Twitter and Assisted Dying: Using Social Media Analysis Software to Evaluate the Conversation Around Assisted Dying in Terms of Guidelines on Responsible Reporting of Suicide

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Abstract

   News reports of assisted dying can trigger individuals to end their own lives. Social media is unaccountable to guidelines on reporting suicides. Radian6 social media analysis software was used to explore whether Twitter messages breached guidelines on reporting assisted dying more often than formal online news. Tweets and online news were compared by how frequently "assisted dying" was collocated with test-words indicating breach of assisted dying reporting guidelines. Structural features of Twitter such as the word count limit, timeline arrangement, and the ease of sharing tweets, were also compared with four of the identified guidelines. Both analyses showed that several guidelines were breached more frequently on Twitter than on mainstream news.This proof of concept study shows that data from Twitter can be compared with guidelines in order to appraise the online representation of healthcare issues. Structural factors within Twitter may contribute to messages that contravene guidance on reporting assisted dying.

   Key Words: Co-location; Assisted dying; Social media analysis; Twitter.

Introduction

   The way the media reports suicide can influence vulnerable people towards ending their lives (Phillips, 1974, Schmidtke&Häfner, 1988, Cheng, Chen & Yip, 2011).This is known as the *Werther Effect* (Phillips, 1974). It has been suggested that thecurrent public debate around assisted dying may have a contagion effect on terminally ill and disabled individuals (Neuner, Hübner-Liebermann, Hajak, 2009). Guidelines for responsible reporting of suicide have been developed by organisations such as the Centre for Disease Control (CDC) (O'Carroll & Potter, 1994) and the International Association for Suicide Prevention (WHO/IASP, 2008). Adherence to these guidelines is proven to result in smaller increases in suicide rates following newsworthy suicides (Niederkrotenthaler & Sonneck, 2007). A similar effect has already been demonstrated in assisted suicide and reporting guidelines with particular relevance to assisted suicide have been formulated (Frei, Schenker & Finzen, 2003). Qualitative research has identified specific aspects of tabloid sensationalism, such as polarized attitudes and the use of highly emotive language, which are linked to the Werther Effect (Niederkrotenthaler, Voracek & Herberth, 2010).

   Alongside recent debate in the UK about assisted dying in traditional media (newspapers, television and radio), extensive discussion has taken place on Twitter, a platform which shares many similar characteristics with formal news broadcasters. It is also a widely used media for news, for example by at least 8% of Americans (http://www.pewresearch.org/fact-tank/2014/09/24/how-social-media-is-reshaping-news). Current affairs are frequently reported and often accompanied by personal opinions or links to further sources within the 140 character limit. Unlike traditional media, Twitter is unaccountable to formal reporting guidelines because its content is produced by individuals rather than employed writers. What is more, trending stories are chosen through a *wisdom-of-crowds* mechanismrather than at an editor's discretion. Given the wide influence of Twitter, recent high profile discussion of assisted dying, and the potential for serious consequences when guidelines are not followed, it is important to explore the extent to which the democratic nature of this platform poses new challengesto suicide prevention.

   The following analysis compares Twitter with the traditional press in terms of eight guidelines (four based upon semantic content and four relating to structure). This tests the hypothesis that content about

assisted dying on Twitter breaches guidelines more frequently than mainstream professional media and is therefore at risk of causing a Werther Effect among vulnerable individuals.

The rapid emergence of Twitter as a major player in news and comment is an important area for research. Twitter executives have recognized that their response to other challenges such as cyberbullying and trolling has been inadequate, essentially because regulating such a constant stream of messages is

impractical. However the challenge this platform presents to sensitive debate in medical ethics remains poorly researched, particularly in the context of guideline adherence. If using Twitter results in greater exposure to breaches of responsible reporting guidelines than mainstream news then this would suggest that Twitter is creating a potentially harmful milieu for vulnerable people, a situation that would demand action.

Table 1 Guidelines for responsible reporting

Guidelines for responsible reporting with particular relevance to assisted dying and Twitter	Source of guideline
Semantic guidelines (Suited to social media analysis software)	
Offer alternatives to death	CDC guidelines and Basle study
Avoid high emotionality	Tabloid sensationalism
Avoid glorifying people who end their own lives	CDC and Basle study
Avoid representing death as the strong choice	CDC and Basle study
Structural guidelines (Not suited to social media analysis software)	
Avoid writing in short sentences	Tabloid sensationalism
Avoid encouraging dichotomous thinking	Tabloid sensationalism
Word messages carefully	WHO/IASP
Avoid prominent placement of stories	WHO/IASP

The intuitive notion that the media impacts population beliefs and behaviours has been conceptualised in various ways since concerns were first raised about the effects of broadcast media. Many schemas that were comprehensive a decade ago are now outmoded due to the rise of digital media, and in particular social media. The impact of these new modalities is poorly understood.

Cultivation theory, however, remains particularly applicable because it incorporates social relationships into an interactional model of media influence. This theory states that the media, in this case social media, reinforces existing attitudes gradually over time. In this situation, citizens are immersed in a milieu where certain values and beliefs thrive whilst others are repeatedly challenged (Gerbner, Morgan, Signorielli).

Through this process small, incremental changes in attitude can arise, which may have a significant impact when individuals are particularly vulnerable. The *search and share* characteristics of social media mean these individuals are exposed repeatedly to such messaging. Cultivation theory proposes that because those with low level exposure to messaging inhabit the same cultural environment as those with heavy exposure, even those who do not

directly receive cultivating messages tend to get them from others who do (Gerbner, Morgan, Signorielli).

The association between *search and share* and health behaviours specifically has been described by Emery (2013). This model places core functions of social media (exposure, sharing and searching) at the center where attitudes are developed and sustained. These attitudes then influence - and are influenced by - health behaviours, while demographic factors and policy controls play a peripheral role.

The present study builds on forty years of research and policy surrounding media reporting on suicide. By utilising Emery's new paradigm for health media research this important area can be understood in the social media age.

Methods

Guidelines for reporting suicide and assisted suicide were selected

Guidance on reporting assisted dying was collated from CDC (O'Carroll & potter, 1994)and IASP(WHO/IASP, 2008), as well asa previous study from Basle on assisted suicide (Frei, Schenker & Finzen, 2003) and a paper exploring tabloid sensationalism and the Werther effect

(Niederkrotenthaler, Voracek & Herberth, 2010). Eight guidelines for responsible reporting of suicide with particular pertinence to Twitter and assisted dying were identified (see table 1).

Guidelines were divided into semantic and structural

Four *semantic* guidelines were suited to quantitative social media analysis research using data mining software. Test-words that reflected non-adherence to these guidelines were chosen and searched for in content that also contained the term "assisted dying". Four other guidelines concerning structural features of the Twittersphere were considered better-suited to inductive interpretation by the researchers.

Test-words for semantic guidelines were counted on Twitter and mainstream news

Radian6 software (https://www.salesforce.com/form/marketingcloud/social-studio-migration.jsp) was used to identify the total number of tweets and individual news stories about assisted dying for one year (April 2014 to April 2015).The frequency with which test-words were used in tweets and online news content (that also included the specific phrase "assisted dying") was calculated.

Results were adjusted to allow comparison

These results were adjusted to account for the restricted number of characters in tweets (140) in contrast to the unlimited length of mainstream news articles. This adjustment used a sample of 100 tweets about assisted dying and average news story length obtained from Web Spike

(http://blog.newswhip.com/index.php/2013/12/article-length). News stories were calculated to be 80.74 times longer than tweets meaning that time spent on Twitter would involve reading 80.74 times more tweets than the number of news articles read in the same duration. The proportion of tweets about assisted dying was, thus, multiplied by 80.74 to enable comparison. The first four guidelines were analysed with simple comparison; the adjusted proportion of tweets was compared directly with the proportion of news articles. This shows whether people are more exposed to guideline breaching messagesduring time spent on Twitter or on mainstream news.

Structural guidelines were analysed

These guidelines were not considered amenable to quantitative assessment. Instead adherence was interpreted by considering differing characteristics of formal media and social media.

Results

34,477 tweets and 2591 news stories were identified that contained the phrase "assisted dying". The results of Radian6 analysis are in table 2 according to test-word frequency.

All test-words were used in a higher proportion of news stories than tweets. However, once values were adjusted for content length the word "brave" was the only test-word to which users were exposed more frequently on mainstream news than on Twitter. In absolute terms "dignity", "independence", "choice", "suffer" and "palliative care" were all used in more tweets than news stories.

Table 2 Results of test-word frequency analysis

Guidelines		Twitter			Mainstream News	
	Test-word	Tweets with "assisted dying"containing test-word	Proportion of tweets about assisted dying (n = 34,477)	*Adjusted (i.e. x 80.7) proportion of tweets about assisted dying*	News articles about assisted dying using test-word	*Proportion of assisted dying mainstream news articles*
Alternatives	*Hospice*	62	0.0018	*0.145*	249	*0.096*
	palliative care	198	0.0057	*0.464*	187	*0.072*
Emotionality	*Fear*	82	0.0024	*0.192*	240	*0.093*
	suffer	218	0.0063	*0.511*	210	*0.081*
	pain	142	0.0041	*0.333*	608	*0.235*

Glorifying	*dignity*	723	0.021	*1.693*	385	*0.149*
	genuine	10	0.0003	*0.023*	14	*0.005*
	Brave	20	0.0006	*0.047*	177	*0.068*
Strong Choice	*independent*	669	0.0194	*1.567*	283	*0.109*
	Choice	1020	0.0296	*2.389*	605	*0.234*
	wish	50	0.0015	*0.117*	91	*0.035*

Semantic guidelines

All words except "brave" arose more frequently on Twitter implying that the following guidelines are breached more frequently on Twitter than in mainstream media: Alternatives, Emotionality and Strong choices.

Both "hospice" and "palliative care" were collocated with "assisted dying" on Twitter more frequently than in mainstream news. This indicates that Twitter users are reporting alternatives to death, and thereby adhering to this guideline, more than the mainstream news. However people reading on Twitter about assisted dying are actually exposed more frequently to the highly emotional words "suffer", "pain" and "fear" than those reading in the mainstream digital news, suggesting that debate on Twitter around assisted dying displays hallmarks of tabloid sensationalism, which have been linked to the Werther Effect (Niederkrotenthaler, Voracek & Herberth, 2010).

The words "dignity", "genuine" and "brave" were used as analogues for the glorification of people who seek to end their own lives. "Dignity" and "genuine" arose with "assisted dying" more frequently on Twitter than in the mainstream news. The former is complicated by the use of the word "dignity" by the UK organisation Dignity In Dying, but one would expect mainstream news to refer to Dignity In Dying just as frequently as Twitter users. People reading about assisted dying on Twitter appear to be more likely to be presented with the notion that prematurely ending one's life is often necessary for dignity. The word "brave", however, was more likely to be encountered alongside "assisted dying" in mainstream news articles, perhaps from a desire to attract the reader's attention by adopting a more sensational message. Alternatively this may be due to the journalistic tradition of telling the stories of exceptional individuals defying desperate situations, something which is problematic within the 140 characters available on Twitter. It is difficult, therefore, to establish whether Twitter users glorify the decision to end one's own life, which would conflict with the CDC guidelines, more or less than mainstream news.

The words "independent", "wish" and "choice" were all presented more frequently on Twitter than in mainstream news. This indicated that people reading about assisted dying on Twitter were more likely to be presented with the notion that the premature ending of life in terminal illness is a strong active choice. The CDC guidelines as interpreted by Frei, Schenker & Finzen *et al.* (2003) recommend that presenting assisted suicide as a strong choice can result in a greater number of vulnerable people ending their lives.

Structural guidelines

The other four guidelines could not be tested quantitatively using social media analysis software but are considered here as they complement the quantitative results above. Through its 140-character limit, Twitter appears to nudge users into short sentences and dichotomous opinions and thus conflicts with recommendations (Niederkrotenthaler, Voracek & Herberth, 2010) for facilitating nuanced discussion to avoid the Werther Effect. Similarly, *caution in appropriately wording tweets* (WHO/IASP, 2008) is not encouraged by the spontaneous on-the-go nature of tweeting, nor by the pressure to reword messages to meet the limit on the number of characters.

Finally, message placement in Twitter is in-built: tweets by other users are listed on their homepage in chronological order and according to the activity of their contacts. Guidelines (WHO/IASP, 2008) recommend that newspaper stories about suicide be printed on inside pages where they are less visible. Twitter, in contrast, does not ensure sensitive placement of stories such as about assisted dying.

Discussion

This study found that the following semantic guidelines are breached more frequently on Twitter than in mainstream media: Alternatives, Emotionality and Strong choices. Twitter users are, in contrast, mentioning hospices and palliative care more frequently than mainstream news and thereby adhering to guidelines on presenting alternatives to suicide. This study indicates that Twitter nudges users toward breaching structural recommendations for responsible discussion of suicide. It is likely, therefore, that discussion of assisted suicide on Twitter is overall more likely to contribute to the Werther Effect.

Strenghts and Limitations

A strength of this research is its large dataset consisting of 34,477 tweets. This is the entire twitter conversation about assisted dying over 12 months so no sampling method was used. The application of twitter analytics to test guidelines is a novel approach with implications for future research as social media take an increasingly large role in news reporting.

This novel methodology has a number of limitations, however. It is difficult to assess *careful message writing* as individual sentence length and dichotomous thinking are beyond the capabilities of Radian6. These may, however, be tested through future qualitative work. Counting words is a simple way to produce data but it may be difficult to infer their real meaning and impact when summed without context. This effect is partly mitigated by the large sample size but may particularly affect interpretation of the frequency of the words "genuine" and "brave" as they arose in only 10 and 20 tweets respectively. Radian6 analysis was able to assess the number of tweets written but not the extent of their readership. That is important because many Twitter users have a small, circumscribed readership so it was not clear whether tweets including the test-words were being read widely. The exact processes by which Radian6 mines the entire Twittersphere is internal to the program's coding and could not be explored further. Additionally, many tweets about assisted dying include links to news articles. This challenges the dichotomy between Twitter and mainstream news upon which this analysis is based.

An adjustment factor was necessary to make the frequency of test-word use on Twitter more comparable with mainstream news because the analysis aimed to assess the frequency of exposure to the test-word during a browsing session on Twitter or mainstream news. This did not account for the possibility that different media are associated with diverse browsing habits. Radian6 did not identify the use of the same word multiple times within one message. This is unlikely to be a problem for tweets but may underestimate the results for mainstream news.The adjustment factor is open to challenge as the WebSpike data was not precisely contemporaneous. However, the same adjustment factor was used for all test-words so comparison between results remains informative even if the adjustment factor lacks some real-world validity.

There are further conceptual limitations. The Werther Effect can only be demonstrated through population studies; it is a subtle psychological phenomenon seen on a population scale and as such susceptible to scepticism. Furthermore, the Werther Effect will only ever be one factor on the pathway to assisted dying, especially as it may include travel abroad or use of organisations dedicated towards ending one's life.

Finally, the implicit presumption in Werther Effect research is that suicide should be averted; however organisations actively campaigning for assisted dying may contest a moral duty to prevent terminally ill people from choosing to end their lives. Indeed, they could argue that Werther Effect factors actually empower terminally ill people to make the choice to end their lives (the strong choice, glorification), thus facilitating their autonomy.

Conclusions

These findings suggest that semantic and structural dimensions of the assisted dying debate on Twitter could be conducive to a *Werther effect*. Within the Twitter conversation around assisted dying several of the guidelines for responsible reporting of suicide appear to be breached to a greater degree than in mainstream online news. The breach of responsible reporting recommendations in Twitter discussion of people ending their own lives is likely to have a Werther Effect among vulnerable groups. The Werther Effect, however, is part of the context, not part of the choice. To minimize the Werther Effect is not to limit free choice but to create a milieu where that option is not attractive. This would be similar to the effect improved medical care would have. It may be appropriate for Twitter or its online community to take steps to protect vulnerable people from the unintended consequences this debate may have when it takes place in the public domain. Future research into language use on Twitter may use social media analysis as a springboard for a closer qualitative analysis of individual tweets undertaken in the light of information gleaned from the Twittersphere as a whole.

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