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著者	SUEKI hajime
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# The Influence of Internet Suicide Accounts on Suicide-related Online Search Activities: A Time-series Analysis

SUEKI Hajime 末木 新

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**[Abstract]** *Background:* Previous analyses of the Werther effect have focused on the role of traditional media outlets such as newspapers and television, failing to consider the similar influence that online media may bear. *Aim:* This study examined the link between Internet reports about incidents of suicide and searches employing suicide-related terms. *Methods:* We analyzed suicide reports on websites linked from Google News Japan within the period from July to October 2010, and examined their cross correlation with the volume of searches employing suicide-related search terms ("shinitai (I want to die)", "jisatsu houhou (suicide method)", and "ryuuka suiso (hydrogen sulfide)") available in the Google Insight for Search. *Results:* A significantly positive correlation between the number of reports on celebrity suicides and the volume of searches employing the term "shinitai" and "jisatsu houhou". The volume of searches employing the term "ryuuka suiso" exhibited a significantly positive correlation with that same day's total number of reports on completed suicides, reports on completed suicides involving non-celebrities, and reports describing the details of the people who died by suicide. *Conclusion:* The results were consistent with the idea that suicide reports, especially those involving celebrities, lead to an increase of searches employing suicide-related terms within a few days after the reports. A phenomenon similar to the Werther effect was observed between Internet suicide reports and Internet searches employing suicide-related terms.

## 1 — Introduction

The proliferation of the Internet in Japan has led to a nearly 80% daily usage rate (Japanese Ministry of Internal Affairs and Communications, 2012). The social impact of the Internet has helped give rise to new suicide-related issues (Sueki, 2013). In the first half of the 2000s, so-called "Internet suicide pacts," group suicides committed by people who became acquainted with each other over the Internet, occurred frequently (Naito, 2007). In the latter half of the 2000s, a suicide method involving hydrogen sulfide was publicized online, leading to a spate of suicidal deaths (Kobayashi &

Fukushima, 2008). Thus, the widespread use of the Internet has led to new risks related to suicide.

Psychologists have proposed that the Werther effect accounts for patterns of cluster suicides, which tend to occur simultaneously with the coverage of incidents of suicide. According to Phillips (1974), the Werther effect posits the following: 1) The suicide rate increases after a suicide is publicized, 2) the increase is temporary, lasting only a few days, 3) the rate of increase parallels the level of coverage, and 4) this effect is accentuated when the suicide victim described in the report and the reader or viewer share certain similarities. Although the validity of the Werther effect has been disputed, its hypothesis, with the exception of a few contradictory reports (Jobes, Berman & O'Carroll, 1996; Littmann, 1985), is supported by evidence gathered in many countries (Etzersdorfer, Sonneck & Nagel-Kuess, 1992; Hassan, 2005; Ishii, 1996; Jonas, 1992). One study that helps validate the Werther effect is a meta-analysis conducted by Stack (2000), who examined 42 papers published on the subject between 1974 and 1996 and found that their conclusions on the role of the Werther effect held up to scrutiny. In Japan, although the number of studies of suicide and suicide reports is insufficient to conduct a meta-analysis, the presence of the Werther effect in spates of Japanese suicides has been documented in several empirical papers (Ishii, 1996; Goto & Sugimoto, 1996).

Considering the potential influence of the media on suicide established by the Werther effect, it would seem possible that trends involving suicide pacts and particular suicide methods have been amplified by the powerful role of the Internet as a media and communications entity. Specifically, media coverage of suicide pacts between individuals who became acquainted with each other via online suicide bulletin boards, as well as coverage of peculiar suicide methods, may contribute to a higher incidence of search engine inquiries about suicide pact partners and effective suicide methods, or even to the imitation of suicidal acts. However, previous analyses of the Werther effect have focused on the role of traditional media outlets such as newspapers and television, failing to consider the similar influence that online media may bear. This study examined whether Internet suicide reports exhibit a correlation between suicide reporting and the volume of suicide-related searches.

## **2 — Methods**

The study examined the data within a time range of four months between July and October 2010. Suicide reports, which served as the independent variables, were culled from Google News Japan. Among all the news articles linked from Google News Japan during the period, we compiled reports containing the word "jisatsu" ("suicide"), of which there were 1,310 articles. Excluded from the sample set were articles concerning suicides outside of Japan, reports of attempted suicides and cases where the cause of death was officially undetermined. Because the same incident was sometimes reported in multiple articles, the number of stories does not correspond with the number of

suicide cases. We then examined the content of the 543 articles on completed suicides occurring in Japan during this period. Three criteria were used in my assessment of the reports: whether or not the people who died by suicide were celebrities (people with national media exposure), whether or not the reports described certain details (age, character, or occupation) of the people who died by suicide, and whether or not the reports described the method or methods of suicide. These assessment criteria were determined according to the Japanese edition of media guidelines for suicide reporting published by the World Health Organization (World Health Organization, 2000). Several research assessors, trained by the author, independently reviewed and evaluated the articles. Disagreement among assessors about the classification of a particular article was resolved through consensus.

Data on the volume of searches employing suicide-related terms, which served as the dependent variables, were collected using Google Insights for Search (GIS), which evaluates the search volumes of particular words and phrases by analyzing Google search inputs worldwide. GIS improves the validity of its data by displaying only searches with a certain minimum volume and excluding searches made by a single user within a short period. GIS can also graphically display search volume data within a specified time range and region according to a scale of 1 to 100. Data was collected on the daily volume of searches for "shinitai (I want to die)," "jisatsu houhou (suicide methods)," and "ryuuka suiso (hydrogen sulfide gas)", which is one of the most commonly used suicide methods in Japan, within the aforementioned time range. These search terms were selected in consideration of a preceding study on suicide-related search terms among Internet users in Japan and their search volumes (Sueki, 2012; 2011). Although "rentan" ("briquette coal") is also a suicide-associated word strongly related to Internet users (Naito, 2007), it was not included in the scope of this study because the volume of searches employing it was insufficient to be categorized in GIS.

### 3 ——— Results

In analyzing the relationship between the reports of Japanese suicides and the volume of suicide-related searches, we considered cross correlation between each variable on both the day of and within seven days after publication of the reports (see Table.1). The results indicated a significantly positive correlation between the number of reports on celebrity suicides and the volume of searches employing the term "shinitai" within zero to five days after those reports were published. There was also a significantly positive correlation between the number of reports on celebrity suicides and the volume of searches employing the term "jisatsu houhou" within one day. Moreover, the number of reports on suicide methods and the volume of searches employing the term "jisatsu houhou" measured only on the third day also showed a significantly positive correlation. The volume of searches employing the term "ryuuka suiso" exhibited a significantly positive correlation with that same day's total number of reports on completed suicides, reports on completed suicides

involving non-celebrities, and reports describing the details of the people who died by suicide.

## 4 — Discussion

The results bear out the hypothesis that Internet coverage of incidents of suicide are related to the volume of search activity regarding suicide. The data suggest that reports on suicides committed by celebrities are associated with an increase in frequency employing terms such as "shinitai" and "jisatsu houhou", which are most frequently used search terms in finding effective suicide methods on the internet, within a few days after the reports. While the results also show that the number of reports on the suicides committed by non-celebrities is positively correlated with the volume of searches employing the term "ryuuka suiso," the reports on suicides committed by celebrities have an influence on the volume of searches employing suicide-related terms. This is consistent with Stack (2000)'s meta-analysis, which concluded that the risk of imitative suicide is 14.32 times higher for reports involving suicides of celebrities compared to those involving non-celebrities. Unlike the terms "shinitai" and "jisatsu houhou," the volume of searches employing the term "ryuuka suiso" correlates with the total number of suicide reports and reports of suicides committed by

Table.1 Cross Correlation (From July to October in 2010,  $N = 123$ )

<b>Dependent variable: Shinitai (I want to die)</b>						
The number of reports about						
Time lag <sup>1)</sup>	Total suicides	Noncelebrity suicides	Celebrity suicides	Suicide methods	Details of the suicide	
0	.05	-.17	.21*	.15	.05	
1	-.13	-.15	.32**	-.02	-.12	
2	.02	-.11	.31**	.10	.01	
3	-.02	-.06	.25**	-.02	-.02	
4	-.01	-.05	.21*	-.08	-.02	
5	.15	.04	.20*	.12	.15	
6	.01	-.07	.10	-.01	.01	
7	.00	-.06	.03	.01	.01	
<b>Dependent variable: Jisatsu houhou (Suicide method)</b>						
The number of reports about						
Time lag	Total suicides	Noncelebrity suicides	Celebrity suicides	Suicide methods	Details of the suicide	
0	.01	-.11	.33**	.11	.01	
1	.00	-.08	.26**	.03	.00	
2	.05	.02	.15	.10	.05	
3	.12	.11	.13	.21*	.11	
4	.04	.05	.08	.10	.04	
5	.01	.04	.03	.07	.01	
6	.08	.08	-.01	.12	.08	
7	.03	.04	-.06	.02	.03	
<b>Dependent variable: Ryuuka suiso (Hydrogen sulfide)</b>						
The number of reports about						
Time lag	Total suicides	Noncelebrity suicides	Celebrity suicides	Suicide methods	Details of the suicide	
0	.20*	.22*	.00	.10	.20*	
1	.04	.03	.03	.00	.05	
2	-.06	-.01	-.12	-.09	-.06	
3	.07	.16	-.14	.03	.06	
4	.12	.15	-.07	.16	.12	
5	-.05	-.02	-.06	-.02	-.04	
6	.00	-.02	.01	.06	.00	
7	.05	.04	-.06	.05	.05	

1) Time lag showed that cross correlation was calculated between suicide reports and subsequent (0–7 days) search volumes.

\*  $p < .05$  \*\*  $p < .01$

non-celebrities. This is likely attributable to the fact that suicides involving hydrogen sulfide were only reported to have occurred among non-celebrities during the research period.

Media guidelines for suicide reporting often discourage describing the details of suicide victims and the methods employed. However, the results of this study indicate that, while the number of reports describing suicide methods has a significantly positive correlation with the volume of searches employing the term "jisatsu houhou (suicide method)", the detailed reporting of suicides may not necessarily influence the volume of searches on suicides. This may be due to the fact that the only dependent variables used in this study were the terms "jisatsu houhou (suicide method)" and "ryuuka suiso (hydrogen sulfide)" from among diverse suicide methods that may be conveyed via suicide reports. Due to the fact that the GIS displays only the volume of searches reaching a certain volume during the selected period, we had a technical problem of being able to examine only data on a frequently-used terms. To overcome this problem, the period for which the search volume is provided must be extended, and weekly and monthly search volumes must be employed instead of a daily one.

Finally, five additional limitations of this study must be mentioned. First, the data were collected from a limited time range and based exclusively on search activity on Google. Such drawbacks limit the extent to which the results can be generalized. Future studies should expand the data scope to include a longer time range and a wider breadth of online search data beyond that provided by Google. Second, this study was confined to three search terms that served as the dependent variables. Further studies must be carried out using more diverse search terms. Third, previous studies have indicated that Internet usage related to suicide exerts relatively greater negative influence over young people with low media literacy (Thompson, 1999). Because the data provided by GIS cannot be analyzed according to users' age, the study was unable to examine the potentially influential role of age in relating reports of suicides with suicide-related search engine activity. Fourth, the study was hindered by the technical limitations of GIS, which displays only the frequency of searches that attain a minimum volume during a given period, limiting the scope of its data set. To overcome this problem, the period for which a given search volume must be extended, substituting weekly and monthly search volumes for daily ones, but the narrow time frame of this particular study made such an adjustment logistically infeasible. Finally, this study was conducted only on Japanese stories and searches. It is necessary to reproduce the results in other cultures and languages.

While the study did not seek to examine the kind of correlation between suicide reporting and suicide incidence described by the Werther effect, its conclusions do echo the basic relationship postulated by the Werther effect, substituting suicide incidence for suicide-related online search activity. While additional research is needed to verify the results and explore causal (rather than mere correlative) links, the study establishes a positive correlation between online coverage of

suicides in Japan and the volume of certain suicide-related search terms, a relationship that has significant implications for how public health officials should consider the impact of Internet media on the problem of suicide.

#### 《References》

- Naito, A. (2007). Internet suicide in Japan: Implications for child and adolescent mental health. *Clinical Child Psychology and Psychiatry*, 12, 583–597.
- Kobayashi, K., & Fukushima, H. (2008). Suicidal poisoning due to hydrogen sulfide produced by mixing a liquid bath essence containing sulfur and a toilet bowl cleaner containing hydrochloric acid. *Chudoku Kenkyu*, 21, 183–188. (Japanese)
- Phillips, D.P. (1974). The influence of suggestion on suicide: Substantive and theoretical implications of the Werther effect. *American Sociological Review*, 39, 340–354.
- Etzersdorfer, E., Sonneck, G., & Nagel-Kuess, S. (1992). Newspaper reports and suicide. *New England Journal of Medicine*, 327, 502–503.
- Goto, K., & Sugimoto, T. (1996). The study of the products implicated in poisoning by suicide attempts and the impact the book of suicidal manual. *Japanese Journal of Health and Human Ecology*, 62, 53–64. (Japanese)
- Hassan, R. (2005). Effects of newspaper stories on the incidence of suicide in Australia. *Australian and New Zealand Journal of Psychiatry*, 29, 480–483.
- Ishii, K. (1996). Measuring mutual causation: Effects of suicide news on suicides in Japan. *Social Science Research*, 20, 188–195.
- Japanese Ministry of Internal Affairs and Communications (2012). Trend survey of telecom use  
<http://www.soumu.go.jp/johotsusintokei/statistics/statistics05a.html>. Last access: January 8, 2013.
- Jobes, D.A., Berman, A.L., O' Carroll, P.W. (1996). The Kurt Cobain suicide crisis: Perspectives from research, public health, and the news media. *Suicide and Life-Threatening Behavior*, 26, 260–264.
- Jonas, K., (1992). Modeling and suicide: A test of the Werther effect. *British Journal of Social Psychology*, 31, 295–306.
- Littmann, S.K. (1985). Suicide epidemics and newspaper reporting. *Suicide and Life-Threatening Behavior*, 15, 43–50.
- Stack, S. (2000). Media impacts on suicide: A quantitative review of 293 findings. *Social Science Quarterly*, 81, 957–971.
- Sueki, H. (2011). Does the volume of Internet searches employing suicide-related search terms influence the suicide death rate?: Examining data from 2004 to 2009 in Japan. *Psychiatry and Clinical Neurosciences*, 65, 392–394.
- Sueki, H. (2012). Association between deliberate self-harm-related Internet searches and the mental states and lifetime suicidal behaviors of Japanese young adults. *Psychiatry and clinical neurosciences*, 66, 451–453.
- Sueki, H. (2013). The effect of suicide-related Internet use on users' mental health: A longitudinal study. *Crisis*, 34, 348–353.
- Thompson, S. (1999). The Internet and its potential influence on suicide. *Psychiatric Bulletin*, 23, 449–451.
- World Health Organization (2000). Preventing suicide : a resource for media professionals. available:  
[http://www.who.int/mental\\_health/prevention/suicide/resource\\_media.pdf](http://www.who.int/mental_health/prevention/suicide/resource_media.pdf) (Last access: December 05 2013)

————— [SUEKI Hajime, Senior Assistant Professor of Department of Psychology and Education, Faculty of Human Sciences, Wako University, Tokyo, Japan]  
 [すえき はじめ・和光大学現代人間学部心理教育学科専任講師]