



CIRUGÍA ESPAÑOLA

www.elsevier.es/cirugia



Special article

Social media and surgery



Raquel Sánchez-Santos,^{a,b,*} Oscar Cano-Valderrama^{a,b}

^a Departamento de Cirugía. Complejo Hospitalario Universitario de Vigo, Vigo, Spain

^b Instituto de Investigaciones Sanitarias Galicia Sur, Vigo, Spain

ARTICLE INFO

Article history:

Received 13 July 2023

Accepted 12 October 2023

Available online 21 November 2023

Keywords:

Social media

Twitter

YouTube

Hashtag

Facebook

ABSTRACT

During the last years, social media use has increased in the surgical community. Social Media in surgery has created new challenges such as surgical education, patient privacy, professionalism, and the difference between the private and public virtual life. Facebook, YouTube or WebSurg are some of the main social media in the surgical field. Nevertheless, Twitter is the most common and relevant Media for surgeons. Some Twitter Hashtag such as #SoMe4Surgery or #colorectalsurgery went viral and had a significant influence in the surgical community. Some of the uses of social media in surgery are education of younger surgeons, surgical research, and relationship between surgeons. However, not everything in social media is positive. Some negative issues of social media use in surgery are, for example, lack of privacy, intellectual property conflicts, conflicts of interest and mistakes in the published information. In this article, the main social media, the use of these media, the advantages and the possible risks and negative issues of social media are discussed.

© 2023 Published by Elsevier España, S.L.U. on behalf of AEC.

Redes sociales y cirugía

RESUMEN

El uso de las redes sociales ha crecido de manera muy significativa en el mundo de la cirugía durante los últimos años. Esto ha creado nuevos retos que incluyen la educación quirúrgica, la privacidad de los pacientes, la profesionalidad y la separación entre la presencia virtual privada y profesional. Dentro de las redes sociales disponibles algunas de las más relevantes para los cirujanos son Facebook, Youtube o WebSurg. Sin embargo, la red social más utilizada y que más influencia tiene en el mundo de la cirugía es Twitter. En Twitter es donde se han creado una serie de Hashtags que se han hecho virales y que han tenido mucha influencia en el mundo quirúrgico como #SoMe4Surgery o #colorectalsurgery. Algunos de los usos de las redes sociales en cirugía son facilitar la educación de los cirujanos más jóvenes, potenciar la investigación o permitir el contacto con otros

Palabras clave:

Redes sociales

Twitter

YouTube

Hashtag

Facebook

* Corresponding author.

E-mail address: raquelsanchezsantos@gmail.com (R. Sánchez-Santos).

<http://dx.doi.org/10.1016/j.cireng.2023.11.010>

2173-5077/© 2023 Published by Elsevier España, S.L.U. on behalf of AEC.

cirujanos. Sin embargo, no todo es positivo en las redes sociales que también tienen aspectos negativos como pueden ser la vulneración a la intimidad, los problemas de propiedad intelectual, los conflictos de interés o la imprecisión en la información publicada. En este artículo se revisan las principales redes sociales, sus usos, sus ventajas y también sus posibles riesgos y aspectos negativos.

© 2023 Publicado por Elsevier España, S.L.U. en nombre de AEC.

Introduction

According to the *Real Academia Española*, a social network is an “information society service that offers users a communication platform through the internet where they can create a profile with their personal data, facilitating the creation of communities based on common criteria and allowing the users to communicate and interact through messages and shared information, images or videos, allowing these publications to be immediately accessible by all the users in their group”.¹

Since the creation of the first social network in 1997 (known as “Six Degrees”), and especially after the creation of Facebook in 2004, the growth in both available platforms and users has been exponential. Medicine in general and surgery in particular have not been left out of these changes in our society, as we have also witnessed how social media (SM) have transformed the way surgeons relate to each other as well as to other professionals, the pharmaceutical industry and patients. The use of SM varies according to the specialty and purpose. Plastic surgeons are the most frequent users (81%), followed by colorectal surgeons (56%) and general surgeons (51.8%). In the past 25 years, the most prominent moment for social media in medicine was during the COVID-19 pandemic, during which imposed social distancing led to increased virtual contact for communication, training, research and networking.²

Social media are an essential part of the daily life of young surgeons, and an estimated 99.4% of surgical residents use SM. Surgery departments, universities and scientific societies have had to adapt to this new virtual reality, increasing their presence on SM to communicate with young doctors and surgeons. This high prevalence of the use of social networks entails new challenges for surgical education, patient privacy, professionalism and the separation between private and professional virtual presence.² Therefore, some scientific societies have already developed guidelines and recommendations.³

Interaction with patients on SM

Facebook or Instagram: These social networks are based on the creation of profiles, where people enter information about themselves, which allows them to interact with people they know or with whom they have similar interests. **Facebook** is the most used SM among middle-aged patients. It allows for the creation of groups of users who share

ailments or to contact their doctors, facilitating the work of patient associations.

According to a study carried out in Australia in 2019,⁴ Facebook was the network most used by colorectal surgeons, generally to search for information but not to publish it. In that same study, 43% of patients with colorectal pathology accessed the internet looking for information about their doctor, 75% searched for information about their condition, but only 25% did so on professional health websites and 12% on SM. Also, 84% of patients considered the information found on the internet to be useful, but the patients in the study did not consider social media reliable sources of medical information. In another study that compared access to SM of patients from esophagogastric surgery, bariatric surgery, colorectal surgery, hepatobiliary and pancreatic surgery, and endocrine surgery departments, the authors observed that the youngest patients and those undergoing bariatric surgery were those who generally used SM the most, specifically to obtain information about their disease or surgeon.⁵

For younger patients (“millennials”), **Instagram** is a more popular platform. Both SM can be used by surgeons to provide health information, publish campaigns promoting health, or advertise their private clinical practice.

The relationship with patients through **Blogs, podcasts and videos**: The main video-based social media is **YouTube**. Patients have at their disposal videos on surgical techniques that could help them better understand a surgery proposed for their treatment. In most cases, however, these videos have not been published with patients in mind, nor are the explanations simple enough to be adaptable to the general population. Some scientific societies and surgical product companies have created videos about certain techniques with simple explanations for patients, which can be accessed through their websites or directly on YouTube. Another video-based social network that is frequently used by young people is **Tik-Tok**. During the pandemic, this platform was used to disseminate videos made by healthcare professionals to raise awareness of COVID prevention measures. Currently, it is uncommon to see doctors using this social network for professional purposes, but we cannot rule out that residents who use these networks for personal purposes will start using Tik-Tok in their professional field.

Visibility and communication on SM

Surgeons have increased their visibility on SM using Facebook, Twitter, LinkedIn and Instagram for personal and professional purposes. Some hashtags have gone viral and become

enormously influential, such as **#IlookLikeASurgeon**, **#SoMe4-Surgery** or **#colorectalsurgery**, which had more than 65 million views in the first 18 months. However, some of them have become difficult to follow, with more than 5000 users posting messages and more than 50 000 related tweets and information related to multiple courses, meetings, publications, etc. There is a risk of excess information, and sometimes it is complex to find the information that interests us, even within our “twitter-sphere” or “twitter-verse”. In 2014, the **#IlooklikeASurgeon** campaign that embraced diversity and recognition of surgeons of any gender, race, ethnicity, culture or physical condition was an example of how a message can spread quickly and be shared positively throughout the surgical world.⁶ Another example of this was the **#NYerORCo-verChallenge** in which female surgeons from around the world replicated the cover of *The New Yorker* supporting the initiative against gender stereotypes in surgery.⁷ Hashtags have also been used to drive social change and seek changes in social mentality. This was the case of **#MedBikini**, in which female doctors from around the world protested against social prejudices towards female doctors by defending their right to publish photos on their private accounts without censorship.⁷

Some surgical hashtags have become a virtual community in which many participants have a sense of belonging and actively collaborate to perpetuate the Twitter-sphere. This is the case of **#SoMe4Surgery**, which was created in 2018 by a group of connected surgeons, promoted by **@juliomayol** and his account **@some4surgery**. Other professionals joined by express invitation, and it has since gone viral in a second phase with more than 9000 followers and participants.

Currently, some of the Twitter /X accounts with the most followers among surgeons and with the greatest professional interest at the current time are the following: **@aecirujanos**; **@me4_so**; **@BJSurgery**; **@AmCollSurgeons**; **@ContraCancerEs**; **@AISChannel**; **@AECF_FAECP**; **@obesidadSECO**; **@IfsoSecretariat**; **@eurohernias**; **@escp_tweets**; and **@EAES_eu**. Meanwhile, the Spanish surgeons who currently have the most followers on Twitter /X are **@juliomayol**, **@BalibreaJose** and **@smoralesconde**.

In addition, social media promote greater inclusion of junior surgeons, who tend to be underrepresented in the traditional surgical forums, while on social media they have the option of having their own voice by contributing their ideas and work. For some, it has been a great opportunity to increase visibility and encourage greater participation in conferences or presentations to which they would not otherwise be invited.⁷

Surgical blogs have also been a good vehicle to comment on topics that are not traditionally covered in scientific literature or that are aimed at a specific audience, such as the blog of the Association of Women Surgeons (AWS), with a high number of subscribers around the world.⁷ Furthermore, certain journals, such as the *British Journal of Surgery*, promote blogs like “The Cutting Edge blog” to develop surgical topics or comment on published studies that require more space than social media usually provide.

The impact of a scientific journal or publication has also begun to be measured by its visibility on SM since a correlation has been proven between a publication’s Twitter activity and

its citations.⁸ Therefore, journal editors are increasingly taking into account the impact that their publications may have on SM, and more and more journals have a social media editor who promotes the visibility of the most relevant articles published in each issue.

Scientific societies have not been left out of this development of social media, and they are increasingly concerned whether their activities are adequately publicized on SM to achieve the greatest possible impact. For example, the influence of conferences and surgical meetings that these societies organize is also measured according to their digital footprint; thus, organizers are increasingly making more of an effort to generate content to advertise congresses and their content on social networks, especially on Twitter. The National Congress of Surgery organized by the Spanish Association of Surgeons (*Asociación Española de Cirujanos*, or AEC) is an example of a progressive increase in visibility in SM from 2015 to 2020, with a much greater impact precisely in 2020, when it was held in virtual format due to the COVID pandemic, achieving more than 13 million views on Twitter.⁹

In terms of visibility, it is also important to refer to the impact of the professional network LinkedIn as a means of connecting workers and companies, which is useful for surgeons to find better job opportunities in the private sector or to connect with companies to conduct innovation or research projects.

The negative aspect of visibility is the unrealistic perception of the lives of other users, which is so common in social media and can also affect the surgical community, where idyllic professional lives full of triumphs may be portrayed. This can contribute towards creating unrealistic and difficult-to-reach ideals, leading to frustration in new generations of surgeons.

Last of all, we must consider the value that social media can have in connecting different medical professionals. An example of this are the WhatsApp groups that many surgeons use to stay in contact with other professionals — for instance, groups that include members of a multidisciplinary committee or groups that bring together different professionals who collaborate on complex surgeries. However, extreme caution is recommended to avoid sharing personally identifiable patient data through this medium, as there is no guarantee of data protection, and legal problems may ensue. It is safer to use corporate emails or the hospital’s own closed messaging services to discuss patient-related issues.

Surgical training on SM

Surgical training requires theoretical learning, which can be acquired by studying books, scientific articles published in journals, or audiovisual material, combined with attendance at courses and conferences. Practical learning is acquired in courses in the experimental operating room or with simulators as well as clinical and surgical practice with initial mentoring. Social media are very useful for keeping up to date with the latest scientific publications and following topics of interest as part of our continuing education. Online teaching or e-learning has become relevant over the last 20 years. The digital transformation of medical education has been pro-

gressive, and the offer of online courses and master's programs was already significant before the pandemic. However, during the months of confinement and afterwards, when in-person courses and conferences were not allowed, a large number of virtual training initiatives appeared in the surgical sphere. Some of these have lasted after in-person courses were reinstated, such as the Virtual Classroom of the Spanish Association of Surgeons (AEC).¹⁰ Educational platforms like Websurg, AIS Channel or the more recent AEC Connect provide material in video format with diverse content, including master's classes, presentations, interviews or commented surgical techniques, but they also stream live content, giving connected surgeons the opportunity to participate and interact with experts.

YouTube remains the most popular video platform (used by 75% of adults in the US), and it is especially useful for sharing educational videos, recorded presentations, webinars or surgical technique videos.⁷ The videos shared on YouTube reach a large audience and have many views, but there is no control of any sort over the published content. Educational video platforms such as Websurg or AIS Channel differ from YouTube by having greater control over the published material. The editors of Websurg or AISChannel review and choose the published videos, while on YouTube there is no surgical quality control over the videos. The publication by Yüskel¹¹ reported that the score for the surgical quality of videos on laparoscopic gastrectomy on Websurg is double that of YouTube. However, the educational value of these surgical videos continues to be limited since the editing frequently omits details relevant to teaching or for the critical evaluation of the technique explained, as Mahendran¹² argued after evaluating TaTME videos on several platforms. All these surgical training platforms rely on SM to communicate the publication of new content releases, webinars or meetings with experts, and they take advantage of the dynamism of Twitter to chat about new content with their followers.

In addition, Twitter also provides teaching options with **Tweetorials** or Tweet "threads" that explain an academic topic using images or tables from recent publications. The difficulty of explaining in 280 characters requires summarizing the key points and presenting the information dynamically, as very long threads tire the audience and are not usually read to the end.

Tweetchats are open conversations on Twitter that have also been used for surgical training. They are usually based around hashtags, medical journals, research groups or scientific societies and are highly effective in improving audience numbers and impact. For example, if we value them in terms of views (number of times the hashtag has been viewed) some surgical tweetchats have achieved millions of views.

It is important to identify reliable opinion leaders in our area of work to follow them on SM. Following their publications will allow us to be aware of the achievements made by their teams, see their recommendations regarding publications, courses and conferences, and even establish a direct virtual relationship with these leaders to ask them for advice about how to improve our professional career, which would be more complicated in person.

SURGICAL RESEARCH ON SM

Collaborative research has changed thanks to SM. Currently, studies can be conducted with many researchers who are outside the academic circuit, and students and patients can also be included in the development of the research, which clearly enriches it.¹³ Ioannidis published an example of how SM can help promote research¹⁴; the article compiled the conclusions of a conversation held in the #SoMe4Surgery twitter-sphere, where opinion leaders, surgeons from around the world and young researchers discussed the best way to begin a research career in surgery. The publication of the results of scientific studies on SM contributes to the dissemination of knowledge and helps research groups connect with others working along similar lines. On SM, #surgicalresearch is one of the most popular hashtags for surgical researchers, thanks to which you can connect with the best surgical researchers in the world.

Nowadays it is possible for a publication to be entirely conceived, conducted in collaboration, published in a scientific journal and distributed via SM. The possibility to meet international colleagues who work in the same lines of research and to start collaborations with them remotely is a great advantage. Also, young people benefit from direct access to senior researchers through SM, where they can share their ideas, doubts and projects with them, receiving direct advice from great international researchers to improve their lines of research or research career.⁷

Furthermore, once the results of a study are published, it is important for them to be known. Dissemination of a Visual Abstract on SM as a summary of a scientific publication has proven to be highly effective in increasing the number of downloads and views of published articles.¹⁵

Recommendations on the use of social media in surgery: ethical and legal factors

The use of social networks in surgery has ethical and legal implications, although we are not always aware. Thus, it is essential to consider these when creating our publications. The main ethical and legal aspects that must be taken into account are the following¹⁶:

- 1 When using SM, remember what is established in the Code of Ethics of the College of Physicians (CDCOM).¹⁹ This code discusses the behavior of doctors with their environment, colleagues and patients, and these same rules apply to the digital environment; be especially cautious due to the immediacy of dissemination.
- 2 Intellectual Property Law: Intellectual property on the internet is the right that authors or creators have to decide about the publication and dissemination of their work on the Internet and to obtain payment in exchange, if they want. According to the CDCOM,¹⁹ "publications or dissemination of knowledge by a doctor on SM and the Internet must be carried out with the rigor and seriousness established in the code, and always with proper identification of the author." Thus, we must avoid

including in our publications any documents or images that may be subject to copyright (such as fragments of published articles, diagrams, tables, drawings, photographs, etc) for which express authorization has not been given.

- 3 Right to one's own image: Regarding this point, it is advisable to request explicit permission from colleagues included in group photos of conferences, meetings or work activities before publishing them on social media.
- 4 Patient right to privacy: The CDCOM¹⁹ in Article 28.5 states that "when doctors interact on SM using patient information, they must do so for healthcare, teaching or research purposes, while always guaranteeing anonymity of the patient." To do this, we must strictly comply with the Organic Law on the Protection of Personal Data and Guarantee of digital rights. The patient must be asked for explicit permission and give their written consent. A survey conducted in this regard reported that 90% of patients have no problems with their images being used for educational purposes, but only 42% would accept that these images be used on SM.¹⁷ In any case, we must ensure that we do not share data or images on SM that could reveal the identity of the patient, which also means avoiding references to the place or date of the intervention.¹⁸ Health data are considered "sensitive" by the Spanish Data Protection Law, so there is a high risk of loss of information, and this is considered a serious offense. In addition, the patient's dignity must always be protected by avoiding publishing images that may be humiliating or unpleasant for patients or their families.
- 5 Conflicts of interest: Doctors who recommend a product on SM should acknowledge any associations with the manufacturer in question, as recommended by the CDCOM.¹⁹
- 6 Advertising medical services offered by a medical professional must be done in an objective, prudent and truthful manner.
- 7 Imprecise information: When making a publication on a social network, as doctors we are giving medical information publicly. Therefore, we must be sure that the information is true and accurate by thoroughly checking the sources. Comments on SM may be considered medical activity. If we published false information that is used by others, this could lead to significant legal repercussions if harm is caused to someone.
- 8 Avoid controversies between doctors on networks: Comments that could violate the right to honor should be avoided. Furthermore, if certain information is shared about a colleague on SM, it may result in a violation of the right to privacy and the protection of personal data or be considered a crime of libel, slander or an attack on public authority. You should avoid criticizing colleague's actions in a derogatory manner or alluding to their private life or personal aspects, since doing so on SM is an aggravating circumstance, as specified in Article 46.2 of the CDCOM.¹⁹ Crimes of libel and slander may be punishable by fines or prison sentences.
- 9 The CDCOM¹⁹ is a reference document for behavior on SM, which highlights that "what we cannot do in real life we should not do on SM either."

- 10 It is advisable to have a Social Media Protocol and consciously review all content before publishing it to avoid illegal actions or deontological misconduct. This conscious review will also prevent us from hasty publications, thereby avoiding slip-ups in situations of indignation or anger that can cause even more problems. It is important to think very carefully about what is going to be communicated, have clear objectives for the use of SM and to sensibly distribute the time we dedicate to SM so that it does not interfere with our professional activity or our personal life.

REFERENCES

1. Real Academia Española. Diccionario panhispánico del español jurídico. Accedido el 23 de junio de 2023 en <https://dpej.rae.es/lema/red-social>.
2. Minami H, Li X, Ong Samantha K, et al. Frequency and characteristics of social media use among general surgery trainees. *J Surg Res.* 2022;277:342-51.
3. Hamilton K, Kim R, Savetsky IL, et al. Social media guidelines for young plastic surgeons and plastic surgery training programs. *Plast Reconstr Surg.* 2021;148(2):459-65.
4. Long L, Leung C, Hong JS, et al. Patterns of internet and social media use in colorectal surgery. *BMC Surg.* 2019;19:52.
5. T Garcia Val, Estevez S, V Vigorita, et al. Redes Sociales como fuente de información para pacientes quirúrgicos. ¿son un canal de comunicación real? *BMI journal on line* dic 2021.
6. Soreide K. Numbers needed to tweet: social media and impact on surgery. *Eur J Surg Oncol.* 2019;(2):292-5.
7. Grossman R, Sgarbura O, Hallet J, et al. Social media in surgery: evolving role in research communication and beyond. *Langenbecks Arch Surg.* 2021;406:505-20.
8. Cosco TD. Medical journals, impact and social media: an ecological study of the twittersphere. *CMAJ.* 2015;187:1353-7.
9. Sanchez-Cordero S, Morales-Conde S, Sánchez Santos R, et al. Resultados y Evolución histórica de las redes sociales en el American College of Surgeons Clinical congress y en el Congreso Nacional de Cirugía. *Análisis del #ACSCC20 y #CNCirugia2020.* *CirEsp.* 2022;100(9):562-8.
10. Sanchez Santos R, Morales Conde S, Ramos Rodriguez JL, et al. Analysis of the broadcasting and perceived utility through the implementation of a virtual training platform during the pandemic. *Cir Esp.* 2023;101(1):29-34.
11. Yüskel C, Culcu S. New Learning area in laparoscopic gastrectomy for gastric cancer: Youtube® or Websurg®. *J Minim Access Surg.* 2022;(1):129-35.
12. Mahendran B, Caiazzo A, Coleman M, et al. Transanal total mesorectal excision (TaTME): are we doing it for the right indication? An assessment of the external validity of published online video resources. *Int J Colorectal Dis.* 2019;34(10):1823-6.
13. Bisset CN, Moug SJ. Collaboration is key: the role of social media in advancing surgical research. *Surgery.* Epub ahead of print. DOI 10.1016/j.surg.2023.04.053.
14. Ioannidis A, Blanco-Colino R, Chand M, et al. How to make an impact in surgical research: a consensus summary from the #SoMe4Surgery community. *Updates Surg.* 2020;72:1229-35. <http://dx.doi.org/10.1007/s13304-020-00780-z>.
15. Chapman SJ, Grossman RC. FitzPatrick Randomized controlled trial of plain English and visual abstract for disseminating surgical research via social media. *Br J Surg.* 2019;106:1611-6.

16. Keller EJ, Mlambo VC, Resnick SA, Vogelzang RL. #PauseBeforeYouPost: ethical and legal issues involving medical social media. *Seminars in interventional. Radiology*. 2022;39:203-6. <http://dx.doi.org/10.1055/s-0042-1745717>.
17. Ley Orgánica 3/2018, de 5 de diciembre, de Protección de Datos Personales y garantía de los derechos digitales.
18. Wyatt KD, Finley A, Uribe R, et al. Patients' experiences and attitudes of using a secure mobile phone app for medical photography: qualitative survey study. *J Med Internet Res*. 2020;22(05):e14412.
19. Código de Deontología Médica. Guía de ética médica. Publicado el 23 de marzo de 2023. www.cgcom.es.