The Gekko Effect:

The Media's Framing of Michael Douglas'

Ambiguous Public Health Disclosure

and the Public's Online Health Information Seeking

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Abstract

On June 2, 2013, *The Guardian* published a story on Michael Douglas where he stated his previous battle with throat cancer was due to a cancer-causing strain of the human papillomavirus, which he claimed he contracted by performing oral sex. This case study investigated the presence and frequency of online media frames and frame combinations in stories related to Michael Douglas' public health disclosure, and the frames' relationship with the public's online information seeking of "Michael Douglas", "HPV", "throat cancer", and "oral sex". The results of the framing analysis indicate that the body of online media reports regarding Douglas' health disclosure were confusing, or ambiguous, at best, and the online information search aggregate data demonstrates dramatic search increases for the four key phrases under examination. Using media-system dependency theory, this study suggests that the ambiguous nature of the media reports on Douglas' health disclosure elicited the public's online health information seeking.

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Introduction

Watching an evening news broadcast, visiting a favorite online news site, or reading

the morning newspaper can inform one about the country's latest public policy debate,

global conflicts, a technological innovation, the newest medical research, or even

celebrity gossip. During the first week of June 2013 one particular story captured the

media's attention – Michael Douglas' interview with *The Guardian*. Douglas, perhaps

best known for his roles in *Fatal Attraction*, *Basic Instinct*, and his Oscar winning

performance as Gordon Gekko in *Wall Street*, was diagnosed with throat cancer in

August 2010, but after undergoing treatment, has now been cancer-free for over two

years. In his June 2, 2013 interview with *The Guardian* Douglas was asked "whether he

regretted his years of smoking and drinking," (Brooks, 2013) due to his cancer diagnosis.

Douglas' response – "No. Because without wanting to get too specific this particular

cancer is caused by HPV, which actually comes about from cunnilingus," (Brooks, 2013)

– seemingly ignited a firestorm of media coverage in the days following *The Guardian's*

release of the story. The interview was intended to promote Douglas' latest project,

Behind the Candelabra, but instead, focused on Douglas' disclosure. In fact, the article

was entitled: *Michael Douglas on Liberace, Cannes, cancer and cunnilingus* (Brooks,

2013).

While Douglas' statement is quite short in length, the information it contains seems

ripe for salience with both the media and the public. First, Douglas' admission to

performing cunnilingus is somewhat salacious in nature; not many people talk openly

about performing oral sex, let alone a celebrity in a public forum. Second, the

relationship between oral sex, HPV, and oral sex that Douglas speaks of are somewhat

conflicting with the media's general framing of HPV – HPV is the virus that causes cervical cancer, and its general consequences primarily effect women (Quintero Johnson, Sionean & Scott, 2011). This second point is especially important. While new information about a health risk may prove useful in prevention and detection behaviors of the public, it may also just be confusing.

The majority of Americans are exposed to a great deal of health information from the media on a daily basis, yet very little of it may ever have an effect on the public. Therefore, if Michael Douglas' was able to introduce and make salient to the American public a "new" risk-behavior associated with the development of throat cancer there may be important implications for public health and health communication fields. In the United States a significant amount of mediated health communication is strategic in nature, but could this incidental, almost accidental, diffusion of health information resonate with the public? Or, in the least, could this potentially new information introduced to the public through the media cause confusion prompting the public to search for more information, including health information, to help clarify the Douglas disclosure? Even in a culture where we are inundated with both celebrity gossip and health information, the two rarely intersect. However, it seems plausible these two features of Douglas' disclosure, and how they were reported (e.g. framed) by the media, were significant enough to have elicited information seeking from the public, and not just about the celebrity, but also, the health implications of his statement.

The current study is a multi-method study that will first investigate the media frames present in media reports of the Douglas disclosure and will then determine information seeking through the relative amount of online searches for key phrases related to the

disclosure. In the literature review I will discuss previous literature on media frames, health information seeking, and online information seeking, and provide the study's hypotheses and research question. In the methods section I will further explicate the constructs and methods used for data collection and the data analyses and the results section will offer the findings of the data analyses. Finally, I offer a discussion of the results' implications and what they may mean for future research and in practice. The aim of this thesis is to enable a greater understanding of how the use of particular media frames on a celebrity's ambiguous health claim may influence public information seeking.

Literature Review

The following literature review offers a framework to guide the current study by offering: 1) background information on the media's framing of HPV; 2) a discussion of prior research of media frames and their effects; 3) insight as to why and when the public seeks information, including health information; 4) what recent studies have found regarding online information seeking; and 5) a discussion of previous research findings on the effects of celebrity health disclosures.

Content in Media Reports of HPV

The human papilloma virus (HPV) is the most common sexually transmitted disease or infection in the United States. It is estimated that over 80% of sexually active people have had HPV at some point in their lives. There are 40 strains of the virus, but most do not produce any adverse health conditions and only a few strains are cancer-causing (CDC, 2013). In Douglas' interview with *The Guardian* he indicated that his throat cancer was not the result of drinking and smoking, but the result of contracting a cancer-causing strain of HPV. Without knowing the specifics of his case, it is impossible to know for sure if this is true, but generally speaking doctors are able to do genetic testing to determine if a strain of the HPV virus is the likely cause of throat, oral, and head and neck cancers (CDC, 2013).

The current study will investigate if the media questioned Douglas' disclosure, or if the public potentially found the information confusing or ambiguous, but if they did it would not be without cause because Douglas' proposed health outcome is rarely reported by the media. In reviewing the literature on content analyses of HPV, not only is it

apparent that the media seldom focuses on male health outcomes of HPV contraction, but also, there is little scholarly attention to the topic. In the extant literature, most content analyses focus on the reporting of the HPV vaccine for girls and its prevention of cervical cancer in women, but fail to investigate media's content of other health outcomes, such as genital warts or head and neck cancers (Abdelmutti & Hoffman-Goetz, 2009; Abdelmutti & Hoffman-Goetz, 2010; Calloway, et al., 2006; Habel, Liddone, Stryker, 2009; Kelly et al., 2009; Madden, et al., 2012), even though the HPV vaccine was approved for males in 2009 (USDA, 2009). However, one study does offer a more in-depth look at HPV-related topics covered by the media. In a content analysis of 547 newspaper articles with information about the HPV vaccine, Quintero Johnson and colleagues (2011) found that 84% of the articles stated that HPV can cause cervical cancer, but only 2.9% mentioned HPV's role in head and neck cancers. It could be asserted the disparity in reporting is likely due to the higher incidence of cervical cancer over other HPV-related adverse health outcomes. Yet, they are not strikingly disproportionate, every year approximately 12,000 women are diagnosed with cervical cancer and 8,400 people, of those 5,600 are men, are diagnosed with oral cancers that may be caused by HPV (CDC, 2012).

Media Frames

One of the primary functions of the press, news media, and journalists is not only to tell a story to the public that is informative, but also, make salient to the audience how the topic is relevant to them (Deuze, 2005; Scheufele, 1999). In other words, it is likely that journalists did not just simply restate what Douglas said to *The Guardian*, but instead added some context, background, or even described the health implications related to his

disclosure. In scholarly research this process is called "framing" of the news (Iyengar, 1990; Scheufele, 1999). Scheufele states: "Mass media actively set the frames or references that readers or viewers use to interpret and discuss in public," (1999, p. 105). Gamson and Modigliani (1987) define a media frame as "a central organizing idea or story line that provides meaning to an unfolding stream of events… The frame suggests what the controversy is about, the essence of the issue," (p. 143). Tuchman also offers: "The news frame organizes everyday reality and the news frame is part and parcel of everyday reality… [it] is an essential feature of news," (p. 193). These definitions of media frames have subtle differences, yet they all imply that the way in which the media frames a story has an effect on the audience. Essentially, the way a story is told, and the information that is included within it, may affect an individual's thoughts or activate certain schemas (Scheufele, 1999). Research on framing effects can rely on experimental design or use content analysis to lend empirical support to an audience effect. Examples of both streams of research are discussed below.

There appears to be a virtual consensus media frames are enacted in news production, but the construct of "media frames" in the extant literature is "fractured, fragmented, and inconsistent" (Entman, 1993, p. 51) at best, primarily because many researchers create and test their own conceptualizations of media frames and do little to add construct validity of previously tested frames (Entman, 1993; Iyengar, 1990; Scheufele; 1999; Tuchman, 1978). The current study's objectives do not include creating new constructs of frames, but instead, will build upon previously investigated media frames. Because this case study involves a personal disclosure with health implications, using typical health

communication frames (e.g. gain/loss) may appear to be the obvious route of investigation. In the extent literature, gain frames are generally positive and emphasize the benefits of choosing a particular option, while loss framed messages are negative and emphasize the cost associated with not choosing a particular option (Fiske, 1992; Hatley-Major, 2009; Kahneman & Tversky, 1984; Tversky & Kahneman, 1981). Much of the research investigating gain and loss frames in a health context focus on strategic health communication campaigns rather than media frames (Cho & Bolster, 2008; Detweiler, et al., 1999; Fiske, 1992; Kahneman & Tversky, 1984; O'Keefe & Jensen, 2007; Rothman et al., 2006; Rothman et al., 1999; Tversky & Kahneman, 1981). However, Hatley-Major's 2009 study is a notable exception to this research trend. This framing effect study utilized articles with combination frames of gain or loss frames, as well as, thematic or episodic frames to determine if the way newspaper articles reported obesity and lung cancer impacted readers' attribution of societal and individual responsibility (Hatley-Major, 2009). Hatley-Major found a significant interaction between loss framing and thematic framing on societal attribution of responsibility. She concludes, "People who read thematic loss framed stories attributed significantly more responsibility to societal factors for lung cancer and obesity…. The results show that the combination of thematic and loss frames is highly effective in helping people understand the role of social determinants that lead to health problems and the factors beyond the individual's control – government and other institutions – that cause health problems," (Hatley-Major, 2009, p. 184).

Hatley-Major's study investigating the effects of combining gain and loss frames and episodic and thematic frames offers a framework to access frames as an independent variable, however, it seems unlikely that gain and loss frames will likely be present in the media's reports of Douglas' disclosure because Douglas' disclosure is different than a typical health story (i.e. new cancer screening guidelines, a report on a new research study about coffee's health implications, etc.). Therefore, it seems reasonable to assume journalists may have focused on aspects of the story other than the health implications of Douglas' statement. Yet, Hatley-Major's use of combination frames, including the use of episodic and thematic frames, is useful for the current study.

Episodic and thematic media frames

Iyengar's (1987; 1989; 1991) content analyses of network television newscasts found that networks frame their stories in episodic – the depiction of issues in the form of concrete instances or specific events – or thematic – the issues are presented on a more abstract level which implicate general outcomes – frames he concluded that newscasts relied primarily on episodic frames. Iyengar's work with episodic and thematic frames generally focused on television news, but others have used his constructs to investigate the use of newspaper and online news coverage frames (Gearhart, Craig, & Steed, 2012; Gross, 2008; Jha, 2007; Semetko & Valkenburg, 2000; Zillmann et al., 2004). Typically, newspaper articles demonstrate a higher incidence of thematic frames than episodic (Iyengar & Simon, 1993; Matthes, 2009; Semetko & Valkenburg, 2000; Smith et al., 2001), whereas online media's use of episodic and thematic frames appear to be less

systematic and findings have been mixed at best (Dimitrova et al., 2005; Dimitrova & Connolly-Ahern, 2007; Jha, 2007; Zaharopoulous, 2007; Zillman et al., 2004).

Episodic and thematic frame constructs have been used for determining framing effects. Iyengar (1987; 1989) hypothesized and Iyengar and Simon (1993) later found that episodic and thematic frames lead to problem attribution (e.g. episodic frames cause the viewer to attribute blame to the individual; thematic frames cause the viewer to attribute blame to systemic factors). As previously discussed, Hatley-Major's (2009) results supported Iyengar's (1993) episodic and thematic effects, although Coleman, et al. (2011) did not find that thematic public health model of reporting shifted attribution of blame from the individual to society in some of the topics used in their stimulus materials. Coleman and colleagues (2011) do point out that Iyengar (1991) results on attribution of responsibility for crime showed strong interactions with the given subject matter (Coleman, et al, 2011). However, given the specifics of the current case study attribution is unlikely to occur, or to be an effect. Instead, this study asserts that Iyengar's descriptive definitions of episodic and thematic media frames are likely present in reports on Douglas' disclosure because, I posit, that is exactly what the media did with the story – they either did a simple retelling of what Douglas said in *The Guardian's* story (episodic frame), or they explained the health implications of his quote (thematic frame).

Conflict, human interest, and consequence frames

While episodic and thematic frames describe the general nature of the article – is it simply a retelling of Douglas' disclosure or does it describe further background or implications of the quote? – but Price, Tewksbury, and Power's (1997)

conceptualizations of conflict, human interest, and consequence frames help to further identify the content relayed in the articles analyzed. Based on previous framing literature, Price et al. (1997) first defined these three frame constructs in an effects study to determine the relationship between news frames and knowledge activation. Of the three frames, they found that the consequence frame led participants to make logical connections between the information in the article and its potential impact on themselves, whereas, those in the conflict and human interest frame groups only focused on the information presented in the article and failed to make any connection between the story's implications and their own lives (Price et al., 1997).

Price et al.'s (1997) study focused on public affairs information, and therefore, their conceptualizations of conflict, human interest, and consequence frames are not tailored to not health information. In fact, the literature using Price et al.'s frames generally investigates the frames of political and public affairs news coverage (De Vreese, 2005; Downey & Koening, 2006; Handy & Gomaa, 2012; Matthes & Kohring, 2008; Semetko & Valkenburg, 2000; Vligenthart & van Zoonen, 2011) However, without significantly altering their original conceptualizations, the conflict, human interest, and consequence frames are highly relevant to the current study. Again, Douglas' disclosure is not a typical health story and it seems doubtful the public health reporting model (making salient how the information is relevant to the public's health) was the primary mode used in reporting it (Westwood & Westwood, 1999).

In their literature review, Price et al. (1997) describes the conflict frame as "pitting people and opinions against each other," (p. 484). They operationalized the frame by

quoting conflicting opinions from representatives of two combative citizen groups. For the purposes of this study, a conflict frame would likely present itself as a controversy of Douglas' statement or how *The Guardian* reported the story. It should be noted that conflict frames have been found to be a dominant frame used by the media because it is thought to pique reader's interests (Graber, 1993; MacDougall, 1982; Matthes & Kohring, 2008; Patterson, 1993; Price et al., 1997; Semetko & Valkenburg, 2000). The human interest frame represents a more personal angle by focusing on political figures as personalities, according to Price et al (l997). This was operationalized in the news story by focusing on an individual that works for the state. In the case of Douglas, a human interest frame will likely focus on his battle with cancer or may use another individual's experience with HPV and throat cancer and connect it to Douglas' quote. Finally, Price and colleagues (1997) conceptualized the consequence frame as a story that makes salient how the issues reported on will have a strong influence on the audience and was operationalized by making the impact explicit. For the current study, a consequence frame will discuss how the information in Douglas' disclosure could directly effect the audience.

Because the current study proposes that a combination of media frames were used in reporting Michael Douglas' disclosure, it is necessary to determine if there is a significant difference between the media frames present and if a particular combination of frames were more dominant in the study's sample than others. The findings of previous content analyses investigating the prevalence of episodic and thematic (Iyengar 1987; 1989; 1991) frames are somewhat mixed across mediums (television, newspaper, and online),

but given that Douglas' claim was an isolated incident (episodic) and previous research fingings of conflict, human interest, and consequence frames (Graber, 1993; MacDougall, 1982; Matthes & Kohring, 2008; Patterson, 1993; Semetko & Valkenburg, 2000) it seems reasonable to assert that stories with a combination of episodic and conflict frames will be the predominant media frame combination in the study's sample.

> Hypothesis 1: The combination of episodic and conflict frames will be the
>
> predominant frame combination present in the study's sample.

The previous discussion on media frames included the frames' potential affects on audiences, including attribution and knowledge activation. This study's proposed frame combinations (episodic/thematic and conflict/human interest/consequences) may have potential audience effects as well. As Price et al. (1993) found, the consequence frame makes salient the story's impact on the audience by prompting knowledge activation, while the other two frames did not. In addition, for this study an episodic frame will give little health information beyond Douglas' quote, but the thematic frame will discuss health implications. Therefore, it seems reasonable to predict that some of the proposed frame combinations will give insufficient health information about HPV, throat cancer and oral sex, possibly leaving the audience in need of more health information. The following sections discuss health information seeking,

Health Information Seeking

There is a substantial body of literature pertaining to health information seeking behaviors. Much of it focuses on an individual's diagnosis and seeking more information

about the particular condition (Brashers, Goldsmith, & Hsieh, 2002; Lambert & Loiselle, 2007; Longo, 2005; Wallston, Maides & Strudler Wallston, 1976) and another area investigates individual characteristics that are more likely to lead to health information seeking (Gray et al., 2005; Rutten, Squires, & Hesse, 2006). However, due to the nature of the data (e.g. aggregate) analyzed in the current study, and the specifics of Douglas' statement, it is necessary to use theoretical foundations that focus on generalized health information seeking behavior outcomes – in what instances, generally speaking, is the public most likely to seek further health information? As discussed in previous sections, the observation that little media attention has focused on HPV-related health outcomes beyond cervical cancer, and that the media may have used episodic and conflict frames, support the contention that the public may have been confused by the contradictory nature of Douglas' disclosure, and therefore, the statement caused ambiguity.

Ambiguity and health information seeking

Ellsberg's (1961) concept of ambiguity, "[ambiguity] may be high… even where there is ample quantity of information, when there are questions of reliability and relevance of information, and particularly where there is conflicting opinion and evidence," (1961, p. 659) provides context as to why someone would perceive ambiguity when presented with new or conflicting information on a given topic. For example, perceived ambiguity towards cancer fatalism and cancer prevention recommendations have been found to be correlated with media exposure (Han, Moser, & Klein, 2009; Niederdeppe, Fowler, Goldstein, & Pribble, 2010). In addition, Nagler (2013) found that of the participants who reported greater exposure to contradictory nutrition information also reported higher

levels of nutrition confusion, which was associated with greater backlash, and the confusion and backlash "were negatively associated with intentions to engage in healthy lifestyle behaviors," (p. 12).

These studies offer evidence about adverse attitudinal and behavioral intention outcomes of ambiguous information, but there are instances where ambiguity may instead lead to information seeking. Ball-Rokeach's (1985) media-system dependency theory (MSD) provides a framework as to why people may turn to media for information (Ball-Rokeach, 1985). According to MSD, "individuals will experience heightened dependency on the media system's information resources when salient aspects of their environs are ambiguous," (p. 500). In this context, the construct of "ambiguous" can be defined as insufficiently predictable or interpretable (Ball-Rokeach, 1985). Specifically, ambiguous environs can be information that are threatening to one's psychological, economic, or physical well-being. MSD specifies that individuals decide to turn to media sources, and not interpersonal sources, when "expert" interpretation is deemed necessary by the individual (Ball-Rokeach, 1985). Supporting this hypothesis, Weeks et al. (2012) found that when the public was faced with new mammography guidelines in 2009, which were deemed as controversial and contradictory by the media, people relied further on media for information (e.g. online information seeking) in times of ambiguity and concluded that "intensive news coverage about a topic will drive people to seek more information," (p. 164).

Online information seeking

The relationship between media coverage and information seeking has been a significantly researched topic. Much of the extant literature has used survey data to assess search behavior, but in recent years, due to the proliferation of Web 2.0, scholars have taken advantage of the various online analytic tools, specifically Google Trends data, to assess the public's information-seeking behavior on a wide array of topics (e.g. President Obama, the BP oil spill, the Gulf War, Germany's general election, mammography guidelines, and public figure cancer announcements) (Ayers, et al., 2014; Hester & Gibson, 2007; Noar et al., 2013; Percheski & Hargittai, 2011; Ragas & Tran, 2013; Scharkow & Vogelgesang, 2011; Weeks, et al., 2012; Weeks & Southwell, 2010). Using online trends data, and specifically Google Trends data, as a proxy to measure information search can be considered a valid research method because online information use is almost ubiquitous with other forms of media use. While 55% of Americans still get their news from television and 23% from newspapers, 39% are getting their news from online and social media sources (Pew Research, 2012a). In addition, wherever people may be getting their news, it is evident that a large proportion of Americans use search engines for information seeking. Of the 73% of Americans who have home Internet access, and 54% who have smartphones with Internet capabilities, 91% use search engines to search for information on the Internet (Pew Research, 2012b). In addition, channel complementarity theory (Dutta-Bergman, 2004a; 2004b) posits that individuals use different media channels in congruence with each other to satisfy their information needs. Therefore, if someone saw a television news report on Douglas' disclosure it seems likely that they may turn to an Internet search engine to find more information.

Yet, it also seems just as reasonable to assume someone who is exposed to the story on social media would then turn to a search engine for further information, or clarification, on the story. Finally, Google analytics as a measure for information search is the most valid tool because, as of 2012, it is preferred by 83% of search users (Pew Research, 2012b).

Of the studies using Google Trends data as a measure for information search, evidence suggests that the relative amount of online searches are positively correlated with the amount of media coverage of the given topic or issue. In some studies there is a time lag, but in others effects are seen almost immediately. For example, Ragas and Tran (2013) found that over a two-year period, relative search volume was significantly predicted by news media coverage over the previous five weeks (Ragas & Tran, 2013). With similar findings, Ayers et al. (2014) investigated Brazilian media coverage of cessation, prompted by Brazilian President Lula da Silva's announcement of his laryngeal cancer diagnosis which he attributed to smoking, and online search cessation-related search queries. Their study found that the highest amount of relative online searches occurred eight days after cessation media coverage had spiked (Ayers et al., 2014). Showing more immediate effects, Weeks and Southwell (2010) found the volume of newspaper and television news coverage on the "President Obama is secretly a Muslim" rumor was correlated with a pulse effect of online information search. That is, there was a strong correlation between same-day newspaper and television news coverage of the rumor and Google searches on the rumor, with a steady decline in searches each subsequent day (Weeks & Southwell, 2010). Similarly, Weeks et al. (2012) concluded that newspaper

and television news coverage of new mammography guidelines were significantly related to same-day online searches. However, these studies tend to invoke, if not explicitly than implicitly, the agenda-setting hypothesis. In short, they assert the public searches for information simply because the given topic has received significant media attention. Agenda-setting is not irrelevant here, but the current study asserts that the potentially ambiguous nature of the media's reports concerning Douglas' disclosure account for information search, and not just the story's mere presence in the daily news cycle.

Celebrity influence on health information seeking

Several studies have demonstrated effects of celebrity health announcements, including: an increase in colon cancer detection tests after Ronald Regan's colon tumor surgery (Brown & Potosky, 1990); a significant increase in mammography appointments after Kylie Minogue revealed a breast cancer diagnosis (Chapman, et al., 2005); and even an increase of congressional funding for Parkinson's disease after Michael J. Fox testified about the condition to congress (Beck et al., 2014). In regards to online information seeking, a few studies have investigated online information search related to a celebrity health condition disclosure and found a positive correlation between the media coverage of the celebrity and the relative online search volume of keyword searches related to the particular celebrity's health condition (Ayers, et al., 2014; Metcalfe, Price, & Powell, 2011; Noar et al., 2013). For example, Noar and colleagues (2013) examined all public figure pancreatic cancer announcements from 2006 to 2011 and found this was associated with a 183% increase in pancreatic media coverage and a 28% in Google pancreatic cancer search queries.

The above studies all investigated online search queries related to celebrity and public figure health disclosures, yet it appears none considered the relative search volume of the given celebrity. This omission may have been appropriate for the given studies because the public figure health announcements were fairly straightforward; the media reports on the specific celebrity most likely focused on the particular health condition the celebrity suffered from and how they coped with it, yet this does appear to be a gap in the extent literature. For the current case study determining the relative search volume for "Michael Douglas" is essential. While it seems plausible that the ambiguous information offered in Douglas' disclosure would prompt information seeking about the related health implications (e.g. HPV, throat cancer, and oral sex), it may be just as likely that the celebrity aspect of the Michael Douglas story was more salient, or at least as salient, with the public, then the health aspects in the statement.

In sum, given media's strong focus on HPV and cervical cancer, and not other health-related outcomes, and the potentially confusing information in Douglas' disclosure, it seems reasonable to conclude that the public found his statement to be ambiguous in nature. According to MSD theory, ambiguous information can stimulate information seeking through media sources when this information threatens an individual's psychological and/or physical well-being. In addition, previous research has consistently found that concentrated coverage of a media event has led to online information seeking with a congruent use of multiple media platforms. Finally, prior research has demonstrated that media reports of celebrity health disclosures have had measureable effects on the public, including but not limited to, information seeking about the

particular health condition, yet no studies have investigated online information search of the celebrity. Therefore, the following hypotheses are proposed:

Hypothesis 2: The relative Google search volume for key health related search phrases (HPV, throat cancer, and oral sex)and Michael Douglas will be positively correlated with media coverage of *The Guardian's* June 2, 2013 story on Michael Douglas on that same day (e.g. a pulse effect).

Given the scope of the study's hypotheses it is necessary to consider that the frame combinations present in the media's reports of Douglas' disclosure may have an interaction with online information seeking of the key search phrases under investigation. Therefore, the following research question is proposed:

RQ: What relationship, if any, exists between the combination of media frames present in the study's sample and the relative amount of Google searches related to the Douglas disclosure?

Methods

The utilization of multi-methods is necessary to test the current study's hypotheses

and to answer the research question. First, a framing analysis will be conducted to

determine the frequency of frames and frame combinations present in media reports of

Michael Douglas' health disclosure in his June 2, 2013 interview with *The Guardian*.

Next, to test the proposed relationship between media coverage of Douglas' health

disclosure and online information seeking of the key elements within the story (Michael

Douglas, HPV, throat cancer, and oral sex) the frequency of media coverage and the

relative amount of Google searches for keywords and phrased related to Douglas'

statement need to be determined. Finally, the research question will be answered by

comparing and analyzing results from the two previous analyses.

Framing Analysis

Units of analysis

Because the population of media coverage (television transcripts, newspaper articles,

and online coverage) on Douglas' disclosure is unknown, census sampling methods were

used to determine the study's sample. Therefore, an exhaustive search was conducted for

all television transcripts, newspaper stories, and online articles relevant to Douglas'

disclosure during the month of June 2013. The time period of June 2013 was selected

because *The Guardian's* story on Michael Douglas, and his subsequent disclosure, was

released on June 2, 2013.

The initial intent was to conduct a framing analysis on the entire body of media

coverage of the Michael Douglas disclosure to *The Guardian* in June 2013. However,

after preliminary data collection it was apparent that the allocation of media coverage was strikingly unbalanced. It appeared that between television news transcripts and newspaper articles only a few dozen would fit the selection criteria, but in a remarkable contrast the online media coverage would likely yield hundreds of stories, making the traditional media coverage (television/newspaper) of the story to be quite negligible in comparison. Therefore, television news transcripts and newspaper coverage of Douglas' disclosure were excluded from the framing analysis and only online articles were used as the units of analysis for the framing study.

Online media coverage of Douglas' disclosure was established with Google News Archives (news.google.com). To ensure that the search results are an accurate reflection of the media's reporting of the Michael Douglas story, and the key elements within it, four categories of search terms (e.g. "Michal Douglas"; "HPV"; "throat cancer"; and "oral sex") were under investigation. But, in order to cast a wide net, using the procedures recommended by Stryker, Wray, Hornik, and Yanovitzky (2006), several variations within the categories were searched anywhere in the headline or text, including: "Michael Douglas"; "cunnilingus" and "oral sex"; "human papillomavirus" and "HPV"; "throat cancer", "oral cancer", "esophageal cancer", and "head and neck cancer". Hypothesis 1 is specific to media reports of Douglas' health disclosure to *The Guardian*, so it is necessary for all units of analysis to contain all four categories of search terms.

All units of analysis had to be original reporting (131 stories were duplicates), but were not only taken from news websites (e.g. *CNN.com*, *HuffingtonPost.com*). Media

reports were also selected from health websites (e.g. *WebMD.com; AdvancingYourHealth.org*), entertainment news websites (*eonline.com*; *TMZ.com*), and blogs (e.g. *thatgirlattheparty.com; perezhilton.com*). This selection criteria was applied because of the available websites for audience exposure are vast, and it is likely the audience's first exposure to Douglas' disclosure was not just from a news source, so it was deemed necessary to expand the conceptualization of "media" beyond the traditional "news media". However, message board websites included in the Google News Archives results were excluded from the sample because they do not contain original reporting of the story, and subsequently cannot be considered "media coverage". In addition, U.S. only coverage was applied as selection criteria. This distinction is made because even though the original story regarding Douglas' disclosure was published online by *The Guardian*, a British website, there are some inherent "American" elements at play here – Michael Douglas is an American film actor and this study used literature on U.S. news coverage of HPV (international coverage of HPV may be disparate to U.S. coverage), and as will be discussed further, only the relative amount of Google searches in the United States were used to test Hypothesis 2.

To determine if the units selected through the databases search fit the parameters of inquiry (it is possible Google News Archives search results would include unrelated stories) a topic/content analysis was conducted on each potential unit of analysis and the category or categories contained in each unit was recorded. This analysis included: the tittle of the article or news segment clip; the title of the newspaper or program; the date of the article or the date the news segment was aired; and four separate category columns

labeled "Michael Douglas"; "oral sex"; "HPV"; and "throat cancer". Only articles that contained all four key term search categories were selected as units of analysis ($n = 421$).

Media frames

For the framing analysis, the researcher adopted frame definitions from Iyengar's (1987; 1989; 1993) constructs of episodic and thematic frames, and Price, Tewksbury, and Power's (1997) conflict, human interest, and consequence frames. In addition, the researcher used emergent coding to expand upon those frames. According to Wimmer and Dominick (2006), "Emergent coding establishes categories after a preliminary examination of the data. The resulting category system is constructed based on common factors or themes that emerge from the data themselves." New frame definitions for coding were based upon the content of online articles of the Douglas disclosure from June 6 through June 9, 2013 ($n = 25$), which were included in the study's final sample. The following offers brief definitions of the five frames under investigation. Complete operating definitions of all five frames and coding protocol are available in the Appendix.

> *Episodic frame.* The article focuses on a specific instance or event. For the current study, the article simply restates Michael Douglas' statement to *The Guardian*. There will be no mention or elaboration of greater implications beyond what Michael Douglas said in his statement. The article may give background information on Michael Douglas, his career, his family, or *The Guardian* and the specific interview. The only health information given in the episodic frame comes from Douglas' statement or his spokesperson's discussion of the statement.

Thematic frame. The article will restate what Douglas said in his interview with *The Guardian* and then have added health information about the relationship between oral sex, HPV, and throat cancer and/or HPV prevention.

Conflict frame. This frame is present when the main point of the article is that there is controversy over Michael Douglas' statement, in general, and/or how *The Guardian* reported Douglas' statement.

Human interest frame: The article will either focus on Michael Douglas as a personality or another specific individual as a personality.

Consequence frame: The article will deal with health issues that have a strong impact on the audience – the frame will tell the audience what their personal risk is of contracting HPV and/or developing throat cancer, and/or how they can prevent it for themselves or their children.

Two independent coders were used to determine frames enacted in the online media coverage sample, and Neuendorf's recommendations for coder training and establishing intercoder reliability were followed (Neundorf, 2002). After one coder training session, intercoder reliability was established with all five variables (frames) having Krippendorf's alpha at .80 (Freelon, 2013) or higher – significantly higher than the minimum recommended lowest acceptable reliability of .7 (Neundorf, 2002). While the Krippendorf's alpha for all variables are considered acceptable, one more coder training session was held to examine coder differences and discuss conflicting evaluations of the frames. The sample used to determine inter coder reliability consisted of 84 articles

which represents 20% of the total sample ($n = 421$) and well above Nuendorf's (2002)

recommendation of 10%. This sample was included in the final sample, and in addition to

this sample, each coder analyzed 168 articles. For a complete breakdown of the

Krippendorf's alpha for each variable see Table 1 in the Appendix.

Analysis

To test Hypothesis 1 descriptive statistics were utilized to determine the frequencies of

frames and frame combinations present within the sample. Descriptive statistics were

chosen as the method of analysis because the sample is purposive and cannot be

considered representative of any given population (essentially, the sample is the

population of online media coverage of the Douglas disclosure). Therefore, frame and

frame combination (episodic/thematic and conflict/human interest/consequences)

frequencies are the most valid method to determine the nature of the data.

Media Coverage and Relative Amount of Google Searches

Independent variable – media coverage

To measure the amount of media coverage on Michael Douglas' disclosure, and

related keywords and phrases, a search was conducted for relevant newspaper stories and

television news transcripts using the LexisNexis database, and another search was

conducted on Google News Archives (news.google.com) for relevant online media

coverage from May 1 to June 30, 2013. The unit of analysis was daily coverage for the

given time period ($n = 61$). This time period was selected for study because the

dependent variable data (relative Google search volume) is only available by the calendar

month (e.g. June 1 through June 30) and because the story broke on June 2nd only

examining June 2013 may not be an accurate reflection of a "normal" time period. That

is, May 1 through June 30 not only shows the media coverage and relative search volume

related to the key phrases in the Douglas story at their peak reporting and search time

period, but also will demonstrate a baseline before and after the story was reported.

Using the same database (e.g. LexisNexis or Google News Archives) for all units of

analysis would be preferable, however, an initial test of each database using the key

phrase "Michael Douglas" revealed that each was more reliable for particular media.

LexisNexis retrieved significantly more newspaper articles and television news

transcripts than Google News Archives, whereas LexisNexis only recovered nine online

articles, yet Google News Archives found hundreds. While LexisNexis archives full-text

articles from more than 2,500 newspapers, and is one of the few databases that has major

television networks' broadcast transcripts available for access, there are some inherent

limitations associated with using the database to consider the results a population of

television and newspaper coverage: some sources only make their content available for

six months after the original reporting, and not all newspapers or broadcast networks

make their content available to LexisNexis (LexisNexis, 2014). The search for television

transcripts related to the Douglas disclosure included morning television news programs

(e.g. *Good Morning America*; *The Today Show*) and nightly news broadcasts (e.g. *NBC

Nightly News with Brian Williams*; *CBS Evening News with Scott Pelley*) from ABC,

CBS, NBC, FOX, CNN, and MSNBC for May and June 2013. Newspaper coverage was

determined in a similar manner as television broadcast coverage. Any news item –

including news stories, letters to the editor, op-ed pieces, and editorials – that was

relevant to the Douglas disclosure were included in the study's census. The articles used

for the framing analysis were also used to determine online media coverage, but because

the current analysis is concerned with frequency of coverage, any story on Douglas'

disclosure on a separate website was also included – original reporting is not a selection

criterion for here. Finally, to assess the volume of coverage for all types of media

coverage (television, newspaper, and online) the same search and selection criteria used

in the framing analysis were applied (U.S. only coverage).

This case study is comparing same-day coverage and the relative amount of Google

searches for Michael Douglas' disclosure, and key elements within it, to determine if

there is a relationship between the amount of media coverage and the amount of search,

yet it is important to keep in my mind that the four key search phrases were also reported

on independently from the Douglas disclosure. Therefore, media reports of the Douglas

disclosure and media reports on all four of the key search terms were included in media

coverage frequency counts. As described previously, a topic analysis was conducted on

each potential unit of analysis and the category or categories contained in each unit was

recorded. The units of analysis could contain one of the categories, multiple, or all four,

because this analysis is specifically interested in the volume of coverage and excluding

stories on HPV, throat cancer, and oral sex, but not Michael Douglas would be ignoring a

potentially important measure. For example, if the unit contains HPV, oral sex, and throat

cancer information, but nothing about Michael Douglas a "1" was placed in the "HPV",

"oral sex", and "throat cancer" columns and a "0" was placed in the "Michael Douglas"

column. For each date in the May 1 through June 30 time period the amount of articles or television transcripts for each search category were recorded in Excel columns labeled "Michael Douglas"; "oral sex"; "HPV"; and "throat cancer". The final frequency counts for media coverage (the sum of television, newspaper, and online coverage) for May 1 through June 30 are 934 media reports for "Michael Douglas"; 1151 for "HPV"; 919 for "throat cancer"; and 886 for "oral sex". In addition, a category was created for media reports specific to media coverage of the Douglas disclosure (articles containing all four search phrases) (n = 596).

Dependent variable – online information search

For the purposes of the current study, search was determined with Google aggregate search data. Google aggregate search data are available through Google Trends (trends.google.com), which measures and reports the volume of Google searches for a particular term relative to the total number of searches on Google over a specific time period. To do this, Google provides a Search Volume Index (SVI), which is a numerical indicator of searches conducted on the Google search engine for any given term on any day. The data are scaled to the average search traffic for the queried search term – represented as 1.0 (Google, 2014). Therefore, an SVI below 1.0 suggests that search volume on the day was less than the daily average for the time period of interest and, for example, and SVI of 10.0 would indicate that the search volume for that term on that day was ten times higher than the average search for the given time period. However, the SVI is scaled to a maximum of 100.00, so if a search term exceeds 100 times higher than the

average search term there is no way to determine the true relative search volume for that term on that day (Google, 2014).

The search phrases used for analysis were: "Michael Douglas"; "HPV"; "throat cancer"; and "oral sex". This list was not as comprehensive as the search terms and phrases used for determining media coverage because Google Trends' SVI data aggregates search terms that are similar and provides a list of related search terms. Two groups of SVI data were collected. The first was for each of the four search terms and the second was only for searches specifically related to the Douglas' disclosure. For the first group of SVI data, the four search phrases were scaled together which resulted in a comparison of the four search phrases' relative Google search frequencies to each other. The list of related search terms was used to narrow the search queries for "oral sex". As may be expected, the initial list captured searches unrelated to any general media coverage or health issues. This was done by entering the key phrase "oral sex" in Google Trends, followed by a series of terms preceded by negative signs, which then excludes those terms from the SVI data (Google, 2014). The final search string for "oral sex" was "oral sex –video –videos –porn –women –anal –best –girl" and contained the phrases "cancer oral sex"; "oral cancer"; "michael douglas"; "hpv oral sex"; "hpv"; "michael douglas cancer"; and "hpv oral sex". The other three search phrase ("Michael Douglas"; "HPV"; and "throat cancer") were not narrowed, because the media coverage frequency counts included all media attention, including the Douglas disclosure, to these search terms. The second group of SVI data collected are specific to Michael Douglas's disclosure. In order to capture this the final search string was "Michael Douglas +HPV

+throat cancer +oral sex" and, therefore, contained the phrases "Michael douglas cancer"; "hpv men"; "hpv cancer"; "oral sex cancer"; "hpv in men"; "hpv symptons"; "hpv vaccine"; and "hpv warts". As previously discussed, the data for these search terms were gathered for May 1 through June 30, 2013 and the location filter was set to the "United States".

Analysis

Descriptive statistics were used to determine if there was a visible trend or "pulse" effect of the relative amount of Google searches for each of the four search key search terms and corresponding media coverage. In addition, descriptive statistics also demonstrated the relationship between media coverage and relative search volume related to the Douglas disclosure. The first group of daily SVI data (the four key search phrases scaled together) was plotted against the daily frequency of media coverage for May 1 through June 30, 2013. The second group of daily SVI data (the combined search string) was plotted against the daily distribution of the 596 media reports specific to Douglas' disclosure. Also, SVI means were calculated for specific time periods. Finally, to answer the research question, the most frequent media frames found in the framing analysis were plotted against the daily SVI's from June 2 through June 8, 2013 (for all four search terms) to determine if there was a trend between media frame combination and Google searches.

Results

Framing Analysis

Hypothesis 1: The combination of episodic and conflict frames will be the predominant frame combination present in the study's sample.

To establish frequencies of frames and the frequency of frame combinations descriptive statistics were used. For a breakdown of all frame and frame combinations present see Tables 2 and 3 below. The total sample consisted of 421 articles, and of those, the episodic frame was present in 57.7% ($n = 243$) of the articles and the thematic frame was present in 42.3% ($n = 178$) of the articles. Also, the conflict frame was present in 53.4% ($n = 225$) of the articles; the human interest frame was present in 9.5% ($n = 40$) of the articles; and the consequences frame was present in 37.1% ($n = 156$) of the articles.

Table 2

Frame Frequencies of Media Reports on the Douglas Health Disclosure

Frame	*n*	*%*
Episodic	243	57.7
Thematic	178	42.3
Conflict	225	53.4
Human Interest	40	9.5
Consequences	156	37.1

Regarding frame combinations, the episodic/conflict frames were present in 53% ($n = 223$) of the sampled articles; episodic/human interest frames were present in 4.8% ($n = 20$) of the articles; episodic/consequences were present in 0% ($n = 0$) of the articles; thematic/conflict frames were present in .5% ($n = 2$) of the articles; thematic/human interest frames were present in 4.8% ($n = 20$); and thematic/consequence frames were present in 37.1% ($n = 156$) of the articles.

Table 3

Combination Frame Frequencies of Media Reports on the Douglas Health Disclosure

Frame	Episodic	%	Thematic	%
Conflict	223	53.0	2	.5
Human Interest	20	4.8	20	4.8
Consequences	0	0	156	37.1
Totals (N = 421)	243	57.7	178	42.3

Media Coverage and Relative Amount of Google Searches

Hypothesis 2: The relative Google search volume for key health related search phrases (HPV, throat cancer, and oral sex)and Michael Douglas will be positively correlated with media coverage of *The Guardian's* June 2, 2013 story on Michael Douglas on that same day (e.g. a pulse effect).

To answer Hypothesis 2, the daily media coverage and daily Google SVI data related to the four search categories and the Douglas disclosure in May through June 2013 were plotted in Figures 1, 2, and 3 (see below). Figure 1 shows media coverage and relative Google search volume of the four key search categories – "Michael Douglas"; "HPV"; "throat cancer"; and "oral sex". Generally speaking, the May and June time periods under investigation show relatively low mean SVIs for all four search categories: "Michael Douglas" ($M = 7.902$; $sd = 16.092$); "HPV" ($M = 12.607$; $sd = 9.043$); "throat cancer" ($M = 3.279$; $sd = 5.754$); and "oral sex" ($M = 5.754$; $sd = 2.200$). However, Figure 1 clearly shows that there is a surge in both media reports and relative Google searches related to the four search categories during the week of June 2, 2013. All four search categories saw virtually the same amount of media coverage during the "pulse effect" time period, however, there appears to be a significant difference in the relative amount of Google searches between the four categories. Of the four search categories, "Michael Douglas" received the highest amount of relative Google searches with a peak SVI of 100 on June 3rd. HPV received the second highest amount of search and also peaked on June 3rd with
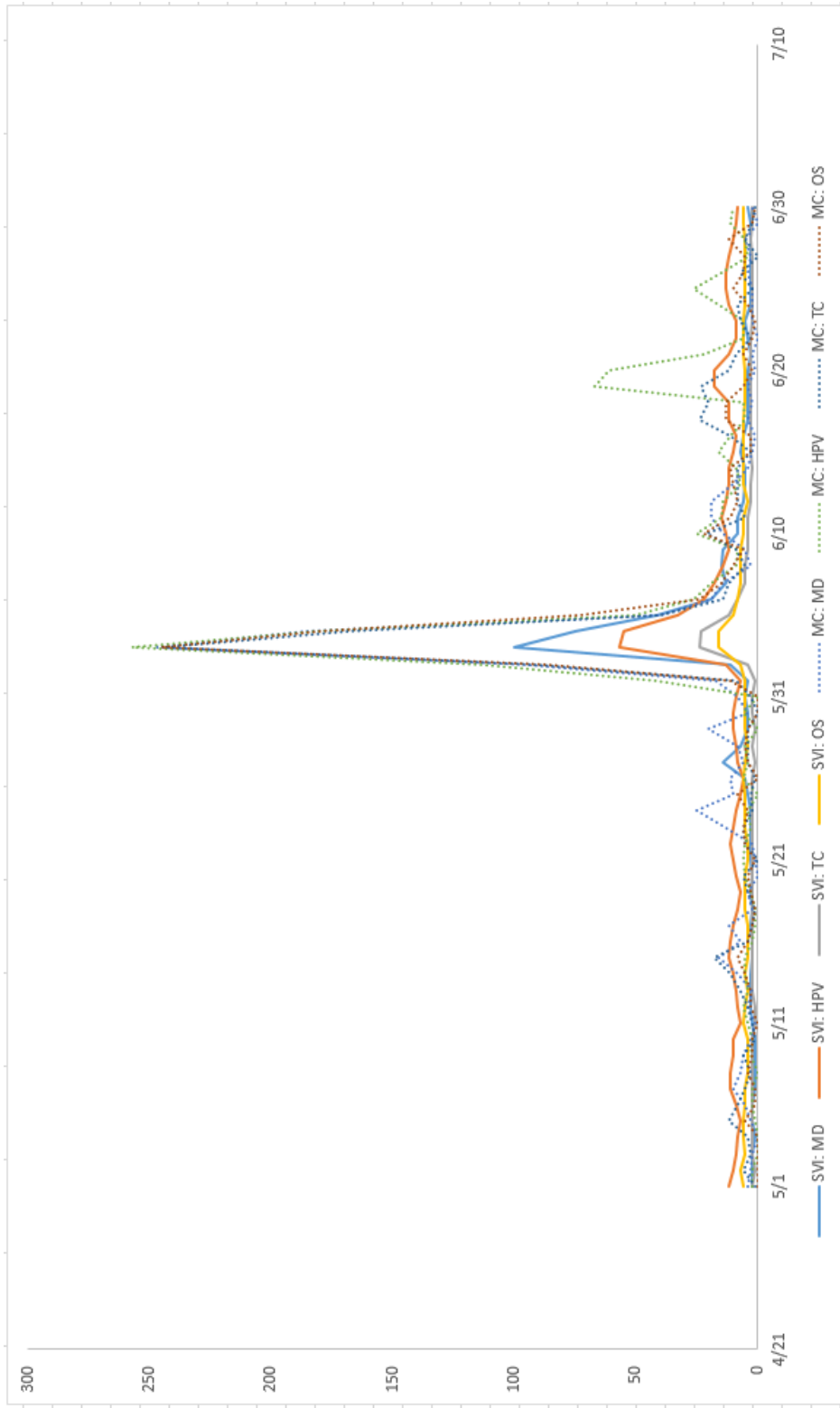
Figure 1. Daily relative Google search volume and daily media coverage from May 1 to June 2, 2013 related to the search categories: Michael Douglas; HPV, throat cancer; and oral sex. Note: Media reports on the Douglas health disclosure began on June 2, 2013. Also, all SVI and MC data represent comprehensive daily relative Google searches and media coverage and are specific to the Douglas health disclosure. SVI = search volume index; MC = media coverage.

an SVI of 57. In addition, looking at the week of June 2nd, where media coverage of the

Douglas disclosure was highly concentrated, the SVI means are in stark contrast to the

May/June means. That is, the mean SVI for: "Michael Douglas" is 39.571 (*sd* = 34.871);

"HPV" is 30.143 (*sd* = 18.933); "throat cancer" is 11.5714 (*sd* = 8.580); and "oral sex" is

10.143 (*sd* = 4.140). These means also establishes that while "Michael Douglas"

received the highest relative amount of Google searches during the week of June 2nd, it

also saw the greatest variability in search. The relative amount of Google searches for

"HPV", "throat cancer", and "oral sex" stayed relatively stable during June 3rd through

June 5th, showing a bit of a lag effect (Figure 2). For a complete breakdown of media

coverage and SVIs for each search term category see Table 4 in the Appendix.
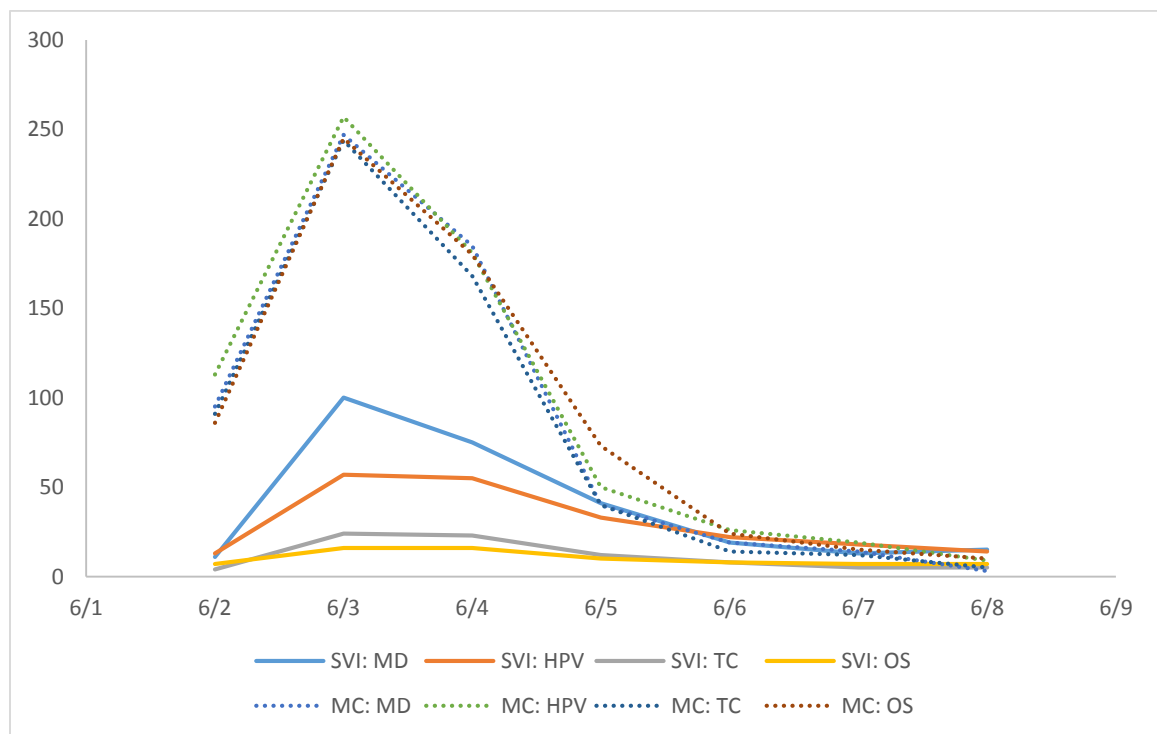
Figure 2. Search and media coverage trends for the week of June 2, 2013 related to the search categories: Michael Douglas; HPV; throat cancer; and oral sex. Note: Media reports on the Douglas health disclosure began on June 2, 2013. Also, all SVI and MC data represent comprehensive daily relative Google searches and media coverage and are specific to the Douglas health disclosure. SVI = Google search volume index; MC = media coverage.

Figure 3 illustrates the daily media coverage and daily Google SVI data specifically related to the Douglas disclosure for May 1 through June 20, 2013. There was no media coverage (*n* = 0) between the dates of May 1st and June 1st, because the story had not been reported by *The Guardian* during that time period, yet during this time period there was minimal SVI data (M = 11.9375, *sd* = 1.564) related to the disclosure. This may be explained by searches that included two or three word combinations of the search string (e.g. Michael Douglas +throat cancer; hpv +oral sex +hpv, etc.).
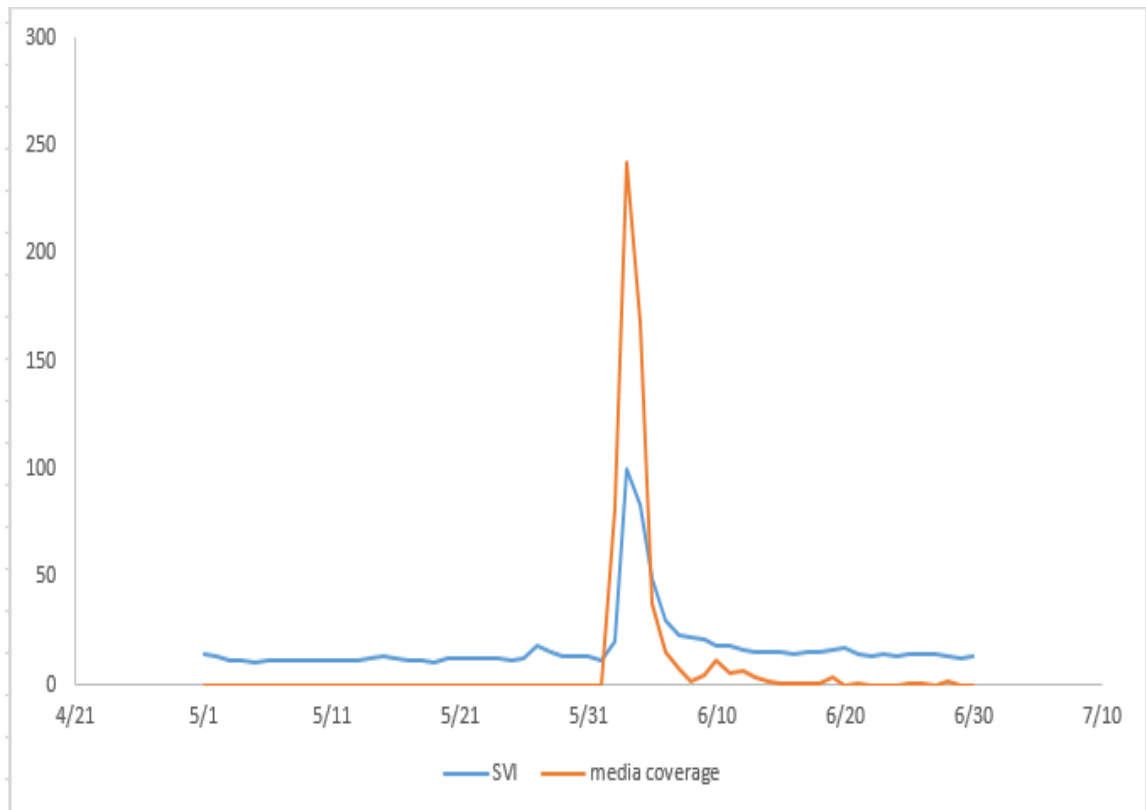
Figure 3. relative Google search volume and media coverage related to the Douglas health disclosure reported on June 2, 2013 for the time period of May 1 through June 30, 2013. Note: Media reports on the Douglas health disclosure began on June 2, 2013. SVI data represents the search string – "Michael Douglas +HPV +throat cancer +oral sex" – and plotted media coverage represents media reports specific to Douglas' health disclosure. SVI = search volume index.

However, Figure 3 clearly demonstrates a spike in media coverage of the disclosure from June 2nd through June 5th ($n = 529$) ($M = 132.25$, $sd = 90.981$) and dramatic increase in relative Google searches ($M = 63$, $sd = 35.656$) related to the disclosure. The first day of significant media reporting on the Douglas disclosure takes place on June 2nd with 81 media reports and an SVI of 20, but media coverage ($n = 242$) and the SVI ($n = 100$) peak on June 3rd. Media coverage and relative search volume begin to decrease on June 4th but the relative search volume stays above 21 for the entire week ($M = 46.714$, $sd = 32.474$). The following week sees little media coverage ($n = 32$; $M = 4.571$; $sd = 3.31$) and the relative Google searches ($M = 16.857$; $sd = 3.31$) return to the volumes seen before June 2nd. Therefore, as predicted there was a "pulse effect" of relative Google searches for keywords related to the Douglas disclosure between June 2 and June 5, 2013. Table 5 (see Appendix) gives daily frequencies for both the SVI data and media coverage related to the Douglas disclosure for May 1 through June 1, 2013.

RQ: What relationship, if any, exists between the combination of media frames present in the study's sample and the relative amount of Google searches related to the Douglas disclosure?

Finally, to address the research question, Figure 4 (see pg. 37) demonstrates a relationship with the relative search volume of "Michael Douglas" and the frequency of episodic/conflict frames. However, there does not appear to be a detectable pattern or interaction between thematic/consequences and any of the key search terms under investigation.
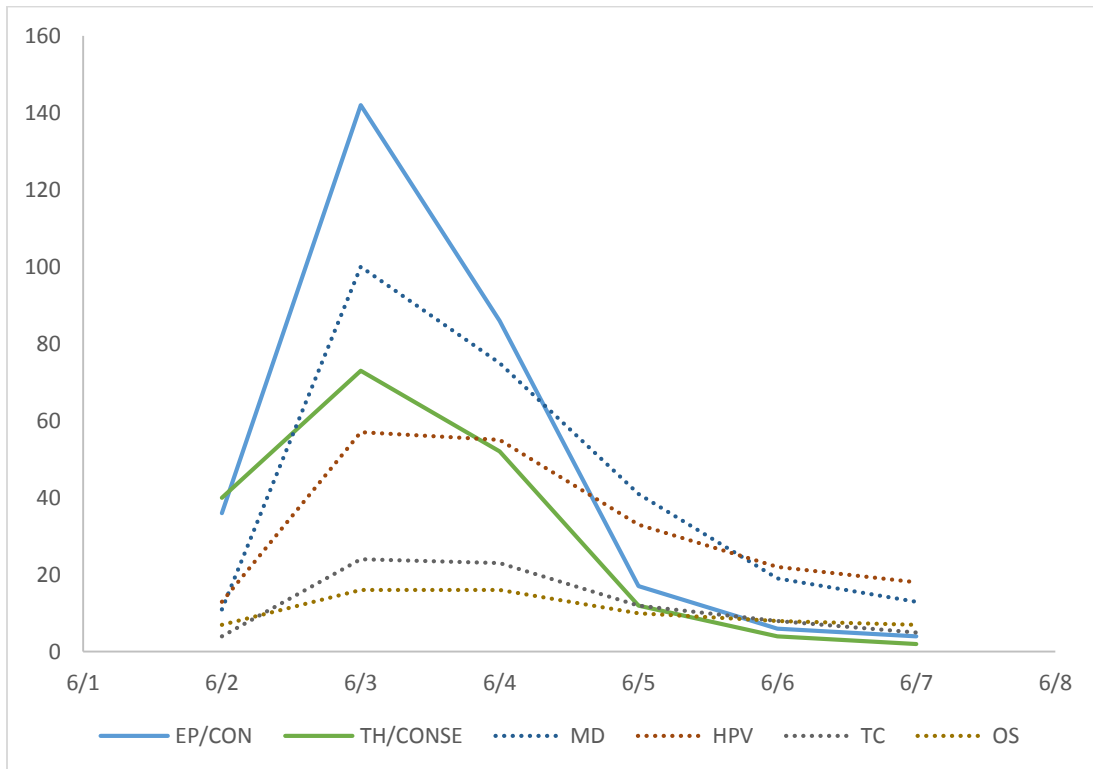
Figure 4. Daily relative Google search volume for Michael Douglas; HPV; throat cancer; and oral sex and the frequency of online stories with episodic/conflict and thematic/consequences combination frames for the week of June 2, 2013.

Discussion

The aim of this multi-method case study was to determine if the media frames present in media reports of Michael Douglas' health disclosure to *The Guardian* influenced the public's information seeking related to both Douglas as celebrity and key health-related terms given in his statement. The study's results suggest there is a link between the two. First, in regards to the framing analysis, online media coverage favored episodic frames to thematic frames, and conflict frames to human interest and consequence frames when reporting on Douglas' health disclosure. These findings support previous studies that have found episodic and conflict frames to be the most commonly used media frames (Graber, 1993; Iyengar's1987; 1989; 1991; MacDougall, 1982; Matthes & Kohring, 2008; Price, et al., 1997; Semetko & Valkenburg, 2000) and add to the body of knowledge of the presence of online media frames (Dimitrova et al., 2005; Dimitrova & Connolly-Ahern, 2007; Jha, 2007; Zaharopoulous, 2007; Zillman et al., 2004). In addition, as predicted, the frame combination of episodic and conflict frame was the predominant frame combination present in the study's sample.

The present findings lend further support to the assertion that the media presented information to the public about Douglas' disclosure that could be construed as ambiguous in nature. An episodic frame gives no health information beyond what was present in Douglas' disclosure. That is, articles with an episodic frame did not attempt to verify the legitimacy of Douglas' claim with medical professionals or scientific studies, nor did it discuss the potential relationship between oral sex, HPV, and throat cancer. In addition, articles with the combination frames of episodic and conflict only highlighted what

Douglas said and that his public relations representative later refuted that Douglas even made the comment; almost indicating Douglas' statement was somehow absurd. This combination of frames seems ripe for confusing the public. Yet, the frequency of thematic frames and the combination of thematic and consequence frames cannot be overlooked. At least 42% of the articles included health information and/or health prevention behaviors related to Douglas' disclosure and the consequence frame has been found to prompt knowledge activation (Price et al., 1997), indicating this proportion of articles were perhaps not confusing, or ambiguous, to the public.

The frequencies of frames and frame combinations gives an interesting but limited view of what the potential implications are for the sum of the body of articles. Given the general nature of the frames present in the online media sample there was potential for the public to be exposed to contradictory information – one website may have verified that Douglas' disclosure exposes the legitimate relationship between oral sex, HPV, and throat cancer while the next website may have asserted that Douglas' claim was "crazy", or it just focused on the controversy of his statement. Ellsberg's (1961) discussion of factors that can lead to ambiguity – even when there is a sufficient amount of information ambiguity can be high because of reliability, relevance, and conflicting opinion and evidence – may be a useful description of the disparate use of media frames present in the body of media reports on Douglas' disclosure.

This study's framing analysis describes how the media reported Douglas' disclosure with *The Guardian*. Additionally, the Google Trends data analysis shows the relationship between the frequency of media reports and the relative amount of Google searches related to the disclosure. As predicted, there was a "pulse" effect for relative Google

searches related to the Douglas health disclosure which was positively correlated with the frequency of media's coverage on the story. This finding supports previous studies that have found a positive correlation between media coverage of the celebrity's health disclosure and the relative online search volume of keywords related to the celebrity's health condition (Ayers, et al., 2014; Metcalfe, et al., 2011; Noar et al., 2013). Moreover, the Google Trends' findings demonstrate a potential effect related to the combination frames present in media reports. As MSD posits, ambiguous environs, especially those threatening one's psychological, economic or physical well-being, will motivate individuals to turn to the media to find "expert" interpretation on the particular topic (Ball Rokeach, 1985). The body of media coverage's framing of Douglas' disclosure certainly fits the definition of "ambiguous" and it seems plausible that the ambiguity surrounding Douglas' proposed relationship between oral sex, HPV, and throat cancer could be considered threatening to the public's physical well-being, if not psychological well-being, and therefore the public sought further information via Google search.

However, the individual Google Trends results for the four key search phrases – "Michael Douglas"; "HPV"; "throat cancer"; and "oral sex" – may seem to contradict the previously discussed relationship between media frames, media coverage, and information search. The individual search phrases all saw dramatic increases in search queries prior to June 2, 2013, but "Michael Douglas" reached the highest SVI (100) out of the four, with the second highest, HPV, only reaching 55. Interestingly, "Michael Douglas" saw a quick one day surge in search, but the other three search phrases had a three day lag effect, with their highest relative search volumes showing stability before dropping off in popularity. Because previous studies have not investigated the public's

search of the celebrity after their public health disclosure this finding may be left open for speculation, especially if this study was relying on agenda-setting effects (the public only searched for Douglas because his name was frequently cited by the media).

The results of the comparison between same-day media frame combinations and the four key search phrases' SVIs may elucidate why "Michael Douglas" received the highest amount of relative Google searches. The relationship between the frequency of online articles with episodic and conflict combination frames and the search phrase "Michael Douglas" almost mirror each other and indicate an interaction between the two. This finding indicates that the combination of episodic and conflict frames may have made the celebrity, Michael Douglas, more salient with the public than the health-related key search phrases, at least for one day. Although, the predominant search results for "Michael Douglas" would have only resulted in more media reports of his disclosure; offering no further clarification on the story or its health implications. This may explain the more stable search pattern for the health-related key phrases. That is, searching for "Michael Douglas" could have led to further ambiguity about Douglas' proposed relationship between oral sex, HPV, and throat cancer, prompting further search with the health-related key search terms.

In summary, the results from this multi-method case study imply that Douglas' health disclosure to *The Guardian* on June 2, 2013, and the framing of the story, impacted the public's information search of not only Douglas, but also HPV, throat cancer, and oral sex. The disparate frames and frame combinations present in the study's sample indicate that the media's reporting of Douglas health claim was inconsistent, confusing, and therefore ambiguous. While the Google Trends "pulse" effect could be construed as the

public's reaction to the sheer volume of concentrated media coverage on Douglas'

disclosure, there appears to be a link between media frames and information search. This

is not only evident in the differences between the relative Google search volumes for

each of the four key phrases under investigation and a potential lag effect for the health-

related key phrases, but also through the comparison of search phrases and prevalence of

combination media frames on a same-day basis. It is likely that the episodic frame and

episodic and conflict combination frames resulted in queries for Michael Douglas

initially, because individuals were curious or confused about all of the media attention

given to his story, but then, individuals searched for expert information to verify

Douglas' proposed relationship between oral sex, HPV, and throat cancer.

Limitations and Future Research

Michael Douglas' health disclosure to *The Guardian* is a very specific one-time media phenomenon, however, the general nature of Douglas' disclosure is not the first of its kind, nor will it likely be the last. Consequently, this study's findings do have implications for future research and practice. This study broadened the constructs and application of episodic and thematic frames, as well as conflict, human interest, and consequences, and also built upon Hatley-Major's (2009) framework of frame combinations. Both Iyengar's and Price et al.'s frame conceptualizations have primarily been used to investigate frames and framing effects of public affairs news coverage, but this study demonstrates they may also be present in other topics covered by the media, including news within a health context. While this study did not find great diversity in media frame distribution (episodic and conflict and thematic and consequence frame combinations accounted for 95.3% of the sample) other topics covered by the media may be less concentrated.

Because this study's focus was on overall media coverage, frame frequencies, or differences, according to media platforms and organizations were not investigated. As this study posits, agenda-setting cannot be the sole explanation for online health information search, but in the case of Douglas' disclosure, exposure was necessary to evoke ambiguity and thus prompt search. However, looking at the population of media coverage may conflate what information the public was actually exposed to. For example, this study considered media frames for the entire body of online media coverage and treated all media reports as equals, but some of those media reports were found deep in the Google News archives and it is unlikely much of the public actually read those

reports. Also, there was less frequent coverage of Douglas' disclosure on television than online, but a television news broadcast can reach more people at one time than a single online media report. While the episodic and conflict frame combination was prevalent in the body of online media coverage, it is possible that it was not actually the frame combination that the public was most exposed to. Future research should explore if combination frames differ according to the media organization, media platform (newspaper, television coverage, and online), and by most frequented websites to determine what frames the public is most exposed to, which will help verify the supposition that exposure to ambiguous health information leads to online health information seeking.

Furthermore, to the best of my knowledge, this is the first study that linked media frames and online information seeking both theoretically and methodologically (i.e. media frame combination frequencies compared to relative Google searches). Because aggregate data do not allow for the understanding of online user's true motivations for their information search, future experimental studies are called for to make this distinction. Also, this study's use of descriptive statistics were appropriate to define search specifically for Douglas' disclosure and this method does visually demonstrate positive correlations between the frequencies of media frames, media coverage, and relative Google search amounts. Nonetheless, using time series analysis would perhaps bring to light less conspicuous tendencies in the data and make the study's finding generalizable to a larger population.

Having made salient the study's limitations I can now offer some important implications of the findings. It seems apparent that media's coverage of Michael

Douglas' disclosure influenced online information search of both the celebrity and key phrases related to his health outcome. Future studies should continue to investigate information search related to the celebrity after a public personal health disclosure to establish what aspects of their story is most salient with the public. It could be argued that this distinction is redundant because individuals searching for the celebrity will inevitably be exposed to the story about the particular health condition. But, as this study shows, the media does not always do a "good" job in emphasizing how a celebrity's personal health disclosure could be relevant to the public's own health outcomes. This finding is important for public health and health communication practitioners to be cognizant of. In the event of a future similar celebrity health disclosure it may be necessary to have a strong public health perspective on the given health condition brought to the media to avoid the mass of conflicting and confusing information seen in the Douglas case.

It should be noted that Douglas' disclosure did bring to light a real health outcome (throat cancer) from oral sex and HPV that had not been previously present in the media's typical HPV narrative (Johnson, et al., 2011). Future studies should investigate media's framing of HPV before and after Douglas' disclosure to determine if his story has had a lasting impact on journalists' and media organizations' reports of HPV risks and health outcomes. Finally, from a public health and health communication perspective, information seeking can be seen as a positive health-related behavior. Through online information seeking, individuals may be able to find expert information that decreases their ambiguity and learn what actions they need to take, or take for their children, to prevent HPV contraction, or at least be aware of their risks of developing throat cancer (e.g. a better informed public).

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Appendix

Table 1

Intercoder Reliability Sample for the Framing Analysis of Media Reports on the Douglas Health Disclosure

Frame	% Agreement	Krippendorf's α	N Agreement	N Disagreement
Episodic	90.476	.807	76	8
Thematic	90.476	.807	76	8
Conflict	91.667	.834	77	7
Human Interest	96.429	.850	81	3
Consequences	95.238	.893	80	4

Table 4.

Daily Frequencies of Media Coverage and Relative Google Search related to the key search terms "Michael Douglas"; "HPV";
"Throat Cancer"; and "Oral Sex" from May 1 to June 30, 2013

Date	MC: MD	SVI: MD	MC: HPV	SVI: HPV	SVI: TC	MC: TC	SVI: OS	MC: OS
5/1	4	2	2	12	2	1	6	0
5/2	3	2	2	10	1	6	7	0
5/3	2	2	0	9	2	3	5	0
5/4	0	1	0	8	2	4	6	0
5/5	3	2	1	7	2	12	6	5
5/6	5	2	2	9	2	8	5	1
5/7	10	1	2	11	2	5	5	1
5/8	7	1	0	11	2	3	4	4
5/9	6	1	3	10	2	6	4	2
5/10	3	1	2	10	2	1	4	2
5/11	1	2	4	7	1	2	6	0
5/12	4	3	6	8	1	4	5	3
5/13	2	3	4	9	2	7	4	3
5/14	8	3	5	10	2	11	5	5
5/15	16	2	5	12	2	18	4	8
5/16	7	2	2	11	2	4	4	4
5/17	12	3	1	10	2	2	4	2
5/18	2	2	1	8	2	1	5	1
5/19	4	3	3	7	2	4	5	3
5/20	0	2	5	9	2	6	5	4
5/21	1	3	6	10	2	0	4	1
5/22	2	3	5	11	2	5	4	5
5/23	13	3	3	10	2	6	5	6
5/24	25	3	4	9	2	2	5	4
5/25	10	4	0	7	2	3	5	8
5/26	11	5	6	6	2	1	6	0
5/27	6	14	4	8	1	4	5	4
5/28	8	7	5	9	2	4	4	5
5/29	20	4	0	10	1	4	5	4

Date	MC: MD	SVI: MD	MC: HPV	SVI: HPV	SVI: TC	MC: TC	SVI: OS	MC: OS
5/30	4	4	6	10	2	0	5	0
5/31	8	5	0	9	2	3	5	0
6/1	17	4	42	7	1	9	5	11
6/2	95	11	113	13	4	91	7	86
6/3	247	100	257	57	24	244	16	245
6/4	185	75	181	55	23	168	16	180
6/5	40	41	50	33	12	40	10	73
6/6	19	19	26	22	8	14	8	24
6/7	14	13	19	18	5	12	7	15
6/8	3	15	9	14	5	5	7	10
6/9	5	14	8	12	4	9	7	6
6/10	14	8	25	13	4	21	6	22
6/11	19	8	15	15	4	5	6	11
6/12	19	6	14	13	3	8	4	8
6/13	10	5	7	12	3	8	6	10
6/14	4	5	9	12	2	8	6	11
6/15	2	7	16	10	3	3	6	3
6/16	1	6	11	9	3	11	6	3
6/17	4	4	5	12	3	24	6	13
6/18	2	4	6	12	3	20	5	13
6/19	4	4	67	18	3	23	5	6
6/20	1	4	61	18	3	12	5	2
6/21	2	3	22	12	3	9	6	6
6/22	0	4	6	9	3	3	6	2
6/23	2	5	6	9	2	7	6	1
6/24	2	3	16	12	2	8	5	4
6/25	2	3	26	13	2	2	5	10
6/26	4	3	15	13	2	7	5	6
6/27	3	3	4	12	2	0	5	5
6/28	5	3	5	10	3	5	5	12
6/29	0	3	11	9	2	2	6	2
6/30	2	4	10	8	2	1	6	1

Table 5

Daily Frequencies of Media Coverage and Relative Google Search Related to the
Douglas Disclosure from May 1 to June 30, 2013

Date	MC	SVI	Date	MC	SVI	Date	MC	SVI
5/1	0	14	5/2	0	13	5/3	0	11
5/4	0	11	5/5	0	10	5/6	0	11
5/7	0	11	5/8	0	11	5/9	0	11
5/10	0	11	5/11	0	11	5/12	0	11
5/13	0	11	5/14	0	12	5/15	0	13
5/16	0	12	5/17	0	11	5/18	0	11
5/19	0	10	5/20	0	12	5/21	0	12
5/22	0	12	5/23	0	12	5/24	0	12
5/25	0	11	5/26	0	12	5/27	0	18
5/28	0	15	5/29	0	13	5/30	0	13
5/31	0	13	6/1	0	11	6/02	81	20
6/3	242	100	6/4	168	83	6/5	38	49
6/6	15	30	6/7	7	23	6/8	2	22
6/9	4	21	6/10	11	18	6/11	5	18
6/12	6	16	6/13	3	15	6/14	2	15
6/15	1	15	6/16	1	14	6/17	1	15
6/18	1	15	6/19	3	16	6/20	0	17
6/21	1	14	6/22	0	13	6/23	0	14
6/24	0	13	6/25	1	14	6/26	1	14
6/27	0	14	6/28	2	13	6/29	0	12
6/30	0	13						

Codebook for Data Collection on Newspaper Articles, News Segment Transcripts, and Internet Articles of the June 2013 Michael Douglas Story

This content analysis will analyze the content of a sample of newspaper articles, television news segment transcripts, and online articles of media coverage of the June 2013 Michael Douglas story and keywords and phrases related to the story from May 1 to June 30, 2013. The units of analysis are the entire population of newspaper articles and television news segment transcripts collected from the LexisNexis database for June 2012 and 2013 and a sample of online articles from May 1 to June 30 2012 and 2013.

The current study has two goals for analyzing the content: 1) to determine the topics covered in the units of analysis; and, 2) to determine what frames are employed in the units of analysis in the June 2013 sample. The first set of guidelines outlined in this codebook will be specific to the study's first goal and will apply to entire time period under investigation (May 1 to June 30, 2013). The second set of guidelines are specific to the study's second goal and will only apply to the June sample.

Excel spreadsheets will be used to record the analysis of all the units of analysis.

Here begins the units of analysis-specific potion of the coding process.

The case of interest to the current study is an interview Michael Douglas gave to *The Guardian* on June 2, 2013 where he was asked "whether he regretted his years of smoking and drinking," (Brooks, 2013) due to his previous cancer diagnosis. Douglas' response, "No. Because without wanting to get too specific this particular cancer is caused by HPV, which actually comes about from cunnilingus," (Brooks, 2013).

The current study asserts that this statement may have presented some ambiguous health information to the public that potentially elicited information search, in the form of online (Google) search, in order to help clarify the information stated by Douglas. In Douglas' statement, three health-related keywords or phrases are important for the current study's investigation: throat cancer; HPV; and cunnilingus. In addition, the source of the information, "Michael Douglas", is relevant for the current investigation; it seems likely that people may have used Google to search for the celebrity as well as the three previously discussed keywords/phrases.

The primary researcher will determine the units of analysis based on searches in the LexisNexis database for newspaper articles and television news segment transcripts, as well as, online news articles from Google News archives. The units of analysis will only be from the time period of May 1 through June 30, 2013, and will only be from U.S. sources. Finally, all of the units of analysis must contain one of the following four topic categories: Michael Douglas, HPV, throat cancer, and oral sex. The researchers will record each unit of analysis in an Excel spreadsheet.

Topic Analysis

The coder should use the Excel spreadsheet – TOPIC.xls. The spreadsheet has two tabs – May 2013; June 2013 – one for each month's sample of units of analysis. The newspaper article, television news segment transcript, or online article's title, date, and publication/broadcast information will be entered into the spreadsheet.

TOPIC CATEGORIES

Each unit of analysis (article/transcript) needs to have at least one of the four categories present in order to be considered a unit of analysis. In the Excel spreadsheet – TOPIC.xls. – there are four blank columns, these are the topic categories of interest. After the researcher analyzes (reads) each unit of analysis they need to identify, and record in the spreadsheet, which topic category/categories are present. Each unit of analysis has a "**Unit #**" which is identified on the top of each article/transcript and the unit # is recorded in the spreadsheet in the column labeled "**Unit #**". If a topic is present in the unit of analysis, the researcher should put a "1" in the column and if the topic is not present, the researcher should put a "0" in the specific column. The following are the operational definitions of each topic category.

MICHAEL DOUGLAS: The actor, Michael Douglas, is mentioned by name in the unit of analysis.

HPV: The following words or phrases need to be present in the unit of analysis (article/transcript): the acronym "HPV" or human papillomavirus.

THROAT CANCER: The following phrases must be present in the unit of analysis (article/transcript): throat cancer, oral cancer, or head and neck cancer.

ORAL SEX: Cunnilingus or oral sex must be present in the news article.

Framing Analysis

The current study is using Iyengar's (1993) conceptualizations of episodic and thematic frames and Price, Tewksbury, and Powers' (1997) constructs of conflict, human interest, and consequence frames to guide the operational definitions of frames analyzed in the study's sample. For the intercoder reliability sample, the researcher should use the Excel spreadsheet – ICR.CODESHEET.xls. – and for the total sample framing analysis the researcher should use the Excel spreadsheet – FRAMES.xls. Only the June 2013 sample will be used in this analysis. For the current framing analysis, possible frame combinations are under investigation. Each article can have one of Iyengar's frames – episodic or thematic – present and one of Price et al.'s frames – conflict, human interest, and consequence – present. That is, for each frame category (e.g. Iyengar or Price et al.) the frames are mutually exclusive. Therefore, if the unit of analysis (article) has an episodic frame, a "1" should be placed in the episodic column and a "0" should be placed in the thematic column. And, if a thematic frame is present, a "1" should be placed in the

thematic column and a "0" should be placed in the episodic column. Likewise, if the article has a conflict frame a "1" should be placed in the conflict column and "0"s should be placed in the human interest and consequence columns. Each unit of analysis has a "**Unit #**" which is identified on the top of each article/transcript and the unit # is recorded in the spreadsheet in the column labeled "**Unit #**". Please make sure that all information entered in the spreadsheet for a particular unit # corresponds with the unit # on the unit of analysis (article) under investigation.

Iyengar's Frames

EPISODIC FRAME: The unit of analysis (the article) focuses on a specific instance or event. For the current study, the article simply restates Michael Douglas' statement to *The Guardian's*. There should be no mention or elaboration of greater implications, including health implications, beyond what Michael Douglas' said in his statement to *The Guardian*. The article may give background information on Michael Douglas, his career, his family, or *The Guardian* and the specific interview. The only health information given in the episodic frame comes from Douglas' statement or his spokesperson's account of the statement.

THEMATIC FRAME: The depiction of issues in the unit of analysis (news article) is presented on an abstract level which implicates general outcomes. The unit of analysis will restate what Douglas said in his interview with *The Guardian* and then have added health information about HPV, throat cancer, at-risk behaviors (e.g. oral sex), and/or prevention. For example, a discussion, following Michael Douglas' quote, on HPV vaccination for adolescents would have a thematic frame. It is likely that a thematic frame will include interviews with doctors, or other medical professionals, or mention medical research supporting or refuting Douglas' claim.

Price, Tewksbury, & Power's Frames

CONFLICT FRAME: In the current sample, the conflict frame is present when the main point in the article is that there is controversy over Michael Douglas' statement, in general, and/or how *The Guardian* reported Douglas' statement. In most cases, the conflict frame will be discussing Douglas' statement as a point of controversy in the media. For example:

> "Michael Douglas' P.R. team is in damage control mode after the actor's comments to the Guardian – during which he attributed the cause of his throat cancer to oral sex – went viral on Monday.

> Douglas' rep, Allen Burry, attempted to clarify the comment, telling the AP on Monday afternoon that 'In a discussion with the newspaper, they talked about the causes of oral cancer, one of which was oral sex, which is noted and has been known for a while now."

HUMAN INTEREST FRAME: The human interest frame will either focus on Michael Douglas as a personality or another specific individual as a personality. This frame may also include information about his career, family, his battle with cancer, or any other personal information. If the focus of the article is on another individual who has suffered from throat cancer as a result of HPV, it also has a human interest frame. Example:

> "The actor Michael Douglas is quoted as saying sex caused his throat cancer.While his representatives are quibbling about exactly what he said, doctors say it's a growing problem.
>
> 3 On Your Side Health Reporter Stephanie Stahl has more, including a New Jersey patient who's happy the movie star is raising awareness whether he wants to or not.
>
> David Caldarella, who lives in Manaahawkin, had throat cancer caused by HPV, the human papillomavirus, a sexually transmitted disease.
>
> Michael Douglas reportedly said that's also what caused his cancer.
>
> 'The biggest thing is it's a killer. I'm very lucky to be here. Michael's very lucky to be here.' Said David."

CONSEQUENCE FRAME: The consequence frame will deal with health issues that have a strong impact on the audience. That is, the consequence frame will tell the audience what their personal risk is of contracting HPV and/or developing throat cancer, and/or how they can prevent it for themselves or their children. This frame is the frame that is most likely to have statistics, percentages, and figures and they will generally be relevant to frequencies of HPV and throat cancer.

Saving and Submitting Codesheets

Please remember to save changes frequently throughout the coding process so as not to lose any coded data. Before submitting the final codesheet, coders should ensure all cells have been coded with either a "0" for present or a "1" for present. No cells should be blank. Once all codes have been entered for each unit of analysis (article), save the spreadsheet one final time and e-mail it directly to lorus004@umn.edu.