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ORIGINAL ARTICLE SPECIAL TOPICS

# Online and Social Media Footprint of All Swedish Aesthetic Plastic Surgeons

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**Abstract**

*Background* The visual nature of the Internet and its newer technologies makes it naturally aligned to plastic and aesthetic surgery. While many studies have looked at the use of social media ('SoMe'), they have been limited by either low response rate or limited scope. Our aim was to analyse a whole community of aesthetic plastic surgeons and their use of the Internet and social media platforms over a period of many years.

*Methods* All active members of the Swedish national aesthetic plastic surgery society were identified. Webpages, professional (LinkedIn), social media (Facebook, Twitter, Instagram) and video-sharing (YouTube) accounts as well as online patient forum (Plastikoperationsforum) mentions of the surgeons and their clinics were identified, and corresponding platform-specific metrics were analysed.

*Results* Of the 85 active members, 67 (78.9%) had a webpage on one of the 34 different clinic websites. The websites of older established clinics had a significantly better Alexa ranking than newer ones. Surgeons with a profile on Facebook or Instagram were significantly younger than those without an account. Twitter was the least preferred social media platform. Each surgeon had a mean 12.8 threads per year as compared to a mean 34.3 threads per clinic per year.

*Conclusion* Most of the new practices established by Swedish aesthetic plastic surgeons in the last 10 years are single-surgeon ones. Instagram and Facebook accounts of their clinics seem to be the most popular SoMe platforms. Younger surgeons were more likely to have a Facebook or Instagram account and to be using two or more social media platforms. These data provide information about all aesthetic plastic surgeons registered with the Swedish national body and their increasing use of SoMe.

*Level of Evidence V* This journal requires that authors assign a level of evidence to each article. For a full description of these Evidence-Based Medicine ratings, please refer to the Table of Contents or the online Instructions to Authors www.springer.com/00266.

**Keywords** Social media · Website · Facebook · Instagram · Twitter

## Introduction

Websites were in effect, the first 'face' of Internet technology, used to advertise presence, educate and raise awareness. They present static content but offer little or no interaction and instead 'push' the same preformed material to all users and viewers.

Around 10–12 years ago, Facebook and Twitter started as online platforms for users to interact with each other. Since then, social media (SoMe) has provided opportunities for professionals to engage with each other in general public. SoMe derives this benefit because the interaction can be near real time or asynchronous.

Due to the scope of this topic, the studies to date have either used surveys that suffered from poor response rates [1] or had to be limited in their scope [2, 3]. Moreover, the studies have looked at only the number of social media accounts and not at the amount of activity carried out

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through them. To our knowledge, there has been no study that looked at both the static and dynamic online and social media footprint of an entire community of plastic surgeons.

Our aim was to identify and analyse online and social media presence of all aesthetic plastic surgeons in a country and create a snapshot of their online and social media presence, activities and engagement.

## Methods

The list of all practicing aesthetic plastic surgeons in Sweden was taken from the website of the country's national organisation, SFEP ('Svensk Forening for Estetisk Plastikkirurgi') [4]. SFEP includes plastic surgeons who perform aesthetic procedures and who have been specialists in plastic surgery in Sweden for at least 5 years. Each surgeon's demographics and primary website information were taken as that specified on the SFEP page. Their SoMe information was either taken from the SFEP webpage (if available) or from their own website.

Each surgeon was also searched on the Swedish version of the Google search engine (http://www.google.se) by their name, followed by the term 'plastikkirurg' (Swedish for 'Plastic Surgeon'). The following platforms were individually searched for each surgeon's name: YouTube, Facebook, Twitter, Instagram and LinkedIn. When a surgeon was found to be associated with a clinic, the website and SoMe information for that clinic were searched as well.

For each website thus located, its creation date was found from the open information held by their domain name registrar (DNS record). The most recent update of material on a surgeon's webpage was identified from the 'Last-updated' http header of the respective webpage, using the Firefox browser in developer mode. Each website was also searched on the Amazon's free ranking engine [5] for its page rank and related metrics (page views per user, source of referral and number of external websites linking in).

Each SoMe platform was searched for creation date of the surgeon and clinic's profile, posts in a 30-day period (from 1 to 30 September 2018), date of first content post, total number of posts, number of likes and followers for each surgeon and clinic, if available. In case of video content, the number of views of the channel was noted as well.

Additionally, Sweden's largest online patient portal for aesthetic surgery (Plastikoperationsforum, 'POF') was searched for the name of each plastic surgeon to find the number of discussion threads with the surgeon's name as well the date of the earliest and latest such threads, to identify the unique threads per year for both the surgeon and the clinic.

## Results

There were 106 plastic surgeons listed on the SFEP website, of which 21 were 'senior members' and therefore not included. Of the 85 active members, there were 67 (78.9%) male and 18 (21.1%) female. Their mean age was 59.7 years (range, 41–88 years).

### Surgeons' Webpages

Of the 85 active members, 67 (78.9%) surgeons had webpages on 34 different websites (mean 1.97 surgeons/website, range 1–12 surgeons/website), while 18 (21.1%) had no website presence. The mean age of surgeons on a website was 58.6 years, and that of surgeons not on a website was 63.6 years ($p$ value $> 0.05$). The webpages were updated at a mean of 345.4 days (range, 6.3–2713.5 days) before the data collection. Twelve webpages (19.6%, Fig. 1) had not been updated in the last 1 year.

### Clinic Websites

Thirty-four unique clinic websites were identified that had been created between August 1995 and September 2016. Of these, 20 websites (representing 52 surgeons, Fig. 2) were created in the first half of this duration, i.e. up to January 2006 (Table 1). In contrast, 14 websites (representing 15 surgeons) were registered in the later half of this period. There was no statistical difference in the age of surgeons in these sets of websites.

### Surgeons' SoMe Profile

Table 2 provides information about the surgeons' social media profile. In total, 47 (55.3%) surgeons had a LinkedIn profile as

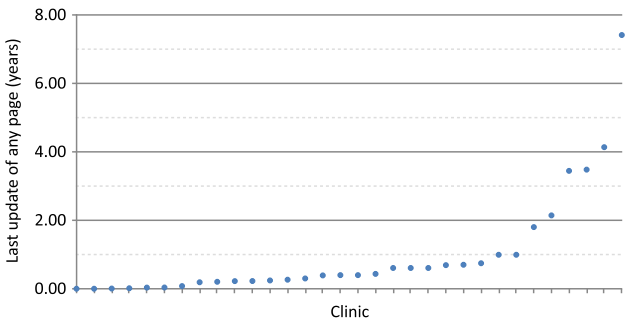


**Fig. 1** Frequency of update of clinics' webpages (in ascending order)

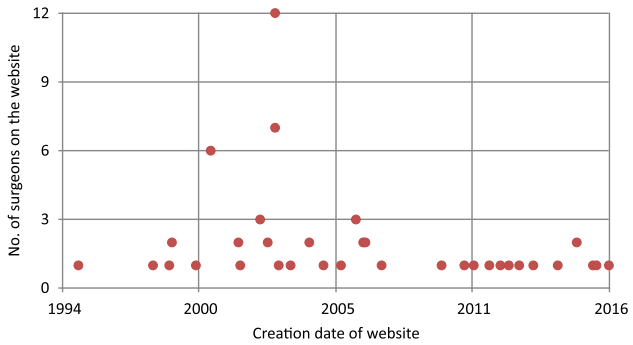


**Fig. 2** Relation between creation date of a clinic website and the number of plastic surgeons with a profile on it

well. The surgeons with an individual Instagram account had a mean age of 51.8 years (range, 44–66 years) vs 61 years (range, 41–88 years) for those who did not ($p$ value $< 0.05$). Those with a Facebook profile had a mean age of 55.0 years (range, 41–78 years) versus 62.3 years (range, 41–88 years) of those who did not ($p$ value $< 0.001$). The mean age was 54.0 years (range, 41 to 69 years) for those with a Twitter account against 60.4 years (range, 41–88 years) for those who did not ($p$ value = 0.09).

Those who had an account on two or more SoMe platforms had a mean age of 51.2 years (range, 41–66 years), versus 61.4 years (range, 41–88 years) for those who had only one or no SoMe account identified ($p < 0.05$).

Only five surgeons had posted on Instagram more than 10 times per year on average. Only three surgeons had tweeted more than 10 times per year on average. Due to recent changes in the access to Facebook, similar information was not available for that platform. No surgeon was found to have a personal YouTube channel.

## Clinic SoMe Profile

In contrast, 32 clinics were on at least one social media outlet, representing a total of 66 (77.6%) of all plastic surgeons (Table 3, Fig. 3). Instagram and Facebook were the most popular, with Twitter being least. Only three clinics had a Twitter account, but none of them had tweeted

**Table 1** Metrics for clinic websites

| Creation date | First half | Second half | $p$ value |
|---|---|---|---|
| No. of clinics | 20 | 14 | NA |
| Surgeons/website | 2.6 | 1.0 | 0.54 |
| | (range, 1–12) | (range, 1–2) | |
| Alexa rank | 4,908,006 | 9,439,891 | **< 0.05** |
| | (461,288–12,571,105) | (2,191,823–13,779,609) | |
| Page views/user | 2.0 | 2.4 | 0.66 |
| | (1.0–3.2) | (1.0–4.0) | |
| Searched by name | 21.5% | 46.5% | 0.51 |
| | (2.9%–55.5%) | (23.6–100.0%) | |
| External websites linking in | 23.1 | 6.0 | 0.51 |
| | (1–88) | (1–13) | |

The bold font is there only to draw attention to the result which is statistically significant

**Table 2** SoMe presence of individual plastic surgeons

| Platform | Facebook | Instagram | Twitter |
|---|---|---|---|
| No. of plastic surgeons (% of total) | 30 | 12 | 9* |
| | (32.9%) | (14.1%) | (10.6%) |
| Active accounts | 12 | 5 | 4 |
| | | (5.9%) | (4.7%) |
| Creation date | NA | July 2012–February 2017 | November 2009–March 2017 |
| Posts (year) | NA | 38.5 | 38.8 |
| | | (1.3–84.7) | (0.0–137.9) |
| Follows (year) | NA | 936.9 | NA |
| | | (26.4–5467.3) | |
| Status updates during September 2018 | 2.1 | 2.4 | 0.75 |
| | (0–11) | (0–15) | (0–4) |

*Only three surgeons sent more than 10 tweets during the last year

**Table 3** Online/SoMe presence of plastic surgery clinics

| Platform | YouTube | Facebook | Instagram |
|---|---|---|---|
| Active clinic accounts | 4 (11.8%) | 19 (55.9%) | 17 (50.0%) |
| Plastic surgeons represented | 29 (34.1%) | 48 (56.5%) | 47 (55.3%) |
| Creation date | Aug 2009–June 2017 | July 2010–January 2018 | January 2013–October 2017 |
| Uploads or posts (year) | 11.2 (range, 4.4–19.4) | NA | 64.3 (range, 1.3–251.5) |
| Video views or follows (year) | 37,108 (range, 2635.6–89,729.2) | 654.0 (range, 25.5–3689.3) | 565.6 (range, 21.2–1813.8) |
| Status updates during September 2018 | NA | 5.8 (range, 0–27) | 6.1 (range, 0–25) |
| Likes (year) | NA | 675.4 (range, 25.5–3712.8) | NA |

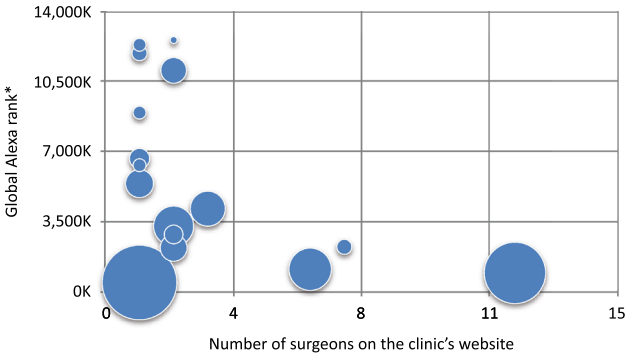


**Fig. 3** Relation between number of surgeons and Alexa rank (*smaller number is a better rank). The area of a bubble is proportional to the number of external sites linking in

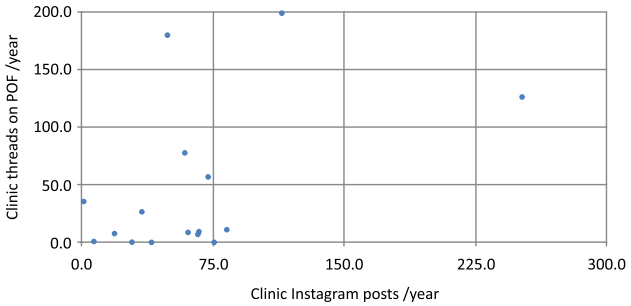


**Fig. 4** Relationship between clinic posts on Instagram and the corresponding discussion threads on POF

during September 2018. Interestingly, newer clinics have similar Facebook follows or likes per year ($p > 0.05$) as well as similar yearly Instagram posts and followers ($p > 0.05$) as compared to earlier established clinics.

### Surgeons on Patient Platform

The earliest threads on Plastikoperationsforum (POF) were from 2010, when the web portal was launched. Seventy-five surgeons were mentioned in a mean 71.7 total threads on POF (range, 1–768). This represented a mean 12.8 threads per year since a surgeon was first discussed on the platform. In contrast, 32 clinics had been mentioned in a mean of 200.0 threads (range, 2–979 threads) and a mean 34.3 threads per clinic per year (range, 0.3 to 198.8 threads per year, Fig. 4). Earlier established clinics had a mean 32.2 unique discussion threads (range, 0.4 to 179.7) on POF, as compared to 39.8 threads (range, 0.4 to 198.8) for the newer clinics ($p > 0.05$).

## Discussion

SoMe is a platform for engagement and branding, allows development of a sphere of influence from the followers and allows plastic surgeons to connect and communicate [6, 7]. It acts for brand advertisement, information and presence [8, 9]. While each study seems to have its own definition of which platforms constitute social media, it is widely understood that their usage has greatly increased in recent years.

In 2011, 28.2% of ASPS surgeons had a SoMe account [10] which increased to 50.4% only 2 years later [11]. Mabvuure et al. [12] noted that during 2013, 22% of UK plastic surgeons had a Twitter account and 4% had a Facebook account, with a mean 125 Twitter followers and 368 Facebook likes. McEvenue et al. [13] found that in 2016, 85% of all members of the Royal Canadian Society of Plastic Surgeons had a SoMe profile. While these trends clearly show an increasing number of social media accounts across different countries, this does not mean that all these accounts are used actively as well. Most of the studies to date look at one SoMe platform or limit their

scope to either a few hashtags or a limited group of surgeons. At best, this can present a static overall picture but does not address the trend over time or across a whole group of surgeons. The current literature also does not differentiate between the SoMe activity of an individual surgeon from that of a clinic brand. Our aim was to look at an entire community of aesthetic plastic surgeons in a developed country, in order to describe their professional footprint on the Internet. Since the internet has evolved in the last two decades, from static-only to dynamic and now interactive content, our objective was to capture this change throughout this community of surgeons.

A recent study has identified that surgeon and patients' perceptions differ as to the importance of SoMe for aesthetic surgery. Patients use online resources [14], while surgeons attach less importance to it. Our secondary objective was to identify whether the provider's (i.e. surgeon or clinic's) SoMe activity bears any relation to their mentions in a patients' forum.

The existing literature on social media usage in plastic surgery can be broadly divided into studies that look at incidence/usage pattern by a group (of doctors or patients), content analysis of various platforms, characteristics/impact of respective influencers and opinion about efficacy of SoMe. Economides et al. [1] recently surveyed ASPS members. Of the 7.4% who responded, 61.9% answered affirmative to using social media and 59.9% of responders were single-surgeon practices. Those with a primarily aesthetic practice were more likely to have a social media account. Of those using Instagram, a third were in practice for less than 10 years. In addition to the low response, it may be that more tech-savvy surgeons were more likely to reply to the survey. Indeed, of those who did reply to their survey, most were single-surgeon practices and one-third were using Instagram.

Dorfman et al. [2] performed content analysis of preselected plastic surgery-related hashtags on Instagram and concentrated their analysis on the most widely cited posts ('top posts') only. They found that 42.7% of the top posts originated outside of the North America, 26.4% of top posts were from non-certified practitioners, and only 17.8% posts were from board certified American or Canadian plastic surgeons. Similarly, Chandawarkar et al. [15] used proprietary software to identify social media influencers. Being proprietary software, there is limited information about the algorithm used to decide the status of an influencer.

Dorfman et al. [16] also performed a Google search of the top 20 plastic surgeon results in 25 US cities. They found that 36.2% practices had SoMe accounts on two platforms. (24.8% had accounts on three, and 19.4% had account on one platform only.) Presumably, the remaining 19.6% had no SoMe account. They also found that the number of SoMe followers was significantly more if the surgeon was on the first page of the search results. We feel that there is a confounding factor in that the Google search engine gives a higher rank to the surgeons with more followers or those who employ aggressive search engine optimisation (SEO) techniques.

We found that clinic websites that were created early in the evolution of the Internet have better Alexa ranks (i.e. a smaller number) and are pointed at/linked to, by more external websites. This may represent a 'first mover advantage' or a better SEO strategy of these websites or simply they might represent more surgeons and hence have more links pointing towards them. The newer clinic practices were more likely to be single-surgeon ones. This may be because newer surgeons don't have the resources to make partnership or those that wanted to make partnership have already joined larger ones. We think that it might in large part be due to a SoMe-first strategy by these smaller clinics which allowed single-surgeon practices to compete.

We found that the earlier established clinics were *less* likely to be searched by name in a search engine. This may be because these clinic names appear higher in an internet search for an aesthetic procedure. The newer established clinics were more likely to be searched by name, which is likely due to better brand recognition from their SoME-first approach.

The Swedish aesthetic plastic surgeons appear to have separated their personal and professional SoMe accounts. Few surgeons were found to be using personal SoMe accounts, and most tend to work through the clinic platform, possibly for brand making. While Instagram and Facebook were the most commonly used SoMe platforms identified, they had limited presence on YouTube and Twitter. Younger surgeons were especially more likely to use Instagram. We think that because Instagram allows pictures to be captioned with a flexible length of text and hashtags, it is more aligned to represent plastic surgery imagery than, for example, Twitter that has a strict word limit. Also, the visual centric look and feel of the Instagram feed may resonate better with the younger demographic.

None of these surgeons were found on Real Self, which is a very popular platform in North America. While some platforms (e.g. Facebook and Instagram) are ubiquitous, it is possible that certain platforms are preferentially used in some countries. In our study, Twitter use was very low, although its use in North America has been reported to be considerable higher [10, 13, 15, 17]. It is worth noting that there are many other social media platforms as well and it is understandable that a clinic or a surgeon will aim to concentrate on a selected few.

We found that newer clinics have more presence on SoMe than older ones and noted that two clinics had a SoMe presence only without any website (something that

was unthinkable only a few years ago). We think that we are heading towards a 'SoMe-zation' of the aesthetic surgery field and that it should not be surprising if the next generation of plastic surgeons will probably all be on SoMe alone. Our data suggest that the newer clinics have a similar social media presence as the older ones but that younger aesthetic surgeons are more likely to have more social media accounts. Although we do not have data for these surgeons' or clinics' incomes, Stevens et al. [6] have shown that a coherent and well directed SoMe policy can positively correlate with income.

The discussion threads on the patients' forum mention the clinics more often than the corresponding surgeons. It may mean that the clinic brand is taken stronger than the surgeons or it may simply reflect the effect of surgeons spending less on personal promotion and more on clinics.

One limitation of this study is that every country has different social media platforms, e.g. RealSelf and RateMD in USA, but not elsewhere. Another limitation may be that the data have different granularity for surgeon and clinic, e.g. webpages have a last update header, but websites have an Alexa rank (which is very likely to be different from Google's page rank). Older vs newer clinic classification is based on the time their webpage was created. This may not coincide with the creation of the clinic itself. It is unlikely that a webpage would have been created too long before the clinic was established, although the opposite may be true.

## Conclusion

The Swedish aesthetic plastic surgeons appear to have separated their personal and professional SoMe accounts. Having a SoMe account is not the same as maintaining it regularly. Most of the new surgical practices established in the last 10 years seem to be single-surgeon ones. Instagram and Facebook appear to be the most popular SoMe platform with the Swedish aesthetic plastic surgeons. Younger surgeons were more likely to have an Instagram account and were using three SoMe platforms. These data provide information about the complete cohort of aesthetic plastic surgeons registered with the Swedish national body and shows how this society is constantly evolving towards a more frequent use of SoMe.

### Compliance with Ethical Standards

**Conflict of interest** Disclosure: Dr. Montemurro is a consultant and speaker for Allergan, Inc. (Irvine, CA). Dr. Hedén is a consultant and speaker for Allergan, Inc., Establishment Labs Co, G&G Medical, GC Aesthetics, Johnsson & Johnsson (Irvine, CA) and an unpaid consultant for Canfield Scientific (Fairfield, NJ). The other authors declared no potential conflicts of interest with respect to the research, authorship and publication of this article.

**Human and Animal Participants** This article does not contain any studies with human participants or animals performed by any of the authors.

**Informed Consent** For this type of study, informed consent is not required.

## References


1. Economides JM, Fan KL, Pittman TA (2018) An analysis of plastic surgeons' social media use and perceptions. Aesthet Surg J. https://doi.org/10.1093/asj/sjy209
2. Dorfman RG, Vaca EE et al (2018) Plastic surgery-related hashtag utilization on Instagram: implications for education and marketing. Aesthet Surg J 38(3):332–338
3. Branford OA, Kamali P et al (2016) #Plasticsurgery. Plast Reconstr Surg 138(6):1354–1365
4. SFEP website. http://www.sfep.se/medlemsregister/. Accessed 14 Aug 2018
5. Alexa page ranking. https://www.alexa.com/siteinfo. Accessed 15 Oct 2018
6. Gould DJ, Grant Stevens W, Nazarian S (2017) A primer on social media for plastic surgeons: what do i need to know about social media and how can it help my practice? Aesthet Surg J 37(5):614–619
7. Timberlake AT, Wu RT et al (2018) Harnessing social media to advance research in plastic surgery. Plast Reconstr Surg 142(4):1094–1100
8. Humphries LS, Curl B, Song DH (2016) #SocialMedia for the academic plastic surgeon-elevating the brand. Plast Reconstr Surg Glob Open 4(1):e599
9. Camp SM, Mills DC 2nd (2012) The marriage of plastic surgery and social media: a relationship to last a lifetime. Aesthet Surg J 32(3):349–351
10. Wheeler CK, Said H et al (2011) Social media in plastic surgery practices: emerging trends in North America. Aesthet Surg J 31(4):435–441
11. Vardanian AJ, Kusnezov N et al (2013) Social media use and impact on plastic surgery practice. Plast Reconstr Surg 131(5):1184–1193
12. Mabvuure NT, Rodrigues J et al (2014) A cross-sectional study of the presence of United Kingdom (UK) plastic surgeons on social media. J Plast Reconstr Aesthet Surg 67(3):362–367
13. McEvenue G, Copeland A et al (2016) How social are we? A cross-sectional study of the website presence and social media activity of canadian plastic surgeons. Aesthet Surg J 36(9):1079–1084
14. Montemurro P, Cheema M, Hedén P (2018) Patients' and surgeons' perceptions of social media's role in the decision making for primary aesthetic breast augmentation. Aesthet Surg J 38(10):1078–1084
15. Chandawarkar AA, Gould DJ, Grant Stevens W (2018) The top 100 social media influencers in plastic surgery on Twitter: who should you be following? Aesthet Surg J 38(8):913–917
16. Dorfman RG, Mahmood E et al (2018) Google ranking of plastic surgeons values social media presence over academic pedigree and experience. Aesthet Surg J. https://doi.org/10.1093/asj/sjy285
17. Nayyar A, Jadi J et al (2018) Are you on the right platform? A conjoint analysis of social media preferences in aesthetic surgery patients. Aesthet Surg J. https://doi.org/10.1093/asj/sjy238


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