

**News Media Stories about Cancer on Facebook: How Does Story Framing Influence  
Response Framing, Tone and Attributions of Responsibility?**

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## Declaration

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Tegan Starr



January 2019

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Response Framing, Tone and Attributions of Responsibility?**

**Literature Review**

### **Abstract**

Social media has made access to health information easier than ever. In response, news broadcasters have adapted by sharing news stories on social media platforms such as Facebook. Among the news stories shared are those aimed to increase awareness of issues such as public health. However, the way health news stories are commonly framed is likely to generate a narrow perception of the causes of health issues and who is to blame for such issues. Furthermore, the way a health issue is framed may also shape the content and tone of responses in online comments and the stigma associated with some health issues may also appear in both news stories and audience responses. This paper will discuss these concerns regarding framing of health news stories, the implications of online comments and avenues to be explored in future research.

## **Overview**

As the popularity of social media increases, individuals are able to access health information more frequently and can interact with health-related news like never before. It is important for researchers to understand how individuals obtain information about health and the potential implications of the way health news is presented and shared with others. This paper will firstly address how people seek health information and particularly how this has changed over time to incorporate more user interaction through the use of Internet and social media platforms like Facebook. Health information in news media will then be discussed including how news media broadcasters have adapted to social platforms (e.g., Facebook) and how online audiences interact with online health news. This paper will then review the research on news framing and how framing affects response content, tone and attributions of responsibility. The effect of stigma on responses to particular health issues, such as lung cancer, will also be addressed. Finally, since online interaction with health news is still a relatively new area for researchers to explore, directions for possible future research will be addressed.

## **Health Information Online**

For many years, individuals have engaged in health information-seeking behaviour for general health matters such as diet, exercise, drugs and alcohol or for information to understand and deal with an illness (Czaja, Manfredi, & Price, 2003; Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005; Lambert & Loiselle, 2007; Molem, 1999). Health information-seeking behaviour has increased as the availability and ease of online health resources has grown (Brodie et al., 2000; Cline & Haynes, 2001; Gray et al., 2005; Lambert & Loiselle, 2007). Individuals can now have increased autonomy over their health matters and use online health information for self-care, monitoring and prevention (Cline & Haynes, 2001; Lambert & Loiselle, 2007; Lupton, 2013). The Internet also allows for interaction with other



individuals and health professionals through online networks such as forums and health organisation websites (Cline & Haynes, 2001). Some of the positive implications of online health information include access to support groups and resources in order to help with psychosocial adjustment to illness as well as allowing patients to communicate better with health professionals and to make more informed decisions (Cline & Haynes, 2001; Lambert & Loiselle, 2007; Wald, Dube, & Anthony, 2007). However, there is also the risk of obtaining inaccurate and unreliable information online that may lead individuals to use ineffective treatment methods and may potentially increase anxiety and fear (Cline & Haynes, 2001; Gray et al., 2005). Therefore, whilst the Internet creates new avenues for health information and management, it is important to understand the potential risks associated with this form of health information-seeking behaviour.

### **Health Information and Social Media**

A recent report found that 88% of Australian Internet users access social networking sites with 62% using social media at least once a day (Yellow, 2018). Social media has also been a useful communication tool for public health, for example hospitals and clinics are using social media to communicate with patients (Van de Belt, Berben, Samsom, Engelen, & Schoonhoven, 2012) and health organisations are using social media to engage with stakeholders for health promotion and awareness activities (Gold et al., 2011). Social media trends can bring attention to a health issue that would otherwise be relatively unknown. For example, the 'ice bucket challenge', a social media campaign to raise money and awareness for Amyotrophic Lateral Sclerosis, led to millions of people including high profile celebrities discussing the issue on social media and searching for information on the illness (Koohy & Koohy, 2014). Researchers have also found that reporting of infectious disease outbreaks (e.g., Zika virus) generates high-level online engagement and further information searching (Southwell, Dolina, Jimenez-Magdaleno, Squiers, & Kelly, 2016). Therefore, it is important

for health journalists to utilise social media movements as an opportunity to spread appropriate and educational health information (Sharma, Yadav, Yadav, & Ferdinand, 2017; Southwell et al., 2016).

One of the main benefits of using social media for health communication is that it allows an individual to connect with many other people from around the world. Individuals with rare health problems or living in rural areas are able to find support from others that share a similar experience (Greene, Choudhry, Kilabuk, & Shrank, 2011; Watson, 2018). Social media is also useful for both patients and health professionals as an educational tool and to access information at anytime from anywhere (Antheunis, Tates, & Nieboer, 2013; Han, Lee, & Demiris, 2017). By connecting with others and learning more about health conditions on social media, patients are having more valuable medical consultations as they are better prepared to ask questions and are more willing to participate in the treatment decision making process (Benetoli, Chen, & Aslani, 2018).

Researchers have also cautioned about potential risks involved with using social media for health information, namely how much people trust the accuracy of what they read and whether information has come from a credible source (Han et al., 2017; Warner-Söderholm et al., 2018). The potential for inaccurate information to be shared has been explored in one study which found that only 67% of cancer information shared on social media was medically accurate, whilst 19% was inaccurate and 14% of information was related to treatments with unproven effects (Gage-Bouchard, LaValley, Warunek, Beaupin, & Mollica, 2017). Some individuals have found that their doctor was opposed to patients using social media for health information potentially due to concerns over inaccurate information (Benetoli et al., 2018). Patients are also concerned about the privacy of information that they share on social media when engaging with a health professional online (Antheunis et al., 2013). Therefore, whilst social media provides easy access to a wealth of health information

and support there are legitimate concerns and risks involved which must be taken into consideration.

### **Facebook and Health Information**

Facebook is undoubtedly the most popular social media platform in Australia, used by 91% of social networkers (Yellow, 2018). Health websites and organisations have been using Facebook to share information and increase the presence of their health messages (Brittain, Kamp, & Salaysay, 2016). In particular, support and marketing campaigns are effective when using Facebook as they have the potential to be widely distributed and to rapidly lead to greater user engagement through ‘likes’ and ‘shares’ (Hale, Pathipati, Zan, & Jethwani, 2014). Users can create ‘groups’ in order to share advice or information, for example some of the main illness support groups on Facebook include stroke, lupus, arthritis, diabetes and various types of cancer (Hale et al., 2014). Although, there appears to be more support pages for non-communicable diseases such as cancer and diabetes compared to communicable diseases that are often stigmatised such as HIV/AIDS (Hale et al., 2014). Facebook has positive implications for managing an illness for example, Greene et al. (2011) found that individuals with diabetes consider online support groups to be more motivational and supportive compared to medical literature on diabetes. Therefore, it appears that Facebook is increasingly being used for accessing health information and support.

### **News Media on Facebook**

News media, particularly television news, is an important source of health information and awareness and is able to influence public perceptions on health issues by selecting what information to present and how it is presented (Berry, Higgins, & Naylor, 2007; Covello & Peters, 2002; Tanner, Friedman, & Zheng, 2015). In order to keep up with individuals using social media to access news, television news broadcasters have been posting their stories on social media platforms such as Facebook as a means to increase their

presence and not lose a potential audience (Bakshy, Messing, & Adamic, 2015; Brown & Collins, 2010; Larsson, 2018). By sharing news reports on Facebook, broadcasters are able to provide news in a timely and easily accessible manner and journalists can include links to additional information (Tanner et al., 2015). Furthermore, since social media is used by younger audiences and increasingly by older audiences a diverse range of age groups can be targeted (Sensis, 2017).

One key implication of sharing television news on Facebook is the ability for the audience to respond to the story and to interact with others through commenting. Whilst news media has always received feedback such as ‘letters to the editor’ these responses were often controlled by gatekeepers determining what responses were published and viewed by the audience (Kim, Lewis, & Watson, 2018). Now, Facebook allows audiences to respond instantly and view unfiltered opinions from other members of the public creating opportunities for meaningful discussions and debates (Hille & Bakker, 2013; Kim et al., 2018; Larsson, 2018). Facebook commenting is particularly important to consider in the context of health, since news stories about health have been shown to be interacted with more (in terms of likes, shares, comments etc.) than other topics (Larsson, 2018).

Although some news broadcasters allow commenting on their websites, researchers have found that audiences may respond differently when commenting on Facebook. Since commenting on news organisation websites is often anonymous, commenters can be more hostile and offensive, whereas responses on Facebook are identifiable and therefore expected to be less aggressive (Hille & Bakker, 2014). However, the research is mixed; where one study found more ‘civil’ and ‘polite’ comments on Facebook than an organisation’s website (Rowe, 2015a), a similar study found that the comments on news sites were more relevant and constructive than Facebook comments (Rowe, 2015b). Furthermore, commenters on Facebook believed that there were less ‘trolls’ (i.e., people who want to deliberately upset

others online) compared to commenters on news websites. Despite this, commenters on Facebook did not perceive Facebook audiences to be less hostile or more rationale than those commenting on organisation websites (Kim et al., 2018). Facebook comments have also been found to be more personal and individualized, potentially since those who are commenting on Facebook consider the audience to consist mostly of their friends and family (Hille & Bakker, 2014; Kim et al., 2018).

Facebook commenting as well as other interaction methods such as ‘likes’ and ‘shares’ are ways for audiences to engage with news and can inform stakeholders on the types of reactions and opinions of the public (Hong & Cameron, 2018; Larsson, 2018). Posts and comments can receive ‘likes’ which give an indication of agreement, therefore a high number of likes on a comment acts as a heuristic cue where individuals perceive this opinion as popular and are likely to also agree with it, similar to a bandwagon effect (Hong & Cameron, 2018). The first comments made on news media delivered via Facebook have been found to influence subsequent comments which is concerning considering research on weight-related news media found that the first comments were stigmatising toward obesity (Brooker et al., 2017). Furthermore, due to the algorithms on Facebook, the ‘top’ comments that appear below the article may be the comments that have generated more ‘likes’ and ‘replies’ and these may impact on an individual’s perception of how others are reacting (Hong & Cameron, 2018). Additionally, a news post may only appear in an individual’s Facebook feed because a ‘friend’ commented on it which may mean the individual is influenced by the opinion of someone they know (Bucher, 2012).

Research has found that reading comments made by others can influence the audience’s opinions and perceptions more than the news story itself. For example, Hong and Cameron (2018) found that when people read comments defending a corporation, the company’s reputation improved compared to when individuals only read the news story

without comments. Comments from members of the public, particularly those with more 'likes' are perceived as more credible and unbiased than journalists and the media and can therefore be quite persuasive (Allsop, Bassett, & Hoskins, 2007; Hong, 2015; Hong & Cameron, 2018). Therefore, it is important to not only review news posts but to also consider the implications of comments on news media stories on Facebook and how they may shape public opinion (Hong & Cameron, 2018). Journalists and organisations should be aware that if comments contradict the content of the news story this might alter the reader's opinion on the news.

Researchers have explored how people respond in instances where there is a discrepancy between online news stories and user comments. Dissonance theory suggests that people are motivated to seek messages that support existing attitudes and beliefs whilst avoiding messages that are conflicting as this increases doubt and discomfort with one's beliefs (Hong & Cameron, 2018). For example, under experimental conditions, Ahn (2011) found that people reading pro news stories paired with pro comments perceived the issue more positively compared with those who read comments that were inconsistent with the news story. Therefore, it is likely that reading contradictory comments may contribute to uncertainty and a change in judgement towards the news story. Other research suggests that whether someone is influenced by online comments about an organisation depends on their prior attitude. For example, people who have a neutral attitude towards an organisation are influenced the most by opinions in online comments compared to people who already hold a strong negative opinion (Sung & Lee, 2015). Overall, comments below news media posts can provide insight into public responses and have the power to sway audience perceptions.

### **News Media and Framing**

Any news story has the potential to be portrayed in a variety of ways. Framing is the process, described by Entman (1993), of choosing what aspects of a story will be made more

prominent and meaningful in order for the issue to be interpreted and perceived in a particular way. Frames also make judgments on the cause of the issue, which influences the attributions of responsibility made by the audience (Entman, 1993). As suggested by Iyengar (1991), health news stories can be identified as either employing a thematic or an episodic frame. News stories constructed about a specific individual/instance (episodic framing) put a face to the health issue therefore emphasising the individual's role in health. Whereas health news stories highlighting societal trends and broader health issues (thematic framing) promote a sense of shared responsibility and discussion about what society can do about the issue (Iyengar, 1991).

Episodic rather than thematic frames tend to be used more often for health news (Holton, Lee, & Coleman, 2014; Iyengar, 1991) as journalists prefer to report on health issues that are more emotionally captivating and have a social impact in order to generate viewers for the broadcaster (Nakada et al., 2015; Tanner et al., 2015). In order to make the message more compelling and persuasive, journalists may include credible or expert sources such as health professionals or use a human-interest story from a patient to make the message more emotionally engaging (Berry et al., 2007; Hong, 2015; Tanner et al., 2015). Thematic frames may also be avoided in news media as societal solutions may be too drastic or economically challenging whereas personal solutions are less demanding (Kim & Willis, 2007). Also particularly for television news, journalists may not want to mention 'junk food' as a cause for health issues as junk food manufacturers are likely to be among the networks' advertising sponsors (Kim & Willis, 2007).

Research has found some variation in the way in which stories are presented depending on the health topic. For example, infectious disease outbreaks and cancer stories are likely to be episodically framed or to include an individual example whereas cardiovascular stories focus more on scientific/medical information (Berry et al., 2007;

Southwell et al., 2016). News media also misrepresents the risk and prevalence of certain illnesses. For example, a largely uncontrollable disease like breast cancer and infectious diseases are often over represented in the media whereas more controllable illnesses like cardiovascular diseases (CVD) are under-represented despite having high prevalence and mortality rates (Berry et al., 2007; Covello & Peters, 2002). One explanation for this is that messages about improving diet and increasing exercise in order to prevent illnesses like CVD have been delivered repeatedly by health organisations compared to messages about an uncontrollable disease or pandemic events which cause fear and gain greater audience attention (Berry et al., 2007).

Cancer is an important health topic to explore in framing research because it is common but still somewhat unexplained therefore the public are often exposed to many different and sometimes conflicting views (Clarke & Everest, 2006). For example, when framing cancer issues, news media has been found to over represent some determinants, namely lifestyle risk factors compared to social and environments risk factors or genetics (Jensen, Moriarty, Hurley, & Stryker, 2010). Also, news media portrayal of complementary and alternative medicines (CAM) for cancer has been found to be inaccurate and often framed episodically which draws attention away from potential risks of CAM (Bonevski, Wilson, & Henry, 2008; Mercurio & Elliott, 2011). Therefore, exploring the way cancer news is framed has important implications as it may help to understand what aspects of cancer risks, treatment and management are dominated in news and public discussions and how this influences public perception.

### **Framing of Health News Stories and Online Responses**

As outlined above, the public may be more influenced by the judgements made in comments than the news story itself, making it important to understand what influences the opinions that people choose to post in online comments, namely whether the story framing



shapes the content of comments. When a story is framed a particular way this portrays a narrow perspective on the issue and it is unclear whether this perspective may be mirrored in the responses. For example, if a story is framed episodically and discusses an individual case or what personal circumstances may have led to a person's illness this may lead responders to share similar personal stories and experiences instead of addressing the broader social and environmental factors in their responses. Alternatively, people may choose to frame their responses in contrast to the story framing in order to address other factors not mentioned in the story. Previous research has explored the framing of both news stories and online responses and has found mixed results. A content analysis of online health news websites found that most often the story frame in comments did not match the story frame (Holton et al., 2014), whereas a similar content analysis found less episodic comments on thematic news stories and more on personal health news stories such as diet and exercise (Suran, Holton, & Coleman, 2014). Researchers, however, are yet to explore the framing of online responses on Facebook, where responders may be influenced by the opinions expressed in popular comments or comments from friends and family members.

Furthermore, researchers are yet to explore how story framing may influence the tone of comments. Researchers have found that audiences are more motivated to support the position and attributions made in the story if the story is emotionally engaging (Aarøe, 2011). Since episodic framing triggers emotional reactions more so than thematic frames, these stories may be more likely to lead to positive and supportive responses as the audience is connecting with the story on an emotional level. Although the tone of online debates on Facebook health news is yet to be investigated, research on Facebook support groups, which often involve personal sharing, has found an optimistic bias where members predominately share positive well wishes and faith to each other (Picanço, Biancovilli, & Jurberg, 2018); especially for a health issue like cancer, which affects many people and may contribute to

more empathy and a supportive online community. Whereas thematic issues which are often controversial or outside of the individual's control may therefore be met with more negative feedback (Major, 2009). Therefore, thematic stories may lead to a more negative and unsupportive tone in comments. Overall, it is important to understand how the story framing may influence the content and tone of online comments since comments that contradict with the story have been found to sway how the audience perceives the issue (Hong & Cameron, 2018).

### **Attributions of Blame and Responsibility in Online Responses**

Health news stories tend to be episodically framed and thereby focus less on important issues and public policies that could help reduce risk or prevalence of a disease to instead attribute responsibility to poor individual choices (Coleman, Thorson, & Wilkins, 2011; Major, 2009). For example, news stories about childhood health risks were found to attribute responsibility to parents rather than addressing the significant role of the government and health communicators (Mello & Tan, 2016). Researchers have suggested that using thematic frames and emphasising the risks or losses of a health issue compared to benefits and gains would help change responses to more societal attributions of responsibility (Mello & Tan, 2016), however so far research has found mixed results.

Coleman et al. (2011) found that stories framed thematically increased support for changes to public policies but did not deter attributions of responsibility away from individuals. Similarly, exposing individuals to social determinants of diabetes made people more aware of societal causes but did not translate into support for public policy (Gollust, Lantz, & Ubel, 2009). Other findings have been more promising for example, Major (2009) found that lung cancer and obesity stories that were framed thematically lead readers to attribute more responsibility to societal-level factors, particularly when used in combination with loss frames. Whereas more individualised responsibility attributions followed from

stories with an episodic loss frame. However, it would be interesting to further explore whether the responses to episodic frames vary depending on the type of health issue in the story as it is plausible that Major (2009) found episodic and individualised blame attributions in responses because the health issues covered (obesity and lung cancer) are largely stigmatised. If people can acknowledge and understand the role of societal factors in contributing to health problems then they are more likely to support policy changes aimed at influencing health (Coleman et al., 2011; Major, 2009). Unbalanced attributions of responsibility in the media could potentially have negative consequences if the blame is focused towards the people living with health conditions (Riles, Sangalang, Hurley, & Tewksbury, 2015). By changing the perception from one of individual responsibility to a societal responsibility it helps to reduce victim blaming which can have detrimental effects on individuals (Mello & Tan, 2016).

Framing and blame attributions in online comments, rather than just the news story itself are also important to consider as researchers have found that readers align their own beliefs more with other reader responses rather than the framing of the news story (Anderson, Brossard, Scheufele, Xenos, & Ladwig, 2014; Sung & Lee, 2015). Furthermore, researchers have found that the audience's judgement can be altered when comments contradict the news content (Ahn, 2011; Hong & Cameron, 2018). However, research has focused on responses on news websites, rather than how opinions in comments on Facebook align with news content, which may differ since Facebook involves many unique influential factors such as reactions to comments (e.g., 'likes'), monitoring by friends and family, and the commenter being identifiable.

### **Health Framing and Stigma**

The stigma attached to some health issues potentially impacts on both the framing of stories and audience responses. Stigma is socially constructed as it is learnt from cues and

messages exchanged between individuals and the media (Smith, 2007). The media often continues to reinforce stigma for health issues, for example people experiencing obesity are often depicted as having developed weight problems due to making irresponsible and poor lifestyle decisions rather than being impacted by external factors (Brooker et al., 2017). Other research on obesity news stories found that personal solutions were mentioned four times as often as social solutions and personal causes were mentioned twice as often as social causes (Kim & Willis, 2007).

Some illnesses are associated with greater stigma than others where, generally speaking, the perceived level of control that an individual has for developing a disease (e.g., through lifestyle choices such as smoking, diet and exercise) influences the level of stigma. For illnesses where individuals are perceived as culpable, such individuals receive more resentment and less compassion from others (Riles et al., 2015). In order to combat health issues that are stigmatised with personal blame, it is possible that if thematic frames are repeatedly used when reporting about these illnesses the public may come to understand the role that society and policy changes could have in improving these health issues rather than it being seen solely as the responsibility of the individual. This may be beginning to occur around increased mental health awareness as one study found that readers used more thematic frames in comments about mental illness, compared to other health topics and concluded mental health stigma may be reducing (Suran et al., 2014).

Many studies have found that lung cancer is the most stigmatised of all cancers due to strong associations with smoking tobacco and the perception that the individual holds responsibility for their disease (Chapple, Ziebland, & McPherson, 2004; Knapp, Marziliano, & Moyer, 2014; Knapp-Oliver & Moyer, 2012; Marlow, Waller, & Wardle, 2010). Riles et al. (2015) found that when news stories were framed to focus on everyday choices (e.g., diet and exercise) this increased perceptions that individuals are responsible for their condition

and these effects were more pronounced for lung cancer. When cancer patients experience stigma, this can negatively impact health outcomes, increase susceptibility to poor mental health and discourage patients to seek support (Chapple et al., 2004; Else-Quest, LoConte, Schiller, & Hyde, 2009). Patients were particularly stigmatised by others with no personal experience with cancer or smoking. Therefore, without appropriate knowledge or experience individuals are likely to learn from media or others and to pick up on stigmatising cues (Luberto, Hyland, Streck, Temel, & Park, 2016). Stigma is also reinforced in comments, for example Brooker et al. (2017) found a pattern of obesity stigmatising comments and a lack of counter arguments following online weight-related news media. Similarly, a content analysis found that although the majority of news articles about weight loss surgery were supportive and coming from a biomedical/scientific perspective, comments on such articles were negative and ‘fat-shaming’. However, these comments were predominately anonymous (99%) and may have been less derogatory if commenters were identifiable (Glenn, Champion, & Spence, 2012). Researchers are yet to explore whether stigma exists amongst Facebook comments.

### **Future Research**

Researchers have begun to address the effect of news media framing and corresponding responses under experimental conditions (Coleman et al., 2011; Major, 2009). However, there has been a recommendation to study framing in naturalistic settings in order to capture the true effects (Kinder, 2007), and particularly the implications, of online comments (Sung & Lee, 2015). Many individuals are accessing health information and news on social media platforms, such as Facebook, therefore it seems clear that future research should analyse responses in this setting. Facebook is a unique and interpersonal platform compared to a controlled experiment or a mass media website. Since, previous content analysis research has used anonymous comments on news websites it would be interesting to

explore the nature of comments when they are identifiable on Facebook. Additionally, comments that appear at the top of Facebook posts have generally received more attention in terms of 'likes' and replies; these 'top comments' may influence opinions in further responses. Therefore, rather than just observing health news, individuals on Facebook are actively interacting with both the news and each other. It is possible that previous findings where framing effects were not found could be due to the experimental conditions which do not replicate a real world environment where the audience is being repeatedly exposed to health news and associated comments, often seeing the same story covered by multiple news platforms. Furthermore, since health professionals do not often moderate Facebook comments, people may be influenced by misinformation. Therefore, future research could involve a content analysis of news media framing on Facebook and the corresponding responses.

Future research should also continue to explore whether news media framing influences the content and tone of online responses to give insight into the way people discuss the issue and what perspective the public are forming about health issues. It would be interesting to understand whether story framing determines the way users frame their comments and the degree to which they show support or disagreement. In particular unbalanced story framing may contribute to attributions of blame towards individuals and lifestyle factors such as diet and exercise for a health issue rather than other equally important determinants such as policies, regulations and environmental risks. Future research could also explore whether stigma associated with some health issues is present in online discussion. For example, would news stories about lung cancer compared to other cancer types be associated with more online comments painting individuals as culpable for their illness. Recently researchers have explored themes in online comments for other health topics such as immunisations however this is yet to be done for cancer, which often comes under debate

when discussing causes and treatment. Overall, it is important to understand what information and opinions about cancer are being shared on Facebook and the implications this may have on public perceptions.

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## Research Report

News Media Stories about Cancer on Facebook: How Does Story Framing Influence  
Response Framing, Tone and Attributions of Responsibility?


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**Author note:** This article is intended for submission to the *Media Psychology* journal. The journal guidelines specify that the manuscript should generally be no longer than 25 pages of text (approximately 8000 words), with additional materials (references, tables, figures, and other supporting materials) no longer than an additional 10 pages; Total = 35 pages. The total length of the current manuscript is 35 pages with the article written for the purpose of the thesis requirements of between 5,000 and 8,000 words.

### **Abstract**

The way health news is framed by the media has a crucial role in shaping public perceptions of health issues. Since individuals are able to quickly access health news online it is important to consider the content of this information and the influence on responses. This content analysis explored associations between the framing of cancer-related health news stories on Facebook and the corresponding public comments. It was found that regardless of story framing the majority of responses involved users engaging in debate and discussion rather than sharing personal experiences. Furthermore, stories framed episodically had a greater proportion of both supportive and unsupportive comments than stories framed thematically. As predicted, episodic stories were associated with more attributions of responsibility directed towards the individual whereas thematic stories lead to more societal-level attributions of blame. However, contrary to predictions, responses were not contributing towards the stigmatisation of lung cancer, instead more responses were aimed at reducing stigma for this illness. Within the findings strong beliefs about cancer treatment and management were also identified, which raises concern over the spread of misinformation. Overall, this research provided insight into the framing of cancer news and addressed some of the implications of Facebook comments.

(Word Count: 198)

**Keywords:** Facebook, health news, cancer, framing, media, online responses, stigma, attributions of blame

Social media has become an integrated part of everyday life with 62% of Australian internet users accessing social media, namely Facebook, daily (Yellow, 2018). In particular, individuals are able to seek information and support regarding health matters from various sources on Facebook such as news media, hospitals, charities, health organisations and other members of the public (Brittain, Kamp, & Salaysay, 2016; Hale, Pathipati, Zan, & Jethwani, 2014; Hille & Bakker, 2013; Van de Belt, Berben, Samsom, Engelen, & Schoonhoven, 2012). Although there are a number of purposes for using social media, accessing news and current affairs was found to be among the top four reasons (Yellow, 2018). In order to keep up with the popularity of using social media to access news, television news broadcasters distribute stories on Facebook to increase their presence and views (Bakshy, Messing, & Adamic, 2015; Brown & Collins, 2010; Larsson, 2018). Health news in particular is popular on Facebook as these stories are interacted with more (in terms of 'likes', shares, comments etc.) than other news topics (Larsson, 2018). Not only is it quick and easy to access health news on Facebook but it also creates a way for the audience to share and observe public opinions via comments. Facebook comments are posted directly and instantly from the user therefore honest opinions and discussions can occur between Facebook users, unlike other methods of audience feedback such as letters to the editor, which are controlled by the media source (Hille & Bakker, 2013; Kim, Lewis, & Watson, 2018; Larsson, 2018). Therefore, user-driven Facebook commenting allows researchers to understand how the public naturally responds to different types of health news. Comments on public news stories can reach and influence anyone on Facebook and therefore it is important to understand the content of comments and the implications they have for individuals seeking health information.

Each news story has the potential to be depicted in a number of different ways. News framing refers to the process of focusing on certain aspects of an issue whilst overlooking other factors, which shapes the reader's perspective on the causes and solutions to a health

issue. Framing influences the way that readers make judgements about a health issue and who or what is responsible which can lead readers to have an incomplete understanding of the issue (Entman, 1993). Health news stories mostly employ either an episodic or thematic frame (Iyengar, 1991). Episodic frames focus the story on a specific individual, instance or concrete event and the individual circumstances contributing to the issue, whereas thematic frames cover a health issue more broadly by focusing on societal trends, environmental determinants and the role of public institutions and collective action (Iyengar, 1991). Research has found that episodic frames are used more frequently as stories framed in this manner are more emotionally captivating for the audience and have a greater social impact (Aarøe, 2011; Nakada et al., 2015; Tanner, Friedman, & Zheng, 2015). Furthermore, thematic frames address societal solutions that may be too drastic or economically challenging whereas personal solutions are more feasible (Kim & Willis, 2007). Researchers have begun to understand how the framing of online news stories is associated with the way readers frame their comments and attribute responsibility for health issues (Holton, Lee, & Coleman, 2014; Major, 2009; Suran, Holton, & Coleman, 2014) however, this is yet to be explored in the context of Facebook. Therefore, this research aimed to further understand the associations between health news framing and reader responses as well as to learn more about implications of Facebook news and commenting.

Framing research has found some variation depending on the type of health topic, for example, cardiovascular stories tend to focus more on scientific/medical information whereas infectious disease outbreaks and cancer stories are likely to focus on an individual (Berry, Higgins, & Naylor, 2007; Southwell, Dolina, Jimenez-Magdaleno, Squiers, & Kelly, 2016). Research into the effects of framing on reader responses has also found differences between health topics, for example, mental illness is associated with more thematic comments whereas ‘obesity and personal health stories’ (such as nutrition) are associated with more

episodic comments (Suran et al., 2014). Therefore, in order to explore the association between news framing and responses on Facebook, the current research focused on one health topic (cancer) in order to reduce effects that may arise from including differing health topics. Furthermore, cancer is an important health topic that affects many people, with one in two Australians expected to be diagnosed by age 85 (Cancer Council, 2018). This research aimed to add to existing literature regarding cancer news framing by gathering naturalistic responses to cancer news on Facebook. The study explored four ways in which the framing of cancer news shaped the framing and tone of responses as well as attributions of blame in relation to cancer.

First, this research investigated whether users frame their responses to match or contrast the story frame. A previous content analysis of online health news and reader comments found that story frame was often not associated with the same frame in comments (Holton et al., 2014). Whereas a similar content analysis exploring the association between health topics in online newspaper stories and responses, found that readers use episodic frames in comments for stories about personal health and less episodic comments in stories about thematic issues like politics and government (Suran et al., 2014). The present study aimed to further explore the prediction that the way the story is framed influences the way users respond, namely that thematic stories encourage others to debate and discuss broad societal-level impacts of cancer, whereas episodic stories encourage others to share their own stories and experiences.

Second, this research explored whether an association exists between the way a story is framed and the tone of responses. Previous research has found that compared to thematic stories, episodically framed stories trigger more intense emotional reactions, which consequently influence opinions more (Aarøe, 2011; Gross, 2008). Furthermore, individuals may be beginning to recognize the importance of positivity and creating a supportive

environment online and therefore people want to offer words of encouragement towards an episodic story (Suran et al., 2014). Cancer in particular is a health issue that has affected the majority of the public in some manner and therefore being exposed to a story of another individual's experience may make people want to express their support. Whereas research has found that thematically framed stories lead to more negative reader responses, possibly because broader societal and environmental impacts on a health issue are outside of their own control which leads to frustration and negativity in responses (Major, 2009). Therefore, the way cancer news stories are framed may influence the tone in online responses.

This research also considered how the framing of cancer news might shape individual attitudes towards who is responsible for cancer and its treatment. It has previously been reported that episodic frames lead people to hold the individual and their actions as responsible whereas thematic frames address social and environmental determinants and solutions (Iyengar, 1991). This is largely problematic since journalists employ episodic frames more so than thematic frames and therefore increased blame is likely to be projected towards individuals rather than considering the role of policies and societal-level responsibility (Coleman, Thorson, & Wilkins, 2011; Dorfman, Wallack, & Woodruff, 2005; Iyengar, 1991; Mello & Tan, 2016). Experimental research aimed at exploring Iyengar's (1991) findings in the context of health news has found mixed results. Major (2009) investigated health news stories about lung cancer and obesity and found that, participants who read stories using thematic and loss framing, attributed more responsibility to society, supporting Iyengar's (1991) research. Similarly, although Riles, Sangalang, Hurley, and Tewksbury (2015) classified cancer news by different frames, stories that employed the lifestyle frame (i.e., cancer caused by everyday choices such as diet) were associated with the individual being portrayed as culpable for their disease. Whereas Coleman et al. (2011) found that whilst participants were more supportive of public policy following thematically framed

news stories, attributions of responsibility did not change from blaming individuals to blaming societal causes. These studies explored news framing under experimental conditions and therefore further research has considered real world responses using content analysis. Holton et al. (2014) explored associations between health stories published on news websites and reader comments and found that articles using thematic frames led to less commenting on benefits and findings did not support the idea that thematic stories lead to increased understanding of societal-level issues. Further research from Mello and Tan (2016) found differences in perceptions following different types of media exposure, namely when scanning websites for information about childhood health risks women perceived more personal responsibility whereas after scanning general news stories there was a greater perception of role of the government and health communicators. Therefore, research on news framing and attributions of responsibility in public responses has found mixed findings and notable differences depending on media source and research method. The present study aimed to consider responses in the context of Facebook health news, which is yet to be explored in this area of research.

Finally, some health conditions are stigmatised more than others, mostly due to people being perceived as responsible for their illness, which is often reinforced in the media. For example, obesity is often associated with individuals having a poor diet and not exercising, rather than addressing societal-level factors that impact on obesity such as food industry regulations (Kim & Willis, 2007). Greater use of thematic frames may help reduce or prevent stigma as individuals come to understand the role of society and policy changes rather than just individual lifestyle factors associated with an illness. This is particularly important since stigma for certain health issues may become reflected in online comments, which can have detrimental effects for the people reading them. For example, research has found a pattern of stigmatising and ‘fat-shaming’ online comments on weight related news

media (Brooker et al., 2017) even when the news story was supportive and coming from a biomedical perspective (Glenn, Champion, & Spence, 2012). Some cancer types, namely lung cancer, are stigmatised due to strong associations with smoking tobacco and the perception that the individual holds responsibility for their disease (Chapple, Ziebland, & McPherson, 2004; Knapp, Marziliano, & Moyer, 2014; Knapp-Oliver & Moyer, 2012; Luberto, Hyland, Streck, Temel, & Park, 2016; Marlow, Waller, & Wardle, 2010, 2015). Although some findings suggest that lung cancer does not receive as much individual blame as obesity in online comments (Major, 2009), individuals may responded differently under experimental conditions compared to a naturalistic setting. Therefore, the current study explored the presence of stigma and individual blame attributions in relation to lung cancer on Facebook.

Through content analysis this research investigated whether the story framing or the type of cancer covered in the story would influence Facebook user's responses via comments in four possible ways. First, whether stories using a thematic frame would have a greater proportion of thematic responses compared to episodic responses, whereas episodic frame stories would have a greater proportion of episodic responses than thematic responses. Second, whether story framing influenced the tone of Facebook responses, namely whether stories using an episodic frame would result in a greater proportion of supportive responses and a lower proportion of unsupportive comments compared to stories using a thematic frame. Third, whether story framing influenced the attributions of blame in the responses on Facebook, namely that stories using a thematic frame would have less responses indicating individual blame and more responses indicating societal blame compared to stories using an episodic frame. Finally, whether stigma associated with lung cancer influenced the responses and attributions of blame regardless of story framing such that stories about lung cancer



would have less episodic comments and more individual blame compared to news stories related to other cancer types.

## **Method**

### **Participants**

Participants were Facebook users who had posted comments on the public Facebook pages of Australian news broadcasters. Due to the nature of the research, demographic details of the specific Facebook users included in this study were unable to be gathered. However, according to recent statistics, Facebook is actively used by approximately 88% of male and 94% of female social media users and over 90% of social media users from each age group (18-29, 30-39, 40-49, 50-64 and 65+ years) (Yellow, 2018). The comments included in the study were shared 'publicly' on Facebook and are therefore considered to be public information as outlined by Facebook in their user guidelines. Excerpts included in the study were de-identified. As participants have the potential to be re-identifiable, ethics approval was received from the University of Adelaide School of Psychology Research Ethics Sub-Committee.

### **Sample of News Stories**

A sample of news stories was collected from the Facebook pages of five Australian major television news broadcasters (ABC News, 7 News, 9 News, 10 News and SBS News). Each page was searched for cancer-related stories posted between September and October 2017, as cancer stories were expected to be more prevalent during these cancer awareness months. Additionally, as these stories were posted a year prior to data analysis, engagement from Facebook users (such as 'likes' and comments) was expected to have ceased. From searching the term 'cancer', 79 stories were identified; 10 stories were excluded due to unavailable video content or an unworkable link to the article. Therefore, the final sample consisted of 69 stories and their corresponding comments. The identified stories were saved

on Facebook and key information for each story was summarised using a data extraction sheet.

### **Data Analysis**

Each story was analysed and classified according to frame type (thematic, episodic or mixed) using a checklist developed by the first author (TS) based on framing descriptions from Benjamin (2007) and Iyengar (1991). A mixed frame category was included due to the number of stories that had elements of both thematic and episodic framing. The second author (MO) classified 10% of the stories, selected at random; high inter-rater agreement of 87.5% was achieved. For each story, a copy of all comments including reactions and replies were saved for data analysis. The comments underwent content analysis using deductive reasoning to gather frequencies and qualitative data. A coding scheme was developed by the first author (TS) to code each comment according to three categories with seven sub-categories: framing type (episodic, thematic, mixed), tone (supportive, unsupportive) and attributions of blame (individual, societal). For all sub-categories each comment was coded dichotomously: 1 = present, 0 = absent. For each of the three categories (i.e., framing type, tone and attributions of blame) a comment could either be coded as absent for all sub-categories or present for no more than one sub-category. The authors co-coded 4 randomly selected stories, reviewed and adjusted the coding scheme, and then the first author (TS) coded all comments from the sixty-nine stories according to the revised coding scheme. Results from the comment coding were gathered for each story and collated into a table for further analysis. Excerpts from the responses were also gathered to support findings.

## Results

### Summary of Story Data

Descriptive data for included stories are shown in Table 1. Of the 69 stories included in the final sample, 31 (44.93%) used a mix of episodic and thematic framing, 30 (43.48%) were framed episodically and eight (11.59%) were framed thematically. The types of cancer covered in the stories varied with 46.38% covering breast cancer, 10.14% brain cancer, 8.7% lung cancer, 23.19% other cancers (including liver, prostate and rare cancers such as Ewing Sarcoma); 11.59% did not cover one specific type of cancer. The number of reactions per story, including 'like', 'love', 'angry', 'sad', 'ha ha' and 'wow' ranged from 3 to 20,653 ( $M = 1471.29$ ,  $SD = 2996.47$ ). Gender was coded as male or female according to the gender of the individual focused on in the story or the gender of the population targeted in the story. The majority of stories focused on females (63.77%) compared to males (23.19%); nine stories were not classified according to gender as neither gender was focused on more than the other.

[INSERT TABLE 1 HERE]

### Summary of Comment Data

A total of 12,430 comments were coded from the 69 stories included in the sample. Total comments for each story ranged from 0 to 4434 ( $M = 180.15$ ,  $SD = 533.74$ ). The majority of comments were thematic ( $n = 7501$ , 60.35%) followed by mixed ( $n = 1240$ , 9.98%) and episodic ( $n = 319$ , 2.57%). A further 3306 comments (26.6%) were coded as tags when the comment consisted only of a Facebook username 'tagged' with no other text. Some comments were unable to be coded due to being un-intelligible or in a language other than English ( $n = 64$ , 0.51%). Fifty-two comments (0.42%) included links to other webpages, articles or videos. Overall, there were more supportive ( $n = 2745$ , 22.08%) than unsupportive

comments ( $n = 680$ , 5.47%) and more individual blame ( $n = 383$ , 3.08%) than societal blame comments ( $n = 266$ , 2.14%)

### Associations Between Stories and Comments

#### Relationship between story frame and comment frame.

Frequencies of the different comment types were gathered in order to assess whether the way a cancer-related health news story was framed, was associated with the framing of responses on Facebook (see Table 2). Thematic frame stories had a greater proportion of episodic comments ( $n = 25$ , 2.17%) compared to episodic frame stories ( $n = 38$ , 0.87), however mixed frame stories had the most episodic comments overall ( $n = 256$ , 3.71%).

[INSERT TABLE 2 HERE]

Across all stories there were fewer episodic comments compared to any other type of comment. Episodic comments typically consisted of the responder sharing a personal cancer story, for example:

*“A bit like my gran has lung cancer removed then got it in her chest bone the doctor wouldn't do anymore test as she reckons it didn't spread and she passed away last year from it travelling to her brain [sad emoji]”*

*“I will never forget the amazing nurses who were there for my father-in-law. They made his final days comfortable and when we were too late to get there for his passing, they sat with him and held his hand until he left.”*

*“I'm currently going through treatment, through public, and I've not been left waiting, thankfully. From diagnosis to surgery was quick, the longest wait was waiting for the mammogram and biopsy before diagnosis.”*

The low rate of episodic comments was potentially because often when people shared personal information they also used it to back up an opinion or argument leading to the comment being classified as mixed frame, for example:

*“Great news Johnny, good luck for your future. Ive been dealing with brain tumours for the past 15 years. Yes we can still move on with life.”*

*“yes well.,l think what ever the job you do if there a risk in chemicals or dusk wear a mask, l brother died of cancer and he always said the glue and chemicals he used on the job caused it so take care”*

*“What is considered high risk?? There are ppl on here saying they have had 3 female family members who have had it, surely that is classed as high risk?! I have been told I'm high risk due to an immediate family member having it so would I get this test for free?! It should be free for all women”*

The majority of the comments across all story types were thematic. Episodic frame stories had a greater proportion of thematic comments ( $n = 3795$ , 86.72%) than thematic stories ( $n = 612$ , 53.08%) and mixed stories ( $n = 3094$ , 44.83%). Thematic comments consisted of responders contributing their opinions to the debate and discussion on the broad societal-level issue, for example:

*“Only problem with cancer research is they research the wrong things what they should be looking at is a cure not a way to prolong the persons life. A cure is quality of life not a prolonged life of suffering to line the pockets of doctors and researches. Just saying”*

*“Great news. Now can we fine antivaxers?”*

*“Considering how few people use Chinese medicine.... and how fast liver cancer is on the rise it would be more useful informing of how processed food, high sugar intake, excessive alcohol consumption etc and untreated autoimmune disorders leads to liver cancer.....”*

Many of the thematic comments, particularly for episodic stories consisted of responders expressing condolences towards a death or lending support towards someone with a new diagnosis. For example, 11 stories in the sample focused on the death of Connie Johnson, a well-loved Australian who raised millions of dollars for cancer research with her brother, Samuel Johnson. There were many comments on these stories about Connie’s death where responders expressed their condolences and gratitude, for example:

*“RIP Connie you fought so hard and achieved so much. Your so inspirational to all of us. Such a beautiful family x”*

*“Very sad news! Fly high Connie! So much good has come from you and your amazing family. Sympathy to all your family.”*

Due to the significant number of stories and comments on Connie Johnson’s death, the data was reviewed with those stories removed to determine whether they had biased the findings. However, the pattern of results remained the same; overall there were still more thematic comments.

### **Relationship between story frame and comment tone.**

When exploring the tone of comments, episodic stories resulted in a greater proportion of supportive comments ( $n = 2285$ , 52.22%) compared to stories using a thematic frame ( $n = 67$ , 5.81%) and mixed frame stories ( $n = 393$ , 5.7%) (see Table 3).

[INSERT TABLE 3 HERE]

Many of the supportive comments were directed at an individual battling cancer, for example:

*“Wow he is looking amazing after his treatment, sending him all the love in the world [love heart emojis] I recognise that pain in his eyes though, my brother had the same after his surgery. Keeping battling johnny you can do it xxx”*

*“Strong little thing, you go girl! Love that beautiful brave smile”*

Unlike, episodic and mixed stories, thematic stories had a greater proportion of unsupportive rather than supportive comments. Thematic stories were often focused on societal issues such as government funding or insurance, which led to negative opinions from the public, for example:

*“That is rubbish. Another promise that will be broken. Its time ALL politicians stopped giving false hope”*

*“Another reason y I don't have private health insurance, it costs u a load of money an u still have to pay, lives before profits u greedy bunch”*

*“The current pap vax has delivered very horrible results. Why don't politicians let their daughters take this vax?”*

However, episodic stories had the highest proportion of unsupportive comments ( $n = 503$ , 11.49%) compared to thematic ( $n = 94$ , 8.15%) and mixed stories ( $n = 83$ , 1.2%).

Unsupportive comments were particularly present when the story focused on an individual who is disliked such as Australian politician, Arthur Sinodinos, being diagnosed with cancer, for example:

*“This man is a bare faced liar, and a politician - and to expect public sympathy for a person with such corruption under his belt, corruption which has brought about absolute misery to other people's lives, is just not correct. He is not deserving of compassion. I believe in the old "do unto others" - and he has failed it.”*

*“Ignore all the vile things he's done as a polly and pretend he deserves mercy? Not a chance.”*

### **Relationship between story frame and attributions of blame in comments.**

Attributions of blame in comments were also explored across all story frame types (see Table 4). Stories using an episodic frame had a higher proportion of comments indicating individual blame ( $n = 340$ , 7.77%) compared to thematic ( $n = 32$ , 2.78%) and mixed frame stories ( $n = 11$ , 0.16%). This was expected since stories framed episodically have a narrow perspective of an individual case and therefore lead responders to direct blame towards the individual.

[INSERT TABLE 4 HERE]

Some of the episodic stories were quite controversial in terms of attributing individual blame, for example one story focused on a woman who chose to forgo cancer treatment in order to continue a pregnancy, which lead to a mix of blame and support, for example:

*“So the mother refused to have chemo so she could have the baby. She then has the baby and then dies only for the baby to die as well. So she died for nothing then and left her children and husband alone just so she could have another baby. Shouldn't the children you already have and your husband come before an unborn child because they are more important?”*

*“I could never do this to the children I have. I personally find it very selfish”*

*“I would have done the exact thing. She was aware that she was terminal & therefore gave her baby a fighting chance. A horrific decision made easier when you are responsible for an innocent life. Bless her. It breaks my heart reading about this poor family. I'm so sorry.”*

Thematic frame stories had a greater proportion of responses indicating societal blame ( $n = 72$ , 6.24%) compared to stories using an episodic frame ( $n = 90$ , 2.06%) or mixed frame ( $n = 104$ , 1.51%). Societal blame comments consisted of responders directing responsibility towards a particular institution, organisation, government or collective group, for example:

*“Fear tactic! What a load of garbage! Pharms will do anything to keep customers & repression!”*

*“This was outrageous we have experienced this in our family. Private health insurers & specialists need to be taken to task over the fact it is an incredibly stressful time & then after all the years of sacrifice for private health insurance being told none of your expenses are covered. Disgusting”*

*“This is an insult to those who have lost their lives/loved ones ...donating money my a\$\$...so the Government wont fully legalise Cannabis treatment and release to those in need but happy to continue to support Pharma companies which is no doubt where this money has come from. Its always about money with the Government not compassion. The cure has been on this planet all along but man is ruled by money and power!! [angry emoji, thumbs down emoji] thanks again Malcom Turdball!”*

### **Relationship between cancer type, stigma and comments.**

This study also examined whether stigma associated with lung cancer would influence responses and attributions of blame regardless of story framing. It was expected that lung cancer stories would have less episodic comments and more individual blame compared to other types of cancer due to the stigma associated with perceptions that most lung cancer is



caused by tobacco smoking. Contrary to predictions, stories about lung cancer had a slightly greater proportion of episodic comments ( $n = 32$ , 3.62%) compared to stories about breast cancer ( $n = 239$ , 2.98%), brain cancer ( $n = 9$ , 0.56%), other cancers ( $n = 34$ , 3.22%) or stories that did not address a specific type of cancer ( $n = 5$ , 0.57%). Furthermore, lung cancer stories also had a lower proportion of individual blame comments ( $n = 3$ , 0.34%) compared to stories about breast cancer ( $n = 36$ , 0.45%), brain cancer ( $n = 231$ , 14.38%), other types of cancer ( $n = 7$ , 0.66%) and stories that did not focus on a specific type of cancer ( $n = 106$ , 12.14%). Only four comments were related to the stigma that lung cancer is caused by smoking, for example:

*“most likely because of smoking. smoking is known to cause both bowl and lung cancer.”*

*“Was she a smoker? Smoking increases your risk of all cancers.”*

*“It's a fair question. Most lung cancer is caused by smoking. Get over yourself. petal.”*

However, two of the lung cancer stories in the sample were focused on trying to reduce lung cancer stigma, which is likely to have contributed to many ( $n = 68$ ) comments in support of reducing stigma, for example:

*“Unfortunately lung cancer fails to get the awareness. Get rid of the smoking stigma attached to it and raise awareness and funding. Not fair that it gets overlooked.”*

*“Have known 3 people who died of lung cancer and none of them smoked - they were judged as "smokers & deserving of what they got". As their doctors explained there are other causes of lung cancer - society has been brain-washed into believing there is only one.”*

*“So many people die of lung cancer that didn't even smoke!! There are lots of other factors these days.”*

There were two episodic stories in the sample, which focused on Belle Gibson, an Australian woman who faked having brain cancer in order to make a profit. Therefore, brain

cancer stories (and consequently episodic stories) had a high proportion of individual blame comments ( $n = 231$ , 14.38%) and unsupportive comments ( $n = 307$ , 19.12%), for example:

*“This woman should be serving jail. The stress added to cancer victims who believed her lies is disgusting.”*

*“Absolutely despicable conduct! Unbelievably cruel to cancer sufferers and their loved ones! A custodial sentence would have been appropriate, I would have thought!”*

*“Put her through a few rounds of chemotherapy and let her know how it feels to actually have to fight for your life as someone with stage 4 cancer this woman makes my blood boil!!!”*

The data was reviewed with these stories removed to determine whether they had biased the results and brain cancer still had a slightly greater proportion of individual blame comments ( $n = 36$ , 2.24%) compared to breast cancer, lung cancer and other types of cancer, although this was less than stories that did not focus on a specific type of cancer.

Breast cancer stories had the highest proportion of supportive comments ( $n = 1406$ , 17.55%) compared to all other cancer types. Although individual blame for breast cancer was low there was some blame discussed in comments about weight contributing to breast cancer, for example:

*“I've studied nutrition and been a health nut most of my life, normal weight and no medications unlike most aged pensioners, yet people's first response on hearing I had breast cancer was I must have a bad diet. Obesity is a one of many risk factors for estrogen dependent breast cancer, but that is not a cause, not even close. The blame is hard to take when already feeling the huge fear and disruption of a cancer diagnosis. People need to check their manners and realise that cancer will affect most people in their life time so they or their spouse, children or parents may be affected. I am cancer free now afaik.”*

There were also other comments that assigned blame towards diet and alcohol consumption as contributors to cancer in general, for example:

*“Let's consider the a diet full of saturated fat and animal protein that switches many cancer cells on. Dairy products, red meat will kill you, just eat plenty of it. Disease is mostly diet related, look around and see how overweight people are for a start.”*

*“Yet obesity is linked to causing more cancer than smoking - heaven help anyone who stigmatising that. I agree we should do everything to encourage the end of smoking - but seriously - poor diet (whether fat or thin ) is to blame for the vast majority of health related costs and death.”*

*“Why is there so much focus on smoking causing death and disease? When alcohol is deemed as acceptable? What about the deaths and organ damage it causes? Still allowed to advertise, still endorsed at Government run facilities. Look at the destruction it causes. I’ve known non smoking, heavy drinkers who have had, bladder cancer, but doctors tell them not to be around smoking. How about telling them to cut down their drinking.”*

As well as comments that mentioned passive smoking and environmental causes for cancer:

*“My dad smoked 3 pks cigs a day and bloody asbestos mesothelioma killed him .SO WAKE UP and stop treating people with lung problems like they are scum .Every day air pollution can give you lung cancer .Give smokers a break [7 angry emojis].”*

*“Just because you don't smoke doesn't mean you won't get cancer, other forms of cancer can be passive smoking, pollution, mines, and other areas.”*

*“My nan , grandad, uncle all died of lung cancer all of them smoked, but we all know passive can kill as well and also other things that are breathed in. I still have empathy for anyone who has any type of cancer .... cause smoking and drinking and other chemicals can cause any cancer.”*

### **Other Important Findings**

During the data analysis, as outlined below, a number of other important themes that may have implications for further research emerged in the comments.

#### **Cannabis.**

There were 50 comments indicating that responders support the legalisation of medicinal cannabis for use in cancer treatment, for example:

*“What about medical marijuana this would help lots of people with cancer, chronic pain and seizures have a better life and it would cost the government nothing”*

*“The government won't make a huge amount of money if they legalise cannabis. They prefer to pump us full of toxic chemicals hoping it works while charging an absolute fortune.”*

*“Or ban Tobacco which only kills people, and legalise Cannabis which is a cure for some cancer and 100s of other medical conditions...”*

### **Negativity towards cancer treatment.**

Across the stories there were often comments that included negative beliefs regarding current cancer treatment, including the belief that the cure for cancer exists but is hidden by large pharmaceutical companies in order for them to profit from chemotherapy, for example:

*“Good for you mate but you are pissing against the wind! zio controlled big pharma probably has a cure already, but they are making billions out keeping it from ordinary people, poisoning them with chemo !!”*

*“Chemo is poison too.! no way is the fda going to allow proof of cures from natural products bcs, as we know, it would harm the big pharma industry who sell in bulk, cheap fake supplements”*

*“So very very true. They are always happy to "treat" but never to actually cure. Any cancer cures are suppressed by big pharma and the trillion dollar cancer industry.”*

*“Shame big Pharmaceuticals and the Government do there best to stop any cure, Sick people are money makers.”*

### **Belief in natural treatments.**

There were also comments addressing individual beliefs in natural treatments for cancer. For example, a story about an individual diagnosed with cyanide poisoning from ingesting apricot kernels as a cancer treatment had several comments supporting this natural treatment, for example:

*“They say there is no supporting evidence but yet it has been used to treat animals with inoperable tumours and there is photo evidence that it worked. The problem is that because it's natural the big pharm can't lay claim to it!”*

*“I know a lady who had cancer so bad she was given 3 months to live. she changed her diet and consumed apricot kernels and cured herself.”*

*“Well it might be a lethal dose of cyanide, but it can work. A Toowoomba lady for many years helped cancer sufferers with success using apricot kernels.”*

*“Mum was given 3 months to live with the worst case of bladder cancer the Dr had ever seen so I asked if natural medicine would fix her and the Dr said "No, that doesn't work!" so I researched. She has been on Apricot kernels for 4 years and was cleared of cancer 2 weeks after being given a death sentence. Apricot Kernels work for bladder cancer.”*

### **Advice.**

Facebook comments were also frequently used to share and seek advice on cancer management, for example:

*“If you are turned down by your GP for a referral through medicare. You can always get one privately and pay for it yourself if you are worried.”*

*“Hi iam 36 years old and started to feel a little bit of pain in my left side of my breast what should I do?”*

*“I have ultrasounds every time! If they find anything suspicious in a mammogram the next step is ultrasound, so why bother with mammogram in the first place! Heaps less discomfort too. Just ask yr GP to send u”*

## **Discussion**

Using content analysis of 69 Facebook cancer news stories and the corresponding 12,430 comments this study explored the associations between news framing and cancer type with user responses via comments. The findings showed that whether a story is framed episodically, thematically or a combination of both may influence the way Facebook users frame their responses, the tone of their responses and attributions of responsibility. The results will be discussed in turn along with the implications of how users interact with both cancer news stories and comments on Facebook.

This study found that cancer news is most often framed with a focus on a specific case or individual (episodic frame) or at least features a personal story along with coverage of

broader social issues (mixed frame), which is consistent with previous research on health news framing (Iyengar, 1991). Contrary to predictions, episodic stories had a lower proportion of episodic comments than thematic comments. One possible reason considered was that comments from 11 stories expressing support and condolences for Connie Johnson's death were coded as thematic. However, after analysing the data with these comments removed the pattern of findings remained the same. In line with predictions, thematic stories had a greater proportion of thematic comments than episodic comments, which lends support to previous findings that viewing a thematic story makes individuals only perceive and discuss the issue on a broader, societal-level (Iyengar, 1991; Major, 2009; Mello & Tan, 2016). Alternatively, since the majority of comments were thematic regardless of story frame, individuals may just be less comfortable with sharing personal information on Facebook than they are with contributing their opinion to the debate and discussions that emerge in the comment section. This was the first study to classify Facebook comments by frame and notably even with the addition of a mixed frame there was still some variance between comments classified within the same frame. Therefore, it is recommended that a revised coding scheme should be considered for further research.

In terms of the tone of Facebook responses, as expected, episodic stories had the most supportive comments compared to other frame types. However, contrary to expectations, episodic frame stories also had the most unsupportive comments compared to other story frames. These findings support previous research that episodic stories are more emotionally engaging and consequently intensify opinions in responses (Aarøe, 2011). Within episodic stories there were more supportive than unsupportive comments as most of the stories focused on someone favourable or an incident that people expressed empathy towards. Episodic stories are potentially only responded to negatively by individuals when the story is focused on someone unfavourable such as the stories about Belle Gibson or Arthur Sinodinos

in the current study. Thematic stories in general had more unsupportive than supportive comments, which may be because societal issues that get reported on by the media, such as health insurance or government funding, are often controversial or outside of an individual's control and are therefore responded to negatively (Major, 2009).

As expected, episodic stories had a greater proportion of individual blame comments compared to other news story frames. These results lend support to previous findings that episodic frames lead individuals to focus on individual responsibility towards the health issue rather than considering other factors (Iyengar, 1991; Mello & Tan, 2016). Some examples from the present study include Facebook users suggesting individual lifestyle causes, such as diet and alcohol consumption, were to blame for cancer. Furthermore, in line with predictions, thematic stories had a greater proportion of societal blame comments compared to other news story frames. This supports findings from previous research that thematically framed stories will lead individuals to consider social and environmental responsibility for health issues (Iyengar, 1991; Mello & Tan, 2016). Many of the comments that directed blame attributions at a societal level focused on 'big pharma' trying to make money and hide natural treatments and cures for cancer. These results were similar to a recent study which also found a theme of distrust in pharmaceutical companies on Facebook posts about immunisations (Tustin et al., 2018). Other environmental causes for cancer such as chemical exposure and air pollution were also mentioned in comments. Similar research on cancer news framing found that whilst stories that focused on lifestyle causes for cancer increased blame towards the person with cancer, they also prompted individuals to consider risky cancer-related behaviours (Riles et al., 2015). Therefore, researchers have suggested that a balance of cancer news framing would assist the public to be aware of lifestyle risk factors in order to promote healthy choices and could also, due to inclusion of information about social, environmental

and genetic factors, reduce cancer patients being perceived as culpable for their illness (Mello & Tan, 2016; Riles et al., 2015).

Interestingly, news stories that focused on lung cancer had the greatest proportion of episodic comments and the lowest proportion of individual blame comments compared to news stories on other types of cancer. This was contrary to predictions but consistent with previous research by Riles et al. (2015) who found that when lifestyle factors were framed as causing cancer greater compassion was shown for lung cancer victims. Furthermore, there were some comments in the present study addressing the risk of passive smoking which is also similar to Riles et al.'s (2015) finding that people want increased awareness about the risks of second-hand smoke. There were only four comments attributing blame towards smoking in the current study however, there were 68 comments aimed at trying to reduce lung cancer stigma. This involved individuals sharing that they knew someone with lung cancer who was not a smoker. Two of the stories analysed were directly focused on reducing lung cancer stigma. This emphasis may have led to more comments focused on reducing stigma, nevertheless the findings show that people are willing to publicly advocate for lung cancer patients and want to see a change in attitudes.

Whilst analysing the Facebook comments included in this study, other unanticipated common themes emerged. For example, there were 50 comments mentioning support for the legalisation of cannabis for cancer treatment. Some Facebook users also shared advice and personal stories about treatment in their comments, such as using apricot kernels to cure cancer. On the one hand, sharing advice in Facebook comments has the potential to help other people with cancer and to enable them to build a network of support however, on the other hand, there is potential for dangerous misinformation to be spread. Although the current study did not measure comments in terms of accuracy, a recent study on immunisation posts on Facebook found that 20.8% of negative comments contained inaccurate knowledge



(Tustin et al., 2018). This is particularly concerning given that previous research shows that people may trust other responders more than the advice from the media (Hong & Cameron, 2018). Additionally, comments with more 'likes' are considered to be more credible and unbiased than media and journalists (Allsop, Bassett, & Hoskins, 2007; Hong, 2015; Hong & Cameron, 2018). Therefore, it is important that the media and health professionals are aware of the misinformation online and encourage patients to follow advice from a trained medical professional, especially since cancer patients are vulnerable and often willing to try anything to improve their health outcomes (Broom, 2005). Although social media is a useful tool for communicating health information, public health authorities may need to consider strategies to promote accurate health information on social media.

Although previous research has explored the associations between news framing and online responses this is the first study to consider real-world naturalistic responses on Facebook. Whilst making a contribution to the field, the current study must be considered in light of its strengths and weaknesses. Since demographic information about the sample such as gender, age and socio-economic status was unable to be gathered and choosing to comment on Facebook posts is user-driven, the responses in the study may not represent the opinions of the wider general population. However, the responses were observed in a naturalistic setting and therefore may reflect more honest opinions compared to participants responding under experimental conditions. The present study also considered that news stories may not fit neatly into either an episodic or thematic frame but rather that there exists another mixed frame that incorporates both episodic and thematic elements. Thus, comments that involved both personal sharing and opinions on broad societal-level factors were coded into a mixed frame category, however an alternative approach taken by other researchers is to code comments by sentence (Holton et al., 2014). Furthermore, some comments consisting of

'emojis' or 'GIFs' were sometimes difficult to interpret, therefore coding methods for Facebook comments may need to be explored further.

The current study adds to existing literature focused on understanding the nature and content of Facebook comments. Future research could continue to explore the themes and opinions found in comments about cancer treatment and management and how Facebook users debate opposing beliefs. Previous researchers have anticipated that Facebook comments would be less aggressive and more personalised compared to anonymous comments on news websites (Hille & Bakker, 2014) however so far results have been mixed, therefore this could also be explored in future research (Kim et al., 2018; Rowe, 2015a, 2015b). Furthermore, research has found that people may align their opinions based on online comments rather than the media story (Anderson, Brossard, Scheufele, Xenos, & Ladwig, 2014), therefore future research should explore the degree to which the comments on Facebook and other social media influence public opinions and subsequent user comments.

In conclusion, the findings from this content analysis provide insight into the framing of cancer health news and the types of responses such stories generate on Facebook. The results demonstrate that Facebook users do not always frame comments according to the frame of the story although the story frame may influence the tone of responses. Furthermore, the framing of cancer news influences attributions of blame in line with previous research; namely, that thematic stories were associated with more societal blame and episodic stories were associated with more individual blame. Finally, stigma towards lung cancer may be declining as a result of news stories and Facebook comments directly aimed at reducing stigma. Overall, there is still a lot to learn about Facebook health news and the implications of being able to view and interact with comments from other Facebook users. With further research these findings could help health professionals to understand and address the significant implications of patients seeking health news and advice on Facebook.

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Table 1

Descriptive data of included stories according to frame type

	<b>Total Stories</b>	<b>Episodic Stories<sup>a</sup></b>	<b>Thematic Stories<sup>a</sup></b>	<b>Mixed Stories<sup>a</sup></b>
<b>Broadcaster</b>				
ABC News	15	6 (40%)	0	9 (60%)
7 News	24	16 (66.67%)	1 (4.17%)	7 (29.17%)
9 News	11	4 (36.36%)	2 (18.18%)	5 (45.45%)
10 News	11	2 (18.18%)	3 (27.27%)	6 (54.55%)
SBS News	8	2 (25%)	2 (25%)	4 (50%)
<b>Cancer Type</b>				
Breast	32	11 (34.37%)	2 (6.25%)	19 (59.38%)
Brain	7	6 (85.71%)	1 (14.29%)	0
Lung	6	2 (33.33%)	1 (16.67%)	3 (50%)
Other	16	6 (37.5%)	3 (18.75%)	7 (43.75%)
Not Specified	8	5 (62.5%)	1 (12.5%)	2 (25%)
<b>Gender</b>				
Male	16	6 (37.5%)	1 (6.25%)	9 (56.25%)
Female	44	19 (43.18%)	6 (13.63%)	19 (43.18%)
<b>Reactions (e.g., Likes)</b>	<i>(M = 1471.29, SD = 2996.47)</i>	<i>(M = 2681.87, SD = 4075.17)</i>	<i>(M = 266.5, SD = 190.9)</i>	<i>(M = 611.64, SD = 1294.75)</i>
<b>Comments</b>	<i>(M = 180.15, SD = 553.74)</i>	<i>(M = 145.87, SD = 191.03)</i>	<i>(M = 144.12, SD = 194.98)</i>	<i>(M = 222.61, SD = 804.67)</i>

Notes. <sup>a</sup>Unless otherwise specified all data reported is *n*(%)

Table 2

Descriptive data of comments according to frame

	<b>Total</b>	<b>Episodic</b>	<b>Thematic</b>	<b>Mixed</b>
	<b>Comments</b>	<b>Comments<sup>a</sup></b>	<b>Comments<sup>a</sup></b>	<b>Comments<sup>a</sup></b>
<b>Story Frame</b>				
Episodic	4376	38 (0.87%)	3795 (86.72%)	188 (4.30%)
Thematic	1153	25 (2.17%)	612 (53.08 %)	153 (13.27%)
Mixed	6901	256 (3.71%)	3094 (44.83%)	899 (13.03%)
<b>Cancer Type</b>				
Breast	8012	239 (2.98%)	4198 (52.40%)	916 (11.43%)
Lung	883	32 (3.62%)	427 (48.36%)	107 (12.12%)
Brain	1606	9 (0.56%)	1366 (85.06%)	92 (5.73%)
Other	1056	34 (3.22%)	731 (69.22%)	111 (10.51%)
No Specific Type	873	5 (0.57%)	779 (89.23%)	14 (1.6%)
<b>Broadcaster</b>				
ABC News	2704	22 (0.81%)	2321 (85.84%)	153 (5.66%)
7 News	3654	131 (3.59%)	2224 (60.86%)	455 (12.45%)
9 News	5686	160 (2.81%)	2623 (46.13%)	614 (10.8%)
10 News	135	0 (0%)	127 (94.07%)	2 (1.48%)
SBS News	251	6 (2.39%)	206 (82.07%)	16 (6.37%)

*Notes. Percentage values may not add to 100% as there may have been comments that were unable to be classified by any frame type, for example those that were 'tags' only.*

<sup>a</sup>*Unless otherwise specified all data reported is n(%)*

Table 3

Descriptive data of comments according to tone

	<b>Total Comments</b>	<b>Supportive Comments<sup>a</sup></b>	<b>Unsupportive Comments<sup>a</sup></b>
<b>Story Frame</b>			
Episodic	4376	2285 (52.22%)	503 (11.49%)
Thematic	1153	67 (5.81%)	94 (8.15%)
Mixed	6901	393 (5.7%)	83 (1.2%)
<b>Cancer Type</b>			
Breast	8012	1406 (17.55%)	143 (1.78%)
Lung	883	91 (10.3%)	3 (0.34%)
Brain	1606	523 (32.57%)	307 (19.12%)
Other	1056	359 (34%)	38 (3.6%)
No Specific Type	873	366 (41.92%)	189 (21.65%)
<b>Broadcaster</b>			
ABC News	2704	1269 (46.93%)	303 (11.21%)
7 News	3654	1076 (29.45%)	82 (2.24%)
9 News	5686	257 (4.52%)	216 (3.8%)
10 News	135	32 (23.7%)	58 (42.96%)
SBS News	251	111 (44.22%)	21 (8.37%)

*Notes. Percentage values may not add to 100% as there may have been comments that were unable to be classified by either tone type, for example those that were 'tags' only.*

*<sup>a</sup>Unless otherwise specified all data reported is n(%)*

Table 4

Descriptive data of comments according to blame attributions

	<b>Total Comments</b>	<b>Individual Blame Comments<sup>a</sup></b>	<b>Societal Blame Comments<sup>a</sup></b>
<b>Story Frame</b>			
Episodic	4376	340 (7.77%)	90 (2.06%)
Thematic	1153	32 (2.78%)	72 (6.24%)
Mixed	6901	11 (0.16%)	104 (1.51%)
<b>Cancer Type</b>			
Breast	8012	36 (0.45%)	118 (1.47%)
Lung	883	3 (0.34%)	48 (5.44%)
Brain	1606	231 (14.38%)	32 (2%)
Other	1056	7 (0.66%)	44 (4.17%)
No Specific Type	873	106 (12.14%)	24 (2.75%)
<b>Broadcaster</b>			
ABC News	2704	211 (7.8%)	72 (2.66%)
7 News	3654	49 (1.34%)	101 (2.76%)
9 News	5686	91 (1.6%)	46 (0.81%)
10 News	135	30 (22.22%)	27 (20%)
SBS News	251	2 (0.8%)	20 (7.97%)

*Notes. Percentage values may not add to 100% as there may have been comments that were unable to be classified by either blame attribution type, for example those that were 'tags' only.*

*<sup>a</sup>Unless otherwise specified all data reported is n(%)*



4

## Media Psychology >

This journal



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