Reanalyzing the Werther Effect: The Impact of Highly-Publicized Celebrity Suicide on Suicides

Domininkas Mockus[a b]

Abstract

Suicide is a major public health concern in the United States. One potential risk factor for suicide is a highly-publicized suicide, leading to what is called the Werther effect, or the increase in suicides following such a suicide. While the original literature found marginal evidence for a Werther effect, using more detailed data, I find that the Werther effect does not hold across multiple celebrity suicides between 1973 and 1988.

Keywords

Werther effect; suicides; social contagion; copycat suicides; imitation suicides

JEL classification

I12, I18, L82

1. Introduction

Suicide is a major public health concern in the United States. While there are many social, cultural, and economic risk factors for suicide, one risk factor for suicide is a highly-publicized suicide. The concern is that this will cause a negative social contagion of copycat suicides, creating a so-called "Werther effect" where there is an increase in suicides triggered by a highly-publicized suicide (Phillips, 1974). Concerns about the Werther effect resulted in the ultimate removal of the graphic depiction of suicide in the Netflix series *13 Reasons Why* (Marshall, 2019).

While it is certainly true that specific cases may indeed trigger an increase in suicides, is the Werther effect a general phenomenon? We know that peers affect a variety of behaviors, notably, risky behaviors (Card and Giuliano, 2013), although they don't seem to affect mental health (Eisenberg et al., 2013), but would highly-publicized celebrity suicides trigger imitation suicides in general?

[a] Department of Economics, University of Illinois at Urbana-Champaign, 214 David Kinley Hall, 1407 West Gregory Drive, Urbana, IL 61801, United States of America. E-mail: dmockus2@illinois.edu
[b] Corresponding author

This paper takes another look at the original evidence for the Werther effect. The founding literature found marginal evidence for a Werther effect (Phillips, 1974; Stack, 1990, 1987; Wasserman, 1984); however, it used monthly data which suffers from the fact that the researcher cannot distinguish whether suicides were triggered by the highly-publicized suicide or by other macroeconomic events (for example, policy changes, market shocks, changing weather, or even a local suicide cluster, which could themselves trigger a celebrity suicide).

For example, James Forrestal died on May 22nd; if we observe monthly suicide rates, can we attribute a potential increase in suicides to Forrestal's suicide or some particularly bad local shock that preceded (and possibly caused) his suicide? Similarly, even if the publicized suicide occurs in the beginning of the month, as in the case of George Burros' suicide on November 1st, we cannot discern whether it was Burros' suicide that caused a potential increase in suicides or some other event later that month.

In this paper, I use daily suicide data and 20 highly-publicized celebrity suicides in an event study design to examine the general impact of highly-publicized suicide on suicide in the United States between 1973 and 1988, speaking to the founding literature. I find no evidence for a Werther effect in general in this time period. Note, however, that times have changed (in particular, communication speeds have increased and visual presentations have improved) and more recent papers have found evidence for a Werther effect both in particular cases and in general (Hegerl et al., 2013; Ladwig et al., 2012; Queinec et al., 2011; Ueda et al., 2017, 2014); my paper does not refute their claims.

2. Materials and Methods

2.1 Data

I obtain daily suicide data from the Multiple Cause-of-Death Mortality Data from the National Center for Health Statistics. I determined highly-publicized celebrity suicides in a procedure similar to that used in prior literature (Queinec et al., 2011; Ueda et al., 2017, 2014). First, to gather celebrities, I scraped a list of 75 suicides between 1973 and 1988 from Wikipedia (https://en.wikipedia.org/wiki/List_of_suicides). Next, to gather highly-publicized celebrity suicides, I searched four major U.S. newspapers (*The New York Times*, the *Washington Post*, the

Chicago Tribune, and the *Los Angeles Times*) for the suicide story of the celebrity from my Wikipedia list; I keep only those 33 celebrities whose suicide story is covered in all four newspapers.

Finally, I exclude 12 celebrities who were infamous (Nazis, terrorists, murderers, and corrupt/scandalous politicians). I also exclude Richard Brautigan, since the stories of his death all appeared at least a month after his death, and reading the articles it is unclear how many people actually knew of him at the time of his death. The final list of 20 celebrity suicides and the date of their suicide report is given in table 1.

Name	**Date of Suicide Report**
William Inge, Writer	June 11, 1973
Salvador Allende, President of Chile	September 12, 1973
Anne Sexton, Poet	October 6, 1974
Eli M. Black, CEO	February 3, 1975
Phil Ochs, Singer-Songwriter	April 9, 1976
Freddie Prinze, Actor and Comedian	January 28, 1977
Charles Boyer, Actor	August 28, 1978
Donny Hathaway, Musician	January 15, 1979
Jean Seberg, Actor	September 9, 1979
Rachel Roberts, Actor	November 29, 1980
Patrick Dewaere, Actor	July 17, 1982
Arthur Koestler, Author	March 3, 1983
Walter Slezak, Actor	April 22, 1983
Scott Nearing, Political Activist	August 25, 1983
Richard Manuel, Musician	March 6, 1986
Primo Levi, Holocaust survivor	April 12, 1987
Dalida, Singer	May 5, 1987
Elizabeth Hartman, Actor	June 11, 1987
Edgar Rosenberg, Producer	August 15, 1987

Christopher Wilmarth, Sculptor	November 20, 1987

Table 1 - List of celebrities whose suicides were highly-publicized used in my study and the dates that their suicide was first reported. See section 2.1 for details.

I cannot directly observe the precise date when society learned of a celebrity suicide, so I use the (first) date of the newspaper story about the celebrity's (attempted) suicide as an indicator for when the general population learned of the celebrity suicide. In particular I use the date of the story of Freddie Prinze's attempted suicide although he died more than 30 hours later.

2.2 Statistical Analysis

Using the data above, I estimate the following event study model:

$$log(\mu_{dmy}) = \sum_{k=-10}^{10} \beta_k R_{dmy,k} + [controls]_{dmy} \quad (1)$$

where μ_{dmy} is the number of suicides in day d in month m in year y, and $R_{dmy,k}$ indicates whether a certain date is k days away from a celebrity suicide report (which is $k = 0$). See (Ueda et al., 2014) for further explanation. I can take the logarithm of the number of suicides because there were no days with zero suicides. My controls include an indicator for each of a set of potential confounding variables including the month-year, day-of-month, day-of-week, and each of four pre- and post-periods for various holidays (New Year's Day, Martin Luther King Day, Washington's Birthday, Memorial Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas). I assess 10 pre- and post-periods because all previous studies that used daily data reported an effect lasting no more than ten days (Bollen and Phillips, 1982; Phillips and Carstensen, 1986; Ueda et al., 2017, 2014).

3. Results and Discussion

Figure 1 plots the approximate percent change in suicide by day for 10 days before and 10 days after ("near") a celebrity suicide, that is, the estimated β_k from equation 1 without controls. The

raw data suggests that there may be an effect in the first four days, with about 7% more suicides on days 3 and 4.

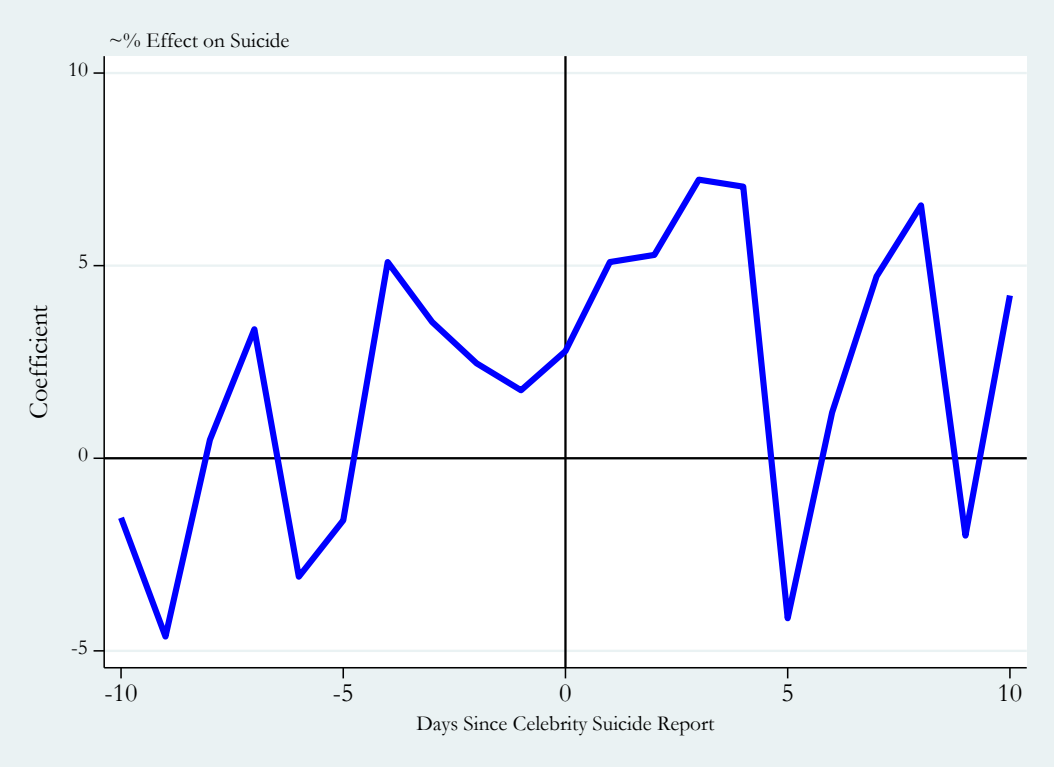

Figure 1. Figure plots approximate percent change in suicide by day for 10 days before and 10 days after a suicide. Specifically, these are the estimated β_k from equation (1) without controls. Source of Data: National Center for Health Statistics (Compressed Mortality File 1973-88) and author's own compilation.

However, we see in Figure 2 that this potential Werther effect within the first four days all but disappears after adding controls. On the day of the celebrity suicide report, the suicide rate is not higher than expected, increasing at most to 2.4% higher on day 3 ($p>0.05$). Although there is a statistically significant 6.5% decrease in suicides on day 5 ($p<0.05$), there is also a similar statistically significant decrease on day -5 ($p<0.05$).

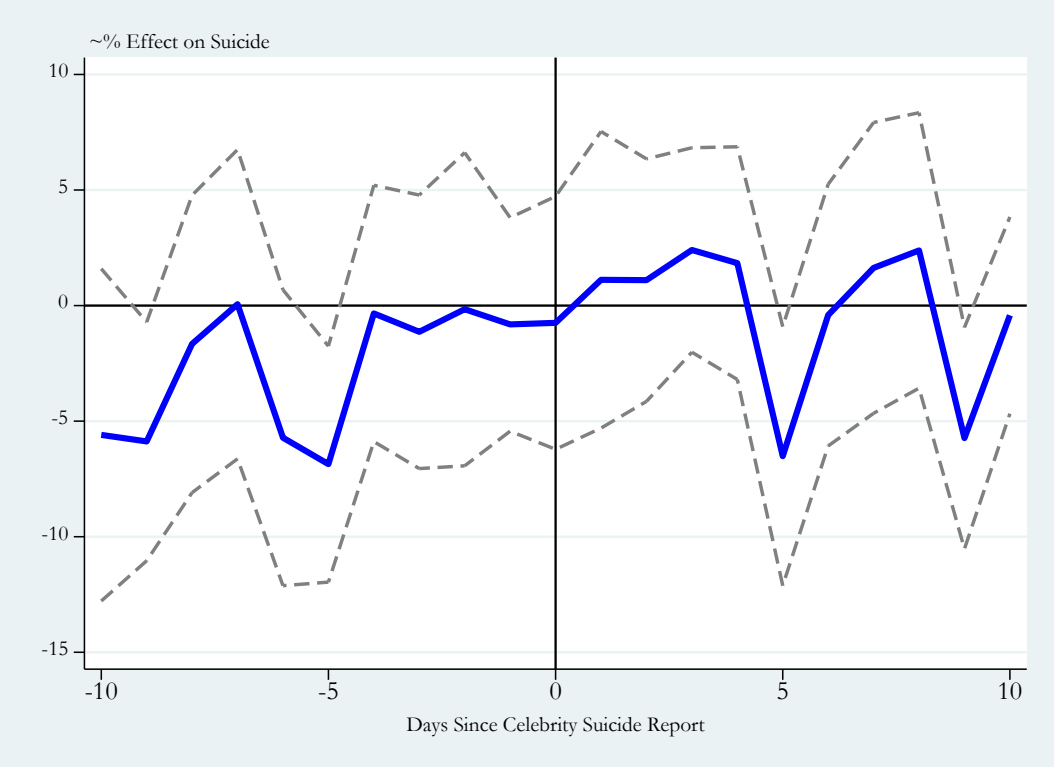

Figure 2. Solid blue line shows approximate percent effect on suicide by day for 10 days before and 10 days after a suicide. Specifically, these are the estimated β_k from equation (1) with controls. Dashed grey lines represent 95% confidence intervals; standard errors are bootstrapped with 1000 replications. Source of Data: National Center for Health Statistics (Compressed Mortality File 1973-88) and author's own compilation.

4. Conclusion

In this paper, I reexamined the Werther effect in a historical context and find no evidence for a Werther effect in general in that time period. Times have changed, though, and the Werther effect now could be different. While journalists and the media should (continue to) follow the (already established) guidelines put forth by various organizations (for example, see the World Health Organization's Preventing suicide: a resource for media professionals - update 2017), policymakers should also invest resources into finding potential causes of suicide.

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Data Availability

The mortality data used in this study is publically-available on-line at https://data.nber.org/data/vital-statistics-mortality-data-multiple-cause-of-death.html. The code will be available at https://github.com/dmockus2/werther_effect.

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