Social Media and Dentistry

ABSTRACT
Numerous social media platforms are accessible to healthcare professionals and to patients. The aim of this study was to determine the role of social media platforms in the academic life of undergraduate and postgraduate dental students, and general dentists and specialists working in an academic setting.

Method
A cross-sectional survey was conducted targeting 4th and 5th year dentistry students, postgraduate clinical assistants, qualified dentists, and specialists working at an Oral Health Centre. The survey questions focused on the role of social media sites in the academic setting, and how these can be used to interact on a professional basis in sharing knowledge efficiently and for teaching, as a marketing tool and the ethics related to its use.

Results
Most participants appreciated the use of social media to share and receive information for educational purposes. They indicated that online communication increases the spread of information and knowledge efficiently and timeously. They also specified taking advantage of this efficient spread amongst the population as a marketing tool to gain patients. Though there are some individuals who do not quite agree and have suspicions for ethical or personal reasons, and they explained this by indicating that once something is posted online it cannot be removed.

Conclusion
The study concluded that the use of social media in dentistry has positive and negative aspects, thus the hesitancy to use it and suspicions expressed by participants. Information placed online should be closely monitored even after having received permission to do so.

Keywords
Social media; SoMe for education; SoMe as marketing tool; ethics and SoMe; knowledge shared timeously

INTRODUCTION
Social media (SoMe) sites have become an increasingly popular method of engaging in mass communication on social as well as professional issues due to easy accessibility. Specifically, the different SoMe types have become a very convenient tool utilized by medical and dental health practitioners for various reasons. However, the motivation for the use of SoMe among dental practitioners in the private and public sectors may differ according to their needs and requirements, that is, students and qualified professionals may upload clinical content for very different reasons. Regarding professionals utilizing SoMe sites, the most common reasons are related to creating platforms to post teaching and learning content, for improving marketing and service strategies and for uploading pictures depicting clinical scenarios with the intention to praise their work, skills, or capabilities.

Regardless of the motivation behind the posting of these clinical procedures, it is undoubtedly crucial to acknowledge the ethical and legal considerations related to the act that many may regard as a misdeed. There are numerous discussions regarding the ethical considerations of these healthcare practitioners, such as the permissibility to post clinical content and if informed consent had been obtained from the patient or if the patient’s identity is concealed by means of blocking out their eyes. To explore some of the reasons why dentists share confidential information on the internet, it was found that a significant driving factor was to increase sales by means of enhancing the advertising strategies of the dental practice. SoMe marketing is a cost-effective way to reach potential new patients who search for competent practitioners online. Using SoMe as a marketing tool...
in healthcare can guide you to understand the needs and desires of potential patients and to meet those requirements with the highest standards achievable. SoMe also has a significant role in an academic setting, as well as in personal and professional relationships. One of the main benefits of SoMe inclusion in the academic setting has been to encourage student learning. Educators have merged the use of SoMe as a means of teaching and have demonstrated that their students were motivated with the content shared. Thus, education in the medical field has expanded beyond the classroom. SoMe has thus become the bridge between formal and informal learning as it allows students to engage in educational content outside of the classroom, after hours and at their own pace. The results of a survey conducted by El Bialy and Jalali (2015) indicated that 79% of educators and 100% of students use the different SoMe sites. It was also found that 33% of educators use social networks to engage and interact with their students. The most common platforms that were used were Facebook, Twitter, and LinkedIn. Other SoMe sites, on the rise and used include Instagram, YouTube, WhatsApp and ResearchGate. Educators use YouTube videos of procedures that are available and are aligned to their teachings to share with students. SoMe sites have made it easier for students to communicate with one another by sharing notes, video clips, links and documents that will aid them in their studies. Other SoMe platforms such as Twitter and blogs have been identified to portray case-based scenarios as well as clinical concepts. This is seen as a positive change by educators as SoMe allows engagement between students which encourages peer-to-peer learning.

Many times, patients are unaware that images of their treatment can be found on various online platforms. It is incumbent upon every dental practitioner to inform and seek permission from the patient, as well as respect their privacy and requests, if they prefer not to have their work posted. Engaging with SoMe sites is also prone to many dangers. For example, anything posted online may be altered by others without the original poster's permission. With dental professionals posting online, it may reach many with potential negative consequences amongst the uneducated public. This could harm patients and even have far reaching legal and ethical concerns if the dentist did not carefully consider the consequences before posting any clinical work online.

The downfall of posting on SoMe is that these sites are not governed by a third party compared to professional online journals. Here all papers submitted go through rigorous review and security processes before it is made available to the public. Most importantly, permission needs to be granted for use of patients’ images or treatment records. Moreover, precautions must be taken on how anonymity may be preserved once a post is made available on SoMe platforms, as this is the only way of ensuring that patients and practitioners are protected. The aim of this study was to determine the role of different social media platforms in the academic life of undergraduate and postgraduate students and general dentists and specialists that form the academic staff at a dental institution.

The objectives included determining whether social media platforms were used as an interactive educational medium; identifying what the role of posting clinical work on the different social media platforms was and lastly, ascertaining the knowledge and understanding of posting the clinical content in different formats (videos, images, and discussions) on social media from an ethical point of view by dental students and staff.

**METHODOLOGY**

Ethical clearance was obtained from the University of the Western Cape Biomedical Research Ethics Committee (Reg. No. BM20/4/9). For this cross-sectional study, a survey was conducted amongst the 4th and 5th year dentistry students, postgraduate clinical assistants, academic staff (qualified dentists and specialists) working at an Oral Health Centres. The Yamane formula was used to determine and finalize sample size for a finite population. The calculation of this random sample of academic students and staff was completed to ensure a sufficiently powered number (N=250) from the total number of participants from the different cohorts were included. A questionnaire was created using Google forms, verified by piloting it amongst some students and staff to validate the questions and changes were made to eliminate any ambiguity, confusion and misunderstandings. The questionnaire was subsequently sent to the various participants via email:

The questionnaire was divided into four distinct sections focusing on participants demographics, social media used as an academic tool, social media as a marketing tool and ethical considerations of social media use amongst dental professionals:

- **Section A** of the questionnaire included questions to obtain participants’ demographic information and questions about use of personal SoMe accounts,
- **Section B** consisted of questions regarding the use of social media in academia,
- **Section C** included questions focusing on the necessity for a dental practice to have an active SoMe account and the,
- **Section D** questions covered the important topic of the ethics of using SoMe sites amongst dental professionals.

A 4-point Likert scale was used in Section B with responses ranging from: Agree, Strongly Agree, Disagree and Strongly Disagree. The results obtained from the online questionnaires were entered into a database (Microsoft Excel spreadsheet). It was then analyzed by using the Statistical Package for Social Science (SPSS Version 27.0) for windows.

As this was an online survey, consent would have been guaranteed without completing any forms, but the consent form was posted with the questionnaires.
nonetheless. All participants’ responses were allocated a number which were found on the forms they were given to complete. This also further ensured the participants’ right to anonymity. The matter of informed consent, privacy and confidentiality was therefore ensured and shared with participants. Basic statistical frequency and significance tests (p<0.005) were calculated using Excel and SPSS packages.

RESULTS
From the 250 questionnaires sent to participants, 78 were completed and returned by participants from the different sections of the dental profession, giving a response rate of 31%.

a) Demographic details of participants:
The results showed that most of the respondents were female (64%, n=50; Table 1). The expectation that participants had personal SoMe accounts were realized as 97.4% of 76 responded positively to this question (Table 1). Of the participants that indicated they had a personal SoMe account, most (82.1%; n=62) specified that they followed reports related to dentistry. The respondents also indicated that they used SoMe apps, and in order of preference, these included WhatsApp at 34% (n=26), followed by Instagram at 25% (n=19) and Facebook at 25% (n=19).

b) Social media used as an academic tool
The participants were asked various questions relating to the importance of SoMe as an educational tool within an academic environment. Not only did most of the participants (69.2%, n=54) agree that social media sites were effective academic tools, they (91%, n=71) also concurred that these sites were an important interactive educational medium.

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<th>Table 1. Demographic details of participants</th>
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<td>Demographics</td>
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<td>Do you have a personal social media account?</td>
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<td>Do you follow/ belong to social media accounts related to dentistry?</td>
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Figure 1: Social media platforms and posting material for educational purposes only

Figure 2: Videos of procedures or patients shared on social media

Regarding posting or sharing videos of patients or clinical procedures without obtaining a patient’s informed consent, respondents were very clear about their opinions and responded negatively; even if it was for educational purposes only as they did not accept this mindset readily.

There was definite disagreement by a third of the participants (38.5%, n=30) even if it was for educational purposes only or even if these were useful (37.2%, n=29) (Figures 1 and 2). This indicates that respondents did not have the tendency to share videos per se, and whether they were uncomfortable or find it offensive or not, can be further investigated. Respondents did not have a problem with sharing useful procedures (93.6%, n=73) or dental and clinical questions (94.9%, n=74) under the platform of online learning and teaching on SoMe. In fact, a large majority (87.2%, n=68) indicated their agreement that online learning and teaching should be the stance of universities, and this was paired with using quality websites (97.4%, n=76) to ensure success using SoMe sites.

The differences between those agreeing to share videos on SoMe and those disagreeing must be explored further as their reasons may add value to the current hype of these sites.

c) Social media used as a marketing tool
The effectiveness of using SoMe as a marketing tool was evaluated using several questions which were phrased differently. The responses showed that although using SoMe aided in gaining new patients (93.6%, n=73), the experience/ qualifications of the dentist (87.9%, n=69)
was seen as more important by participants than having an online presence. The participants also indicated that gaining of new patients using SoMe did not happen automatically, incentives must be offered to patients to attract them to attend practices. The respondents also agreed that SoMe must be used to advertise special offers for certain procedures to make attending these practices appealing to patients.

Moreover, respondents indicated that the input from patients in the form of online reviews of their dental experiences (91%, n=71; Figure 3) or their opinions on the resources or facilities of practices must also be considered (Figures 3 and 4). Respondents were thus quite clear and emphatic when questioned about the role of SoMe versus several other important aspects within a practice such as the facilities, the resources or the experiences of practitioners.

d) Ethical considerations of social media

The permissibility of posting patient-based cases and clinical procedures completed on them were evaluated as there are ethics to consider before posting such content online (Figure 5). Participants were given questions regarding ethical considerations such as informed consent, privacy, and confidentiality.

Respondents were very emphatic in their disagreement when asked about posting pictures with

1. patients’ eyes blurred (75.7%, n=59), or
2. patient cases for educational purposes without consent but with eyes blocked out (84.6%, n=66) and
3. not having asked patients’ consent and sharing cases where you think the patient will not find

out whilst their descriptive details are blocked out (93.6%, n=73; Figure 5).

The high percentages of disagreement from participants indicated their understanding of consent, confidentiality, respect, privacy, and permission required from them when wanting to share educational information or content.

DISCUSSION

The objectives of this cross-sectional study were largely met, and it was interesting to note how the participants displayed knowledge and understanding of SoMe sites and postings, but at the same time indicated understanding and indicating a sensitivity towards their patients by not agreeing to post without their consent. Whether this stems from their training as dental health care practitioners was not the subject of this study but it certainly pointed in that direction.

The first question relating to the important role of SoMe in the professional and academic environment is strongly supported by the results which are in line with the thinking of other researchers’ work.[13] This can also be related to most participants sharing the same view on the benefits of interaction between colleagues, students, and lecturers via SoMe, especially during the COVID-19 Pandemic, which most of the world experienced, and when this study was conducted. This type of interaction may be due to students personally enjoying making use of SoMe, which was observed by teachers, who then employed such means to bring knowledge across to their students in a familiar and pleasant setting.

The questions for this study referring to posting of clinical procedures for educational purposes was based on this mindset of using a platform that students know and used to share knowledge. But the question was interpreted differently by the varied participants, thus the results are so closely related. The different responses could be strongly linked to the ethical aspects of posting pictures or videos and respondents tried to indicate a thoughtfulness towards their patients and of exposing them on SoMe.

Students are also known to combine learning formally when with their peers and informally with more personal and social relationships in their free time, making it a part of everyday life.[8] Some individuals may disagree
that these two platforms could be mixed and would rather want to separate their academic and personal relationships and use different SoMe sites for each. Also, by posting these pictures, there is no distinct line or clarity where education starts and ends using the same SoMe site. Some participants may have believed that education should be done formally only whereas others may have said that education should be part of everyday life and therefore the platforms for professional and private SoMe sites may be shared.\textsuperscript{11}

According to Farsi, (2021) despite the contrasting evidence, it is important to strike the right balance between traditional and digital access to healthcare.\textsuperscript{14} For the naysayers, the problem was once something was posted on SoMe, anyone who has access to it can do anything with it, making it difficult to control the information shared.\textsuperscript{15} Also, the few individuals that disagreed with the usefulness of posting and sharing clinical and academic content may either not have been exposed to SoMe properly or in a manner allowing them to view these sites more positively relating to even ethical perspectives. Thus, the responsibility is therefore on the one posting it, and these people should exercise caution when doing so to protect themselves and their patients whose content is being shared.\textsuperscript{16}

The results for this study are very similar to a study conducted by Abdul Hamid and Jaafar (2021),\textsuperscript{13} where they strongly leaned towards agreement that content such as dental procedures, news and academic and clinical questions posted on SoMe be regarded as useful. Researchers that agree with this statement of posting dentally related work are certainly familiarized with the benefits of using SoMe as a platform to interact and exchange information easily and efficiently.

Again, variations between respondents’ replies may be interpreted differently where the posting of procedures could be regarded as educational to some, for others it is seen as exposing themselves to danger. More participants, however, believed in the usefulness of videos posted on SoMe, where they viewed it as sharing information of procedures to prepare other patients before they undergo the same or similar procedures. It may be seen as ‘hands-on’ educational exercise without being present in the clinical setting and therefore having a sense of being prepared for such or similar clinical situation and eliminating fears of the unknown.

Several students and patients may also argue that they are visual learners, where such videos assist them when posted on good quality websites, rather than benefitting from reading about these only. Another reason that pre- and post-treatment pictures should be posted online and are important for patients is that it gives potential patients the reassurance that their condition can be successfully treated. The numerous individuals that do not agree with the use of videos are indeed doubtful that all viewers would treat the content with respect.

In Dentistry, practitioners work on a ‘fee-for-service’ system and thus rely heavily on the number of patients treated to secure an income, thus it is expected that many participants would strongly agree that advertising on SoMe is an effective marketing tool to gain more patients. Considering that many of the participants of this study were dental students and would-be future dental practitioners and probably be employed in the private sector, it is understandable why their responses attributed great importance to questions related to effective marketing and increasing patient numbers.

However, it is also important to note that government hospitals also rely on patients paying for treatment in addition to remuneration received from the government. Therefore, marketing is also an important tool in increasing patient numbers in the government sector. The results received regarding the use of SoMe as a marketing tool was congruent to a study done by Ajwa et al. (2018).\textsuperscript{6} In this study, 89.8% of dental students and professionals agreed that the presence within SoMe in relation to a dental practice would increase their patient base and worked as an effective marketing tool.\textsuperscript{6}

In accordance with research conducted by Alalawi et al. (2019),\textsuperscript{16} advertising and promoting the dental practice by means of special deals/ promotions on SoMe sites is also an effective way of appealing and gaining the attention of potential patients.\textsuperscript{16} This study reported that 61.1% of participants responded positively regarding the efficacy of gaining new patients when special offers were advertised on SoMe.\textsuperscript{16}

In support of this, Dentistry in combination with SoMe can promote positive clinician and patient relationships as well as improve the community’s knowledge about common oral health practices.\textsuperscript{17} Thus, integrating SoMe marketing efforts and dentists providing a path for patients/ users leading to their practice site and incorporating these with traditional marketing tactics was considered an effective strategy.\textsuperscript{18} Furthermore, building strong professional relationships with clients is an important aspect of marketing that can be achieved through the use of effective online social communities.\textsuperscript{19}

SoMe platforms are also used to engage with target audiences and used for health promotion.\textsuperscript{20} Most participants for this study agreed that the reviews of previous patients posted on SoMe are important. This may be since dental students and staff understand the stigma behind the kind of clinical procedures performed by dentists and that most patients associate dental treatment with pain. Therefore, a negative review may be the result of a misinformed patient unaware of the severity of their condition and not necessarily due to any fault incurred by the healthcare professional.

However important and effective SoMe impact may be in its communication with and the ability to influence the minds of people in need of good dental treatment. An almost opposite and equally significant response was gathered related to resources within a dental practice as reported in this study. This reported notion, by respondents who themselves are clinicians, of having good/ modern resources within the dental practice plus having highly experienced clinicians was the driving factor behind advertising and building a good client base. This was an indication that advertising by word of mouth, from the vast experience of participants, and mainly using the efficacy
of the dentists’ work plays a major role in building dental practices clientele rather than just having a good SoMe presence.

One of the most controversial factors to consider within the healthcare profession, is the ethical considerations with SoMe use and exposure. Concerns from patients’ perspectives are that of confidentiality as well as informed consent given by a patient, including anonymity of patients for photographs taken and intended for use on SoMe sites. By introducing clinical scenarios and sharing clinical cases on various SoMe platforms using pictures or videos, one is faced with the dilemma of deciding if the reason for engagement is for a good cause and whether it is safe to do so.

When SoMe is used for the purpose of online teaching and learning to enhance the skills of aspiring healthcare workers, it becomes evident that it carries more benefits than drawbacks or risks, even for the patient, as it enhances the quality of treatment performed and students gain more knowledge by this. For this study, many participants agreed that healthcare practices and faculties should make use of SoMe platforms for teaching and learning. In contrast to these findings, a study performed by Paton et al, (2011) concluded that there was insufficient evidence to support the effective use of SoMe in medical and health education. However, given the timeframe when this article was published, it is safe to assume that the attitudes towards SoMe as an educational platform have changed as it has gained more popularity over the last five years and especially during and post the corona virus disease (COVID 19) pandemic.

Since this research was carried out on a population that included senior students, academics and clinicians working in a learning and teaching environment, all participants would have been aware of the importance of consent from patients before posting their images or videos on SoMe. This is irrespective of the reasoning for doing so, be it for academic purposes or treatment methods or as a means of advertising, as everyone would have been exposed to the principles of ethics which forms part of their curriculum.

An average of 89,1% of participants for this study disagreed with posting online without patient consent even if their details were blocked out. This is in accordance with the regulations of the national laws of this country and as stated within the guidelines of the health professions council of South Africa (HPCSA). More specifically, when it comes to engagement online and consent, confidentiality and privacy, the HPCSA is very clear that consent must be obtained from the patient before placement of the information online, whether the patient can be recognized or not as posts cannot be deleted once posted. The response by participants thus indicates that they are aware of the limitations of sharing their patients’ information online even though the use of SoMe sites has become common practice amongst academics and clinical practitioners.

The results of this study also indicated that almost a quarter of participants agreed to the idea of posting patients’ images online as ethically sound if the eyes were blocked out and making patients unrecognizable. Considering the guidelines from the HPCSA related to confidentiality and privacy, it may not be acceptable or sufficient to post content without consent, or without the eyes being blocked out, or without the patient understanding the use of their information online as they may still be identifiable even with minimal censoring of their data. Moreover, any information consented to by the patient is shared with the health professional under the pretext of mutual respect and must therefore be treated as such and ensure the patient is always protected and if practitioners are not cautious, the engagement online can have potential unintended risks and consequences. The sharing of confidential entrusted information online can only be done if the patient’s written consent has been received or under exceptional circumstances, such as, if required by the court of law.

Healthcare professionals are thus advised not to engage patients online, nor access information from SoMe sites which was not shared in the healthcare setting regarding their patients. More importantly, practitioners must only advise professionally using evidence, and avoid taking photographs of patients and/or make any derogatory comments related to patients or other professionals. Also, healthcare professionals must not accept invitations to engage patients on non-professional platforms which may result in inappropriate communications and stalking by patients. Healthcare professionals are advised to consider other ethical guidelines in conjunction with SoMe site rules, report any inappropriate online communications to the HPCSA to protect themselves and the profession. Thus, the ethical and legal considerations for sharing of patient information online should not be taken lightly, even if the clinician unintentionally causes a breach of privacy, legal matters could ensue. Therefore, health professionals and students should have an in-depth understanding of online methods of communication, ethics and laws pertaining to the sharing of patient information via SoMe or any other online source.

Conclusions and recommendations

In conclusion, participants of this study widely support the introduction of medical and dental cases into the world of SoMe. Despite all the ethical considerations, the undergraduate and postgraduate students largely agreed that SoMe carried a positive effect on how teaching and learning can take place. The recommendation is to use SoMe sites regularly in the academic programs to improve the teaching and learning platforms for students and academics. In addition, the recommendation is to include the different SoMe sites to enhance the marketing of practices and faculties, and this must be seen as beneficial to the public as well as to medical and dental practitioners and to Dentistry as a profession once all ethical considerations are observed.

Limitations

SoMe access can ensure engagement with patients on a much larger scale than physical marketing media, using pamphlets or posters. The evidence contrary to this presented above must be overlooked, as these articles
were published at a time when SoMe was used only as a means of sharing information. Introducing medical and dental cases is a relatively new development and was not done previously which limited the development of diagnostic and management skills of students. With this said, including it also improves the skills development of students of the faculty.

Significance
This study was conducted during the COVID 19 pandemic which impacted on the communication between students and staff, and their education. The COVID 19 pandemic taught us how important and valuable the different SoMe sites are and that these may even be seen as lifesaving communication in particular instances. The value that SoMe sites brought to education (both school and higher) cannot be overemphasised. So much so that many institutions have now adopted a blended learning approach, and where possible some work is taught online, and where needed, others use the face-to-face teaching methods. Senior academics engage in communications using a hybrid approach, that is, both face-to-face and online sessions, making it possible for many more people to attend important meetings and sharing knowledge and posting these on YouTube. Currently thus, the SoMe sites are a part of the health profession education system, and the use thereof adds value and it must therefore be embraced.

Conflict of interest
The authors declare no conflict of interest

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