

Short-Term Effects of Media Reports on Terrorism That Are Consistent vs. Not Consistent with Media Recommendations on Mass Shootings: A Randomized Controlled Trial

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Objective: Media recommendations for the reporting of events where one person or a small group kills multiple others in public settings have been developed recently by suicide prevention experts. Evidence on the effects of reports that are compliant or noncompliant with these recommendations is lacking.

Methods: We conducted a randomized controlled trial with $n = 148$ participants who were randomly assigned to read newspaper articles (A) on acts of terrorism assumed to be conducted by Islamist terrorists and not consistent with media recommendations, (B) the same articles differing only in their compliance with recommendations, or (C) articles of similar style that were about homicide. Islamophobia as well as suicidal ideation, stress, and mood were measured before reading the article (T1), immediately afterwards (T2), and one week later (T3). The primary hypothesis was that there is an increase in islamophobia after exposure to media portrayals not consistent with media recommendations.

Results: Compared to the control group, only participants reading media reports that were not consistent with media recommendations showed a short-term increase in islamophobia.

Conclusion: These findings suggest that reporting on terrorism that is not consistent with media recommendations appears to increase islamophobia. In the context of reporting on Islamist terrorism, consistency with recommendations might help reduce negative attitudes toward Muslim minorities.

Terrorism is becoming an increasingly important public health issue in Western countries. Although only 2.6% of all deaths

from terrorism currently occur in Western countries (Alcala, Sharif, & Samari, 2017), and the total of 68 people who died from acts

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of terrorism in the EU Member States during 2017 (EUROPOL, 2018) is much smaller than the number of individuals dying from other causes of injury such as suicide or unintentional injury (WHO, 2014), these acts are considered to have widespread negative impacts on public mental health (Holman, Garfin, & Silver, 2014). In particular, negative psychological consequences such as increased stress levels result from repeated exposure to media reports of terrorist acts (Holman, Garfin, & Silver, 2014; Nevdal, Gravdal, Laberg, & Dyregrov, 2016; Silver et al., 2013). Holman, Garfin, and Silver (2014) showed that repeated exposure to media reports on the Boston Marathon bombings in 2013 was associated with higher stress levels, and these stress levels even surpassed levels of individuals who were directly exposed to the terrorist attack (Holman, Garfin, & Silver, 2014). For this reason, the portrayal of collective trauma in the media, particularly the repeated portrayal of gruesome, distressing images, has been considered to keep potentially traumatic experiences and distress alive (Holman, Garfin, & Silver, 2014). Because these types of events are highly newsworthy and will always be reported, more research on the effects of different types of reporting, and, potentially, collaboration with mental health experts to reduce its negative consequences, are warranted.

There are some obvious similarities between the topic of terrorism reporting and suicide reporting which have been noted in the literature. In particular, sensationalist reporting of both suicide and terrorism might result in imitative behaviors. While this phenomenon is well known for suicide (Niederkroenthaler et al., 2009; Niederkroenthaler et al., 2010; WHO, 2008, 2017), some evidence extends these phenomena to mass shootings. Gould and Olivares (2017) reviewed the evidence of imitation effects related to reporting on mass shootings and murder-suicides and concluded that studies generally supported the notion of imitative effects, although the total number of publications in the topic areas was limited and much

smaller than for suicide reporting (Gould & Olivares, 2017; Niederkroenthaler & Stack, 2017).

While mass shootings and acts of terrorism sometimes have many commonalities, acts of terrorism should still be considered as a separate category of intentional harm to others, mainly due to differences in underlying motivations. Further, any terrorist organizations behind the attack might provide rationalizations for violence, choose targets, and even provide equipment (Lankford, 2014), which is not applicable to most mass shootings. There is a small corpus of research which suggests imitation effects for terrorist acts specifically. In particular, by analyzing the distribution of terrorism-related articles published in *New York Times*, Jetter (2015) showed a positive association between the number of articles on a specific initial terrorist act and the number of further attacks over the next few weeks primarily in same country as the initial act.

Similar to suicide reporting, reporting on terrorism does appear to have even broader implications for public mental health than those resulting from imitation effects. Suicide reporting often reflects and perpetuates public stigma surrounding suicide, suicidal individuals, and those who are involved in prevention of suicide, with potentially detrimental effects on help-seeking (Niederkroenthaler, Reidenberg, Till, & Gould, 2014). Current reporting on acts of terrorism or potential terrorism tends to stigmatize religious minorities, particularly Muslim minorities (Powell, 2011). Previous studies showed that negative media messages about individuals with an immigrant background, individuals with a specific (minority) religious affiliation, and racial bias enhances negative attitudes toward that specific group (Arendt, 2010; Eyssel, Geschke, & Frindte, 2015; Higgins, Bargh, & Lombardi, 1985; Schlueter & Davidov, 2013). Further, the media can bias public opinion by magnifying the perceived threat of terrorism perpetrated by specific groups that might be perceived to be responsible for the attack, while diminishing the perceived threat stemming from other

potentially violent groups in the population (Alcala, Sharif, & Samari, 2017; Saeed, 2007).

For these reasons, suicide prevention experts who have been leading in the development of recommendations on safe reporting of suicide have recently released the first set of media recommendations for reporting on mass shootings. This project was led by SAVE (Suicide Awareness Voices of Education) and included input from suicide and media experts from around the globe. The recommendations address how media can responsibly cover incidents “where one person or a small group kills multiple others in public settings” (SAVE, 2017) and therefore also cover the reporting of acts of terrorism. They encourage media to avoid images that might glorify violence, and not to report the identities or the goals of (suspected) terrorists. Instead, the guidelines recommend to disseminate information on help services that are available for distressed individuals in the aftermath of the attack and to promote messages of resilience (SAVE, 2017). Further, in accordance with studies that investigated possible imitation effects of active shootings (Kissner, 2016; Schulman, 2013), the guidelines suggest not to provide details such as “photos, names, faces” of the perpetrators.

Currently, these novel media recommendations on mass shootings are solely based on expert opinion. Empirical investigations are crucial to investigate their possible effects. In particular, in a first step, studies are needed to investigate whether media reports that comply with the recommendations have a different impact on audiences than media reports that do not comply with them.

In the present study, we conducted a randomized controlled trial to investigate the short-term effects of news reports about acts of terrorism that were consistent or nonconsistent with media recommendations on several mental health-related outcomes, including islamophobia, mood, stress, and suicidal ideation. The primary hypothesis was related to islamophobia, because the recent increase in terrorism perpetrated by individuals reported as having an Islamist background might have contributed to the noted increase

in hostile attitudes toward Muslim minorities in many European countries (Allen & Nielsen, 2002). In spite of the fact that terrorists and perpetrators sometimes remain unidentified, frequent portrayals of Islamist perpetrators in the media might stigmatize Muslim minorities on a much broader level (Schmuck, Matthes, von Sikorski, Materne, & Shah, 2018). In this context, it is important to note that “Islamism” and “Islam” have very different meanings, with Islam standing for faith and religion, whereas Islamism is about political order that does not directly result from Islam (Tibi, 2012). Even for (Western) scholars or policymakers, an absence of a clear idea of the distinctions between Islam and the “*politically based fundamentalist movement known as Islamism*” has been noted in the sociological literature (Tibi, 2012). In everyday news reporting, these terms are often confused and mixed, and it appears very likely that public perception currently does not sufficiently differentiate these categorizations.

We further aimed to identify how sociodemographic variables, identification with the provided media reports, and the amount of dichotomous thinking influenced any identified effects of the reports on islamophobia. From the literature on suicide reporting, it is well-known that identification processes tend to impact on media effects (Till, Strauss, Sonneck, & Niederkrotenthaler, 2015), and identification processes have also been found to be relevant to the re-experiencing and coping with potentially traumatic events (Frankel, 2002). Cohen (2001) described that identification with negative characters might increase anxiety, and we therefore hypothesized that identification might also impact on islamophobia.

Dichotomous thinking, on the other hand, which is sometimes called “all or nothing” thinking, can severely impact the ability to adequately assess positive and negative aspects of a given situation, for example, someone’s ability to distance themselves from bad news or put this news into perspective (Jonason et al., 2018; Oshio, 2009). It has been found to be prevalent in some mental disorders (Al-Mosaiwi & Johnstone, 2018), is

related to higher stress levels (Farrell, Hains, Davies, Smith, & Parton, 2004), and might therefore be seen as a marker of mental ill health.

METHOD

Participants and procedure

We recruited students from the University of Vienna and the Medical University of Vienna using flyers and notes in different university settings. Also, a snowball sampling method (Atkinson & Flint, 2001) was applied; that is, participants were asked to ask other potentially interested peers to participate in the study. The study took place between July 2017 and July 2018 at the Center for Public Health, Medical University of Vienna, Austria.

The study included three time points of assessment. T1 was the initial meeting, where informed consent was obtained. After filling out a first set of questionnaires, participants were randomly allocated to one of the three groups using a random number generator. The study was single-blind, with participants being blind to their group assignment. T2 included a second round of assessment during the same meeting, immediately after reading the respective media reports. A second on-site visit one week later at the study end point (T3) was conducted in order to measure longer-term effects of the materials. The participants also received the instructions not to discuss the study contents with other participants between T2 and T3 (Till, Tran, Voracek, & Niederkroenthaler, 2017).

The participants were offered psychological counseling at the end of T2 and T3, respectively, to help them to cope with any distress that might result from exposure to the news articles or from answering the questions on mental health, including suicidal ideation. The study was approved by the Ethics Committee of the Medical University of Vienna and the Vienna General Hospital (Study Protocol 2232/2016). The trial was registered with the American Economic

Association's registry for randomized controlled trials (www.socialscisearch.org), as RCT-ID: AEARCTR-0002374.

Materials and measures

Experimental manipulation. Intervention group A read two news articles about terrorist attacks committed by two different methods of attack. In this group, the news reporting was not consistent with the recommendations for mass shootings (SAVE, 2017). The articles disclosed details about the identity of the terrorists. Specifically, this included reporting of their names, age, that they were assumed to be Muslim, the name of their country of origin, and a portrait photograph of the terrorists. It also described the goal of the terroristic organization and the name of the organization inspiring the act. In intervention group B, the articles were about the same terrorist attacks, but the contents were adapted to be more consistent with the media recommendations. Particularly, instead of the selected demographic characteristics reported in group A, neither the identities of the terrorists were revealed, nor was any name of any terror organization or their aims. Instead, these two articles included a paragraph on how the community supported victims in the aftermath of the attack. Specifically, this paragraph addressed how police, crisis intervention, and the local government worked together to assist residents in dealing with the crisis situation. Further, the images of terrorists in group A were replaced by same-sized pictures showing the police at the terror scene and a rather neutral picture of people gathered at the site. The participants allocated to the control group (group C) read two news articles that reported on two cases of homicides performed with two different methods. In one of the two articles, the identity of the perpetrator was revealed, whereas the other article provided no identity-related information. Thus, the articles in the control groups had characteristics of both intervention groups, in order to serve as a suitable control for both intervention groups. The articles in all three groups

were similar in terms of length and overall style except with regard to the manipulated characteristics described above. The wording of about 30%–40% of the text length of the articles in group A and B was identical. The news articles were based on actual published news reported in German language and only slightly adapted in their structure and length in order to best fulfill the criteria for the purpose of the study.

Measures

Primary Hypothesis. Islamophobia. The primary hypothesis was that islamophobia would increase after exposure to media articles that were not consistent with media recommendations. The Perceived Islamophobia Scale (PIS) by Kunst and colleagues (Kunst, Sam, & Ulleberg, 2013) captures islamophobia in the public by measuring three dimensions (general fear, fear of islamization, and islamophobia in media) and contains 12 items (e.g., “Many Austrians avoid Muslims”). The assessment is made on a 6-point Likert scale, with responses ranging from 1 (*I totally disagree*) to 6 (*I totally agree*). Higher scores indicate higher perceived islamophobia.

Other Hypotheses. We also hypothesized that particularly articles that were not consistent with media guidelines have a negative effect on mood and increase suicidal ideation and stress.

Mood. The Affective State Scale (Becker, 1988) is based on participant’s responses to eight adjectives describing his or her current emotional state with adjectives such as “happy” or “depressed.” Items are answered on a 4-point Likert scale (1 = *Not at all*, 4 = *Very much*). Higher scores indicate better mood.

Suicidal ideation. Suicidal ideation was assessed with the 48 items of the Reasons for Living Inventory (Linehan, Goodstein, Nielsen, & Chiles, 1983) measuring 48 reasons of why not to die by suicide (e.g., “I believe that I have control over my life and destiny”). Participants rated all items on a scale ranging from 1 (*Not at all important*) to 6

(*Extremely important*). The scale scores were reverse-coded, and higher scores indicated higher suicidal ideation.

Stress. The distress thermometer – Subjective Units of Distress Scale (SUDS) is a single-item instrument assessing the intensity of fear and psychological distress. The participants rate their distress on a scale from 0 to 100. For example, 0 means “I feel excellent,” while 100 means “I feel terrible fear and psychological distress.”

Independent Variables. Identification. *Cohen’s Identification Scale* is a 10-item scale (Cohen, 2001) that assesses an individual’s identification with a specific media character (e.g., “While I was reading the text, I had the feeling that I would take part in the action”), answered on a five-point Likert scale ranging from 1 (*Disagree*) to 5 (*Agree*).

Dichotomous thinking. Dichotomous thinking was assessed with a questionnaire developed by Sauerland (2015). This scale contains five items (e.g., “I tend to have radical views”), and answers are provided ranging from 1 (*Totally disagree*) to 5 (*Totally agree*).

Sociodemographic covariates. We collected information about sociodemographic aspects such as gender (male/female), age (continuous), nationality (foreign/Austrian), and education (no high school degree/obtained high school degree/above high school degree).

Power Analysis. We performed a sample size calculation for a repeated-measures analysis of covariance (ANCOVA) with three measurements with a power of 0.80, a significance level of $\alpha = 0.05$ (two-sided), and three groups. Assuming a correlation of 0.50 between measuring points, at least 150 participants are required in order to detect a medium-sized effect of $f = 0.21$ (Till, Strauss, Sonneck, & Niederkrotenthaler, 2015; Till, Tran, Voracek, & Niederkrotenthaler, 2017).

Data Analysis. The mean scores across all items of each respective measure were calculated. The scores for each dependent variable were then subjected to a study group (two intervention groups and one control group) and trial condition (pre-exposure to

the news article, i.e., T1; immediate postexposure to the news article, i.e., T2; and one week after the exposure, i.e., T3) repeated measures ANCOVA. Islamophobia (T1, T2, T3), mood (T1, T2, T3), suicidal ideation (T1, T2, T3), and stress (T1, T2, T3) were used as the dependent variables. Adjustments were made with covariates for age, gender, education, Austrian nationality, dichotomous thinking, identification with the respective media protagonist, and baseline suicidal ideation. The latter variable was included because it differed across study groups (see Results section and Table 1). Bonferroni-adjusted contrast tests were used to compare individual group differences. Additionally, for

significant results of ANCOVA, in accordance with previous research (Till, Strauss, Sonneck, & Niederkrotenthaler, 2015), we calculated paired *t* tests to analyze any changes induced by the news report for the dependent measures within each study group.

In order to assess the effects of sociodemographic variables (gender, age, education, nationality), baseline suicidal ideation, identification, and dichotomous thinking on the short-term impact of the news reports on islamophobia at T2, we conducted hierarchical multiple linear regression analyses, with islamophobia at T2 (immediately postreading) as the outcome variable. In the first step, we entered sociodemographic characteristics

TABLE 1
Descriptive Demographics and Baseline Characteristics for Intervention Group A, Intervention Group B, and Control Group C

Variable	Group A	Group B	Group C	χ^2/F	Cronbach's α
Demographics					
Gender					
Female <i>n</i> (%)	27 (55.1)	41 (82.0)	38 (77.6)	10.08 ^{a,**}	
Male <i>n</i> (%)	22 (44.9)	9 (18.0)	11 (22.4)		
Age <i>M</i> (<i>SD</i>)	26 (7.6)	26.9 (9.2)	26.0 (6.6)	0.22 ^b	
Education					
Above high school <i>n</i> (%)	12 (24.5)	13 (26.0)	15 (30.6)	0.51 ^a	
High school <i>n</i> (%)	37 (75.5)	36 (72.0)	33 (67.3)	0.81 ^a	
Nationality Austrian <i>n</i> (%)	33 (67.3)	32 (64.0)	36 (73.5)	1.05 ^a	
Baseline characteristics, identification, and dichotomous thinking					
Dichotomous thinking <i>M</i> (<i>SD</i>)	1.66 (0.52)	1.62 (0.53)	1.76 (0.51)	0.90 ^b	0.46
Baseline islamophobia <i>M</i> (<i>SD</i>)	3.84 (0.68)	3.74 (0.75)	3.79 (0.65)	0.24 ^b	0.79
Baseline suicidal ideation <i>M</i> (<i>SD</i>)	3.12 (0.54)	2.96 (0.49)	2.82 (0.51)	4.10 ^{b,*}	0.88
Baseline stress <i>M</i> (<i>SD</i>)	14.29 (12.58)	17.40 (14.96)	15.92 (11.35)	0.70 ^b	NA
Baseline mood <i>M</i> (<i>SD</i>)	3.16 (0.51)	3.18 (0.53)	3.12 (0.48)	0.19 ^b	0.85
Identification <i>M</i> (<i>SD</i>)	1.37 (0.35)	1.31 (0.28)	1.53 (0.49)	4.38 ^{b,*}	0.71

Group A (intervention group A, not consistent with media recommendations), Group B (intervention group B, consistent with media recommendations), and Group C (control group C). Categorical variables: frequencies (*n*) with percentages (%); continuous variables: mean (*M*) with standard deviations (*SD*); provided for each group. Chi-square values from chi-square tests, and *F* values are from analyses of variance (ANOVA) testing group differences.

^a χ^2 test result, *df* = 2.

^bANOVA result, *df*₁ = 2, *df*₂ = 145.

**p* < 0.05

***p* < 0.01

****p* < 0.001 (two-tailed).

as well as baseline islamophobia and baseline suicidality into the model. In step two, we added dichotomous thinking, identification, and group assignment. Finally, in step three we further added interaction terms between group assignment and identification to test whether any effect of identification depended upon group assignment.

RESULTS

The trial comprised of 155 participants, and of the total number, $n = 148$ participants (95.5%) completed the study. $N = 7$ participants were excluded from the study. This was because two participants showed patterns in responses indicating protocol deviations and five participants did not complete the trial. In addition, we performed a sensitivity analysis to check whether the

findings were the same if these participants were included. Figure 1 shows the study flowchart.

Among the study completers, $n = 106$ participants were women (71.6%) and $n = 101$ participants (68.2%) had Austrian nationality. $N = 40$ (27.0) had university as highest completed education, while 106 (71.6%) had high school as highest completed education. The mean age was 26.3 years ($SD = 7.9$), ranging from 19 up to 58 years.

Table 1 provides details on sociodemographic characteristics of the participants in each group. There was no significant difference between the groups with regard to age, education, Austrian nationality, islamophobia at baseline (T1), dichotomous thinking, and mood at baseline (T1). There were more females in groups B (82.0%) and C (77.6%) than in group A (55.1%) ($\chi^2 = 10.08$, $p < .01$). The baseline score for suicidal

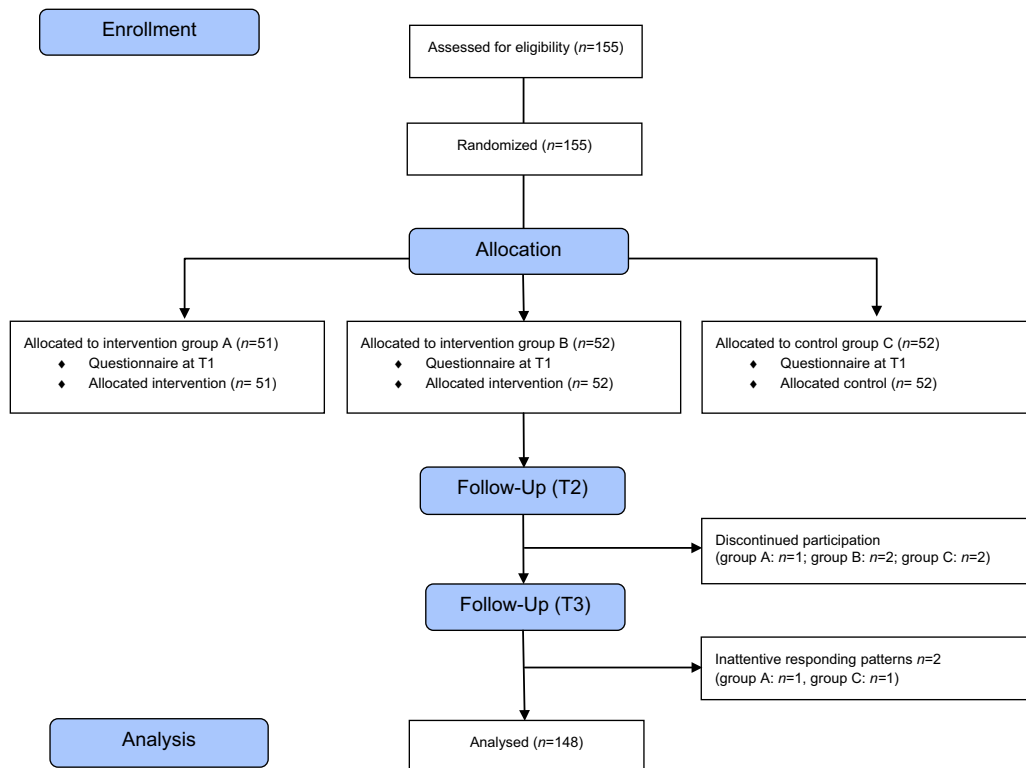


Figure 1. 30181554671060003007995443865000CONSORT 2010 flow diagram. [Colour figure can be viewed at wileyonlinelibrary.com]

ideation (T1) was higher in group A (3.12, 0.54) than in groups B (2.96, 0.49) and C (2.82, 0.51), $F(2,145) = 4.10, p < .05$. Other baseline characteristics did not differ significantly between groups (Table 1).

With regard to independent variables, identification with the text was stronger in group C (1.53, 0.49) than in groups A (1.37, 0.35) and B (1.31, 0.28), $F(2,145) = 4.38, p < .05$.

Differences Between Dropouts and study Completers

We used Mann–Whitney U tests to analyze whether participants who dropped out ($n = 7$) were different from study completers ($n = 148$). They were not significantly different in terms of age ($U = 423.0, p = .41$), baseline islamophobia ($U = 436.5, p = .48$), baseline suicidal ideation ($U = 494.0, p = .84$), baseline mood ($U = 455.0, p = .59$), and stress ($U = 503.5, p = .89$), as well as dichotomous thinking ($U = 439.0, p = .49$) and identification ($U = 477.5, p = .73$).

Fisher's exact tests were used to compare completers with noncompleters with regard to nominal variables. While there were

no differences between the two groups in terms of gender ($p = .20$) and education ($p = .10$), study completers were more frequently of Austrian nationality ($p < .05$) when compared to dropouts (68.2% vs. 28.6%).

Table 2 displays the mean values and standard deviations for islamophobia, mood, suicidal ideation, and stress at three different time points (T1, T2, and T3).

Primary Hypothesis: Increase In Islamophobia

The analysis revealed a significant group \times time interaction, $F(4,271) = 2.51, p < .05$ for islamophobia. Bonferroni-corrected contrast tests revealed that islamophobia at T2 was significantly higher in group A ($M = 3.98, SD = 0.74$) as compared to group C ($M = 3.85, SD = 0.68, p < .05$), but there were no differences between group B ($M = 3.83, SD = 0.79$) and group C ($p = .47$). There were no significant group differences between T3 and T1 with regard to islamophobia. Similarly, unadjusted paired t tests and comparing means of baseline islamophobia (T1) and islamophobia at T2 (immediately after reading the article) within

TABLE 2
Means (M) and Standard Deviations (SD) of Islamophobia, Mood, Suicidal Ideation, and Stress at Baseline (T1) and at Follow-up (T2, T3)

Variable	Group	M (T1)	SD (T1)	M (T2)	SD (T2)	t test (T1-T2) ^a	M (T3)	SD (T3)	t test (T1-T3) ^a
Islamophobia	IG A	3.84	0.68	3.98	0.74	-2.75*	3.79	0.74	0.71
	IG B	3.74	0.75	3.83	0.79	-1.55	3.82	0.80	-1.26
	CG C	3.79	0.65	3.85	0.68	-1.05	3.81	0.67	0.31
Mood	IG A	3.16	0.51	2.49	0.48		2.95	0.41	
	IG B	3.18	0.53	2.48	0.60		2.99	0.41	
	CG C	3.12	0.48	2.49	0.49		2.90	0.42	
Suicidal ideation	IG A	3.12	0.54	3.09	0.59		3.13	0.58	
	IG B	2.96	0.49	2.88	0.52		2.94	0.54	
	CG C	2.82	0.51	2.82	0.55		2.83	0.53	
Stress	IG A	14.29	12.58	21.84	16.29		16.73	14.05	
	IG B	17.40	14.96	23.40	16.61		16.00	13.40	
	CG C	15.92	11.35	22.24	13.88		15.69	13.08	

IG A (intervention group A, not consistent with media recommendations), IG B (intervention group B, consistent with media recommendations), and CG C (control group C).

^aPaired t tests only calculated for parameters with an overall F test < 0.05 in the analysis of variance.

* $p < 0.01$.

each group showed an increase in islamophobia only for intervention group A (T1: $M = 3.84$, $SD = 0.68$; T2: $M = 3.98$, $SD = 0.74$; $t = -2.75$, $p < .01$, Table 2).

Secondary Hypotheses: Increase in Suicidal Ideation, Stress, and Worsening of Mood

For suicidal ideation, there was no significant group \times time interaction, $F(4,267) = 0.73$, $p = .57$, and no significant group, $F(2,139) = 2.86$, $p = .06$, or significant time main effect, $F(2,267) = 0.64$, $p = .52$. With regard to mood, there was no significant group \times time interaction, $F(4,271) = 1.15$, $p = .33$, no significant main effect for time, $F(2,271) = 2.97$, $p = .05$, and no significant group main effect, $F(2,138) = 0.02$, $p = .98$. For stress, there was no significant group \times time interaction, $F(4,242) = 0.89$, $p = .46$, no significant group, $F(2,138) = 1.02$, $p = .36$, and no significant time main effect, $F(2,242) = 1.53$, $p = .22$.

Regression Analysis

The results of the multivariate stepwise linear regression analysis are provided in Table 3. Austrian nationality, baseline islamophobia, identification with the respective story, and exposure to news articles about terrorist attacks not consistent with media recommendations were all positively associated with islamophobia at T2. Adding of interaction terms between identification and group assignment (block three) did not further improve the model.

Sensitivity Analysis. We performed a sensitivity analysis to test whether the results were different if the $n = 7$ excluded participants were included in the statistical data analysis, following a strict intent-to-treat principle (Gupta, 2011). For the $n = 5$ dropouts, we adopted the outcome variable scores collected at T2 for missing scores at T3. This strategy has been widely used in the literature (Gupta, 2011). The significant group \times time interaction effect originally found for islamophobia was not significant in the sensitivity analysis, but was close to the boundaries of

statistical significance, $F(4,290) = 2.28$, $p = .06$. Furthermore, there was a significant group main effect for suicidal ideation, $F(2,146) = 3.23$, $p < .05$, indicating greater suicidal ideation scores in group A than in the control group ($p < .05$), which was not found in the original analysis. All other findings remained unchanged (data not shown).

DISCUSSION

This study is the first to assess if news reports on terrorist attacks that are consistent or not consistent with media recommendations for reporting on such events have a short-term effect on mental health-related outcomes, including islamophobia, suicidal ideation, stress, and mood. We found that, compared to a control group, reading print articles that were not consistent, but not those that were consistent with media recommendations, led to a short-term increase in islamophobia, which was not sustained until the study end point one week later. No effects were found for other outcome variables. Beside baseline islamophobia (i.e., before exposure to the articles), also identification with the news reports and assignment to the group exposed to the media articles that were not consistent with the recommendations were positively associated with islamophobia after exposure at T2, whereas foreign nationality was negatively associated with islamophobia at T2.

These novel findings suggest that media reporting on terrorism focusing on the assumed identity of the terrorist, the assumed goal of the terrorists, and using pictures of the perpetrator leads to a short-term increase in phobia against religious minorities (i.e., Muslims). Interestingly, a study of Schmuck et al. (Schmuck, Matthes, von Sikorski, Materne, & Shah, 2018) showed that even if perpetrators of the terrorist attack remained unidentified in the news, readers often attributed the attack to Islamists. Furthermore, news about Islamist terrorists contributed to an increase in negative attitudes toward Muslims as a whole. A possible explanation of this finding

TABLE 3
Results of Hierarchical Multiple Linear Regression Analysis to Predict Islamophobia at T2

Step	Predictor	ΔR^2	ΔF	B	SE B	β	t
1	Gender ^a	0.75	72.09***	0.05	0.07	0.03	0.70
	Age			-0.01	0.01	-0.05	-1.00
	Education			0.01	0.08	0.01	0.15
	Nationality ^b			-0.17	0.07	-0.11	-2.51*
	Islamophobia T1			0.89	0.05	0.83	19.11***
	Suicidal ideation T1			0.00	0.06	0.00	-0.07
2	Gender ^a	0.03	4.07**	0.07	0.07	0.04	0.90
	Age			-0.01	0.00	-0.06	-1.28
	Education			0.04	0.08	0.02	0.46
	Foreign Nationality ^b			-0.21	0.07	-0.14	-3.17**
	Islamophobia T1			0.84	0.05	0.78	18.11***
	Suicidal ideation T1			-0.03	0.06	-0.02	-0.48
	Dichotomous thinking			-0.03	0.06	-0.02	-0.41
	Identification			0.30	0.08	0.16	3.64***
	DV: Group A ^c			0.18	0.08	0.11	2.28*
	DV: Group B ^d			0.12	0.08	0.08	1.58
3	Gender ^a	0.00	0.32	0.06	0.07	0.04	0.79
	Age			-0.01	0.00	-0.06	-1.29
	Education			0.04	0.08	0.02	0.46
	Foreign Nationality ^b			-0.20	0.07	-0.13	-2.98**
	Islamophobia T1			0.84	0.05	0.78	18.02***
	Suicidal ideation T1			-0.02	0.06	-0.02	-0.39
	Dichotomous thinking			-0.03	0.06	-0.02	-0.48
	Identification			0.25	0.11	0.13	2.22*
	DV: Group A ^c			0.02	0.28	0.01	0.08
	DV: Group B ^d			-0.10	0.31	-0.07	-0.33
Identification x Group A	0.10	0.19	0.10	0.56			
Identification x Group B	0.16	0.22	0.14	0.72			

DV, Dummy variable.

Values are unstandardized (B) and standardized (β) regression coefficients, standard errors of the unstandardized regression coefficients (SE B), and t values (t). Also, reported are changes in R^2 and F values (ΔR^2 , ΔF) for each step of the model.

^aReference group: Male.

^bReference group: Austrian nationality.

^cReference group: Not Group A.

^dReference group: Not Group B.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$ (two-tailed).

is that negative associations and stereotypes are often generalized to entire social groups (von Sikorski, Matthes, & Schmuck, 2018). This generalization might even extend to *other* social groups, if the portrayed group (e.g., a group of Islamist terrorists) is *perceived* as being strongly related to that other group (e.g., Muslims), even if this is not the case (Tibi, 2012).

Previous studies have shown that media coverage has the potential to increase the fear of perceived threats related to various types of violence (Kanji, 2018) and impact on discrimination of minorities (Powell, 2018; Saleem & Craig, 2013; Saleem & Ramasubramanian, 2017; Saleem, Yang, & Ramasubramanian, 2016). Analysis of news media in Canada and the United States identified that violent acts

committed by Muslims on average received between 1.5 and 4.9 times more coverage from major sources (Kearns, Betus, & Lemieux, 2018) than those made by non-Muslims. Notably, Muslim perpetrators were more often labeled as terrorists or were linked to terror networks (Dixon & Williams, 2015; Powell, 2011). In contrast, non-Muslim perpetrators were more commonly described as “troubled individuals,” suggesting that stigmatizing labels of mental ill health were more common in media reporting on non-Muslim perpetrators (Powell, 2011).

There were no effects of the terrorism intervention articles, as compared to a control group, on the secondary outcome variables suicidal ideation, stress, and mood, although the deterioration of mood was very close to the boundary of significance for all three groups combined ($p = .05$). A deterioration in mood across all three groups could be explained by the disturbing content that applies to media representations on violence in general. Similar, suicide-related contents were found to result in a small-sized short-term deterioration in mood in previous analyses (Till, Strauss, Sonneck, & Niederkrotenthaler, 2015; Till, Tran, Voracek, & Niederkrotenthaler, 2017). It appears plausible that effects of articles on terrorism did not differ from articles on homicide in this regard.

Beside exposure to news articles that were not consistent with media recommendations and baseline islamophobia, identification with specific individuals or narratives featured in the media reports was positively associated with islamophobia immediately after reading the article that was not consistent with media recommendations. This finding supports that identification with negative events or figures increases fear (Cohen, 2001), and might thus increase specifically fears related to the portrayed individual and their social group. The finding that non-Austrian nationality was negatively associated with islamophobia at T2 might reflect that Austrians, as compared to populations in other EU countries, score above average when it comes to possible indicators of islamophobia. As

revealed in the European Values Study (2016), Austrians scored higher on questions such as “I do not like to have Muslims as neighbors” (EVS, 2016). This might make some Austrians more prone to react with an increase in islamophobia when exposed to sensationalist media portrayals of possible Islamist terrorist acts. Of note, as indicated by an independent-samples t test, baseline islamophobia was indeed significantly higher among Austrians ($M = 3.90$, $SD = 0.63$) as compared to non-Austrians ($M = 3.55$, $SD = 0.76$), $t(146) = 2.99$, $p < .001$, in the present sample.

Strengths and Limitations

To the best of our knowledge, this is the first study that compares the effects of sensationalist and less sensationalist news reports about terrorist attacks on mental health and tests effects of consistency with current recommendations for reporting on mass shootings. A strength of this study was that it was conducted on site increasing its validity as compared to online studies (Wright, 2005), and the number of dropouts was low. A limitation of this study was that the sample size was only appropriate to detect medium-sized effects. Smaller effect sizes might be possible, but would not have been detected. The Cronbach α value for dichotomous thinking was relatively low, and findings related to dichotomous thinking need to be interpreted with caution. Another limitation was that only short-term effects and effects of one-time exposures were assessed. Longer-term impacts from repeated exposures to such materials appear very likely, but difficult to measure. The present study suggests that the identified short-term effect might only be the tip of the iceberg when it comes to current increases in reports on terrorism and increases in hostility against Muslim minorities (Alcala, Sharif, & Samari, 2017; Powell, 2011, 2018). Further, well-educated and young participants were over-represented in the present study. Thus, the results cannot be generalized to the total population. Participants were blinded to their

group assignment and did not learn about their assignment to the intervention vs. control group before the end of the experiment. With regard to blinding of the researcher however, some unblinding occurred before the end of the experiment because some participants revealed their media articles to the researcher. The study was therefore only single-blind, and we did not assess the effectiveness of blinding. Finally, the randomization process failed to distribute male and female participants equally across study groups, with males being more frequent in group A. Also, suicidal ideation at baseline was higher in group A as compared to the other study groups. We addressed this by controlling for these and some other covariates in the ANCOVA. Importantly, we also assessed all outcome variables at baseline and included the pre-intervention time point in the analyses. Nevertheless, we cannot rule out any confounding with regard to other variables not assessed in this study.

CONCLUSION

The present findings suggest that media reporting on terrorism that is not consistent with media recommendations seems to have some impact on mental health-related outcomes, particularly measures that assess phobia related to the identities portrayed in such reports. A continuous and negative media portrayal of specific population groups such as Muslims, as reflected in media reports

that provide details on perpetrators who are Muslims or assumed to be Muslim, can increase distress among those religious minorities and reduce social cohesion, which are important determinants of public mental health (Chuang, Chuang, & Yang, 2013; Jané-Llopis & Anderson, 2007). The results of a recent study showed accordingly that Muslim American students exposed to negative media portrayals of their religious group were less likely to desire acceptance by other Americans, and also tried to avoid interactions (Saleem & Ramasubramanian, 2017). Any kind of stigmatization and discrimination resulting from media reporting on terrorism that is not consistent with media recommendations might unnecessarily contribute to social exclusion and make people more vulnerable to various types of harmful influences and ideologies (Atran, 2003). More research is necessary to investigate other outcome variables and to assess media effects of terrorism in different sociodemographic groups, including Muslim groups.

Reporting on terrorism that is consistent with media recommendations on mass shootings might help reduce negative attitudes toward minority identities, which has an important meaning for public mental health including social peace and discrimination. Further research is warranted to analyze longer time effects of repeated exposure and to address impacts in various population subgroups.

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