What do social media say about makeovers? A content analysis of cosmetic surgery videos and viewers' responses on YouTube

Wen, Nainan; Chia, Stella C.; Hao, Xiaoming

2014

Wen, N., Chia, S. C., & Hao, X. (2014). What do social media say about makeovers? A content analysis of cosmetic surgery videos and viewers' responses on YouTube. *Health communication*, 30(9), 933-942.

<https://hdl.handle.net/10356/104736>

<https://doi.org/10.1080/10410236.2014.913220>

© 2014 Taylor & Francis Group, LLC. This is the author created version of a work that has been peer reviewed and accepted for publication by Health Communication, Taylor & Francis Group, LLC. It incorporates referee's comments but changes resulting from the publishing process, such as copyediting, structural formatting, may not be reflected in this document. The published version is available at:
[<http://dx.doi.org/10.1080/10410236.2014.913220>].

Downloaded on 26 Apr 2023 22:00:48 SGT

What do social media say about makeovers?

A content analysis of cosmetic surgery videos and viewers' responses on YouTube

Abstract

This study examines portrayals of cosmetic surgery on YouTube, where we found a substantial number of cosmetic surgery videos. Most of the videos came from cosmetic surgeons who appeared to be aggressively using social media in their practices. Except for videos that explained cosmetic surgery procedures, most videos in our sample emphasized the benefits of cosmetic surgery, and only a small number of the videos addressed the involved risks. We also found that tactics of persuasive communication—namely, related to message source and message sensation value (MSV)—have been used in web-based social media to attract viewers' attention and interests. Expert sources were used predominantly, although typical-consumer sources tended to generate greater viewer interest in cosmetic surgery than other types of message sources. High MSV, moreover, was found to increase a video's popularity.

Keywords: cosmetic surgery, message source, message sensation value, viewers' response, YouTube

Introduction

Cosmetic surgery is a medical intervention that is performed to reshape normal structures of the body to make the patient's appearance more closely approximate a contemporary ideal (Sullivan, 2001). It is controversial because cosmetic surgery patients are typically healthy, and the surgery itself may cause scars, numbness, nerve damage, and even death (Marcus, 2007). Despite such controversy, however, acceptance of cosmetic surgery has increased enormously, and the industry has generated good profits in recent years. More than 10 million cosmetic surgery procedures were conducted in the United States in 2012¹ and cosmetic surgeons' fees exceeded \$10 billion (American Society for Aesthetic Plastic Surgery [ASAPS], 2012; American Society of Plastic Surgeons [ASPS], 2012). Increasing demand for cosmetic surgery is believed to result in part from the ease of access to relevant information through the media (Nabi, 2009). A number of content analyses have indicated that media coverage and portrayals of cosmetic surgery in newspapers, magazines, and on television have drastically increased over the past three decades (Cho, 2007; Powers & Andsager, 1999; Sullivan, 2001). The information carried by these traditional media channels appears to have influenced audiences' attitudes toward cosmetic surgery (e.g., Nabi, 2009).

In addition to the traditional media, social media have become a primary source of information about cosmetic surgery. Social media are broadly defined as Internet-related technologies and practices that people use to create, communicate, and share information with others (Bechmann & Lomborg, 2012). In a controversial or conflict-oriented news context of health issues like cosmetic surgery, an increase of media coverage on the traditional media often leads to increasing online search of information (Southwell, 2013; Weeks, Friedenberg, Southwell, & Slater, 2012). Social media thus become an important online channel for people to

look for information that is related to cosmetic surgery (Vance, Howe, & Dellavalle, 2009). In view of this, many cosmetic surgeons have actively adopted social media in their practice. In a recent survey of cosmetic surgeons in the United States, 50.4% of the respondents reported having used social networking sites, for example, to promote their business and convey information to customers (Vardanian et al., 2013). It appears to be timely and important to closely examine how cosmetic surgery is portrayed in social media and how these portrayals are received and evaluated by users.

This study aims to examine portrayals of cosmetic surgery on a particular social media site, YouTube, a free video-sharing service founded in 2005. YouTube is currently the third most accessed site on the Internet and the dominant provider of online videos (Alexa.com, 2010). More than one billion unique users visit YouTube each month, and more than one billion videos on YouTube are watched per day. Young adults ages 18-34, in particular, use YouTube more often than any cable network (Artero, 2010; YouTube, 2014). At the same time, this age group demonstrates enormous interests in obtaining socially desirable appearance through cosmetic surgery (ASAPS, 2012; Edmonds, 2007). This can probably explain why YouTube is the fourth most-used social networking site among cosmetic surgeons (the other three sites are Facebook, LinkedIn, and Twitter, see Vardanian, et al., 2013). The videos on YouTube often portray the procedures and effects of cosmetic surgery with vivid images and narratives. Some of them are found embedded on the sites of cosmetic surgeons. They are believed to have the potential power to influence viewers' decisions about having cosmetic surgery (Vance et al., 2009).

We thus propose a systematic examination of the videos of cosmetic surgery on this site. There are three primary objectives of this study. First, we examine the availability of cosmetic surgery videos on YouTube and the frames used in the videos. Next, we assess the videos in

terms of two characteristics that have proved to be effective in persuasion and health communication: message source and message sensational value (MSV). Finally, we explore how video frames and message characteristics may be associated with users' evaluations of the videos and their attitudes toward cosmetic surgery.

Cosmetic surgery messages in traditional media

As a practice, cosmetic surgery originated from reconstructive surgery. However, whereas reconstructive surgery consists of medical operations that aim to fix abnormal or dysfunctional body parts, cosmetic surgery uses similar techniques to reshape healthy anatomical structures to be closer to an ideal appearance (Sullivan, 2001). People frequently use the terms "cosmetic surgery" and "plastic surgery" interchangeably. In fact, plastic surgery is an umbrella term that includes both reconstructive surgery and cosmetic surgery.

In general, cosmetic surgery involves surgical procedures and nonsurgical (also called minimally invasive) techniques (ASPS, 2012). The surgical procedures may involve operations that include cutting open the body to insert implants, such as breast augmentation, liposuction, and rhinoplasty. Conversely, nonsurgical/minimally invasive procedures consist of injections of chemicals/fillers into muscles or penetration of laser light to inhibit or intervene with the growth of certain body parts; examples of such procedures include Botox injections, laser hair removal, and lip enhancement. Both surgical and nonsurgical procedures have inherent risks such as scars, failures, various health complications, and even death (Public Citizen, 2008; Tutton, 2010).

Both surgical and nonsurgical procedures have been widely covered in the traditional media, although breast implants seem to have received most media coverage (Cho, 2007; Sullivan, 2001). How the media coverage frames cosmetic surgery in terms of its beneficial features and inherent risks may affect people's perception and acceptance of cosmetic surgery.

Specifically, media coverage that emphasizes its beneficial aspects is more likely to persuade people to accept cosmetic surgery than media coverage that emphasizes its risks (Cho, 2007).

In general, magazine articles and advertisements have frequently served as the primary marketing channels for cosmetic surgeons. Messages in these two types of media often highlight the benefits that people might obtain after undergoing cosmetic surgery (Hennink-Kaminski & Reichert, 2011; Sullivan, 2001). Conversely, news coverage of cosmetic surgery on television or in newspapers has mostly emphasized the risks of cosmetic surgery. The safety issue appears to have been the main theme in most news reports (Cho, 2007; Powers & Andsager, 1999). In addition, reality-based television programs that feature cosmetic surgery typically depict the transformation of ordinary looking adults into ideals of beauty through multiple cosmetic surgeries. Cosmetic surgery procedures in these shows are presented as common, acceptable, and relatively low risk (Mazzeo, Trace, Mitchell, & Walker, 2007; Nabi, 2009).

Cosmetic surgery messages on YouTube

The videos on YouTube are primarily user generated. The videos include clips from movies, television programs, news broadcasts, commercial/nonprofit campaigns, and other creative work by professional organizations and amateur individuals. In recent years, scholars have begun to study media frames that are used in health-related videos on YouTube. For example, Keelan and colleagues (2007) found that approximately half of the immunization-related videos on YouTube presented immunization did not support immunization. Similar results were reported by Briones and colleagues (2012) in an analysis of YouTube videos that were related to the human papillomavirus vaccine (HPV). Another group of researchers examined tobacco-related content on YouTube and found predominantly more prosmoking content (Freeman & Chapman, 2007). Many videos have glamorized smoking behaviors by

featuring sexy and young female smokers (Kim, Paek, & Lynn, 2010). Tian (2010) found that videos on YouTube were overwhelmingly positive in the way that they framed organ donation.

To date, there are scant statistics about the availability of cosmetic surgery videos on YouTube. However, a cursory search for the terms of “Accutane” and “Botox” (both of which are typically categorized noninvasive cosmetic surgery) produced more than 3,000 videos. Many of the videos were positive accounts that are part of cosmetic surgeons’ marketing efforts (Vance et al., 2009). In this study, we extend the examination to include videos that are related to both surgical and nonsurgical types of cosmetic surgery. We seek to examine the prevalence of videos related to cosmetic surgery, the contributors of the videos, and the frames used in the videos.

RQ1: How prevalent are cosmetic surgery videos on YouTube, and who posts these videos?

RQ2: Do cosmetic surgery videos on YouTube tend to emphasize the benefits or the risks of cosmetic surgery?

Message characteristics

In addition to issues related to framing, two types of message characteristics in cosmetic surgery videos may affect how viewers interpret and evaluate the video messages: message source and MSV. The details of these features are described below.

Message source. Message source refers to characters who carry messages to audiences. Three types of message sources are frequently used in persuasive communication: celebrities, experts, and typical consumers. Celebrities are individuals who receive public recognition and praise (McCutcheon, Lange, & Houran, 2002). Featuring celebrities in persuasive messages creates an impression that complying with the messages will enable consumers to attain a similar level of prestige, success, or glamour as such celebrities. Expert sources are defined as

individuals who know the correct answers or whose assertions have been verified empirically (Birnbaum & Stegner, 1979). They enhance the credibility of persuasive messages and elicit audiences' agreement and trust (Biswas, Biswas, & Das, 2006). Finally, typical-consumer sources are lay people who are not famous and who do not have expertise in a particular area. Their testimonials in persuasive communication form tangible documentation of consumers' product satisfaction (Stafford, Stafford, & Day, 2002).

All three types of sources are commonly used in media messages that promote cosmetic surgery and in media messages that criticize cosmetic surgery. Stories of celebrities' surgeries formed the most important category in news content related to cosmetic surgery in the 1970s (Cho, 2007). Recently some celebrities appeared in news stories because they had served as spokespersons for anticosmetic surgery campaigns (Hutchison, 2011). Experts, such as doctors or researchers, have frequently appeared in the news to explain cosmetic surgery procedures and safety issues (Powers & Andsager, 1999). Finally, reality-based makeover television shows tend to present typical consumers, i.e., cosmetic surgery patients, to demonstrate the benefits of cosmetic surgery (Mazzeo et al., 2007). News media also frequently interview consumers who have undergone cosmetic surgery procedures, particularly those who have been involved in adverse incidents related to cosmetic surgery (Cho, 2007; Powers & Andsager, 1999). We examine the three types of message sources in cosmetic surgery videos on YouTube and whether employing different types of message sources is associated with different types of video frames.

RQ3: How frequently are celebrities, experts, and typical consumers employed in cosmetic surgery videos on YouTube as message sources, and are different message sources used when videos are framed differently?

Message sensation value. MSV captures the extent to which a message elicits sensory, affective, and arousal responses (Palmgreen et al., 2001). MSV can be assessed on the structural level and the content level. Structural-level characteristics include cuts, edits, pacing, camera movement, scene changes, and narrative structure, in addition to the video graphics associated with a message. Content-level attributes include the message's storylines, characters, plots, and actions featured in the story (Geiger & Reeves, 1993). Generally speaking, messages with high MSV include numerous cuts and edits and feature strong sound effects, striking visuals, and surprising endings (i.e., with a "twist"). They are typically novel, creative, exciting, intense, dramatic, and fast-paced videos (Morgan et al., 2003; Palmgreen et al., 2001).

Messages with high MSV typically require audiences to make efforts to retrieve information from memory and to construct meanings for the messages (Niederdeppe, 2005; Stephenson, 2003). Messages that emphasize health threats or risks—such as antismoking or antidrug campaigns—tend to have high MSV because they aim to draw more attention from viewers and elicit greater levels of message processing and emotions (Palmgreen, et al., 2007; Pechmann, Zhao, Goldberg, & Reibling, 2003). In this study, we examine the MSV in cosmetic surgery videos on YouTube and whether videos that frame cosmetic surgery in different ways have different degrees of MSV.

RQ4: To what degree do cosmetic surgery videos on YouTube have MSV, and does the degree of MSV differ across videos that employ different types of frames?

Viewers' responses

Two types of viewer responses are examined in this study: videos' popularity and viewer attitudes toward cosmetic surgery. They are likely to be affected by videos' framing, message source, and MSV.

Videos' popularity. A YouTube video's popularity is indicated by a video's number of views and viewers' ratings of the video. The number of views generated by a video indicates how wide the circulation of the video is, whereas viewers' ratings of the video indicate whether viewers liked or thought favorably of the video. Media that promote cosmetic surgery, such as reality television, have become popular in recent years (Nabi, 2009). It appears timely to examine whether the same popularity has been extended to social media content that promotes cosmetic surgery. In addition, previous research has shown that the popularity of media content varies upon message source and MSV level that are employed in the media (e.g., Biswas, Hussain, & O'Donnell, 2009; Lorch et al., 1994; Slater et al., 2002; Veer, Becirovic, & Martin, 2010). We thus propose the following research question.

RQ5: To what extent are the media frame and message characteristics of cosmetic surgery videos (i.e., message source and MSV) associated with the popularity of a cosmetic surgery videos on YouTube?

Viewers' attitudes toward cosmetic surgery. Viewers' attitudes toward cosmetic surgery may be assessed with two measures: viewers' interests in cosmetic surgery and their favorable (unfavorable) view of cosmetic surgery. Viewers' interests in cosmetic surgery may be inspired by videos on YouTube, and viewers frequently express their interest by leaving comments on the YouTube site. The number of viewer comments that each video generates is thus considered as an indicator of viewer interest (Paek, Kim, & Hove, 2010). Moreover, viewers frequently reveal how favorably they view the video messages in their comments. Media frames may affect viewers' interest in the media message and how they view the message. Tian (2010), for example, reported that a reciprocal relationship exists between media frames and the frames of viewer comments for organ donation videos on YouTube. In addition, celebrity source and sensational

content would evoke viewers' discussions and positive attitudes toward the message (Cha, Haddadi, Benevenuto, & Gummadi, 2010; Pease & Brewer, 2008; Veer et al., 2010). In this study, we extend the examination to cosmetic surgery videos on YouTube.

RQ6: To what extent are media frames and message characteristics of cosmetic surgery videos (i.e., message source and MSV) associated with viewers' attitudes toward cosmetic surgery?

Methodology

We used "cosmetic surgery" and "plastic surgery" as key words to retrieve cosmetic surgery videos that were on YouTube. A total of 182,300 results (73,300 for the search with "cosmetic surgery" as a key word and 109,000 for "plastic surgery") were initially generated, but we were able to click and watch only 2,000 of these (1,000 for each search).² After prescreening the 2,000 videos based on relevance and excluding duplicates, we eventually obtained a total of 1,000 cosmetic surgery videos in our final sample. The average length of the videos is 4.63 minutes ($SD = 4.00$). Among the sample, 686 videos were embedded on other websites (e.g., clinic's websites), and 13 videos were in series that connected with one another. Each video forms a unit of analysis for this study. One of the authors and a graduate assistant were the coders, who coded the following elements:

Video nature. The videos were coded into commercial, news, self-made, or other.

Contributors. The party who uploaded the video was identified as a surgeon/clinic, patient, media or other professional organization, or unidentified contributor.

Video frame. A video was coded as using a benefit-focused frame when it emphasized the ideal appearance or the increased self-confidence resulted from having cosmetic surgery; conversely, a video was coded as using a risk-focused frame when it emphasized failures,

infection, or other complications of cosmetic surgery (Cho, 2007). A video was coded as neutral if it gave equal weight to both beneficial and risk aspects or if it did not demonstrate either a benefit or risk of surgery.

Cosmetic surgery procedure. The type(s) of surgery portrayed in the videos was recorded.

Message source. The coders first identified the primary message source who appeared to be the most important in conveying information in a video. The primary message source was then categorized as a celebrity, expert, typical consumer, or other.

MSV. We modified previous coding schemes of MSV (Lang, 2000; Paek et al., 2010). We coded content-level MSV by recording whether a video contained topics of failure/disasters, celebrity stories, sex, disputes, and surgical procedures. We coded structure-level MSV by observing whether a video presented intense images of surgical scenes, close-up shots of surgical results, alarming sound effects (e.g., sound of surgical equipment), and emotional music. Each item was coded as either 1 (present) or 0 (absent). Coded values for the nine elements were summed up to create an MSV index ranging from 0 to 9 ($M = 1.48$; $SD = 1.60$).

Video's popularity. We recorded the number of views and star ratings for each video. Number of views ranged from 2 to 3,201,116 times ($M = 24513.34$, $SD = 120206.26$). Star ratings ranged from 1 to 5, where 5 indicated the highest rating ($M = 4.60$, $SD = .64$).

Viewers' attitudes toward cosmetic surgery. We first recorded the number of comments that a video received ($M = 22.71$, $SD = 63.35$). Next, we coded the comments that were associated with each video into positive (1), negative (-1), or neutral/irrelevant (0) about cosmetic surgery.³ For each video, we added the scores of all comments that were generated by the video to indicate how favorably cosmetic surgery was viewed ($M = .87$, $SD = 15.68$).

Cohen's Kappa coefficient was computed to assess the intercoder reliability. The coefficient for video frame was 0.80; message source, 0.85; and MSV, 0.74. Because the nature of this study is exploratory, Kappa statistics of 0.70 or above are considered acceptable or good (Lombard, Snyder-Duch, & Bracken, 2002).

Results

RQ1 concerns the prevalence of cosmetic surgery videos on YouTube and who posted the videos. Our search showed that there are more than 180,000 cosmetic surgery videos available on YouTube. Among the 1,000 videos that we sampled, 60.9% were uploaded by cosmetic surgeons or clinics; 16.5%, by media or other institutions; 4.7%, by patients; and 17.9%, by unidentified parties. As in the traditional media, breast augmentation was covered most prevalently on YouTube ($n = 215$). Of the videos that were uploaded by cosmetic surgeons, 40% were commercials, 25% were news clips, 33% were self-made films, and the rest were other types of presentations. With respect to videos contributed by media and other institutions, the majority (56%) were news clips, 23% were commercials, 18% were self-made films, and the rest were other videos. Patients tended to upload self-made films rather than other types of videos.

RQ2 concerns how cosmetic surgery is framed in videos on YouTube. Among the 1,000 videos that we coded, 56.1% promoted cosmetic surgery by emphasizing its beneficial aspects, whereas only 9% focused on its risk. The remaining videos were coded neutral because they mainly explained the procedures of cosmetic surgery. No benefits or risks were emphasized in the videos. Further analyses showed that videos that were uploaded by surgeons or patients were more likely to focus on the beneficial aspects of cosmetic surgery than videos that were uploaded by other parties. Videos that were uploaded by media or other organizations were more likely to frame cosmetic surgery neutrally than videos that were uploaded by other parties, ($\chi^2 = 163.43$, $df = 6$, $p < .001$, Cramér's $V = .34$; see Table 1).

-Insert Table 1 here-

RQ3 concerns the type of message source that is used in cosmetic surgery videos. We found that 88.5% of the sampled videos contained message source. Approximately 41.7% of these videos used expert source, 31.4% employed typical consumers, and only 2.3% of the videos had celebrity source.⁴ Typical-consumer source appeared more frequently in videos with benefit-focused frames than in videos with risk-focused frames. Celebrity source appeared more frequently in videos with risk-focused frames than in videos with benefit-focused frames. Expert source appeared more frequently in neutral videos than in videos with benefit-focused frames or videos with risk-focused frames ($\chi^2 = 150.68$, $df = 6$, $p < .001$, Cramér's $V = .29$; see Table 2).

-Insert Table 2 here-

RQ4 concerns the MSV in cosmetic surgery videos on YouTube. Our analyses showed that, regarding content-level attributes, 30.4% of the cosmetic surgery videos pertained to sensational topics such as surgical procedures, 13.1% pertained to celebrity stories, 11.0% were related to failure/disasters, 6.0% related to sex, and 1.3% related to disputes. Regarding structural-level characteristics, 37.3% of the videos contained close-up shots of surgical operation and results, 28.8% had intense images of surgical scenes, 10.5% used emotional music, and 9.4% had alarming sound effects. We conducted a one-way ANOVA to examine whether the MSV differed across videos of different frames. However, because the homogeneity of variance assumption was violated ($p < .001$), we switched to the Kruskal-Wallis nonparametric procedure (Green & Salkind, 2008). The results appeared to be significant, $\chi^2 = 80.42$, $df = 2$, $p < .001$. Follow-up tests with the Holm's sequential Bonferroni approach (to control for Type I error) showed that videos with risk-focused frames had the highest MSV ($M = 2.58$, $SD = 1.77$), that

neutral videos had the second highest MSV ($M = 1.77$, $SD = 1.62$), and that videos with benefit-focused frames had the lowest MSV ($M = 1.12$, $SD = 1.42$).

RQ5 and *RQ6* concern whether media frames and video characteristics are associated with viewers' responses. We first performed a MANCOVA to simultaneously examine viewers' responses in relation to video frame, message source, and MSV. Video length was included as a covariate. Because viewers' responses were highly skewed, they were natural logarithm transformed before the tests were performed. However, the result of Box's M test for homogeneity of variance appeared to be significant (Box's $M = 60.87$, $F = 1.922$, $p < .01$). The assumption of variance homogeneity was violated. Four sets of ANCOVAs were performed instead after the preliminary tests showed no violations of homogeneity-of-slopes assumption.

-Insert Table 3 here-

The first set of ANCOVAs tested the number of views of the videos. The results showed that MSV was positively associated with the number of views ($B = .12$, $SE = .02$, see Table 3). Video frame and message source, however, had no significant effects. The second set of ANCOVAs tested viewers' ratings of the videos. The results showed that video frame had a main effect on viewer ratings (see Table 3). Follow-up tests showed that the videos with risk-focused frames received greater ratings than the neutral videos and than the videos with benefit-focused frames ($p < .05$). Message source also had a main effect on viewer ratings (see Table 3). Follow-up tests showed that videos that used celebrity source tended to receive lower ratings than videos that used expert source or typical consumer source ($p < .05$). Moreover, there was an interaction effect between video frame and message source (see Table 3). The videos that used celebrity source to promote the benefits of cosmetic surgery received the lowest rating.

The third set of ANCOVAs indicated a main effect of video frame on the number of viewer comments (see Table 4). Follow-up tests showed that the neutral videos generated a greater number of comments than videos with a risk-focused frame ($p < .05$) and videos with a benefit-focused frame ($p < .001$). Message source also had a main effect (see Table 4). Follow-up tests showed that the videos that used typical consumer source generated a greater number of viewer comments than the videos that used expert source ($p < .001$). However, there were no significant differences in the number of viewer comments between videos that used celebrity source and videos that employed other types of message source. Finally, video length appeared positively associated with the number of viewer comments ($B = .28$, $SE = .11$, see Table 4). The last set of ANCOVAs tested viewers' attitudes toward cosmetic surgery. The results showed that message source had a significant main effect on viewers' attitudes toward cosmetic surgery (see Table 4). Follow-up tests showed that videos that employed consumer source appeared to generate more positive attitudes toward cosmetic surgery than videos that employed expert source ($p < .001$) or celebrity source ($p < .05$).

-Insert Table 4 here-

Discussion

Our research showed that there are a large number of cosmetic surgery videos available on YouTube. Most of these videos came from cosmetic surgeons, who appeared to have embraced social media fervently. According to our sample, cosmetic surgeons posted all types of information that is related to cosmetic surgery—including commercials, news clips, self-made films, and other work—on YouTube. Other parties also contributed a significant number of cosmetic surgery videos on YouTube. Media and other organizations tended to upload news clips of cosmetic surgery stories. Cosmetic surgery patients, on the other hand, mostly uploaded self-

made films to share their personal views of or experiences with cosmetic surgery. Their contributions made the nature of cosmetic surgery videos on YouTube diverse, providing several different types of information about cosmetic surgery for viewers.

Despite being diverse in nature, the cosmetic surgery videos on YouTube predominantly framed cosmetic surgery in a positive manner. This finding is not surprising given that more than half of the cosmetic surgery videos in our sample came from practitioners' marketing efforts. Perhaps more intriguing is that cosmetic surgery patients also tended to upload videos—mostly self-made videos of their own cosmetic surgery experiences—that promoted the benefits of cosmetic surgery. In the past, cosmetic surgery patients tended to hide the fact that they had elected cosmetic surgery. This trend seems to be changing as patients have begun to use social networking sites to spontaneously and openly share their acceptance of and experiences with cosmetic surgery (Peacock, 2013). This change may result from the increasing acceptance of cosmetic surgery. It may also come from the rise of various social media channels. Previous research suggested that users of social media see a certain degree of information revelation as necessary to make social media useful. Majority of social media users are thus willing to disclose personal information or experience on social media such as Facebook or YouTube (Gross & Acquisti, 2005; Tufekci, 2008). Finally, we found that compared to cosmetic surgeons and patients, media and other organizations tended to take a more neutral and critical approach when they communicated information about cosmetic surgery through social media.

Our findings indicate that expert source was commonly used in cosmetic surgery videos on YouTube. One possible explanation is that the major concerns about cosmetic surgery lie primarily in the risks involved in the surgical procedures. Experts, mostly surgeons or medical physicians/researchers, appear more qualified, credible, and thus preferred than celebrity source

or typical consumer source to address those concerns. However, expert source was less critical about cosmetic surgery than other types of message sources. In the videos that we sampled, most of the expert source either explained cosmetic surgery procedures in a neutral manner or promoted cosmetic surgery by endorsing its safety. Few of them cautioned the risk involved in cosmetic surgery. As opposed to experts, patients of cosmetic surgery provided human-interest stories. They were employed mainly to share personal experiences. Finally, we found that only a small number of cosmetic surgery videos used celebrity source. This finding suggests that celebrities no longer form an important message source in media coverage of cosmetic surgery as earlier times (e.g., television news in 1970s, see Cho, 2007), at least insofar as contemporary social media is concerned. Due to limited time and space, traditional media tend to cover stories of celebrities rather than lay people. After all, celebrities are considered newsworthy and believed to attract audience's attention. Such concerns, however, do not exist in the context of social media, which have unlimited space and allow users to generate any content they want (Beer, 2008; boyd & Ellison, 2007).

Our study serves as a first effort to examine sensational values contained in media messages about cosmetic surgery. The analyses showed a low level of MSV across the videos with benefit-focused frames and videos with risk-focused frames on YouTube. The sensational tactics used in the videos primarily included surgical procedures, close-up shots, and intense images of surgical scenes and results. The videos with risk-focused frames additionally included content-level MSV by showing cases of failed cosmetic surgery or disputes about cosmetic surgery. However, the number of these videos is limited. The highly controversial nature of cosmetic surgery is not fully portrayed on the YouTube site.

Results of this study showed that the frames, the message source, and the MSV levels employed in the cosmetic surgery videos on YouTube were each associated with the videos' popularity. First, cosmetic surgery videos on YouTube with higher MSV appeared to generate greater numbers of views. This finding is consistent with past findings that health-related messages with higher MSV draw more viewers' attention. Next, in comparison with the plentiful amount of information that promotes cosmetic surgery on YouTube, the limited number of YouTube videos that cautioned about the risks involved in cosmetic surgery seemed to gain more appreciation from viewers. There are two possible explanations. One, the persuasive intent in the videos that promoted cosmetic surgery decreased viewers' favorable impressions for such videos. In particular, we found that viewers' ratings for a video significantly dropped when the video used celebrity source to promote the benefits of cosmetic surgery. It is likely that celebrity source made the persuasive intent of the video more obvious and put viewers off. The other explanation is that those viewers who sought out risk-focused videos were more passionate toward the cause and gave higher rating to the videos, whereas those viewers who sought to know more about procedures or benefits of cosmetic surgery tended to do a more broad overview but did not take the time to rate as many videos. Future studies may survey viewers to further understand their true motivations behind rating the videos.

Our findings suggest that viewers' interests in cosmetic surgery and their acceptance of cosmetic surgery might be increased by portrayals of cosmetic surgery procedures and the use of typical consumer source. Videos that neutrally explained the procedures of cosmetic surgery tended to generate higher levels of viewer discussion than videos that described either the positive or the negative consequences of cosmetic surgery. The use of typical-consumer source in the videos was also found to be positively associated with viewer discussion and their

favorable views of cosmetic surgery. These findings could probably explain the prevalent use of portrayals of cosmetic surgery procedures and typical consumer source in the media such as reality-based makeover television shows or advertisements to promote cosmetic surgery.

Any discussion of the present study, however, must include a few caveats. First, the sample in this study failed to cover or represent the entire population of cosmetic surgery videos on YouTube. The external validity of our findings is thus compromised. Second, the viewers' responses examined in this study are limited only to those that could be gathered on the YouTube site. Other responses—such as offline discussion of cosmetic surgery or ultimate decisions about whether to have cosmetic surgery—were not analyzed. They are, however, as important as, if not more important than, the two types of viewers' responses that were tested in this study. In addition, some viewers choose not to share their evaluation of YouTube videos or their attitudes toward cosmetic surgery online. Their responses to the videos are not included in the examination in this study. In other words, there is a self-selection bias involved in viewers' responses collected in this study. Furthermore, an in-depth qualitative examination of viewer comments would help us better understand viewers' responses. Finally, some caution should be exercised in inferring causal relations between the video characteristics and viewers' responses to the videos. A number of extraneous variables, such as viewers' pre-existing favorable attitude toward cosmetic surgery, may have contributed to the significant associations between the video characteristics and the videos' popularity or viewers' attitudes toward cosmetic surgery. Future studies may consider adopting an experimental design to provide such causal inferences.

Despite its shortcomings, our study discloses some discrepancies between the tactics of persuasive communication that are prevalently used in cosmetic surgery videos on YouTube and the tactics of persuasive communication that appears effective. First, although risk-focused

videos of cosmetic surgery are more appreciated than benefit-focused videos of cosmetic surgery, only a small number of cosmetic surgery videos on YouTube emphasize the involved risks. Next, videos that use typical consumer source appear to generate more fervent discussion about cosmetic surgery and solicit more favorable attitudes toward cosmetic surgery than videos that use other types of message sources. However, expert source seems to be used most frequently in cosmetic surgery videos on YouTube. Finally, MSV has proved to attract viewers' attention but the cosmetic surgery videos on YouTube in general contain a low level of MSV. Health practitioners may consider resolving these discrepancies when using social media as communication tools for health campaigns (i.e., e-health, Eysenbach, 2001).

References

- Alexa.com. (2010). Top sites: The top 500 sites on the Web. Retrieved September 24, 2013 from <http://www.alexa.com/topsites/global>.
- American Society for Aesthetic Plastic Surgery (ASAPS). (2012). Cosmetic procedures increase in 2012. Retrieved February 9, 2014 from <http://www.surgery.org/media/news-releases/cosmetic-procedures-increase-in-2012>.
- American Society of Plastic Surgeons (ASPS). (2012). 2012 Plastic surgery statistics report. Retrieved September 25, 2013 from <http://www.plasticsurgery.org/Documents/news-resources/statistics/2012-Plastic-Surgery-Statistics/average-surgeon-fees.pdf>.
- Artero, J. P. (2010). Online video business models: YouTube vs. Hulu. *Palabra Clave*, 13(1), 111-123.
- Bechmann, A., & Lomborg, S. (2012). Mapping actor roles in social media: Different perspectives on value creation in theories of user participation. *New Media & Society*, 15(5), 765-781.

- Beer, D. D. (2008). Social network (ing) sites... revisiting the story so far: A response to danah boyd & Nicole Ellison. *Journal of Computer-Mediated Communication*, 13(2), 516-529.
- Birnbaum, M. H., & Stegner, S. E. (1979). Source credibility in social judgment: Bias, expertise, and the judge's point of view. *Journal of Personality and Social Psychology*, 37(1), 48-74.
- Biswas, D., Biswas, A., & Das, N. (2006). The differential effects of celebrity and expert endorsements on consumer risk perceptions. The role of consumer knowledge, perceived congruency, and product technology orientation. *Journal of Advertising*, 35(2), 17-31.
- Boyd, D. M. & Ellison, N. B. (2007). Social network sites: Definition, history and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210-230.
- Briones, R., Nan, X., Madden, K., & Waks, L. (2012). When vaccines go viral: an analysis of HPV vaccine coverage on YouTube. *Health Communication*, 27(5), 478-485.
- Cha, M., Haddadi, H., Benevenuto, F., & Gummadi, K. P. (2010). Measuring user influence in Twitter: The million follower fallacy. *Proceedings of the Fourth International AAAI conference on Weblogs and Social Media*, 10-17.
- Cho, S. (2007). TV news coverage of plastic surgery, 1972-2004. *Journalism & Mass Communication Quarterly*, 84(1), 75-89.
- Edmonds, A. (2007). 'The poor have the right to be beautiful': Cosmetic surgery in neoliberal Brazil. *Journal of the Royal Anthropological Institute*, 13(2), 363-381.
- Eysenbach, G. (2001). What is e-health? *Journal of Medical Internet Research*, 3(2), e20.
- Freeman, B., & Champman, S. (2007). Is "YouTube" telling or selling you something? Tobacco content on the YouTube video-sharing website. *Tobacco Control*, 16, 207-210.

- Geiger, S., & Reeves, B. (1993). The effects of scene changes and semantic relatedness on attention to television. *Communication Research*, 20, 155-175.
- Gross, R., & Acquisti, A. (2005). Information revelation and privacy in online social networks. In *Proceedings of the 2005 ACM workshop on Privacy in the electronic society* (pp. 71-80). ACM.
- Hennink-Kaminski, H. J., & Reichert, T. (2011). Using sexual appeals in advertising to sell cosmetic surgery: A content analysis from 1986 to 2007. *Sexuality & Culture*, 15(1), 41-55.
- Hutchison, C. (2011). Curvy Kate Winslet speaks out against cosmetic surgery. Retrieved October 3, 2013 from <http://abcnews.go.com/Health/WomensHealth/kate-winslet-triggers-anti-plastic-surgery-movement/story?id=14340756>.
- Keelan, J., Pavri-Garcia, V., Tomlinson, G., & Wilson, K. (2007). YouTube as a source of information on immunization: a content analysis. *JAMA: the journal of the American Medical Association*, 298(21), 2482-2484.
- Kim, K., Paek, H. J., & Lynn, J. (2010). A content analysis of smoking fetish videos on YouTube: regulatory implications for tobacco control. *Health Communication*, 25(2), 97-106.
- Lang, A. (2000). The limited capacity model of mediated message processing. *Journal of Communication*, 50(1), 46-70.
- Marcus, M. (2007). Ten plastic surgery risks you need to know. Retrieved October 1, 2009 from http://www.forbes.com/2007/10/09/health-surgery-risks-forbeslife-cx_mlm_1010health.html.

- Mazzeo, S. E., Trace, S. E., Mitchell, K. S., & Walker Gow, R. (2007). Effects of a reality TV cosmetic surgery makeover program on eating disordered attitudes and behaviors. *Eating Behaviors*, 8(3), 390-397.
- McCutcheon, L. E., Lange, R., & Houran, J. (2002). Conceptualization and measurement of celebrity worship. *British Journal of Psychology*, 93, 67-87.
- Morgan, S. E., Palmgreen, P., Stephenson, M. T. et al. (2003). Associations between message features and subjective evaluations of the sensation value of antidrug public service announcements. *Journal of Communication*, 53, 512-526.
- Nabi, R. L. (2009). Cosmetic surgery makeover programs and intentions to undergo cosmetic enhancements: A consideration of three models of media effects. *Human Communication Research*, 35, 1-27.
- Niederdeppe, J. (2005). Assessing the validity of confirmed ad recall measures for public health communication campaign evaluation. *Journal of health communication*, 10(7), 635-650.
- Paek, H., Kim, K., & Hove, T. (2010). Content analysis of antismoking videos on YouTube: Message sensation value, message appeals, and their relationships with viewer responses. *Health Education Research*, 25(6), 1085-1099.
- Palmgreen, P., Donohew, L., Lorch, E. P., Hoyle, R. H., & Stephenson, M. T. (2001). Television campaigns and adolescent marijuana use: tests of sensation seeking targeting. *American Journal of Public Health*, 91(2), 292.
- Palmgreen, P., Lorch, E. P., Stephenson, M. T., Hoyle, R. H., & Donohew, L. (2007). Effects of the Office of National Drug Control Policy's Marijuana Initiative Campaign on high-sensation-seeking adolescents. *American Journal of Public Health*, 97(9), 1644-1649.

Peacock, L. (2013). The pursuit of beauty: What compels women to go under the knife?

Retrieved May 22, 2013 from <http://www.telegraph.co.uk/women/womens-life/10071794/Cosmetic-surgery-What-compels-women-to-go-under-the-knife.html>.

Pease, A., & Brewer, P. R. (2008). The Oprah factor: The effects of a celebrity endorsement in a presidential primary campaign. *The International Journal of Press/Politics*, 13(4), 386-400.

Pechmann, C., Zhao, G., Goldberg, M. E., & Reibling, E. T. (2003). What to convey in antismoking advertisements for adolescents: The use of protection motivation theory to identify effective message themes. *Journal of Marketing*, 67, 1-18.

Powers, A., & Andsager, J. L. (1999). How newspapers framed breast implants in the 1990s. *Journalism & Mass Communication Quarterly*, 76(3), 551-564.

Public Citizens (2008). Petition requesting regulatory action concerning the spread of Botulinum Toxin (Botox, Myobloc) to other parts of the body. Retrieved October 3, 2013 from <http://www.citizen.org/Page.aspx?pid=527>.

Southwell, B. G. (2013). *Social networks and popular understanding of science and health: Sharing disparities*. JHU Press.

Stafford, M., Stafford, T., & Day, E. (2002). A contingency approach: The effects of spokesperson type and service type on service advertising perceptions. *Journal of Advertising*, 31(2), 17-34.

Stephenson, M. T. (2003). Mass media strategies targeting high sensation seekers: What works and why. *American Journal of Health Behavior*, 27(3), 233-238.

Sullivan, D. A. (2001). *Cosmetic surgery: The cutting edge of commercial medicine in America*. New Brunswick, NJ: Rutgers University Press.

- Tian, Y. (2010). Organ donation on Web 2.0: content and audience analysis of organ donation videos on YouTube. *Health Communication, 25*(3), 238-246.
- Tufekci, Z. (2008). Grooming, gossip, Facebook and MySpace: What can we learn about these sites from those who won't assimilate?. *Information, Communication & Society, 11*(4), 544-564.
- Tutton, M. (2010). Model's death highlights plastic surgery risks. Retrieved September 24, 2013 from <http://edition.cnn.com/2009/HEALTH/12/02/model.death.surgery.risk/index.html>.
- Vance, K., Howe, W., & Dellavalle, R. P. (2009). Social Internet sites as a source of public health information. *Dermatologic Clinics, 27*(2), 133-136.
- Vardanian, A. J., Kusnezov, N., Im, D. D., Lee, J. C., & Jarrahy, R. (2013). Social media use and impact on plastic surgery practice. *Plastic and Reconstructive Surgery, 131*(5), 1184-1193.
- Veer, E., Becirovic, I., & Martin, B. A. S. (2010). If Kate voted conservative, would you?: The role of celebrity endorsements in political party advertising. *European Journal of Marketing, 44*, 436-450.
- Weeks, B. E., Friedenberg, L. M., Southwell, B. G., & Slater, J. S. (2012). Behavioral consequences of conflict-oriented health news coverage: The 2009 mammography guideline controversy and online information seeking. *Health Communication, 27*(2), 158-166.
- YouTube (2014). Statistics. Retrieved February 9, 2014 from <http://www.youtube.com/yt/press/statistics.html>.

Note

1. About 90.4% of the procedures were performed on women.
2. YouTube provides a synthetic estimate of results and only a fraction of videos on the site are retrievable (Cheng, Dale, & Liu, 2008).
3. Examples of positive comments include "I can't wait...to get a nose job too" or "She performed multiple procedures on me...fantastic results!" Examples of negative comments are "Results were awful...there is severe scar tissue that...needed further surgery" or "I liked her (the patient in the video) better BEFORE!...something about 'natural'...looks sexier to me, than huge gigantic obviously fake boobs." Examples of neutral comments include "I would do that (surgery) too... but apparently sometimes it leaves permanent scarring" or "That girl talks really fast..."
4. We also coded demographic information of the source. About 94% of the expert source were male. About 89% of the typical consumers were female. More than half of celebrity source were female. Most of the sources were Caucasian (celebrity, 78.3%; expert, 67.4%; typical consumer, 76%) and looked like adults aged over 21 (celebrity, 73.9%; expert, 95.2%; typical consumer, 58%).

Table 1

Frequencies of Video Frames Sorted by Contributors

	Benefit-focused frame		Risk-focused frame		Neutral		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Surgeons	406	66.7%	14	2.3%	189	31.0%	609	100.0%
Patients	29	61.7%	2	4.3%	16	34.0%	47	100.0%
Media or other organizations	66	41.8%	22	13.9%	70	54.7%	158	100.0%
Unidentified contributor	60	32.3%	55	29.6%	71	38.2%	186	100.0%

Table 2

Frequencies of Message Source Sorted by Video Frames

	Celebrity		Expert		Typical consumer		Others		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Benefit- focused frame	8	1.5%	226	43.5%	234	45.1%	51	9.8%	519	100.0%
Risk-focused frame	7	10.0%	7	10.0%	22	31.4%	34	48.6%	70	100.0%
Neutral	8	2.7%	184	62.2%	58	19.6%	46	15.5%	296	100.0%

Table 3

ANCOVA for the Popularity of Videos

	Number of views						Viewers' ratings					
	M	SE	<i>F</i>	<i>df</i>	<i>p</i>	Partial η^2	M	SE	<i>F</i>	<i>df</i>	<i>p</i>	Partial η^2
Video length			2.51	1	.11	.00			1.18	1	.28	.00
MSV			41.79	1	.00	.05			.05	1	.83	.00
Video frame			2.47	2	.09	.01			4.01	2	.02	.01
Benefit-focused frame	3.53	.10					1.44	.03				
Risk-focused frame	3.49	.15					1.56	.04				
Neutral	3.81	.10					1.47	.02				
Message Source			2.19	2	.11	.01			4.72	2	.01	.02
Celebrity	3.65	.17					1.41	.04				
Expert	3.46	.10					1.55	.03				
Typical consumer	3.72	.07					1.50	.02				
Video frame * message source			.89	4	.47	.01			5.12	4	.00	.04

Table 4

ANCOVA for Attitudes toward Cosmetic Surgery

	Number of comments						Viewers' attitudes					
	M	SE	<i>F</i>	<i>df</i>	<i>p</i>	Partial η^2	M	SE	<i>F</i>	<i>df</i>	<i>p</i>	Partial η^2
Video length			5.97	1	.02	.01			2.10	1	.15	.01
MSV			..44	1	..51	.00			1.92	1	.17	.01
Video frame			11.04	2	.00	.04			.05	1	.82	.00
Benefit-focused frame	.69	.10					1.00	.30				
Risk-focused frame	.97	.16					--	--				
Neutral	1.35	.10					1.11	.43				
Message source			5.12	2	.01	.02			8.47	2	.00	.06
Celebrity	1.10	.16					.24	.76				
Expert	.71	.13					1.06	.11				
Typical consumer	1.19	.06					1.88	.17				
Video frame * message source			2.46	4	.05	.02			1.46	2	.24	.01