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The Impact of Educative News Articles about Suicide Prevention: A Randomized Controlled Trial

Benedikt Till[a,b], Ulrich S. Tran[b,c], and Thomas Niederkrotenthaler[a,b]

[a]Unit Suicide Research and Mental Health Promotion, Department of Social and Preventive Medicine, Center for Public Health, Medical University of Vienna; [b]Wiener Werkstaette for Suicide Research; [c]Department of Cognition, Emotion, and Methods in Psychology, School of Psychology, University of Vienna

ABSTRACT

Media stories featuring stories of personal experiences of coping with suicidal ideation have been shown to decrease suicide risk, but it is unclear whether more impersonal awareness materials have similar effects. This study aimed to test the impact of impersonal educative news articles featuring interviews with suicide prevention experts. Because the impact of news articles may be determined by the articles' pull quotes and headlines, we also aimed to compare the impact of two versions of the same suicide prevention news article. One version featured headlines and pull quotes highlighting the message that suicide is preventable, whereas the other version focused on the message that suicide is prevalent. In a web-based randomized controlled trial, n = 425 participants either read a news article featuring a prevention expert with one of the above versions of the same text or an article unrelated to suicide. Data on suicidal ideation, stigmatizing attitudes toward suicidal individuals, policy attitudes toward suicide prevention, help-seeking intentions, and assumptions on the prevalence of suicide-related behavior were measured with questionnaires. The assumed prevalence of suicide in the population was greater in both intervention groups than in the control group, but the articles did not have an impact on other outcomes, and there were no differences for variations in headlines and pull quotes. Impersonal suicide prevention articles appear safe to use and do not have an impact on suicide risk factors in general population samples.

Evidence from more than 150 studies on the topic of media and suicide suggests that sensationalist portrayals of suicide in the media trigger imitative suicides, the *Werther effect* (Niederkrotenthaler et al., 2020; Niederkrotenthaler & Stack, 2017; Niederkrotenthaler & Till, 2019b; Sisask & Värnik, 2012). In order to prevent the Werther effect, media recommendations for suicide reporting have been implemented in many countries (Pirkis et al., 2006) and are recommended by the World Health Organization (World Health Organization, 2017).

More recently, evidence has emerged that some suicide portrayals in the media might help to prevent suicides. Niederkrotenthaler et al. (2010) found that newspaper articles focusing on coping with adverse circumstances and overcoming suicidal crises were associated with a decrease of suicide rates and named this protective effect *Papageno effect*. In a series of subsequent randomized controlled trials on the Papageno effect, a decrease of suicide risk factors has been found among participants who were exposed to stories of personal coping with suicidal crises in news articles (Arendt, Scherr, Niederkrotenthaler, Krallmann et al., 2018; Arendt et al., 2016; Till et al., 2019), fictional films (Till et al., 2015), and educative suicide prevention websites (Till et al., 2017). In Australia, several studies investigated the impact of the suicide preventive documentary *Man Up* and reported an increase in intentions to seek help and an improvement of attitudes toward professional help (King et al., 2018). Most importantly, a decrease of suicide risk has been found among young adults with current depressive symptoms and suicidal thoughts (Niederkrotenthaler & Till, 2020) and adults with recent self-reported suicidal ideation or suicide attempt (Niederkrotenthaler & Till, 2019a) after exposure to awareness materials on coping with depression and suicidal crises.

So far, it is still unclear which characteristics of suicide news reports determine protective media effects (Niederkrotenthaler & Stack, 2017; Niederkrotenthaler & Till, 2019b). Most evidence for a Papageno effect has been found in studies that used personal stories of lived experience of suicidality, i.e., stories featuring individuals who describe how they were able to successfully cope with their suicidal crisis (Arendt, Scherr, Niederkrotenthaler, Krallmann et al., 2018; Arendt et al., 2016; Niederkrotenthaler & Till, 2019a, 2020; Till et al., 2019, 2015, 2017). There is also some, but more limited, evidence that more impersonal educative awareness material on suicide prevention (e.g., stories featuring information or advice given by an expert on suicide prevention without any personal experience) might be protective as well. For example, educative suicide prevention news articles featuring experts with and without personal experience of suicidal ideation appeared to be equally effective in increasing suicide prevention-related

CONTACT Benedikt Till benedikt.till@meduniwien.ac.at Unit Suicide Research and Mental Health Promotion, Department of Social and Preventive Medicine, Center for Public Health, Medical University of Vienna, Vienna, Austria

knowledge and decreasing suicide risk in a sample from the general population (Till et al., 2019). In contrast, materials featuring mental health experts without personal experience of suicidality did not have a protective effect in vulnerable participants compared to a control group (Niederkrotenthaler & Till, 2019a). Previous studies also found no protective effect of impersonal suicide prevention messages in public service announcements (Ftanou et al., 2020; Klimes-Dougan et al., 2016). More research on the impact of impersonal educative texts is warranted. Therefore, the present study aimed to explore the impact of impersonal educative news articles featuring an interview with a suicide prevention expert without personal experience of suicidality on suicidal ideation. Further study aims were to analyze effects on stigmatizing attitudes toward suicidal individuals, policy attitudes toward suicide prevention, help-seeking intentions, and assumptions on the prevalence of suicide-related behavior.

It has also been discussed in suicide research literature that the framing in terms of core message of a news article may be essential for its impact (Ftanou et al., 2018; Klimes-Dougan et al., 2016; Niederkrotenthaler et al., 2014). The framing and core messages in media stories are typically represented in selected pull quotes and in headlines, and it has been shown that readers of news articles devote most of their attention to these elements (Dor, 2003; Gibson et al., 2001). Pull quotes have been found to be essential in changing readers' perceptions of social reality (Gibson et al., 2001).

There is an ongoing discussion in suicide prevention about the effects of highlighting prevalence data versus highlighting prevention opportunities in media reports. Highlighting the prevalence of suicidal behavior when developing suicide awareness material might unintentionally portray suicidal behavior as a 'normal' coping behavior when confronted with adverse circumstances. This could mitigate positive effects or trigger harmful effects (Niederkrotenthaler et al., 2014). Instead, some researchers recommend that preventive materials should put more emphasis on other aspects of suicide prevention such as how to get help, which may help to broaden the perspective on available opportunities in suicidal individuals and emphasize alternatives to suicide when dealing with adverse circumstances (Niederkrotenthaler et al., 2014; Niederkrotenthaler & Till, 2019b). However, studies testing the impact of suicide prevention messages with differences in terms of focus on prevalence versus prevention are lacking.

Therefore, the present study had two aims: 1) to assess the effects of impersonal educative news articles featuring an expert speaking about suicide prevention, and 2) to explore differences in the impact between two versions of the same news article that differed only in terms of headline and pull quotes. One version focused on the message that suicidal behavior is prevalent in our society and the other version highlighted the message that suicide is preventable. We hypothesized that both educative suicide prevention news articles decrease suicidal ideation and stigmatizing attitudes toward suicidal individuals and improve policy attitudes toward suicide prevention and help-seeking intentions compared with a control article.

Methods

Participants

We conducted a web-based, double-blinded, randomized controlled trial following a strict intent-to-treat principle (Gupta, 2004) using Social Science Survey (www.soscisurvey.de). Between October 2018 and May 2019, 456 German-speaking individuals of the general population aged 18 years or older were recruited via public announcements at university facilities, e-mails, postings in social media, and snowball sampling methods. Participants were invited to participate in an online study on the impact of health-related prevention messages without providing any specific details or mentioning of suicide in the advertisements.

Power analysis

Based on previous studies on the impact of suicide preventive news articles (Arendt et al., 2016; Till et al., 2019, 2017), we expected a treatment effect of $f = 0.15$. A power analysis with G*Power version 3.1.9.2 (Faul et al., 2007) revealed that analysis of covariance (ANCOVA) required in a design with one study group factor with three groups (Intervention Group #1, Intervention Group #2, control group) and three covariates (gender, age, education) a total sample size of 432 participants in minimum to detect a treatment effect.

Materials

All participants were exposed to a health-related news article that was provided online via Social Science Survey. Each article comprised two pages, had a length of 500–600 words, and did not include any pictures or graphs.

Participants of Intervention Group #1 read an impersonal news article on suicide prevention that featured an interview with a suicide prevention expert. This article was based on an interview used in a previous study (Till et al., 2019). In this interview, the expert first provides some epidemiological facts on suicidal behavior and then advises to either seek professional help or talk to family members or friends when experiencing suicidal thoughts. The expert then offers advice on how to discuss suicide with family members or friends who are experiencing suicidal thoughts (i.e., stressing that it is important to avoid dismissing their problems and to show empathy). The interview concludes with the expert debunking some common misconceptions about suicide such as "suicidal individuals do not communicate their intent" or "there are no warning signs for suicide". Several recent studies have highlighted the importance of providing information on how to discuss suicide with family members or friends and debunking common misconceptions about suicide in suicide awareness materials (Nicholas et al., 2020, 2018). With the headline "Coping with suicidal crises" and the two pull quotes "Conversations with family and friends can help, and ideally you seek professional help" and "Often they are temporary crises that can be overcome with the right support", the article highlighted the message that suicide is preventable.

Participants of Intervention Group #2 read the exact same article, only the headline and the two pull quotes were

different. With the headline "Suicide: A common problem in society" and the two pull quotes "Worldwide every 40 seconds a person dies by suicide" and "Suicide attempts are estimated to be 10 to 30 times more frequent than suicides", this article highlighted the prevalence of suicide in the population.

Participants of the control group were exposed to a news article with similar layout and style, but unrelated to suicide or mental health (Till et al., 2019). This article featured an interview with a medical expert on seasonal influenza prevention and had the headline "Shaking hands in winter is a no-no". Supplemental Figure 1 shows the news articles used in this study.

Procedure

After informed consent was obtained, we collected participants' sociodemographic data. Subsequently, the participants were randomly allocated to one of the three study groups using an automatic urn randomization function. The urn contained three ballots with group assignments. For each participant, Social Science Survey randomly drew one of the ballots without replacement. The urn was automatically refilled as soon as all ballots were taken out. We selected an even allocation ratio of 1:1:1, aiming for equal group sizes. This procedure ensured that participants were blinded to group assignment. The researchers were also blinded to group assignment until data collection was completed.

After reading the respective article, we asked the participants whether they have read the respective article (*yes/no*) and collected data on participants' suicidal ideation, stigmatizing attitudes toward suicidal individuals, policy attitudes toward suicide prevention, help-seeking intentions, and assumptions on the prevalence of suicide-related behavior. We also administered one item for manipulation check and one item to assess blinding success. All participants were debriefed and received contact information of organizations offering help to individuals in suicidal crises.

Primary outcome measure

Suicidal ideation

We assessed suicidal ideation with the Survival and Coping Beliefs Subscale of the Reasons for Living Inventory (Linehan et al., 1983). This 23-item self-report measure asks respondents to rate their beliefs and expectations for *not* dying by suicide (e.g., "I still have many things left to do") on a scale from 1 (*not at all important*) to 6 (*extremely important*). We calculated mean scores across all 23 items of the scale with higher scores indicating higher suicidal ideation (score range: 1–6).

Secondary outcome measures

Stigmatizing attitudes toward suicidal individuals

The Stigma Subscale of the Short Stigma of Suicide Scale (Batterham et al., 2013), consisting of eight adjectives such as *cowardly* or *shallow* rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), was used to assess stigmatizing attitudes toward suicidal individuals. We calculated mean scores across all eight items of the scale with higher scores indicating higher stigmatizing attitudes toward suicidal individuals (score range: 1–5).

Policy attitudes toward suicide prevention

We used 11 statements about the importance of suicide prevention in society (e.g., "Suicide prevention is an important socio-political endeavor") developed by Arendt, Scherr, Niederkrotenthaler and Till (2018), which were rated on a 7-point scale to assess policy attitudes toward suicide prevention. We calculated mean scores across all 11 items of the scale with higher scores indicating greater approval of suicide prevention (score range: 1–7).

Help-seeking intentions

We assessed help-seeking intentions with an updated version (Niederkrotenthaler & Till, 2020) of the General Help Seeking Questionnaire (Wilson et al., 2005). This self-report measure consisted of 11 items assessing the likelihood of respondents seeking help in the case of personal/emotional problems or suicidal thoughts from a variety of specified sources (e.g., "parent" or "phone helpline"). Respondents rated each source on a scale from 1 (*extremely unlikely*) to 7 (*extremely likely*). A Mokken-analysis (Sijtsma & Molenaar, 2002) of this scale identified three subscales: Help-seeking intentions in terms of personal contacts, professional help, and online resources (Kovacs, 2019). We calculated mean scores for all three subscales with higher scores indicating greater help-seeking intentions (score range: 1–7).

Assumptions on the prevalence of suicide-related behavior

We assessed participants' assumptions on the prevalence of (1) suicide, (2) coping with suicidal crises, and (3) help-seeking in the general population with one single item, respectively. We asked the participants to estimate how frequent suicide is in Austria, how frequently suicidal crises are successfully mastered, and how frequently help is sought in case of suicidal ideation with a visual analogue scale ranging from 0 (*very rarely*) to 100 (*very frequently*). For each question, we used a two-sided scroll bar (Kovacs, 2019). Higher scores indicate a greater assumed prevalence of suicide, coping with suicidal crises, and help-seeking in the general population (score range: 0–100).

Additional measures

Socio-demographics

We asked participants to report their gender (*male, female, other genders*), age (using an open-ended question), and highest completed school level (*no high school graduation, high school graduation, university/college degree*).

Manipulation check

In order to be able to assess whether the experimental manipulation had been successful, we provided the headlines of all three articles used in this study and asked participants to indicate the headline of the article they had read.

Blinding success

We asked respondents to indicate what group they thought they had been allocated to (*intervention group, control*

group, or *don't know*) in order to assess success of the blinding (Niederkrotenthaler & Till, 2019a, 2020; Till et al., 2019).

Data analysis

We examined the effect of the interventions on the outcomes with three multivariate analyses of variance (MANOVAs), which control for the correlations between the dependent variables entered into the model, and subsequent univariate ANOVAs. Based on assumed associations between the respective outcome variables, we used suicide-related measures (i.e., suicidal ideation, stigmatizing attitudes toward suicidal individuals, policy attitudes toward suicide prevention) as outcome variables in the first MANOVA, the scores of the three subscales of the help-seeking measure as outcome variables in the second MANOVA, and the scores of the three measures for assumptions on the prevalence of suicide-related behavior as outcome variables in the third MANOVA. Study group (i.e., Intervention Group #1, Intervention Group #2, control group) was used as fixed factor. Consistent with previous studies (e.g., Niederkrotenthaler & Till, 2019a), we controlled for gender (with two dummy variables), age, and educational level in the analysis. Pillai's trace test statistic was used for tests of significance of the multivariate effects. Individual group differences were tested for significance with Bonferroni-corrected contrast tests. Significance was set to $p < .05$. We checked whether there were any differences between (a) participants who completed the entire survey or dropped out before completion and (b) randomized participants and individuals who dropped out of the study prior to randomization using Fisher's exact tests and unpaired two-sample t-tests.

Ethics statement

Ethical approval of this study was obtained from the Research Ethics Board of the Medical University of Vienna (study protocol 1818/2018, October 29, 2018). The participants provided informed consent online. This study was conducted in accordance with the Declaration of Helsinki and registered with the German Clinical Trial Registry (https://www.drks.de) as DRKS00015774 (registration date: 2018–11-07).

Results

Figure 1 illustrates the study flowchart. Of the n = 456 individuals who accessed the survey, n = 451 individuals provided consent and enrolled in the study. Of the n = 451 enrolled participants, n = 22 individuals discontinued their participation prior to randomization, resulting in a total of n = 429 individuals randomly allocated either to Intervention Group #1 (n = 143), Intervention Group #2 (n = 143), or the control group (n = 143). After randomization, n = 4 participants allocated to Intervention Group #1 revoked their consent for participation. The data of these participants were deleted and excluded from the study. Of the n = 425 remaining participants, n = 355 participants completed the survey. Following a strict intent-to-treat principle (Gupta, 2004), all 425 randomized individuals who gave consent for participation in the study were included in the statistical analysis. However, due to a programming error, the survey ended without further collection of data for n = 17 participants who indicated that they had not read the respective news article.

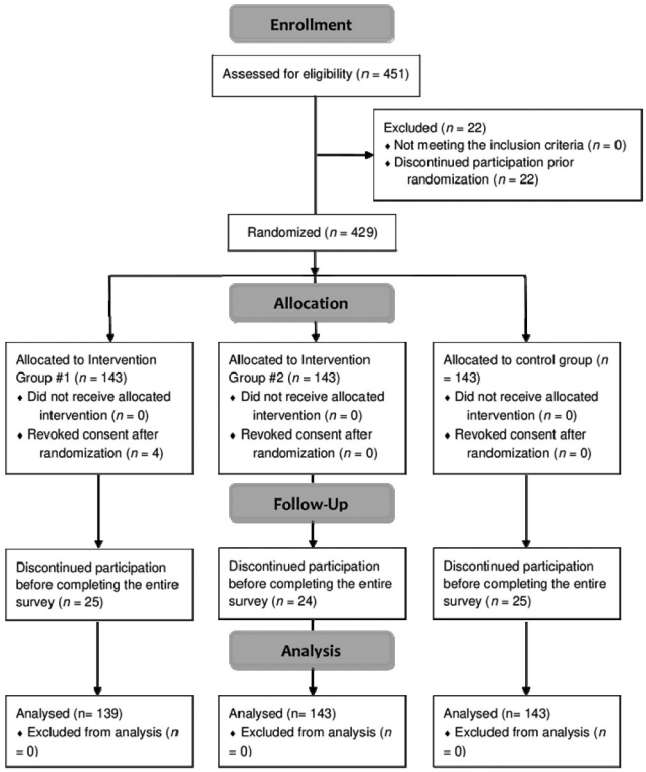

Figure 1. Study flowchart.

Descriptive statistics

Of the 425 included individuals, 302 were women (71.1%), 118 were men (27.8%), and 5 indicated other genders (1.2%). Mean age was 34.6 (SD = 14.1), and in terms of highest completed education, 83 participants (19.5%) had no high school diploma, 174 participants (40.9%) indicated high school as highest completed level of education, and 168 participants (39.5%) had completed college or university. An overview of the characteristics of participants is provided in Table 1. ANOVAs and Fisher's exact tests revealed that there were no differences in terms of descriptive characteristics between the three study groups (see Table 1). The mean values and their corresponding 95% confidence intervals for all outcome variables as well as mean differences from comparisons of means with the control group with Bonferroni corrected contrast tests are shown in Table 2.

Survey completers vs. dropouts

There were no differences between participants who completed the entire survey (n = 355) and those who dropped out of the study between randomization and final survey page (n = 70) with regards to age ($t(423) = 0.44$, $p = .66$), gender ($p = .86$), education ($p = .11$), and study group ($p = .87$).

Table 1. Descriptive statistics for all study groups (n = 425).

Variable	Intervention Group #1: "Suicide is preventable" (*n* = 139)	Intervention Group #2: "Suicide is prevalent in society" (*n* = 143)	Control Group (*n* = 143)	*p*
Gender:				
Females *n* (%)	102 (73.4)	100 (69.9)	100 (69.9)	.78[a]
Males *n* (%)	37 (26.6)	41 (28.7)	40 (28.0)	.94[a]
Other *n* (%)	0 (0)	2 (1.4)	3 (2.1)	.38[a]
Age *M* (*SD*)	34.7 (14.0)	35.2 (14.5)	33.8 (13.7)	.68[b]
Education:				
College/University *n* (%)	53 (38.1)	66 (46.2)	49 (34.3)	.11[a]
High school *n* (%)	58 (41.7)	56 (39.2)	60 (42.0)	.88[a]
Below high school *n* (%)	28 (20.1)	21 (14.7)	34 (23.8)	.14[a]

Note. Frequencies (*n*), percentages (%), means (*M*), and standard deviations (*SD*) provided for each group, as well as *F* and *p* values from ANOVAs and *p* values from Fisher's exact tests assessing group differences.
[a]Fisher's exact test result
[b]ANOVA result, $F = 0.38$, $df_1 = 2$, $df_2 = 422$

Table 2. All outcome variables in each study group.

	Control group	Intervention group #1: "Suicide is preventable"			Intervention group #2: "Suicide is prevalent in society"		
Outcome (Cronbachs alpha & sample size)	Mean score (95% CI)	Mean score (95% CI)	Mean difference (95% CI)[a]	Cohen's *d* (95% CI)	Mean score (95% CI)	Mean difference (95% CI)[a]	Cohen's *d* (95% CI)
Suicidal ideation							
α =.96, *n* = 359	2.67 (2.45–2.90)	2.65 (2.44–2.87)	0.07 (−0.31–0.45)	0.02 (−0.10–0.15)	2.69 (2.46–2.92)	0.09 (−0.29–0.46)	0.03 (−0.10–0.16)
Stigmatizing attitudes toward suicidal individuals							
α =.90, *n* = 357	1.71 (1.58–1.85)	1.72 (1.58–1.86)	0.01 (−0.24–0.21)	0.01 (−0.14–0.12)	1.64 (1.52–1.76)	−0.07 (−0.29–0.16)	−0.04 (−0.16–0.09)
Policy attitudes toward suicide prevention							
α =.87, *n* = 356	3.97 (3.83–4.12)	4.00 (3.87–4.13)	0.01 (−0.21–0.24)	0.01 (−0.12–0.13)	4.09 (3.96–4.22)	0.11 (−0.12–0.33)	0.06 (−0.07–0.19)
Help-seeking intentions: Personal contacts							
α =.77, *n* = 356	3.80 (3.50–4.10)	3.61 (3.32–3.90)	−0.22 (−0.70–0.25)	−0.06 (−0.19–0.07)	3.73 (3.47–3.98)	−0.11 (−0.58–0.37)	−0.03 (−0.16–0.10)
Help-seeking intentions: Professional help							
α =.62, *n* = 356	3.83 (3.56–4.09)	4.13 (3.88–4.38)	0.25 (−0.20–0.69)	0.07 (−0.06–0.20)	3.94 (3.68–4.20)	0.07 (−0.38–0.51)	0.02 (−0.11–0.15)
Help-seeking intentions: Online resources							
α =.52, *n* = 356	2.25 (2.02–2.48)	2.44 (2.17–2.72)	0.25 (−0.19–0.69)	0.07 (−0.05–0.20)	2.35 (2.09–2.60)	0.16 (−0.28–0.60)	0.05 (−0.08–0.17)
Assumptions on the prevalence of suicide							
n = 369	42.90 (39.36–46.43)	52.42 (47.33–55.51)	**7.84** (1.16–14.51)	0.15 (0.02–0.27)	51.76 (47.75–55.76)	**8.70** (2.04–15.36)	0.16 (0.04–0.29)
Assumptions on the prevalence of coping with suicidal crises							
n = 369	43.59 (39.29–47.89)	45.47 (41.38–49.55)	1.62 (−5.60–8.83)	0.03 (−0.10–0.15)	46.76 (42.51–51.00)	2.81 (−4.40–10.01)	0.05 (−0.08–0.17)
Assumptions on the prevalence of help-seeking							
n = 369	31.36 (27.35–35.36)	30.05 (26.88–33.22)	−1.82 (−8.11–4.47)	−0.04 (−0.16–0.09)	30.50 (26.86–34.15)	−1.22 (−7.50–5.05)	−0.02 (−0.15–0.10)

[a]Comparison of means with the control group with Bonferroni corrected contrast tests; mean differences with significant *p* values (<0.05) are in bold.

Randomized vs. non-randomized participants

There were no differences between participants who were randomized ($n = 425$) and those who dropped out of the study prior to randomization ($n = 22$) with regards to age ($t(11) = 0.90$, $p = .39$), gender ($p = 1.00$), and education ($p = .49$).

Blinding and manipulation check

Of the 355 participants who completed the items for blinding success and the manipulation check, 120 participants (33.8%) correctly guessed their group allocation, whereas 94 participants (26.5%) were incorrect and 141 participants (39.7%) responded with "don't know". Based on the high proportion of "don't know" answers and the balanced proportion of correct and incorrect guesses, we can assume that blinding was successful (Niederkrotenthaler & Till, 2019a, 2020; Till et al., 2019). In terms of the manipulation check, 259 participants (73.0%) indicated the correct headline, which is comparable to previous studies (Till et al., 2019). The probability of indicating the correct headline differed significantly between study groups ($p < .001$). Based on Bonferroni-corrected z-values from post-hoc tests, the probability of indicating the correct headline was

significantly higher in the control group than in the two interventions groups ($p < .05$, respectively) and significantly lower in Intervention Group #1 than in Intervention Group #2 ($p < .05$). One-hundred-and-five participants in the control group (89.0%), 90 participants in Intervention Group #2 (75.6%), and 64 participants in Intervention Group #1 (54.2%) indicated the correct headline.

Effects on outcome variables

There were no significant multivariate effect ($F(6, 696) = 0.54$, $p = .78$, $\eta_p^2 = .005$) and no significant univariate effects of study group on suicidal ideation ($F(2, 349) = 0.16$, $p = .85$, $\eta_p^2 = .001$), stigmatizing attitudes toward suicidal individuals ($F(2, 349) = 0.40$, $p = .67$, $\eta_p^2 = .002$), and policy attitudes toward suicide prevention ($F(2, 349) = 1.01$, $p = .37$, $\eta_p^2 = .006$). Furthermore, there were no multivariate effect ($F(6, 696) = 1.12$, $p = .35$, $\eta_p^2 = .010$) and no significant univariate effects of study group on help-seeking intentions in terms of professional help ($F(2, 349) = 0.94$, $p = .39$, $\eta_p^2 = .005$), personal contacts ($F(2, 349) = 0.65$, $p = .52$, $\eta_p^2 = .004$), and online resources ($F(2, 349) = 0.97$, $p = .38$, $\eta_p^2 = .006$). In terms of assumptions on the prevalence of suicide-related behavior, there were a significant multivariate effect ($F(6, 722) = 2.34$, $p < .05$, $\eta_p^2 = .019$) and a significant univariate effect of study group on assumptions on the prevalence of suicide ($F(2, 362) = 6.00$, $p < .01$, $\eta_p^2 = .032$). Bonferroni corrected contrast tests indicated that assumptions on the prevalence of suicide were significantly higher in Intervention Group #1 ($p < .05$) and Intervention Group #2 ($p < .01$) than in the control group, whereas no differences were found between the two intervention groups ($p = 1.00$). There were no significant univariate effects in terms of assumptions on the prevalence of coping with suicidal crises ($F(2, 362) = 0.44$, $p = .64$, $\eta_p^2 = .002$) and help-seeking ($F(2, 362) = 0.25$, $p = .78$, $\eta_p^2 = .001$).

Discussion

This study assessed the impact of two versions of an impersonal educative news article about suicide prevention on suicide risk factors. Both versions, which differed only regarding their pull quotes and headlines, did not decrease participants' suicidal ideation or improve help-seeking intentions compared to the control group. This finding is different from one earlier randomized controlled trial, which found a protective effect of an impersonal suicide prevention news article on participants' suicidal ideation (Till et al., 2019). The suicide prevention news article used in the present study was similar to the impersonal article in this previous study (Till et al., 2019), but provided additional facts on the prevalence of suicide in the population. In contrast, several earlier studies that demonstrated a Papageno effect (e.g., Arendt et al., 2016; Niederkrotenthaler & Till, 2019a; Till et al., 2019, 2015, 2017) used personal awareness material that highlighted a personal story of a person describing how he or she experienced a suicidal crisis and subsequently managed to overcome the crisis. The suicide prevention articles in the present study did not include a personal perspective of hope, recovery, and healing. An earlier, smaller study conducted in individuals with a recent suicide attempt or recent suicidal ideation similarly has found no effects of educative awareness materials that did not include stories of personal experiences of suicidality (Niederkrotenthaler & Till, 2019a). In contrast, materials featuring an individual with personal experience of suicidality had a sustained effect on suicidal ideation, particularly among recent suicide attempters (Niederkrotenthaler & Till, 2019a). The findings of the present study are also consistent with findings from recent studies on the impact of public service announcements (PSAs). For example, Ftanou et al. (2020) reported no change in suicide risk factors in young adults after watching a PSA without stories of personal experience with suicidality. Klimes-Dougan et al. (2016) found benefits in endorsement of favorable help-seeking attitudes only among audiences exposed to PSAs with a more personal message that emphasized personal benefits. Based on this evidence, it appears that broad and basic impersonal information on suicidal crises delivered by a suicide prevention expert are safe to use but may not be sufficient to reduce suicide risk in audiences from the general population.

Also, both news articles on suicide prevention did not decrease stigmatizing attitudes toward suicidal individuals or improve policy attitudes toward suicide prevention. It has been noted in the literature that attitudes and beliefs, particularly political attitudes, may be too robust to change after a brief media intervention (e.g., Erber et al., 1995; Till et al., 2010).

Participants exposed to either of the two suicide prevention news articles assumed the prevalence of suicide in the population to be significantly higher than participants in the control group. This effect may have been the result of a priming effect, which refers to the phenomenon that an event or issue will be more salient than other topics when particularly highlighted in a news message (Arendt, Scherr, Niederkrotenthaler & Till, 2018; Entman, 1993). The focus of the two intervention articles appears to have made readers more aware of the problem of suicide, but variations in pull quotes and headline did not make any difference.

Overall, no differences were found between the two versions of suicide prevention news articles used in this study. A potential explanation for this finding may be that there was only a minimal difference between these two articles, which differed solely in terms of their headline and pull quotes, but were identical in all other aspects. In fact, the manipulation check revealed that only approximately 50% of the participants in the Intervention Group #1 were able to correctly identify the headline of their article at the end of the survey. This may suggest that the actual difference between the two suicide prevention news articles was barely noticeable. A stronger and more accentuated focus on the messages conveyed in headlines and pull quotes appears necessary throughout the text in order to emphasize the intended main messages.

Limitations

The participants' data was only collected immediately after article exposure, which did not allow for the assessment of effects over longer time periods. Further, no baseline scores were collected for suicidal ideation, making it impossible to assess if the samples differed in terms of baseline suicidal ideation. The convenience

online sample of the present study was not representative of the general population, with females, older individuals, and individuals with college degrees being overrepresented. The study sample was recruited from the general population and it remains unclear to what extent the results of this study can be generalized to suicidal individuals in a clinical setting. About 28% of the participants had experienced suicidal thoughts in the past year, which is considerably higher than expected in the general population (Centers for Disease Control, 2015), but their suicidal ideation was considerably lower than in a previous sample testing media effects in more vulnerable individuals (Niederkrotenthaler & Till, 2019a). A further limitation was that, due to a technical error, no data was collected after randomization for $n = 17$ participants, who reported that they have not read the respective news article. Furthermore, the researchers were blinded to group assignment until data collection was completed, but not until data analysis was completed. It is commonly recommended for randomized controlled trials to ensure the blinding of researchers until data analysis is completed in order to avoid bias (Karanicolas et al., 2010; MacCoun & Perlmutter, 2015). Finally, the Cronbach α estimating the reliability of the items measuring help-seeking intentions in terms of professional help and online resources was relatively low (see Table 2), which is a common psychometric limitation of (sub)scales consisting of a small number of items (Sijtsma, 2009).

Conclusion

In the present study, impersonal educative news articles featuring interviews with a suicide prevention expert did not have an effect on participants' suicidal ideation, stigmatizing attitudes toward suicidal individuals, policy attitudes toward suicide prevention, and help-seeking intentions. The messages appear to be safe to use in the general population, but do not appear to reduce suicide risk on the short term. This is different from findings on the effects of media stories covering personal experiences of suicidality, which have been found to be associated with a reduction of suicide risk factors (Niederkrotenthaler & Till, 2019a, 2019b; Niederkrotenthaler et al., 2010; Till et al., 2019, 2015, 2017). Both suicide prevention articles, however, increased participants' assumed prevalence of suicide in the population by increasing the topic's salience in their memory. The specific headline and pull quotes selected for the article did not appear to have any effect on the article's impact. It seems that readers may easily overlook the core message of an educative suicide prevention news article as reflected in headline and pull quotes, if that core message is not clearly emphasized throughout the text.

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