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PRS GLOBAL OPEN SPECIAL TOPIC

Plastic Surgery on YouTube

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Background: YouTube is the most accessed video website in the world. It hosts a variety of medical content. Plastic surgery-related content on YouTube has not been investigated before. In this study, we analyzed the most prevalent plastic surgery-related content available on YouTube.
Methods: Search terms were selected to cover the broad topics of plastic surgery. The top 20 most-viewed videos returned for each search term were analyzed. The videos were classified by the type of content, authorship, number of views, and number of likes. Data were collected and analyzed using Microsoft Excel (2016) program.
Results: Out of the 280 videos analyzed, "patient experience" was the most prevalent content type. Thirty percent of the analyzed videos were uploaded by medical centers, and 29% were uploaded from personal accounts. Educational video content constituted 6% of the total videos analyzed. Entertainment was the most prevalent (60%) content type returned when "plastic surgery" was used as the search term.
Conclusions: YouTube is an underutilized social media platform by plastic surgeons. The entertainment industry is taking advantage of the social media platform to attract and gain millions of views. Educational videos are low in number and quality.
(Plast Reconstr Surg Glob Open 2020;8:e2586; doi: 10.1097/GOX.0000000000002586; Published online 30 January 2020.)

INTRODUCTION

Most people, irrespective of their geographical locations, are routinely using social media platforms for interacting with others or for gaining diverse information as and when required. YouTube is one such video-based social media platform that is used by a huge number of people worldwide. Over 1.9 billion logged-in users visit YouTube each month. Every day people watch over a billion hours of video content on YouTube and generate billions of views. YouTube is available in a total of 80 different languages (covering 95% of the Internet population).[1] Moreover, greater than 70% of YouTube watch time comes from mobile devices.[1]

The Internet has also changed how people obtain information related to medicine and plastic surgery. A recent study has shown that the use of Internet for collecting health-related information is increasing among the general population for a better understanding of their medical condition and intervention they are receiving.[2,3] YouTube contains diverse medical- and plastic surgery-related information and is one of the leading social media websites accessed by patients for gaining health-related information. According to a study, about 95% of plastic surgery patients collected information about their surgeons and the procedure from the Internet.[4] Watching Internet videos has been shown to greatly influence the patient's knowledge, beliefs, and behavior that may contribute to better patient care or may lead to misconceptions.[3,5] Thus, YouTube can be a powerful tool for disseminating health-related information; however, people should be cautious while obtaining health-related information from YouTube. Anyone from any part of the world can post a video on YouTube that is accessible to all individuals without any regulation or standardization. This makes the users of YouTube vulnerable to misinformation posted by nonprofessional users. The accuracy and reliability of information generally depend on the user posting the information. Thus, it is important to know the information provider before relying on any information available on YouTube. Government agencies, universities, and educational institutions should consider spreading of authentic health-related information via YouTube and social media websites that have a significantly high reach to patients. A study has revealed the potential of YouTube to be used as a health education channel for young adults, which can encourage learning and increase understanding via its

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Received for publication July 28, 2019; accepted October 22, 2019.

This work was supported by the College of Medicine Research Center, Deanship of Scientific Research, Kind Saud University, Riyadh, Saudi Arabia.

DOI: 10.1097/GOX.0000000000002586

Disclosure: *The authors have no financial interest to declare in relation to the content of this article.*

entertaining and engaging content posted by a health-care professional.[6] A huge amount of money can be saved by properly utilizing this medium for distributing health information, thereby reducing unnecessary physician consultation, hospital visits, and hospital admissions.[2,6]

Various studies have analyzed the influence of communicating health information via social media platforms.[5–8] Many researchers have studied YouTube content for certain specialty health topics.[9–12] Some studies have assessed YouTube content for a few plastic surgery-related specific topics.[13] However, no previous study has analyzed the plastic surgery-related video content available on YouTube from the perspective of most frequently viewed content. In this study, our aim was to evaluate the content of the most-viewed YouTube videos related to plastic surgery.

METHODS

YouTube data were collected from June 15, 2019, to June 20, 2019. The following 14 search terms were selected for the purpose of analyzing plastic surgery-related video contents on YouTube: plastic surgery, hand surgery, microsurgery, breast reconstruction, skin burn, cleft lip and palate, free flap, eyelid surgery, breast augmentation, tummy tuck, nose job, liposuction, Botox, and fillers. These terms were selected after elaborative discussions to ensure capturing the most relevant plastic surgery content. These terms covered broad topics related to plastic surgery. To ensure capturing all relevant video content, a few medical terms were also used in conjunction with the search terms (for tummy tuck, abdominoplasty; for nose job, rhinoplasty; for breast augmentation, breast job; and for eyelid surgery, blepharoplasty).

All the selected search terms were searched on YouTube using a separate search query with the default settings to return "most relevant" results on the top. Then, data were collected for the top 20 most relevant videos returned for each search term. Paid advertising results, duplicated videos, and non-English videos were excluded. Videos were classified according to the type of content, authorship, number of views, and number of likes. Content types were further categorized into entertainment, patient experience, live procedure, educational, advocacy, job description, plastic surgeon's life story, product review, specialty description, news, beauty tips, and television show. Authorship criteria were categorized into medical centers, medical related, physician, personal, and others. Data were collected and analyzed using Microsoft Excel (2016) program.

RESULTS

A total of 280 videos with over 160 million views were included in the final analysis. The most prevalent content types for each search term are shown in Table 1. Overall, "patient experience" was the most prevalent content type (38%). Figure 1 shows the results of the overall analysis of the content type for all the 280 videos. Most of the videos were uploaded by medical centers (30%). Detailed data are shown in Figure 2. The most-viewed videos regardless of the search term, authorship, and content type are listed in Table 2. The most-viewed videos for each search term are shown in Table 3.

DISCUSSION

Nowadays, YouTube is one of the most accessed video-based website worldwide.[1] It gets millions of views daily. YouTube has diverse medical- and plastic surgery-related content. If used properly, this platform has a huge potential for communicating medical information to the general public, especially during an epidemic.[7,9,14,15] One study assessed the presence of dermatology content on YouTube and found that advocacy was the most prevalent content.[9] Several other studies have analyzed YouTube contents for the presence of specialty medical content such as movement disorders, pediatric adenotonsillectomy and ear tube surgery, methotrexate self-injection, glioblastoma treatment, and ulcerative colitis.[9–22] A previous study found that YouTube is the second most preferred social media platform (after Facebook) used by patients.[23] Some health-care providers and agencies have raised concern regarding the quality of medical information available on YouTube and recommended patients to be cautious while using this available information.[16,19]

Some studies have evaluated a few plastic surgery-related topics on YouTube. Patel et al evaluated the quality of aesthetic surgery-related information available on YouTube and reported that information available on YouTube was of low quality.[24] Another research group assessed the information related to breast reconstruction and found that although comprehensive information was not available on YouTube, it can be utilized as a patient education tool to provide comprehensive and validated information.[25] In 2018, Nissan et al analyzed the media websites mostly used by patients for cosmetic ear surgery and found that unaffiliated websites were the most reliable and physician websites were the least reliable.[26] Botox-related content on YouTube was assessed by Wong et al in 2017.[27] Most of these studies did not judge the general picture of most accessed plastic-surgery-related content on YouTube.

Ben Naftali et al analyzed the word "plastic surgery'" in 300 posts in YouTube; they found 13% of the published posts are by plastic surgeons.[13] In our study, the first 20 videos using the same word did not show any videos uploaded by plastic surgeons.

Results from the current study (Table 2) revealed that video featuring the use of silicon sheet for breast augmentation, the most commonly performed plastic surgery procedure, was watched by most people (15 million views).[28] It was interesting to note that the 2 videos that got around 21 million views were based on a show where a board-certified plastic surgeon guessed if random individuals have had a plastic surgery procedure previously.[29,30] This shows that the public is interested in knowing whether it can be detected if anyone got plastic surgery procedure before. One video named "Man's Hand Sewn INSIDE His Stomach" got around 3 million views.[31] The video was about a patient who had mangled hand trauma and managed by the abdominal-based flap. This shows that unique title and unusual plastic surgery procedures attract public attention. Another video titled "the reveal of my new nose…" gained over 2.5 million views. This indicates that a lot of people are interested in the patient experience after a plastic surgery procedure.

Table 1. Search Terms with the 3 Most-viewed Content

Search Term	Content Type	No. Videos	%	Views	Comments	Likes	Dislikes
"Plastic surgery"	Entertainment	12	60	53,725,763	59,815	526,387	50,516
N = 20	Patient experience	7	35	12,040,162	19,217	60,000	14,869
	Live procedure	1	5	178,136	6	371	66
	Total			65,944,061	79,038	586,758	65,451
"Hand surgery"	Live procedure	9	45	3,945,985	744	6,867	1,729
N = 20	Patient experience	5	25	9,664,390	23,513	135,271	13,424
	Educational	2	10	39,850	10	381	13
	Advocacy	2	10	55,767	30	211	19
	Job description	1	5	1,588	3	16	0
	Plastic surgeon's life story	1	5	189	0	0	0
	Total			13,707,769	24,300	142,746	15,185
"Breast reconstruction"	Advocacy	13	65	374,914	44	398	46
N = 20	Patient experience	6	30	94,559	71	512	19
	Live procedure	1	5	13,893	8	115	5
	Total			483,366	123	1,034	70
"Cleft lip and palate"	Advocacy	10	50	311,639	120	607	64
N = 20	Patient experience	8	40	1,343,584	130	20,255	623
	Educational	2	10	32,926	9	280	12
	Total			1,688,149	259	21,142	689
"Microsurgery"	Live procedure	12	60	865,849	199	2,212	288
N = 20	Educational	4	20	227,779	69	1,200	59
	Product review	2	10	22,673	19	92	0
	Specialty description	1	5	25,541	7	94	12
	Patient experience	1	5	8,375	0	14	1
	Total			1,150,217	294	3,612	360
"Free flap"	Live procedure	15	75	210,825	77	1,099	70
N = 20	Advocacy	4	20	138,552	38	278	15
	Patient experience	1	5	2,571	2	24	0
	Total			351,948	117	1,401	85
"Skin burn"	Advocacy	9	45	5,872,466	16,528	94,291	2,292
N = 20	Educational	6	30	1,745,444	10,459	4,934	1,324
	Patient experience	5	25	2,992,850	2,286	17,118	608
	Total			10,610,760	29,273	116,343	4,224
"Breast augmentation"	Patient experience	10	50	2,093,597	6,062	72,350	2,026
N = 20	Live procedure	6	30	685,257	164	7,974	295
	Educational	2	10	15,280,583	382	3	5,200
	Advocacy	2	10	21,749	6	146	11
	Total			18,081,186	6,614	80,473	7,532
"Liposuction"	Live procedure	10	50	958,042	354	1,379	184
N = 20	Patient experience	6	30	2,779,342	4,194	23,908	4,125
	Advocacy	3	15	528,039	161	1,272	128
	Educational	1	5	8,255	0	29	2
	Total			4,273,678	4,709	26,588	4,439
"Nose job"	Patient experience	14	70	11,962,260	36,972	265,900	9,701
N = 20	Advocacy	2	10	548,542	198	2,396	164
	Educational	1	5	2,447,746	552	11,000	774
	Live procedure	1	5	136,079	136,079	27,000	164
	News	1	5	726,002	886	47,000	428
	Beauty tips	1	5	11,237	67	350	7
	Total			15,831,866	174,754	287,056	11,238
"Eyelid surgery"	Patient experience	9	45	4,393,658	4,567	32,308	5,539
N = 20	Live procedure	4	20	362,947	899	2725	122
	Advocacy	3	15	715,009	298	1,834	334
	Entertainment	3	15	708,700	1,578	5,000	1,051
	Beauty tips	1	5	5,736,501	11,229	50,000	3,200
	Total			11,916,815	18,571	91,768	10,246
"Tummy tuck"	Patient experience	9	45	2,476,370	4,561	17,599	1,340
N = 20	Live procedure	6	30	806,446	886	3,499	742
	Advocacy	4	20	1,299,136	434	1,381	447
	TV show	1	5	42,837	0	148	17
	Total			4,624,789	5,881	22,627	2,546
"Botox"	Patient experience	10	50	5,882,030	6,716	52,551	4,354
N = 20	Advocacy	7	35	239,809	152	836	138
	Live procedure	3	15	306,120	17	1,599	170
	Total			6,427,959	6,882	54,986	4,662
"Fillers"	Patient experience	14	70	3,583,219	11,254	89,029	4,650
N = 20	Live procedure	5	25	1,248,799	1,314	8,387	1,318
	Educational	1	5	310,988	205	5,300	146
	Total			5,143,006	12,773	102,716	6,114
Total				160,235,569	363,591	1,605,930	132,851

The results of this study indicate that live procedures were mostly uploaded by physicians and medical centers, which we think because they aim to teach the general public and to educate trainees. Plastic surgery-related terms are commonly used by entertainment and personal channels to attract millions of viewers and subscribers. This could increase the misconception of considering plastic surgery just as cosmetic surgeries. Also, it shows that media

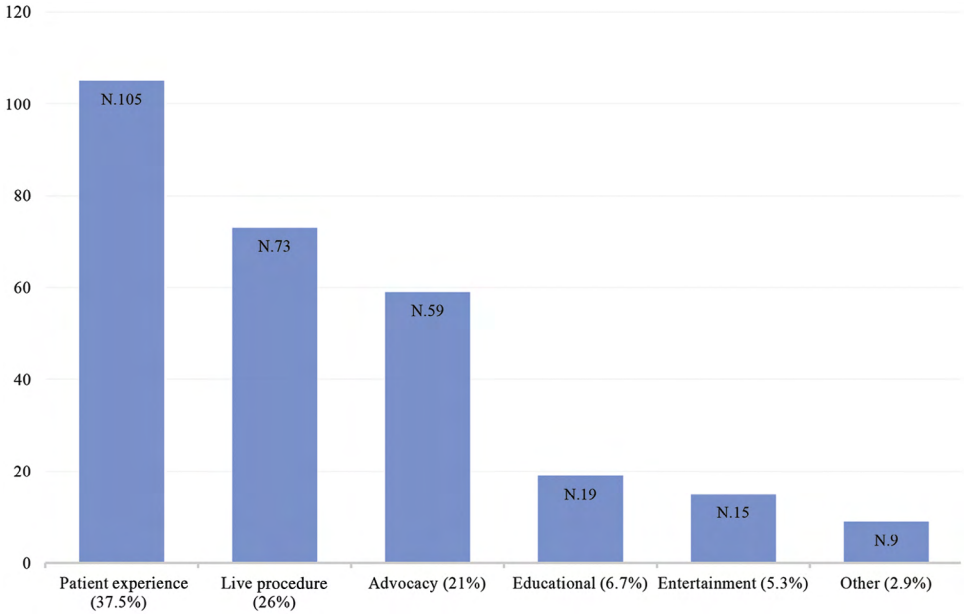

Fig. 1. Content-type percentage for all videos.

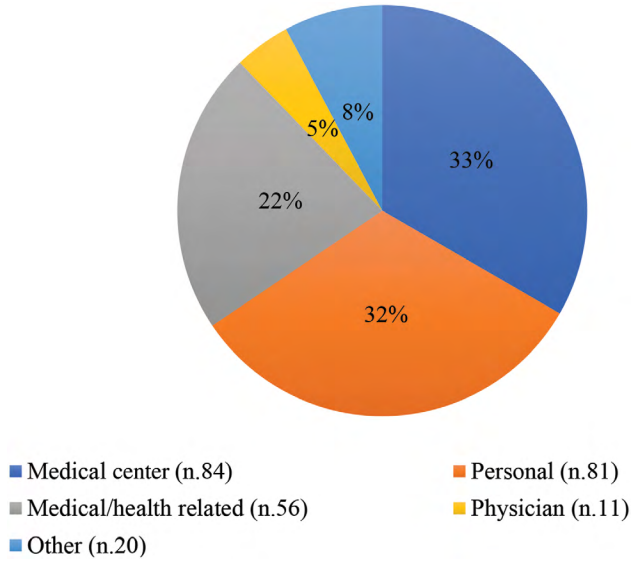

Fig. 2. Authorship percentage for all videos.

mainly focus on the aesthetic part of plastic surgery, which correlates with the data reported in previous studies.[32] YouTube has a huge potential to be used as a powerful source to educate future surgeons. The educational videos on plastic surgery had limited views (6%) with most of the videos being of low quality and uploaded from unaffiliated accounts. Government organizations and educational institute should recognize and utilize YouTube as a strong platform for sharing health information with patients and for educating future health-care providers.

This study has certain limitations such as a limited number of search terms were included and only the top 20 videos for each search term were analyzed. Thus, several videos related to plastic surgery might have been missed. Moreover, searching in YouTube is a bit more complex that what is looks like. Factors such as viewing and browsing history might affect the result you can get each time which could affect our result.

The study did not evaluate the accuracy of the information provided by each video. Of note, only YouTube was used for collecting data, which means videos available on

Table 2. Top 10 Most-viewed Videos Regardless of the Search Terms

	Title	Search Term	Content Type	No. Views
1	Breast Augmentation: Embrace® Advanced Scar Therapy Application Video	Breast augmentation	Medical device application	15,280,309
2	Guess Who's Had Plastic Surgery | Lineup | Cut	Plastic surgery	Entertainment	14,097,929
3	Mirror Twins: Sisters Get Matching Booties by Leading Identical Lives	Plastic surgery	Entertainment	13,986,418
4	A Plastic Surgeon Guesses Who's Had Plastic Surgery | Lineup | Cut	Plastic surgery	Entertainment	6,846,720
5	I GOT THE SURGERY... THEY HAD TO AMPUTATE MY HAND!?!	Hand surgery	Patient experience	6,314,343
6	How to Even Out Your Eyelids Without Surgery	Eyelid surgery	Beauty tips	5,736,501
7	Man's Hand Sewn INSIDE His Stomach	Hand surgery	Patient experience	3,116,141
8	My Body With 95% Burns | TRULY	Skin burn	Advocacy	2,999,329
9	The reveal of my new nose... (1 week after nose job)	Nose job	Patient experience	2,549,098
10	MY PLASTIC SURGERY STORY pt 2 | Double eyelid, Rhinoplasty, Chin liposuction	Plastic surgery	Patient experience	2,562,457

Table 3. Top 3 Most-viewed Videos in Each Search Term

Search Term		Title	Content Type	No. Views
"Plastic surgery"	1	Guess Who's Had Plastic Surgery | Lineup | Cut	Entertainment	14,097,929
	2	Mirror Twins: Sisters Get Matching Booties by Leading Identical Lives	Entertainment	13,986,418
	3	A Plastic Surgeon Guesses Who's Had Plastic Surgery | Lineup | Cut	Entertainment	6,846,720
"Hand surgery"	1	I GOT THE SURGERY... THEY HAD TO AMPUTATE MY HAND!?!	Patient experience	6,314,343
	2	Man's Hand Sewn INSIDE His Stomach	Patient experience	3,116,141
	3	I & D of hand Abscess	Live procedure	3,101,262
"Breast reconstruction"	1	Breast Cancer | Breast Reconstruction | Nucleus Health	Advocacy	200,278
	2	Tissue Expander for Staged Breast Reconstruction	Advocacy	74,577
	3	Mastectomy | Breast Reconstruction Overview	Advocacy	47,099
"Cleft lip and palate"	1	CLEFT PALATE (Newborn) | Dr. Paul	Patient experience	905,200
	2	Full Cleft Lip Repair: Inside the Operating Room	Patient experience	233,889
	3	Explaining Cleft Lip and Palate (1 of 7)	Advocacy	100,867
"Microsurgery"	1	Mini laparoscopic cholecystectomy - Dr Deepraj Bha	Live procedure	354,694
	2	Micro Cataract Surgery | Ultrasound Technology	Live procedure	129,721
	3	Cholecystectomy (Gallbladder Removal)	Animated procedure	127,578
"Free flap"	1	Breast Reconstruction Surgery - DIEP Flap	Advocacy	90,823
	2	Radial Forearm Flap HD	Live procedure	54,690
	3	Mandibulectomy and Fibula Free Flap Reconstruction	Advocacy	36,195
"Skin burn"	1	My Body With 95% Burns | TRULY	Advocacy	2,999,329
	2	Popping giant burn blister	Patient experience	1,327,837
	3	Hand Burnt in Tar - Part 1 - Bizarre ER	Patient experience	2,049,017
"Breast augmentation"	1	Breast Augmentation: Embrace® Advanced Scar Therapy Application Video	Medical device application	15,280,309
	2	The TRUTH about BREAST IMPLANTS - Breast Implant Illness (Before/ After Pics)	Patient experience	637,852
	3	What I Wish I Knew Before My Breast Augmentation! FAQ | Jackie Aina	Patient experience	659,757
"Liposuction"	1	LIPOSUCTION UPDATE (FINAL RESULTS) - WEEK 6 POST OP	Patient experience	1,889,130
	2	3 Days After Liposuction Results | Before & After Photos	Patient experience	681,001
	3	Liposuction Demonstration Beleza Medspa Austin TX	Live procedure	422,061
"Nose Job"	1	The reveal of my new nose... (1 week after nose job)	Patient experience	2,549,098
	2	Rhinoplasty (Nose Job) Video Animation	Animated procedure	2,447,746
	3	I just got a nose job. my entire nose job experience (so fun)	Patient experience	2,177,945
"Eyelid surgery"	1	How to Even Out Your Eyelids Without Surgery	Beauty tips	5,736,501
	2	MY PLASTIC SURGERY STORY pt 2 | Double eyelid, Rhinoplasty, Chin liposuction	Patient experience	2,562,457
	3	Eyelid Surgery - Eyelift - Before & After (Amiya Prasad MD)	Advocacy	608,514
"Tummy tuck"	1	April's Tummy tuck scar & results 8 week post opp 2011	Patient experience	1,466,696
	2	Abdominoplasty - Tummy Tuck in Baltimore MD | Michele Shermak MD	Live procedure	739,699
	3	Tummy Tuck Recovery | Dr. Sterry Explains	Advocacy	647,532
"Botox"	1	The Truth About My Face! Fake Lips, Fake Brows, Fake WHAT?!	Patient experience	1,658,463
	2	BOTOX: Best Before & After Video!	Patient experience	1,295,902
	3	Botox Before and After	Patient experience	1,045,961
"Fillers"	1	Getting Filler: why I'm doing it + my results.	Patient experience	1,013,033
	2	Monica's Dermal Filler treatment to cheeks, lips, temples, forehead	Live procedure	580,863
	3	Brazillian Butt Lift, Jawline & Lip Fillers (GRAPHIC CONTENT!!)	Patient experience	409,521

other social networking websites were not included in this analysis. Also, the video contents in a language other than English were excluded. Moreover, some of the selected search terms were not specific for plastic surgery, for example, hand surgery, nose job, eyelid surgery, Botox, and filler. Thus, this study might not reflect the true picture of plastic surgery-related content available on social networking websites, although it highlights the major plastic surgery topics that attract public attention on social media.

CONCLUSIONS

This study sheds light on YouTube's untapped potential for sharing information with the general public. Plastic surgeons and institutions should utilize YouTube's expanding popularity and powerful reach for spreading awareness about plastic surgery-related safe practices and evidence-based data, which will eventually help in the advancement of the field of plastic surgery. Some factors could help in getting more attention such as unique titles, unusual topics, and patient experience. We recommend further studies to analyze and discuss the quality of YouTube videos specifically.

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