87.2%)	.661
Shortened real name or nickname	37 (13.4%)	24 (12%)	61 (12.8%)	
What privacy settings do you have (for most posts) on your Facebook profile?				
"Public"/"friends of friends"	48 (17.3%)	30 (15%)	78 (16.4%)	.498
"Only friends"	229 (82.7%)	170 (85%)	399 (83.6%)	
Have you posted pictures or videos on Facebook during seminars or clinics? ^b				
Yes	50 (18.1%)	70 (35.5%)	120 (25.4%)	.000
No	226 (81.9%)	127 (64.5%)	353 (74.6%)	
Have you ever made posts with negative comments about Dental School or/and its Faculty members or Assistants? ^b				
Yes	7 (2.6%)	25 (12.6%)	32 (6.8%)	.000
No	267 (97.4%)	174 (87.4%)	441 (93.2%)	
Have you ever posted any anonymous material on public Facebook pages with the hashtag #Dental School NKUA?				
Yes	28 (10.1%)	31 (15.5%)	59 (12.4%)	.078
No	249 (89.9%)	169 (84.5%)	418 (87.6%)	
Do you believe that Facebook posts of dental students might have any impact on patients' opinion about dentistry?				
Yes, positive impact	19 (6.9%)	12 (6%)	31 (6.5%)	.071
Yes, negative impact	7 (2.4%)	14 (7%)	21 (4.4%)	
Yes, positive or negative impact	201 (72.6%)	131 (65.5%)	332 (69.6%)	
No	31 (11.2%)	32 (16%)	63 (13.2%)	
I don't know	19 (6.9%)	11 (5.5%)	30 (6.3%)	
Do you know if the attitude of dentists on Facebook could be subject to legal evaluation and even result to sanctions?				
Yes, there are	42 (15.1%)	56 (28%)	98 (20.5%)	.002
No, there are not	10 (3.7%)	10 (5%)	20 (4.2%)	
I don't know	225 (81.2%)	134 (67%)	359 (75.3%)	

Bold indicates statistical significant value ($P < .05$).

^aNot available answer by 3 responders.

^bNot available answer by 4 responders.

photographs wearing swimwear/underwear, 18 (36%) photographs of themselves consuming alcohol and 9 (18%) photographs of themselves smoking. When students of preclinical study years were asked if they were willing to become Facebook friends with their future patients, 110 (39.7%) of them agreed.

A total of 29 (58%) of the students that were online friends with patients had conversations with them about medical or

dental topics related to their treatment via Facebook, while 15 students had also personal or social conversations. The incidence of students discussing those topics with patients on Facebook did not differ significantly between 4th and 5th year students ($P > .05$). In contrast, a significantly higher percentage of 5th year students (46.2%) compared to 4th year students (12.5%, $P = .014$) admitted having discussed with their patients

FIGURE 1 Preference or/and membership on Facebook pages/groups by dental students

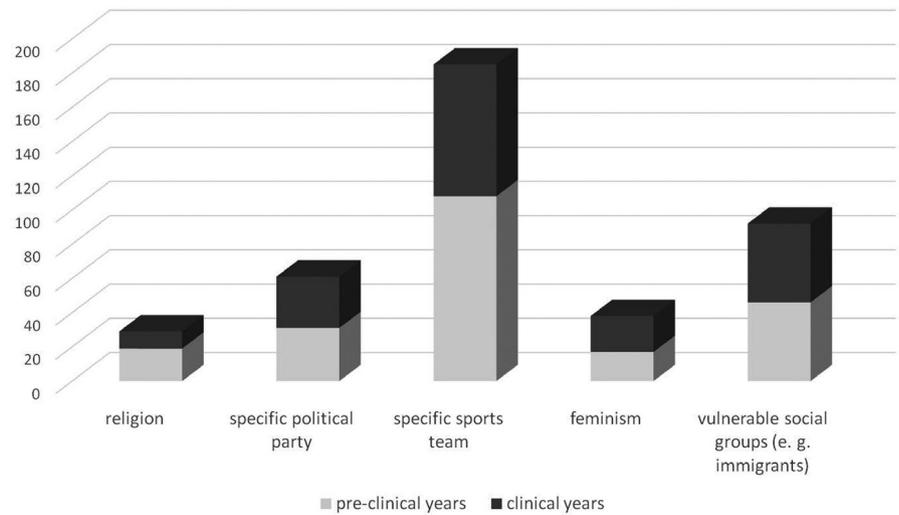
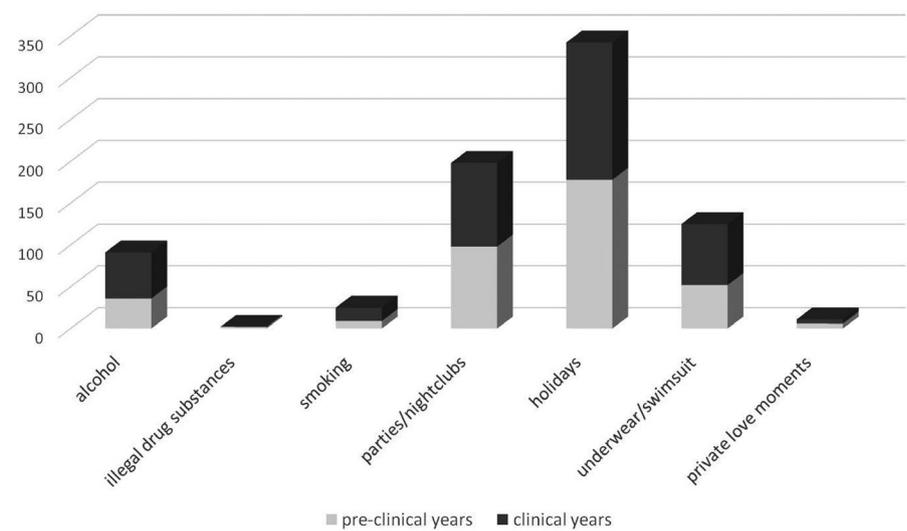


FIGURE 2 Facebook posts by dental students depicting moments of their personal/ social life



via Facebook topics unrelated to dentistry or their treatment, for example, personal or social conversations. In addition, a significantly higher percentage of 5th year students (9%) compared to 4th year students (1.8%, $P = .02$) had posted material from cases they treated in the University. Three out of those ten students that had posted dental cases had a public Facebook profile.

3.5 | Students' perception about the impact of their online behaviour

Eight out of 10 students of all study years admitted that their presence and attitude on Facebook might affect patients' opinion, either positively or negatively (Table 1), while 75.3% of responders admitted not being aware of whether the behaviour of dentists on social media could result in legal sanctions (Table 1). The latter percentage was significantly higher among preclinical years students (81.2%) than clinical years students (67%, $P = .002$).

4 | DISCUSSION

The present study confirms the frequent use of Facebook by Greek dental students, for entertainment, academic purposes, but also for communicating with their Dental School patients. Our findings are in agreement with previous studies from the United States,¹³ Europe⁶ and Australia²⁰ reporting that more than 90% of medical or dental students have a Facebook account.

4.1 | Facebook profile settings and main reasons for its use

As in previous questionnaire-based studies among health science students,^{12,15,20} most participants in this study appeared on Facebook with their full real name and with strict privacy settings. Public access was chosen by 16.4% of the students, compared to 10%-60% in other similar studies.^{3,12,15,20} The pertinent literature emphasised that even strict private settings allow some personal information and pictures

TABLE 2 The relationship between dental students in clinical years and their patients on Facebook

	Clinical years of study		Total	p-value
	4th	5th		
Total	111	89	200	
Have you ever received a friend request on Facebook from your patients (regardless if you accepted it or not)? ^a				
Yes	22 (20.6%)	42 (48.3%)	64 (33%)	.000
No	85 (79.4%)	45 (51.7%)	130 (67%)	
Have you ever searched the Facebook profile of your patients (regardless if you are friends with them on Facebook or not)?				
Yes	19 (17.1%)	33 (37.1%)	52 (26%)	.001
No	92 (82.9%)	56 (62.9%)	148 (74%)	
Are you friends with your patients on Facebook (on your own or your patients' initiative)?				
Yes	24 (21.6%)	26 (29.2%)	50 (25%)	.218
No	87 (78.4%)	63 (70.8%)	150 (75%)	
If you are friends with your patients on Facebook, have you ever had a conversation about oral health issues (eg dental advices, change appointment)?				
Yes	15 (62.5%)	14 (53.8%)	29 (58%)	.536
No	9 (37.5%)	12 (46.2%)	21 (42%)	
If you are friends with your patients on Facebook, have you ever had a conversation about issues unrelated to dentistry (eg personal or social conversation)?				
Yes	3 (12.5%)	12 (46.2%)	15 (30%)	.014
No	21 (87.5%)	14 (53.8%)	35 (70%)	
Have you ever posted on Facebook dental photographs from your patients that you treated in the Dental School? ^b				
Yes	2 (1.8%)	8 (9.2%)	10 (5.1%)	.02
No	108 (98.2%)	79 (90.8%)	187 (94.9%)	

Bold indicates statistical significant value ($P < .05$).

^aNot available answer by 6 responders.

^bNot available answer by 3 responders.

to become publicly visible and students may be unaware that some of the content they post online is in fact public¹²; when informed, students in previous studies were willing to review and change their account's settings to totally block public access.^{12,14,30}

Although Facebook is a networking service primarily intended for social and entertainment purposes,^{6,10,27} most students in our study considered that academic uses were also important, in agreement with a previous report.²⁶ In our study, this was particularly true among students in clinical years, possibly due to their need for an easy and fast way to exchange information relevant to their clinical work with colleagues and faculty members.

4.2 | Facebook content shared by dental students

The dental students' preferences for Facebook pages or groups have not been thoroughly assessed previously. The most popular

Facebook groups or pages in the present study were those associated with sports teams, vulnerable social groups, such as refugees, and political parties. The most common posts with unprofessional content made by dental students in the present study were photographs from holidays or nightclubs, or with them drinking alcohol or wearing swimwear. Alcohol consumption and various states of nudity were also common in other studies among healthcare students,^{2,10,14-16,18,20,31,32} while posts depicting illegal drug use were scarce, as in previous studies.^{14,20} The types of the most popular Facebook posts in our study did not differ significantly between students in the clinical and preclinical years, but the time those posts were made was not evaluated.

Students in clinical years had more posts with pictures or videos from seminars or clinics, as has also been reported for medical students.¹² A significantly higher percentage of students attending clinical years had posted negative comments about the Dental School or/and the faculty members/academic staff, compared to those in preclinical years. This was also found in previous studies,^{10,14} where, however, the difference between preclinical and clinical years students was not evaluated. It is suggested that the daily interaction of students and faculty members in the stressful clinical setting may generate tensions leading to such comments.

When made in public, unprofessional posts and defamatory comments about the Dental School and/or its faculty members/academic staff could undermine the public opinion about the dental profession and the dental students themselves.^{3,12,21,23,33} In this study, 15% of dental students had made at least one so-called "unprofessional"^{7,10,14,15,20,21} post in a public Facebook profile, while 12.4% of the Facebook users had made posts reporting political or religious opinions, love letters, as well as negative comments about the Dental School, on a public open-access Facebook page, declaring their student status. Negative comments about school experiences, the faculty members, staff or colleagues, as well as and scientific program have been also reported in similar studies by healthcare students.^{10,14,25}

4.3 | Students-patients relationship via Facebook

In this study, almost one third of the students attending clinical years had received a Facebook friend request from one or more patients and one out of four clinical years students had become friends with patients. Approximately 25% of dental professionals in the UK had accepted friend requests made from their patients,²⁹ while in the study of White et al¹⁰ only 2% and 0.3% of healthcare students were friends on Facebook with their past or current patients, respectively.

In accordance with previous studies,^{6,34} the dental students of this study were asked if they had received a friend request from their patients and whether they were already friends with their patients on Facebook. Twenty-four 4th year students were at the time of the study friends with their patients on Facebook (Table 2); as 22 recalled having received a request from patients it

is presumed that at least two students had sent a friend request to their patients. Approximately 1% of medical students in the USA³⁴ and almost 5% of dental students in the UK⁶ had received a friend request from their patients on social media. Almost 40% of final year dental students in our study admitted having searched for their patients' profile on Facebook, compared to 16.7%, of the same year students at the Otago Medical School in New Zealand that reported having searched information about their patients on Google,²² and 2.3% of medical students in the United States that had visited a patient's profile on an online social network.³⁴ As 5th year students of this study reported considerably more friend requests from patients, as well as more searches for patients' Facebook profiles than 4th year students, we assume that longer "exposure" in the Dental School clinic increases the chance for dental student-patient interaction via Facebook. More than half of the students that were friends with patients on Facebook had reported online discussion with them about topics related to their treatment, while 15 of them had also personal or social conversations. This online interaction, though, might interfere with the professional doctor-patient relationship and complicate it.^{29,35} In a recent study, most orthopaedic surgeons considered inappropriate the communication of surgeons with their patients via social media about medical or social issues.³⁶

4.4 | Students' perception about the impact of their online behaviour

Regardless of whether they had posted unprofessional material on their Facebook account, more than 80% of the students realised that their attitude in this social network could affect patients' opinion about dental profession. A study among healthcare students in a Canadian University reported that 50% of them characterised Facebook posts showing alcohol consumption, drugs abuse, crime, nudity and patient personal information as unprofessional, although 27% admitted having relevant posts on their account.¹⁰ Similar findings had also been observed in paediatric residents at Saint Louis, US² and doctors in New Zealand,¹⁸ while in another study in George Washington University, US, only a minority of medical students seemed to realise the effect of their online behaviour on the reputation of medical profession.³⁷

Three out of four responders in the present study were not aware of whether dentists' violation of e-professionalism on Facebook might lead to legal sanctions. Similarly, in a recent study in UK, 59% of dental students were unaware of the General Dental Council guidelines on social media.⁶ To several authors' opinion, posting of inappropriate photographs or information on Facebook by professionals should be indictable.^{10,16} In the USA, sanctions for physicians who behave unprofessionally in social media include licence restriction, suspension or revocation.¹⁹ For example, a physician in the USA was fired for sharing a public post on Facebook with identifiable patient information,¹ while four nursing students in Kansas got expelled from Nursing School for posting on Facebook

photographs of a clinical course.³⁸ In contrast, no punishment for online misbehaviour exists in China, where posts with patients' pictures or their personal information by professionals or doctors are more common.⁵

A major strength of the current study is that the sample analysed was the largest among questionnaire-based studies^{6,10,13,24} evaluating the online behaviour of dental students' online and its association with e-professionalism. In addition, as we focused on the most populous of the two Dental Schools in our country, the 97.7% response rate and high percentage (77%) of responders among all students render the results quite representative of the situation among Greek dental students. On the other hand, closed-ended questions might have limited the examples of unprofessional posts,²⁸ while although the questionnaire was anonymous some students might have been unwilling to admit inappropriate online posting.¹³ Finally, the participants of this study had to recall their attitude and experiences and, thus, there is the possibility of recall bias.²⁸

In conclusion, this study confirmed that although most students of one of the two Greek Dental Schools are aware of the association of Facebook behaviour with e-professionalism, they might often fall into pitfalls and post unprofessional content or patients' identifiable data, or discuss with patients via Facebook about issues unrelated to their profession. A change in students' behaviour could be achieved with the incorporation of an interactive class where students get to discuss with the dental faculty as well as with each other examples of online behaviour and their possible consequences, in order to acquire the sense of professionalism in the digital world.^{10,12,26,37} Students would, thus, become aware that unprofessional online behaviour might impair the patient-doctor relationship^{22,23} and the reputation of the profession in society,⁷ and that, as healthcare professionals, they have the legal and ethical responsibility to protect their patients' confidentiality.³⁹ As social media are becoming an integral part of everyday life in the 21st century, our results, along with previous research,^{3,25,30,40} indicate a high frequency of e-professionalism breaches and highlight the urgent need for e-professionalism to become part of the dental school curriculum, especially during the primary years of dental education, before students start the clinical practice.

CONFLICT OF INTEREST

All authors declare that there is no conflict of interest.

ORCID

Eleni-Marina Kalogirou  <https://orcid.org/0000-0001-7891-4804>

REFERENCES

1. Garg M, Pearson DA, Bond MC, et al. Survey of individual and institutional risk associated with the use of social media. *West J Emerg Med*. 2016;17:344-349.
2. Robertson M, Shoss MK, Broom MA. Social media: social intelligence training module. *MedEdPORTAL*. 2016;12:10442.

3. Ross S, Lai K, Walton JM, Kirwan P, White JS. "I have the right to a private life": medical students' views about professionalism in a digital world. *Med Teach*. 2013;35:826-831.
4. Lefebvre C, Mesner J, Stopyra J, et al. Social Media in professional medicine: new resident perceptions and practices. *J Med Internet Res*. 2016;18:e119.
5. Long X, Qi L, Ou Z, et al. Evolving use of social media among Chinese urologists: opportunity or challenge? *PLoS One*. 2017;12:e0181895.
6. Dobson E, Patel P, Neville P. Perceptions of e-professionalism among dental students: a UK dental school study. *Br Dent J*. 2019;226:73-78.
7. Chretien KC, Tuck MG. Online professionalism: a synthetic review. *Int Rev Psychiatry*. 2015;27:106-117.
8. Flickinger TE, O'Hagan T, Chisolm MS. Developing a curriculum to promote professionalism for medical students using social media: pilot of a workshop and blog-based intervention. *JMIR Med Educ*. 2015;1:e17.
9. Maben-Feaster RE, Stansfield RB, Opiari A, Hammoud MM. Evaluating patient perspectives of provider professionalism on twitter in an academic obstetrics and gynecology clinic: patient survey. *J Med Internet Res*. 2018;20:e78.
10. White J, Kirwan P, Lai K, Walton J, Ross S. 'Have you seen what is on Facebook?' The use of social networking software by healthcare professions students. *BMJ Open*. 2013;3:e003013.
11. Josefsson P, Hrstinski S, Pargman D, Pargman TC. The student, the private and the professional role: students' social media use. *Educ Infor Technol*. 2016;21:1583-1594.
12. Walton JM, White J, Ross S. What's on YOUR Facebook profile? Evaluation of an educational intervention to promote appropriate use of privacy settings by medical students on social networking sites. *Med Educ Online*. 2015;20:28708.
13. Arnett MR, Christensen HL, Nelson BA. A school-wide assessment of social media usage by students in a US dental school. *Br Dent J*. 2014;217:531-535.
14. Chretien KC, Greysen SR, Chretien JP, Kind T. Online posting of unprofessional content by medical students. *JAMA*. 2009;302:1309-1315.
15. Garner J, O'Sullivan H. Facebook and the professional behaviours of undergraduate medical students. *Clin Teach*. 2010;7:112-115.
16. Kitsis EA, Milan FB, Cohen HW, et al. Who's misbehaving? Perceptions of unprofessional social media use by medical students and faculty. *BMC Med Educ*. 2016;16:67.
17. Levati S. Professional conduct among registered nurses in the use of online social networking sites. *J Adv Nurs*. 2014;70:2284-2292.
18. MacDonald J, Sohn S, Ellis P. Privacy, professionalism and Facebook: a dilemma for young doctors. *Med Educ*. 2010;44:805-813.
19. Soares W, Shenvi C, Waller N, Johnson R, Hodgson CS. Perceptions of unprofessional social media behaviour among emergency medicine physicians. *J Grad Med Educ*. 2017;9:85-89.
20. Barlow CJ, Morrison S, Stephens HO, Jenkins E, Bailey MJ, Pilcher D. Unprofessional behaviour on social media by medical students. *Med J Aust*. 2015;203:439.
21. Langenfeld SJ, Vargo DJ, Schenarts PJ. Balancing privacy and professionalism: a survey of general surgery program directors on social media and surgical education. *J Surg Educ*. 2016;73:e28-e32.
22. Chester AN, Walthert SE, Gallagher SJ, Anderson LC, Stitely ML. Patient-targeted Googling and social media: a cross-sectional study of senior medical students. *BMC Med Ethics*. 2017;18:70.
23. Dawkins R, King WD, Boateng B, Nichols M, Desselle BC. Pediatric residents' perceptions of potential professionalism violations on social media: a US national survey. *JMIR Med Educ*. 2017;3:e2.
24. Kenny P, Johnson IG. Social media use, attitudes, behaviours and perceptions of online professionalism amongst dental students. *Br Dent J*. 2016;221:651-655.
25. Henry RK, Pieren JA. The use of social media in dental hygiene programs: a survey of program directors. *J Dent Hyg*. 2014;88:243-249.
26. Henning MA, Hawken S, MacDonald J, et al. Exploring educational interventions to facilitate health professional students' professionally safe online presence. *Med Teach*. 2017;39:959-966.
27. Jain A, Petty EM, Jaber RM, et al. What is appropriate to post on social media? Ratings from students, faculty members and the public. *Med Educ*. 2014;48:157-169.
28. Moubarak G, Guiot A, Benhamou Y, Benhamou A, Hariri S. Facebook activity of residents and fellows and its impact on the doctor-patient relationship. *J Med Ethics*. 2011;37:101-104.
29. Parmar N, Dong L, Eisingerich AB. Connecting with your dentist on Facebook: patients' and dentists' attitudes towards social media usage in dentistry. *J Med Internet Res*. 2018;20:e10109.
30. Lie D, Trial J, Schaff P, Wallace R, Elliott D. "Being the best we can be": medical students' reflections on physician responsibility in the social media era. *Acad Med*. 2013;88:240-245.
31. Rocha PN, de Castro NA. Opinions of students from a Brazilian medical school regarding online professionalism. *J Gen Intern Med*. 2014;29:758-764.
32. Thompson LA, Dawson K, Ferdig R, et al. The intersection of online social networking with medical professionalism. *J Gen Intern Med*. 2008;23:954-957.
33. Foley NM, Maher BM, Corrigan MA. Social media and tomorrow's medical students—how do they fit? *J Surg Educ*. 2014;71:385-390.
34. Bosslet GT, Torke AM, Hickman SE, Terry CL, Helft PR. The patient-doctor relationship and online social networks: results of a national survey. *J Gen Intern Med*. 2011;26:1168-1174.
35. Guseh JS 2nd, Brendel RW, Brendel DH. Medical professionalism in the age of online social networking. *J Med Ethics*. 2009;35:584-586.
36. Justina T, Alyami A, Al-Qahtani S, et al. Social media and the Orthopaedic surgeon: a mixed methods study. *Acta Inform Med*. 2019;27:23-28.
37. Chretien KC, Goldman EF, Beckman L, Kind T. It's your own risk: medical students' perspectives on online professionalism. *Acad Med*. 2010;85:568-71.
38. Parkinson JW, Turner SP. Use of social media in dental schools: pluses, perils, and pitfalls from a legal perspective. *J Dent Educ*. 2014;78:1558-1567.
39. Visser BJ, Huiskes F, Korevaar DA. A social media self-evaluation checklist for medical practitioners. *Indian J Med Ethics*. 2012;9:245-248.
40. Spallek H, Turner SP, Donate-Bartfield E, et al. Social media in the dental school environment, part b: curricular considerations. *J Dent Educ*. 2015;79:1153-1166.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

How to cite this article: Karveleas I, Kyriakouli A, Koukou M, Koufatzidou M, Kalogirou E-M, Tosios KI. The relationship between Facebook behaviour and e-professionalism: A questionnaire-based cross-sectional study among Greek dental students. *Eur J Dent Educ*. 2020;00:1-8. <https://doi.org/10.1111/eje.12585>