



# Media coverage of celebrity suicide caused by depression and increase in the number of people who seek depression treatment



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## ABSTRACT

We examined how media coverage of a celebrity who died by suicide due to depression was associated with the change in the number of people who visited a psychiatrist for depression. For this, of all news articles published in South Korea between 2010 and 2017, we identified all cases in which a celebrity died by suicide due to depression. Further, from the Korean health big data system, we collected monthly data on the number of people who visited a psychiatrist for depression. Regression analyses showed that, when there was media coverage of celebrity suicide due to depression in a particular month, more people visited a psychiatrist for depression—not in the same month but in the following month. We also found that, when there was media coverage of celebrity suicide due to depression, more news articles provided information about depression treatment or prevention. But, the increase in the number of such news articles did not play mediating roles between the media coverage of celebrity suicide, of which depression was known to be the main cause, and the increase in the number of visits to a psychiatrist.

## 1. Introduction

This study examines whether media coverage of the suicide of a celebrity who had depression increases the number of people who visited a psychiatrist for depression. According to prior studies (Chapman and Coups, 2006; Goldenberg and Arndt, 2008; Hoffner and Cohen, 2018), it is likely that media coverage of a celebrity's suicide, of which depression was known to be the main cause, influences the public's behavior with respect to depression, because (1) public awareness of the illness increases, (2) such media coverage generates fears and threats of death among audiences with depression, and (3) public stigma of the illness can decrease. In this study, this possibility is examined.

Despite the negative influences of depression, and its prevalence, the majority of people with depression never seek treatment (Singh, 2016). Furthermore, even for those who seek treatment, it takes a long time from the onset of the illness to seek the first treatment (Wang et al., 2007). It is well known that treatment seeking in the early phases and engagement in preventive behaviors are critical to minimize the negative effects of depression and to achieve remission (Halfin, 2007; Rickwood et al., 2007; Wang et al., 2007). Thus, it is important to correctly understand what encourages people with depression to seek treatment.

Several factors can influence a person's intention to seek treatment

or become engaged in preventive health behaviors regarding depression, which include emotions evoked by the illness such as worry and fear (Chapman and Coups, 2006; Consedine et al., 2004; Witte and Allen, 2000), perceived threats (Beck and Frankel, 1981; Vail et al., 2012), knowledge about the illness (Jayanti and Burns, 1998), self-efficacy (Rosenstock et al., 1988), and perceived stigma of the illness (Cross and Walsh, 2012).

Prior studies that examined the role of emotions or threats in pursuing preventive behaviors found that people tended to engage in preventive behaviors for an illness mainly to remove or reduce negative emotions, such as worry and fear, or threats caused by the illness. For example, studies based on the protection motivation theory by Rogers (1975), which posits that individuals behave in a way that can reduce their perceived fear and threats, found that fear appeals or threat appraisals play an important role in stimulating an individual to seek treatment or engage in preventive health behaviors (Beck and Frankel, 1981; Milne et al., 2000).

Knowledge about a disease can also help an individual to seek treatment in the early phases or to engage in preventive behavior (Fletcher et al., 1989). For example, an individual with more knowledge about a particular illness is more likely to recognize symptoms early and be aware of the possible negative consequences of the illness, if untreated (Fletcher et al., 1989). In this regard, several studies emphasize the important influence of celebrities on the public's preventive

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behaviors and intentions to seek treatment (Brown and Basil, 1995; Evans et al., 2014). This is mainly due to the celebrities' popularity and recognition by the public (Brown and Basil, 1995). Especially, media coverage of a celebrity's death due to a particular disease tends to increase the public's awareness and interest in that disease significantly (Myrick et al., 2014), especially through more information seeking (Dillman Carpentier and Parrott, 2016). This enhanced awareness of a disease is likely to motivate individuals to seek more information about the disease (Myrick et al., 2014; Noar et al., 2014). Furthermore, individuals' observations of death resulting from the disease tend to generate fears or threats in them about death. As proposed by prior studies (Chapman and Coups, 2006; Goldenberg and Arndt, 2008), these threats or fears about death caused by a disease are likely to motivate more people to seek treatment or to engage in preventive behaviors to reduce the perceived threats and fears.

This is also likely for depression. When there are media stories about a celebrity who died by suicide mainly due to depression, usually through suicide, public awareness of the illness is likely to increase. In addition, becoming exposed to such media coverage may make people who feel depressed or have depression form worry or anxiety about the possibility that he/she also can attempt suicide mainly due to depression. In turn, the increased familiarity with the illness and negative emotions caused by the media coverage likely motivate more people to engage in preventive behavior regarding depression. Moreover, a celebrity's suffering from depression is likely to reduce the public stigma about it, as audiences can recognize that even a celebrity can suffer from depression (Cross and Walsh, 2012; Hoffner and Cohen, 2018). This reduced stigma may encourage people to seek treatment. Several prior studies of the effects of celebrity mental health disclosures found that when a celebrity confessed his/her mental illness, people's perceived stigma tended to decrease, which led them to seek treatment (Jain et al., 2017; Wong et al., 2017). In sum, when there is media coverage of a celebrity who ended his/her life by suicide due to depression, there will be more people who will want to seek treatment and engage in preventive behaviors for depression.

However, this possibility has been little examined. Hoffner and Cohen (2018) examined the effects of Robin Williams' suicide, of which depression was known as a main cause, on the public. But, the study used survey data on respondents' answers about their intentions to seek depression treatment, but not data on their visits to a psychiatrist. Similarly, other studies that have examined the effects of celebrities on the reduction of stigma regarding mental illness (e.g., willingness to seek treatment) were based on experiments or surveys rather than actual data on the changes in the number of people seeking treatments (e.g., Wong et al., 2017). People's responses obtained from either a survey or experiment would not correctly represent their actual visits to a psychiatrist, mainly because of the stigma of mental illness. In this study, we use actual data on the number of visits for a psychiatrist for depression to examine how media coverage of celebrity who died by suicide mainly due to depression can influence the number of people who visited a psychiatrist for depression.

Additionally, it is likely that there can be more news articles informing the importance of depression treatment and prevention in the weeks following a celebrity's suicide due to depression. This is because the media coverage of suicide due to depression is likely to increase public awareness and attention on suicide and depression, as suggested by agenda setting theory (McCombs and Shaw, 1972). In turn, due to the increased public attention and awareness, there would be more news articles about depression treatment and prevention in the following weeks, this is mainly because newspapers might want to catch readers' increased attention on the issues (Gentzkow and Shapiro, 2010). Those news articles are also likely to help the public become more motivated to seek treatment and to engage in preventive behaviors. In this regard, we examine whether there were more such media articles in the weeks following a celebrity's suicide due to depression.

## 2. Methods

### 2.1. Data

#### 2.1.1. Media coverage of a celebrity who died by suicide due to depression

To examine whether there was media coverage of a celebrity who died by suicide due to depression, we first collected all news articles about celebrity suicides from the most popular online news aggregator in South Korea, Naver.com, using a computational approach, between 2010 and 2017.<sup>1</sup> For this, we collected all news articles that contained "suicide" in their titles. Among these articles, we further excluded articles that were not about people who ended their lives by suicide. For this, we excluded articles containing such terms as "education," "prevention," "terror," "bomb," "seminar," "rumor," and "attempt" in their titles. To identify articles about celebrity suicides, we searched for articles containing terms such as "celebrity," "actor," "actress," "singer," "dancer," "model," "announcer," "comedian," "sports player," "politician," and "CEO" in their titles. Of the identified celebrities, in this study, we only considered domestic and entertainment celebrities,<sup>2</sup> mainly because prior studies of the effects of celebrity suicide found that those types of celebrities had a greater effect on the public (Stack, 2000, 2005). In this study, we considered all domestic actors, actresses, singers, dancers, models, announcers, and comedians, regardless of their popularities, whose suicide was covered by news reports. We further identified articles covering a celebrity's suicide that reported depression as one of the main reasons for the suicide. For this, among the articles about suicides of entertainment celebrities, we first searched for articles containing "depression" either in their titles or in the article text using a computational approach. Afterwards, those identified articles were further checked by two research assistants and the authors. Among the suicide cases, we excluded the cases of which different news reports suggest different causes of the death such as depression, financial problems, dating problems, and crime suspect. Thus, the suicide cases included in this study were those of which some news reports claimed depression was the reason or some news reports claimed no specific reason. Among those cases, we concluded that a celebrity ended his/her life by suicide mainly due to depression when either more than 50% of all the articles about the celebrity's suicide or more than 10 articles pointed out depression as the main cause. The number of entertainment celebrities who ended their lives by suicide mainly due to depression during the data collection period is reported in Table 1.

#### 2.1.2. Number of news articles about depression treatment and prevention

To examine whether there were more news articles providing information about depression treatment or prevention, and about the importance of seeking treatment and engaging in preventive behaviors, in the weeks following media coverage of celebrity suicide due to depression, we also used Naver.com. Using a computational approach developed by the authors, we first collected all news articles containing either "depression" and "treatment" or "depression" and "prevention" in their titles, published between 2010 and 2017. With this approach, we collected 1955 news articles including both "depression" and "treatment" in their titles, and 1030 articles including both "depression" and "prevention" in their titles. Of the collection, we tried to exclude articles that did not provide information about depression treatment or prevention. Examples of such articles were those containing terms, "inventions" and "new medicine" or "inventions" and "new treatment" in their titles. Among the left articles, two research

<sup>1</sup> The collection period was confined to between 2010 and 2017, because other data used in this study, such as the number of depression patients, were only available for the corresponding period.

<sup>2</sup> Those who were identified as either "actor," "actress," "singer," "dancer," "model," "announcer," or "comedian" in news articles.

**Table 1**  
Number of celebrities who died by suicide mainly due to depression.

| Year               | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
|--------------------|------|------|------|------|------|------|------|------|-------|
| No. of celebrities | 3    | 5    | 2    | 2    | 2    | 2    | 0    | 3    | 25    |
| Avg. age           | 32.3 | 35.8 | 41.5 | 39.0 | 48.0 | 26.5 | –    | 49.0 | 36.8  |

**Table 2**  
Number of news articles about either depression treatment or prevention.

| Year            |            | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
|-----------------|------------|------|------|------|------|------|------|------|------|-------|
| No. of articles | Treatment  | 26   | 28   | 23   | 21   | 54   | 36   | 52   | 59   | 299   |
|                 | Prevention | 12   | 14   | 8    | 20   | 106  | 71   | 46   | 33   | 310   |

assistants identified articles providing information about depression treatment and prevention, and emphasizing their importance. For this, they were instructed to first exclude articles were not about depression treatment or prevention or their importance. Examples of these articles included articles providing information other diseases than depression, but mentioned depression either as consequence or cause of it or articles about advertising “certificates” or “license” related to depression treatment and counseling. The identified articles were finally checked by the authors. Table 2 shows the number of those articles by year.

2.1.3. Number of patients who visited a psychiatrist for depression

Data on the number of people who visited a psychiatrist for depression each month, between 2010 and 2017, were collected from Korea’s healthcare big data system (<http://opendata.hira.or.kr/home.do>). The system provides the public with information about Korean citizens’ use of healthcare facilities and medications. The number of people who saw a psychiatrist with ICD-10-CM<sup>3</sup> codes F32, F33, and F41.2<sup>4</sup> was collected. A person was counted only once a month, even if the person visited a psychiatrist during the month more than once. Table 3 shows the number of depression patients between 2010 and 2017.

2.1.4. Unemployment rate

Because unemployment rates can influence depression, (Frese and Mohr, 1987) we also included unemployment data from 2010 to 2017, which were collected from Statistics Korea.

2.2. Regression models

In order to answer the research questions, we developed the following regression models:

2.2.1. Model for the change in the number of people who visited a psychiatrist

To examine how the media coverage of celebrity suicides due to depression was associated with a change in the number of people who visited a psychiatrist for depression, we first developed the following regression model.

$$\begin{aligned}
 \text{Daily\_patients\_change\_rate}_k &= \beta_0 + \beta_1 \cdot \text{whether\_depression\_suicide}_k \\
 &+ \beta_2 \cdot \text{whether\_depression\_suicide}_{k-1} + \beta_3 \cdot \text{unemployment\_rate}_k \\
 &+ \beta_4 \cdot \text{unemployment\_rate}_{k-1} + \lambda \cdot \text{month\_effects} + \mu \cdot \text{year\_effects} + \varepsilon,
 \end{aligned}
 \tag{1}$$

where

*Daily\_patients\_change\_rate<sub>k</sub>*: This variable reflects the change rate of

<sup>3</sup> This stands for the International Classification of Diseases, Tenth Revision, Clinical Modification.

<sup>4</sup> F32: Major depressive disorder, single episode; F33: Major depressive disorder, recurrent; and F41.2: Mixed anxiety and depressive disorder

the average number of people who visited a psychiatrist for depression per day in month *k* over that in the preceding month. We used a ratio value to measure the change in the number of depression patients, mainly because many depression patients make regular visits, which implies that it is likely that a person counted in a month can also be counted in the following months. Thus, in order to see changes in the number of patients more correctly, a percent change in the number of patients. For this value, the number of average daily patients was first calculated by dividing the number of monthly patients by the number of days in the month. Afterward, *Daily\_patients\_change\_rate<sub>k</sub>* was calculated as follows:

$$(\# \text{ ofdaily\_patients}_k - \# \text{ ofdaily\_patients}_{k-1}) / \# \text{ ofdaily\_patients}_{k-1} * 100$$

*Whether\_depression\_suicide<sub>k</sub>*: This is a binary variable, taking a value of 1 if there was media coverage of a celebrity who died by suicide due to depression in month *k*, otherwise 0. Further, because it may take time for people to see a psychiatrist after their first exposure to the media coverage, we also included *whether\_depression\_suicide<sub>k-1</sub>*, reflecting whether there was such media coverage in month *k-1*.

*Unemployment\_rate<sub>k</sub>*: Because the economic status of a country has been found to influence citizens’ depression, we included the unemployment rate, which reflects the country’s economic status, in month *k* and *k-1*.

*Month\_effects*: Because it is likely that the number of people visiting a psychiatrist varies by month, month effects have been controlled for by incorporating month-related dummy variables in the regression model. For example, it is likely that more patients visit a psychiatrist during school vacation periods.

*Year\_effects*: Because it is possible that the value of the dependent variable increased over time, year effects have been controlled for by including year-related dummy variables.

This model was estimated using the ordinary least squares (OLS) estimation method.

2.2.2. Models for the change in the number of news articles providing information about depression treatment or prevention

To examine whether there were more news articles providing information about depression treatment or prevention after the media coverage of a celebrity who died by suicide mainly due to depression, we also developed the following regression models. Model (2–1) is for news articles providing information about depression treatment, while (2–2) is for news articles providing information about depression prevention.

$$\begin{aligned}
 \# \text{articles\_treatment}_k &= \beta_0 + \beta_1 \cdot \text{whether\_depression\_suicide}_k \\
 &+ \beta_2 \cdot \text{whether\_depression\_suicide}_{k-1} + \beta_3 \cdot \text{unemployment\_rate}_k \\
 &+ \beta_4 \cdot \text{unemployment\_rate}_{k-1} + \lambda \cdot \text{month\_effects} + \mu \cdot \text{year\_effects} + \varepsilon
 \end{aligned}
 \tag{2-1}$$

**Table 3**  
Average number of monthly depression patients by year.

| Year  | 2010    | 2011    | 2012    | 2013    | 2014    | 2015    | 2016    | 2017    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|
| F32   | 154,918 | 163,408 | 181,759 | 189,415 | 193,175 | 200,702 | 216,589 | 227,440 |
| F33   | 27,731  | 29,034  | 31,242  | 31,789  | 32,626  | 33,329  | 33,996  | 34,822  |
| F41.2 | 32,163  | 33,779  | 36,528  | 38,438  | 40,418  | 42,402  | 47,045  | 50,339  |
| Total | 214,813 | 226,220 | 249,529 | 25,9643 | 266,219 | 276,433 | 297,629 | 312,601 |

$$\begin{aligned} \#articles\_prevention_k &= \beta_0 + \beta_1 \cdot whether\_depression\_suicide_k \\ &+ \beta_2 \cdot whether\_depression\_suicide_{k-1} + \beta_3 \cdot unemployment\_rate_k \\ &+ \beta_4 \cdot unemployment\_rate_{k-1} + \lambda \cdot month\_effects + \mu \cdot year\_effects + \varepsilon, \end{aligned} \tag{2-2}$$

where

*#articles\_treatment<sub>k</sub>*: The number of news articles providing information about depression treatment in month *k*.

*#articles\_prevention<sub>k</sub>*: The number of news articles providing information about depression prevention in month *k*.

Other variables are analogous to those in Model (1). Models (2–1) and (2–2) were estimated using a negative binomial estimation method, because their dependent variables are right skewed and count variables. (Wooldridge, 2010)

### 3. Results

This section presents the estimation results of Models (1), (2–1), and (2–2).

#### 3.1. Regression estimation results

##### 3.1.1. Estimation results of Eq. (1)

The OLS estimation results of Eq. (1) are reported in Table 4. Table 4 indicates that there was an increase in the number of people who visited a psychiatrist for depression when there was media coverage of a celebrity who ended his/her life suicide mainly due to depression in the preceding month. It was statistically significant at a 0.05 significance level. However, the effect of the media coverage of celebrity suicide due to depression was not statistically significant in the same month, at a 0.05 significance level, even though it had a positive coefficient. According to the dataset used for the analysis, the average number of people who visited a psychiatrist in the month where there was media coverage of celebrity suicides was 8033, whereas that in the following month of such media coverage was 8118.

##### 3.1.2. Estimation results of Eqs. (2–1) and (2–2)

The negative binomial estimation results of Eqs. (2–1) and (2–2) are

**Table 4**  
OLS estimation results of Eq. (1), dependent variable = change rate of the average number of depression patients.

| Variable   | Eq. (1)<br>B      | SE B |
|--|-------------------|------|
| Whether celebrity suicide due to depression occurred in month <i>k</i>   | 0.14              | 0.64 |
| Whether celebrity suicide due to depression occurred in month <i>k-1</i> | 1.43*             | 0.55 |
| Unemployment rate in month <i>k</i>                                      | 3.94†             | 2.17 |
| Unemployment rate in month <i>k-1</i>                                    | 1.23              | 1.27 |
| Constant   | -19.02*           | 7.89 |
| F(22, 67)  | 12.68 (p < 0.001) |      |
| R <sup>2</sup>   | 0.75              |      |

Note: N = 90.

† p < 0.1.

\* p < 0.05. The results of the dummy variables regarding month and year effects were omitted, due to space constraints.

reported in Table 5.

The estimation results for Eq. (2–1) in Table 5 indicate that there were more news articles providing information about depression treatment, or emphasizing the importance of seeking treatment to reduce the possible negative consequences of depression, when there was media coverage of a celebrity suicide mainly due to depression in either the same month or the preceding month. In Eq. (2–2), whose dependent variable was the number of news articles providing information about depression prevention, or emphasizing the importance of engaging in preventive behaviors with respect to depression, there were more such articles only when there was media coverage of a celebrity suicide due to depression in the preceding month. It was statistically significant at a 0.01 significance level.

#### 3.1.3. Mediating roles of number of articles

In order to examine whether the number of articles about depression prevention and treatment played mediating roles between the media coverage of celebrity suicide mainly due to depression and the increase in the number patients visiting a psychiatrist, we conducted a mediation test. For this, we used the PROCESS macro version 3.2 developed by Hayes (2017). For variables (i.e., *#articles\_treatment<sub>k</sub>*, *#articles\_treatment<sub>k-1</sub>*, *#articles\_prevention<sub>k</sub>*, *#articles\_prevention<sub>k-1</sub>*) were tested as mediators. Even though the coefficient of the total mediating effects of the four variables was positive (i.e., 0.24), it was not statistically significant. The 95% bootstrap confidence interval for the total effects ranged from -0.48 to 1.03. The confidence interval that was neither lower than zero nor larger than zero indicates insignificance of the total effects (Hayes, 2017).

### 4. Discussion

Prior studies of influences of celebrity suicide on the public mainly focused on negative effects, which is generally known as “copycat suicide” or “Werther effect” (Arendt and Scherr, 2017; Ayyash-Abdo, 2002; Cheng et al., 2007; Stack, 2003; Yip et al., 2006). Especially, there are a large number of studies that have found the effects of celebrity suicides on copycat suicides in East Asian countries (e.g., Chen et al., 2014; Fu and Chan, 2013; Lee et al., 2014; Yip et al., 2006), which suggest that significant negative effects of celebrity suicides on the public in such countries. Different from these studies, however, the present study tried to examine whether there could positive effects of media coverage of such celebrity suicides. As such an attempt, we studied whether the number of people who visited a psychiatrist for depression was influenced by the media coverage of a celebrity who died by suicide mainly due to depression. We found that, when there was such media coverage in a particular month, more people visited a psychiatrist for depression, not in the same month but in the following month. This lagged effect is likely because it may take some time for an individual to make an appointment with a psychiatrist after the first exposure to such media coverage; it may also take time to see a psychiatrist after making an appointment.

Prior studies of preventive health behavior suggest several possibilities that account for this finding. First, media coverage of celebrity suicides due to depression might generate some fears or threats to people who have depression-like symptoms. Especially, the TMHM suggests that not only threats of depression itself, but also of death, i.e.,

**Table 5**  
Negative binomial estimation results of Eqs. (2–1) and (2–2).

| Variable   | # of articles about depression treatment<br>Eq. (2–1) |      | # of articles about depression prevention<br>Eq. (2–2) |      |
|--|---|------|--|------|
|  | B   | SE B | B  | SE B |
| Whether celebrity suicide due to depression occurred in month <i>k</i>   | 0.35*   | 0.18 | 0.39   | 0.28 |
| Whether celebrity suicide due to depression occurred in month <i>k-1</i> | 0.34*   | 0.17 | 0.87**   | 0.33 |
| Unemployment rate in month <i>k</i>                                      | –0.13   | 0.33 | –0.75  | 0.67 |
| Unemployment rate in month <i>k-1</i>                                    | –0.26   | 0.30 | 0.02   | 0.58 |
| Constant   | 2.06  | 1.28 | 0.06   | 2.72 |
| Wald $\chi^2$ (25)   | 122.2 ( $p < 0.001$ )                                 |      | 123.7 ( $p < 0.001$ )                                  |      |

Note:  $N = 131$ .

\*  $p < 0.05$ .

\*\*  $p < 0.01$ . The results of the dummy variables regarding month and year effects were omitted, due to space constraints.

suicide due to depression, can make people form significant fears or worries about death, which leads them to seek treatment or other preventive behaviors (Goldenberg and Arndt, 2008). Audiences with depression or felt depressed might think even a celebrity can die by suicide mainly due to depression, if it is not treated in time. This perception can make them worry more about the possible negative consequences of depression, which is likely to encourage them to seek treatment.

Second, such media coverage can make people become aware of depression and its possible negative consequences, including suicide. This awareness may make people seek more information about the illness, which increases knowledge (Evans et al., 2014). More knowledge also leads to people seeking treatment or engaging in preventive behaviors (Fletcher et al., 1989). Third, for individuals with depression, discovering that even a celebrity can have depression, via the media, can reduce the stigma of depression, which may encourage them to seek treatment (Cross and Walsh, 2012).

These findings suggest that, to motivate people to seek treatment or engage in preventive behavior, public service announcements can be used that deliver information about negative consequences such as suicide if untreated in time, or information about even a celebrity can have depression, which may lead the celebrity to end his/her life with suicide. It should also be noted that more media coverage of the suicide itself could trigger copycat suicides; therefore, the media coverage should place a specific focus on depression.

We also found that there were more news articles providing information about depression treatment or prevention when there was media coverage of celebrity suicides due to depression. But, additional tests about their mediating roles between the media coverage of celebrity suicide, of which depression was known to be the main cause, and the increase in the number of visits to a psychiatrist revealed that the increase in the number of such news articles did not play mediating roles. This result suggests that media coverage of suicide itself plays more important role in increase the number of people visiting a psychiatrist. There might be different reasons for this result. First, media coverage of celebrity suicides attracts more audiences and their attentions because the importance of the incident. Further, it can generate perceptions about the importance of the issue than news articles about depression treatment and prevention. Second, more people are likely to be exposed to the media coverage of celebrity because such news is covered by TV or on the main page of internet websites than to the news articles about depression released afterwards.

#### 4.1. Limitations

This study has some limitations. First, in this study, we used data from South Korea, which might not be generalizable to other countries, especially those countries that have different public attitudes toward depression and celebrities. For example, in countries where there is little public stigma of depression, the effects of celebrities are likely to

be less significant than those in South Korea. Prior studies of stigma on mental illness suggest that cultural characteristics of a country play an important role in seeking treatments for mental illness (e.g., Corrigan, 2005) and there tends to be a higher stigma on mental illness in Asian countries mainly due to their cultural characteristics (e.g., Abdullah and Brown, 2011; Ng, 1997). Thus, the findings of the present study are more likely to be applicable to other Asian countries that share similar cultural characteristics. Further, celebrities are idolized and recognized as public figures in South Korea, and messages delivered by celebrities tend to be perceived as credible and trustworthy (Nam, 2015). Thus, in countries where celebrities hold different popularities from their counterparts in South Korea, the findings of this study are unlikely applicable.

In this study, we considered all domestic entertainers (e.g., actors, singers, and models) whose suicides were covered by news reports regardless of their popularities. But, it is plausible that the influence of a celebrity on the public varies with his/her popularity. The findings of this study also imply, however, that in general media coverage of a celebrity who died by suicide mainly due to depression can motivate audiences to seek psychiatrists for depression.

Further, due to data unavailability, we did not check whether a celebrity who died by suicide had received treatments for his/her depression. It is plausible that if a celebrity had received depression treatments, but ended his/her life by suicide mainly due to depression, then such cases would signal the little effectiveness of having depression treatments, which in turn, likely lead audiences with depression not to seek treatments. Thus, in the future study, such possibility should be examined.

Another limitation is that the results of this study do not guarantee the causality between the media coverage of celebrity suicide and the increase in the number of people who visit a psychiatrist. Without asking the people who visited a psychiatrist what had encouraged them to visit a psychiatrist, it is difficult to know what actually stimulated their visits.

## 5. Conclusion

We found that the media coverage of a celebrity who died by suicide mainly due to depression was positively associated with the increase in the number of people who visited a psychiatrist for depression, and there tended to be more articles delivering information about depression. The findings suggest that, when a celebrity ends his/her life by suicide due to depression, there should be more messages providing objective information about depression and its negative consequences if not treated in time, which might generate negative emotions to the audience, to motivate more people to engage in preventive health behaviors.

## Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2018.12.055.

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