

The Impact of a Highly Publicized Celebrity Suicide on Suicide-Related Online Information Seeking

Florian Arendt and Sebastian Scherr

Department of Communication Science and Media Research, University of Munich (LMU), Germany

Abstract. *Background:* Research has already acknowledged the importance of the Internet in suicide prevention as search engines such as Google are increasingly used in seeking both helpful and harmful suicide-related information. *Aims:* We aimed to assess the impact of a highly publicized suicide by a Hollywood actor on suicide-related online information seeking. *Method:* We tested the impact of the highly publicized suicide of Robin Williams on volumes of suicide-related search queries. *Results:* Both harmful and helpful search terms increased immediately after the actor's suicide, with a substantial jump of harmful queries. *Limitations:* The study has limitations (e.g., possible validity threats of the query share measure, use of ambiguous search terms). *Conclusion:* Online suicide prevention efforts should try to increase online users' awareness of and motivation to seek help, for which Google's own helpline box could play an even more crucial role in the future.

Suicide is a preventable public health problem for which modern mass media are considered a key factor (World Health Organization, 2014): Responsible media coverage increases awareness and educates the public about the causes and consequences of suicidality (Niederkrotenthaler et al., 2010). However, suicide reporting in the media can also be a relevant risk factor: Particularly media coverage of highly publicized celebrity suicides is associated with subsequent increases in suicides in the general population of the country where the suicide stories were published (Philipps, 1974; Stack, 2005).

An increasing amount of literature acknowledges the importance of the Internet for suicide prevention, and especially search engines such as Google are widely used for seeking suicide-related information (Ayers, Althouse, Allem, Rosenquist, & Ford, 2013; Gunn & Lester, 2013; McCarthy, 2010). Although research to date has focused on the relevance of search engines in suicide prevention, open questions about the use of different search terms (what terms are used?) and temporal variations in their use (when are these terms used?) have remained open. The latter question is important for the everyday work of mental health professionals. Crisis intervention centers work according to a shift schedule and available resources must be allocated in an efficient way. Because media coverage can elicit substantial increases in required resources (Voracek & Sonneck, 1999), knowledge about increased suicide-related online activities can help to predict incoming helpline calls or the use of crisis chat rooms.

Research has revealed that information-seeking on Google can serve several purposes (Gunn & Lester, 2013): On the one hand, online users may search for harmful information that describes how to die by suicide. Therefore, we questioned whether reporting on a celebrity suicide influences general searches on how to complete suicide as well as method-specific searches (e.g., suicide by hanging may lead to an increase of search queries related to this method). On the other hand, online users may seek to find help when feeling suicidal, with the media being one of the most important contributors to suicide prevention by referring to crisis intervention centers within the coverage of prominent suicide cases (e.g., telephone numbers such as the number of the National Suicide Prevention Lifeline in the United States).

Method

In this retrospective database study, we investigate the impact of the highly publicized suicide of the well-known actor Robin Williams by hanging (August 11, 2014) on the information-seeking behavior of online users. We used aggregate information on the search terms users entered into Google before and after Robin Williams's suicide. In order to investigate the impact of Robin Williams's suicide on suicide-related online search activities, we used publicly available data that we obtained from Google Trends.

Data were provided as a *query share* measure, which is defined as the total volume for harmful (e.g., commit suicide, hanging) and helpful (e.g., lifeline, helpline) search queries divided by the total number of queries in the region (i.e., United States) during a day. We used the search term *hanging* because of its direct conceptual correspondence to Robin Williams's suicide method. Furthermore, *commit suicide* was used due to its broader more abstract meaning. The terms *lifeline* and *hotline* are frequently used in the United States and are associated with suicide prevention.

The measure was normalized with a maximum query share value set to be 100. We used an observation period of 3 months (July 1, 2014 to September 30, 2014). As Google Trends data correspond to a complete census of certain search terms in the given time frame and country, we do not apply inferential statistics. Although Google Trends has its limitations (e.g., Fond, Gaman, Brunel, Haffen, & Llorca, 2015; Hagihara, Miyazaki, & Abe, 2012), previous suicide research has shown its validity as a valuable indicator for search volume (see, e.g., Gunn & Lester, 2013; McCarthy, 2010).

Results

The query shares are displayed in Figure 1. *Hanging* ($M = 65.54$, $SD = 7.06$) showed the strongest average query share, followed by *hotline* ($M = 26.20$, $SD = 3.35$), whereas the search terms *lifeline* ($M = 8.15$, $SD = 1.55$) and *commit suicide* ($M = 5.65$, $SD = 5.62$) showed lower relative query volumes.

All Sundays are indicated by gray vertical lines in Figure 1. There was a consistent pattern at the baseline (i.e., within the month before the celebrity suicide): harmful

queries peaked on almost every Sunday. This is consistent with patterns revealed by epidemiological suicide research (e.g., Beauchamp, Ho, & Yin, 2014). Importantly, helpful queries followed a similar pattern but were different in their timing. In fact, peaks in harmful search terms correspond to the troughs for the helpful search terms. This finding is reflected by the strong negative correlations between harmful and helpful search queries at the baseline ($N = 41$ days): hanging strongly correlates with lifeline, $r = -.80$, and with hotline, $r = -.70$; commit suicide is moderately associated with lifeline, $r = -.39$, and hotline, $r = -.34$. As shown in Figure 1, the celebrity suicide of Robin Williams elicited an increase in query share in all four search terms immediately after the suicide. Helpful as well as harmful search queries peaked on the Tuesday (i.e., 1 day) after the suicide of Robin Williams, with the search term *commit suicide* showing the strongest relative increase: Starting from a very low baseline level, the use of this search term quickly increased to a relatively high level. The query measures decreased on Wednesday (i.e., 2 days after the celebrity suicide) and achieved their minimum at the end of the working week. After approximately 2 weeks, all measures dropped and approached the baseline level.

Discussion

Research has revealed that information-seeking on the Internet can be led by both helpful and harmful purposes. We investigated the statistical association between the highly publicized suicide of Hollywood actor Robin Williams and online users' search behavior. Both harmful (*hanging*, *commit suicide*) as well as helpful (*lifeline*, *hotline*) search terms increased immediately after the media reported on this

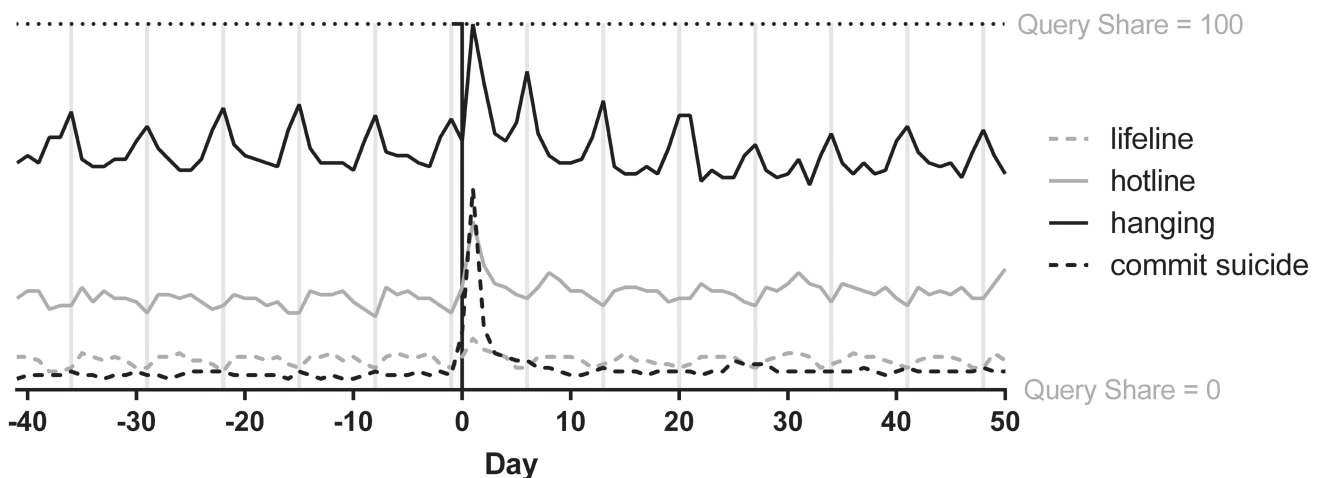


Figure 1. Query share for helpful and harmful search terms. Day 0 indicates the day of the actor's suicide (a Monday) – it is emphasized with a black vertical line. The gray vertical lines mark all Sundays.

suicide case. The finding that harmful search queries increased substantially after the celebrity suicide indicates that suicide prevention efforts should try to increase online users' awareness of and motivation to seek out helpful online resources – especially after a highly publicized celebrity suicide.

One evident possibility for suicide prevention would be a strengthening of Google's own helpline box. For specific, suicide-related search queries the search engine presents a special *suicide-prevention result* (Zeiger, 2010) on top of all search results that does not refer to a typical external website but shows an info box including a (country-specific) telephone helpline or web resource for suicide prevention. Unfortunately, Google's suicide-prevention result is only shown to a limited number of online users who google for suicide-related search terms (Haim, Arendt, & Scherr, 2016). This is unfortunate because highly selective, algorithm-based decisions could prevent vulnerable individuals from exposure to helpful awareness content.

Limitations and Conclusion

Although the study has its limitations – possible validity threats of Google Trends (see previous section), only one celebrity suicide with a specific method, use of specific search terms – the results of the present study indicate that the threshold of whether the helpline box shows up or not should be set at lower levels than in current practice, especially when news media intensively cover a (celebrity) suicide (see Arendt & Scherr, 2016). For example, although the meaning of *hanging* is generally ambiguous (e.g., pictures hanging on the wall, hanging out in a pub, etc.) when increasingly used in the direct aftermath of a highly publicized (celebrity) suicide, search engines' alarm bells should start ringing. Nevertheless, the helpline box should be shown every time in the case of unambiguous search terms such as (*how to*) *commit suicide*.

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About the authors

Florian Arendt, PhD, is a postdoctoral researcher at the Department of Communication Science and Media Research (LMU Munich), Germany. His primary research interests lie in the field of media processes and effects, in particular media priming, implicit cognition, stereotyping, and health communication.

Sebastian Scherr, PhD, is a postdoctoral researcher at the Department of Communication Science and Media Research (LMU Munich), Germany. He has published several articles and a recent book, *Depression – Media – Suicide: On the Empirical Relevance of Depression and Media for Suicidality*, on the interplay of depression, mass media, and suicide.

Florian Arendt

Department of Communication Science and Media Research
University of Munich (LMU)
Oettingenstr. 67
80538 Munich
Germany
florian.arendt@ifkw.lmu.de