

# The role of social media in ophthalmology: a narrative review

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## HIGHLIGHTS

Social media have played an increasing role in the scientific communication and surgical training in all fields of ophthalmology. Their relevance has been put to evidence during the ongoing COVID-19 pandemic.

## ABSTRACT

Social media have played an increasing role in medicine with potential applications for both physicians and patients. This trend has also impacted clinical and surgical practice in ophthalmology in a wide range of subspecialties to promote scientific research findings, provide further tools for teaching, and ease communication between ophthalmologists across the globe improving patient care. However, social media have certain limitations that need to be overcome to ensure their reliability and quality for physicians and patients. This article provides a review of the current applications and pitfalls of social media in ophthalmology.

**Key words:** social media, ophthalmology, YouTube, Twitter, Facebook

## INTRODUCTION

Social media are forms of electronic communication through which users create online communities to share information, ideas, personal messages, and other content such as videos [1]. These have met increasing importance in medicine, with great utility for both physicians and patients. For physicians, social media provide the opportunity to establish an online, nationwide and global reputation, being an easy platform to expose their clinical and academic/scientific experience to a wider audience, promoting the scientific communication between peers and also between physicians and the general population.

Besides, social media are useful marketing tools for health-care professionals and medical institutions [2]. Furthermore, social media and smart phones have been largely adopted in medical education [3, 4].

On the other hand, social media have the potential to promote education for health among patients; as many as 70% of US adults seek medical information online [5]. In addition, an increasing number of online communities are emerging to provide patients who share certain diseases to find additional information about their disease and to express their questions and fears regarding the condition, thus improving their psychosocial well-being and promoting social integration.

The aim of this article is to provide a review on the current applications and pitfalls of social media in ophthalmology. A literature search was performed in PubMed and Google Scholar databases, searching English written publications from January 2011 to June 2020, using the terms “social media and ophthalmology”, “YouTube and ophthalmology”. In addition, a literature search was used by searching terms referring to specific social media networks (Facebook, Twitter, LinkedIn) as well as using specific ophthalmic diseases (cataract, refractive surgery, cornea, glaucoma, retinal disease, oncology). Finally, a manual search for additional references was performed in each paper.

## CURRENT APPLICATIONS OF SOCIAL MEDIA IN OPHTHALMOLOGY

The social media trend has been widely adopted in ophthalmology. The constant innovation in the technology and surgical techniques, as well as the ever expanding developments in the basic, translational and clinical research, has made our specialty a particular field where social media can play significant roles.

Online platforms are useful in the teaching of ophthalmology to medical students, residents and specialists. A number of e-learning platforms are currently provided by major scientific societies, including the American Academy of Ophthalmology® (AAO) Ophthalmic News and Education Network® (ONE® Network), the European Society of Cat-

aract and Refractive Surgeons iLEARN®, and the European InSight® platforms (to name a few), where trainees and specialists can expand their knowledge and find up-to-date, clinically relevant data. In addition, video platforms are tools that play an increasing role in the teaching of training surgeons due to their lower cost and easy accessibility [6, 7]; in fact, YouTube® may already be the main source of surgical videos for surgical preparation [8]. As a surgeon working in a main university hospital, I often suggest medical students and young trainees to watch surgical videos prior to assisting surgery in the operating theatre, to be familiar with the surgical techniques and to expand their surgical “skill set”. Indeed, video materials have shown to promote skill acquisition among undergraduate medical students doing ophthalmology placements [7]. Of note, it has been proposed that self-learning surgical techniques, particularly DMEK surgery, is feasible using YouTube® educational videos [9].

Resorting to social media for medical learning and scientific communication is widespread among both physicians and scientific societies and associations. In 2015, of the 133 members of the International Council of Ophthalmology, 17.3% were present on Facebook, 12.8% were present on Twitter, and 7.5% were present on LinkedIn [10]. Several ophthalmology conferences encourage their participants to share tweets, Facebook posts, and Instagram posts identifying the conference (hashtags). This is a useful marketing approach to promote the conferences, and is also a means for researchers to present their findings to a broader online audience. The AAO Annual Meeting Twitter account has confirmed an increasing trend in online activity in recent years, particularly among younger ophthalmologists [11]. The interest in social media for scientific communication is also increasingly noted in scientific journals. In 2015, 21.5% of the 107 ophthalmology journals in SCImago were present on Facebook and 18.7% on Twitter [10]. Interestingly, social media activity has been observed to be an early indicator of ultimate impact of an academic paper in other surgical specialties [12], and this likely occurs in ophthalmology as well.

The accessibility of social networks for scientific communication may be particularly important in developing countries. One study has reported that 94.2% of Nigerian ophthalmologists and trainees use social media as a tool for scientific communication [13].

## SOCIAL MEDIA IN OPHTHALMIC CARE

Online communication platforms are widely used by ophthalmic patients as well. The main utilities are education for visual health, communication between patients who share the same diseases, and as a tool for communication with

the attending ophthalmologist [14]. Social media usefulness has extended to all sub-specialties in ophthalmology. Glaucoma care can be improved by finding further information regarding the disease and treatment options, emotional support, and sharing experiences [15]. The investment in mobile-based glaucoma education has shown good results in glaucoma patients with low levels of health education [16]. Patients seeking refractive surgery may be the most highly active on social media, which is likely related to the younger patient age. These patients seek information on treatment options, shared experiences from operated patients, and to assess the quality of the ophthalmic surgeons. Although active participation of transplantation centers on social media is likely to increase social awareness for the importance of organ donation and transplantation among the general population [17, 18], this has still not significantly contributed to increased rates of corneal graft availability for corneal transplantation [19]. Besides, social media has the potential to improve quality of ophthalmic care by tele-ophthalmology. Postoperative care following cataract surgery may be improved social media messaging [20]. Finally, social media have been used to address gaps in access to ocular oncology in Brazil. The use of WhatsApp-based telemedicine and YouTube videos has helped local ophthalmologists to establish the diagnosis and treat patients with uveal melanoma without the need for travel [21].

## SOCIAL MEDIA AND OPHTHALMOLOGY DURING THE COVID-19 PANDEMIC

The current COVID-19 pandemic has brazenly put the potentials and limits of social media to test, which showed remarkable success, proving not only that they are useful but also showing that they will be a means of change in current clinical and academic practice [22]. Moreover, undergraduate medical teaching of ophthalmology was performed online in a number of institutions using platforms such as Zoom® [23]; in my institution, we have also provided ophthalmic clinical skills teaching for undergraduate medical students during the pandemic (unpublished data). An unexpectedly high number of educational courses and small meetings have been done via video-audio conferencing cloud platforms in the form of webinars; between 14<sup>th</sup> March and 30<sup>th</sup> June, 2020, an estimated 1030 webinars with link to YouTube® or Facebook have taken place [24]. In addition, a number of major ophthalmology conferences have “gone virtual”, hosting online conference formats, including the recent World Ophthalmology Congress 2020. The AAO “Ophthalmology” journal has observed that its Twitter account is playing an important role for physicians to share experience, collaborate on research, and to initiate discussion on COVID-19-related ophthalmic research

and care [22]. Finally, tele-ophthalmology and use of social media were extensively used to enable patients to seek and obtain medical care and communicate with their attending physician during periods of social distancing.

## CURRENT PITFALLS

The increasing utility of social media in medicine is not free of limitations. Physicians (and ophthalmologists alike) are at risk of blending private and personal information with professional information in their online profiles [25], raising ethical and potentially legal issues. This issue has been increasingly targeted in ophthalmology conferences, and may be prevented by having two separate online profiles. Besides, we are more exposed to abusive patients seeking excessive contact with the attending ophthalmologist, which can be harmful for the doctor-patient relationship. On the other hand, patients are at increased risk of loss of data confidentiality; definite, effective policies for protection of health-related data are currently lacking [26].

Online information on social media may be irrelevant or of poorer quality. Most YouTube videos on retinopathy of prematurity and retinitis pigmentosa have been found to be of low quality or misleading [27, 28]. Identifying the main terms for online research is an important step to optimize the quality of information online [29]. Furthermore, online information tends to exaggerate the surgical outcomes and to disregard the risks associated with any surgical procedure, which is particularly noted in cataract and refractive surgery. Social media and particularly the Internet show low scientific accuracy and provide unrealistic expectations regarding the surgical outcomes of retinal implants [30]. Although video platforms are remarkably useful for both surgeons and patients, they present several limitations and potential risks. There is a lack of comprehensive material on YouTube across multiple surgical disciplines [4], and the surgical quality of the videos is not assessed and validated by experts, which puts training surgeons at risk for poor clinical decision-making or poor surgical technique. As many as 37% of cataract surgery videos on YouTube have been considered not satisfactory, and the number of visualizations of poorer quality videos is not different from that of higher quality videos [31]. In addition, there is a bias towards videos of simpler cases or cases without surgical complications. One study found lower rates in YouTube videos of surgical complications during cataract surgery in eyes with small pupils compared with the reported rates in the literature, and most videos did not use mechanic pupil dilators [32].

## CONCLUSION

We live in the digital and social media era, and the driving force of these media is quickly involving the medical

field, particularly ophthalmology, enabling fast and global dissemination of scientific information, improving scientific communication among doctors and with patients, and improving access to higher quality of care in less privileged

areas. The active online participation of healthcare professionals and institutions will be a major healthcare strategy to improve health education and ophthalmic care.

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