


Online Hate and Zeitgeist of Fear: A Five-Country Longitudinal Analysis of Hate Exposure and Fear of Terrorism After the Paris Terrorist Attacks in 2015

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Acts of terror lead to both a rise of an extended sense of fear that goes beyond the physical location of the attacks and to increased expressions of online hate. In this longitudinal study, we analyzed dynamics between the exposure to online hate and the fear of terrorism after the Paris attacks in November 13, 2015. We hypothesized that exposure to online hate is connected to a perceived Zeitgeist of fear (i.e., collective fear). In turn, the perceived Zeitgeist of fear is related to higher personal fear of terrorism both immediately after the attacks and a year later. Hypotheses were tested using path modeling and panel data (N = 2325) from Norway, Finland, Spain, France, and the United States a few weeks after the Paris attacks in November 2015 and again a year later in January 2017. With the exception of Norway, exposure to online hate had a positive association with the perceived Zeitgeist of fear in all our samples. The Zeitgeist of fear was correlated with higher personal fear of

terrorism immediately after the attacks and one year later. We conclude that online hate content can contribute to the extended sense of fear after the terrorist attacks by skewing perceptions of social climate.

KEY WORDS: terrorism, online hate, fear, social media

The term *terrorism* covers diverse phenomena involving different modes and actors with a shared feature of politically (e.g., ideologically or religiously) motivated violence used for the purpose of intimidation (see e.g., Berkebile, 2017; Crenshaw, 2000). Terrorism induces fear and a sense of vulnerability and uncertainty among the public (see e.g., Berkebile, 2017; Cohen-Louck, 2019; Sunstein, 2003). Nacos (2002) has used the term *mass-mediated terrorism* to emphasize how media visibility reinforces terrorism fear and increases the social impact of terrorist activity. Consequently, maximizing the media visibility of political violence is central to modern terrorism.

Fear is indeed a logical consequence of terrorist attacks as it is an emotional reaction to threats to one's physical safety or the physical safety of one's group (Cottrell & Neuberg, 2005). However, the fear of terrorism is based more on the severity of the potential outcomes than the probability of the threat, which partly explains the excessive consequences of terrorism given the low probability of the attacks (Sunstein, 2003). Fear of terrorism has several negative and far-reaching consequences such as, increased post-traumatic stress disorders, negative behavioral changes, and lower social trust (Galea & Resnick, 2005; Godefroidt & Langer, 2020; Rubin et al., 2007).

In addition to personal reactions, terrorist attacks can create a collective sense of fear, that is, an emotional response of fear that is shared by most people (Bar-Tal, 2001; Torabi & Seo, 2004). This collective fear has also been called "second-hand terrorism," which refers to an extended social climate of insecurity and fear (Comer, Bry, Poznanski, & Golik, 2016; Comer & Kendall, 2007). Collective fear tends to be persistent as it is internalized and institutionalized over time (Mueller & Stewart, 2012). The climate of fear is not limited to the direct victims or the spatial location of the attacks, but it can spread widely via media exposure and social media that are accessible across national borders (Cohen-Louck, 2019; Comer et al., 2016; Godefroidt & Langer, 2020).

Van der Bles, Postmes, and Meijer (2015) have used the term *Zeitgeist* to conceptualize the perception of social climate. The *Zeitgeist* refers to "a pervasive, consensual perception of society" (van der Bles et al., 2015, p. 5). The *Zeitgeist* is independent of personally held emotions and attitudes. For example, a sense of collective discontent (i.e., *Zeitgeist* of discontent) has become quite common in many Western countries while most individual-level well-being indicators have developed positively (van der Bles et al., 2015). Thus, people can have a perception that discontent is widely shared within the society even though they might be relatively content with their personal situation (van der Bles, Postmes, LeKander-Kanis, & Otjes, 2018).

The emotional *Zeitgeist* of a society is linked to personal emotions and behavior. When individuals perceive that others in the society are fearful, they also report a personal sense of fear to a higher extent (Conejero & Etxebarria, 2007; Kim, 2016). In addition, the perception of a negative emotional climate has behavioral consequences in the same way as personally felt emotions. A perception of collective fear, for example, is related to outgroup avoidance, even after accounting for personal fear (Conejero & Etxebarria, 2007).

In line with this, in their study van der Bles and colleagues (2018) found that the *Zeitgeist* of discontent was associated with an increased likelihood of supporting extreme parties (van der Bles et al., 2018). Perhaps surprisingly, personally held appraisals did not predict voting behavior. This result, however, is in line with earlier findings in political psychology concerning sociotropic and egotropic voting; perceived collective concerns may be more effective in directing political reactions than personal concerns (van der Bles et al., 2018; Kinder & Kiewiet, 1981).

Media exposure is a significant factor in the spread of fear after terrorist attacks (Comer et al., 2016; Comer & Kendall, 2007; Matthes, Schmuck, & von Sikorski, 2019). The mass media reports actively on terrorist acts and their perpetrators which accentuates the fear of terrorism and increases its overall visibility (see e.g., Nacos, 2002; von Sikorski, Matthes, & Schmuck, 2021). A study by von Sikorski and colleagues (2021) suggests that the effect of terrorist news is not dependent on geographical proximity. In their two experiments, they found that fear of terrorism was aroused similarly by news reports on domestic and foreign terrorist events. Currently, social media especially allow for information and terrorism-related content to readily spread across national borders. Immediately after terrorist attacks there is a great demand for information, and people may rely even on biased information in the absence of more reliable sources as they strive to make sense of the events and collectively manage the invoked terror (Fischer-Preßler, Schwemmer, & Fischbach, 2019; Williams & Burnap, 2016).

Consequently, social media have become major arenas for sharing information and psychosocial reactions after terrorist assaults (Fischer-Preßler et al., 2019; Gruebner et al., 2016) but also for spreading online hate content (i.e., hateful online material that degrades or threatens individuals or social groups) (Costello, Hawdon, Ratliff, & Grantham, 2016; Kaakinen, Oksanen, & Räsänen, 2018; Keipi, Näsi, Oksanen, & Räsänen, 2017). In social media, terrorist attacks lead to higher levels of intergroup antipathies, nationalism, and xenophobia (Fischer-Preßler et al., 2019). In the case of Jihadist terrorism, online hate content more frequently focuses on the social categories of nationality, ethnicity, and religion after attacks (Awan & Zempi, 2016; Disha, Cavendish, & King, 2011; Fischer-Preßler et al., 2019; Williams & Burnap, 2016; Kaakinen et al., 2018).

Social media affects users' emotional reactions and perceptions of their social surroundings. Being exposed to other people's emotional reactions triggers similar emotional response among social media users (e.g., emotional contagion) (Kramer, Guillory, & Hancock, 2014; Rosenbusch, Evans, & Zeelenberg, 2019). In addition, individuals use their social media experiences in making inferences about the social climate within the society (Porten-Cheé & Eilders, 2015; Schulz & Rössler, 2012; Zerback & Fawzi, 2017). Thus, we expect that using social media after terrorist attacks and being exposed to online hate content will be related to how people feel or perceive fear around them. Even though some studies examine the use of social media and exposure to online hate after terrorist attacks, and how this relates to fear of terrorism (Oksanen et al., 2020), there is a lack of research on the dynamics between media exposure, perceptions about the societal climate, and personal emotions such as fear.

In this article, we use a longitudinal study to examine how social media use and exposure to online hate targeting ethnic, national, or religious social categories are related to fear of terrorism after the Paris terrorist attacks in November 13, 2015. We tested whether following social media and being exposed to online hate after the attacks were associated with a perceived Zeitgeist of fear (i.e., a perception that the society is characterized by fear). Furthermore, we analyzed how the Zeitgeist of fear was related to a personal fear of terrorism, both immediately after the attacks and a year later. The aim of our study is to fill the research gap concerning the impact of collective emotions on personal feelings after terrorist attacks and the potential of online hate content to contribute to it. In addition, this study is the first to utilize cross-country data and longitudinal design in examining the effects of online hate after terrorist attacks. This comparative approach has allowed us to analyze the generalizability of the hypothesized relationships.

Online Hate in Social Media after Terrorist Attacks

Hate is a reaction to an intensive threat, fear, or anger, and it relates to motivations to physically or psychologically hurt the hated target (individual or social group) (Fischer, Halperin, Canetti, & Jasini, 2018; Halperin, 2008; Shapiro, 2016). In the online space, hate content has become a widely

recognized problem (Bliuc, Faulkner, Jakubowicz, & McGarty, 2018; Kaakinen et al., 2018; Keipi et al., 2017; Salminen et al., 2018). Online hate targets individuals or social groups based on nationality or ethnicity, religious conviction, political views, sexual orientation, gender, or physical appearance, for example (Bliuc et al., 2018; Costello et al., 2016; Keipi et al., 2017; Klausen, 2015). In social media, users can express hateful thoughts and attitudes without a tangible contact with victims, anonymously, and relatively free from external control (Barkun, 2017; Keipi et al., 2017; Peterson & Densley, 2017).

The quantity and quality of online hate is affected by societal context. (Bliuc, Betts, Vergani, Iqbal, & Dunn, 2019; Kaakinen et al., 2018). In the case of terrorism, fear, uncertainty, and perceived threats caused by the attacks motivate outgroup antipathies (see e.g., Greenberg et al., 1990; Hogg, Kruglanski, & van den Bos, 2013). Social media offer a forum for individuals to share emotions and collectively manage terror. Through this emotion-sharing process, the outgroup antipathies among the public increase the amount of hate encountered online (Fischer-Preßler et al., 2019; Keipi et al., 2017). Indeed, online hate has been reported to increase after triggering societal events such as terrorist attacks (Kaakinen et al., 2018; Williams & Burnap, 2016). However, terrorist attacks do not just increase the amount of online hate but also determine which social categorizations become focal in hate content (Kaakinen et al., 2018). For example, acts of Jihadist terrorism make nationalism and xenophobia more salient in social media, which lead to an increase of online hate targeting nationality, ethnicity, or religion-based social categories such as Arab and Muslim populations (Awan & Zempi, 2016; Disha et al., 2011; Fischer-Preßler et al., 2019; Williams & Burnap, 2016).

Most people find hateful communication inappropriate. In a study by Celik (2018), most participants conceived online hate as a violation of human rights that should not be protected by the freedom of speech. However, the prioritization of personal protection over the freedom of expression is also dependent on the situational salience of these two values (Kimble & Wiener, 2016). In addition, less prejudiced individuals are less likely to defend racist hate speech as an expression of freedom of speech (White & Crandall, 2017).

There is evidence that exposure to hate speech may affect individuals' attitudes and behavior (Hsueh, Yogeewaran, & Malinen, 2015). According to Soral, Bilewicz, and Winiewski (2018), exposure to aggressive online messages was associated with reduced sensitivity to hateful communication which, in turn, was linked to increased outgroup prejudice. There was, however, only an indirect positive association between hate-speech exposure and increased outgroup prejudice. After accounting for the mediation via reduced sensitivity, the direct association between hate exposure and outgroup prejudice was either not significant or negative (Soral et al., 2018).

In the current selective and identity-driven social media, users tend to be critical towards online content they do not approve of (Bakshy, Messing, & Adamic, 2015; Zollo et al., 2017). Information that opposes users' attitudes and identity is likely to be downgraded or simply ignored (Karlsen, Steen-Johnsen, Wollebæk, & Enjolras, 2017; Schmuck, Heiss, & Matthes, 2020). Thus, exposure to content that is identified as hateful and inappropriate (at odds with personal values) might not be very effective in directly influencing personal emotions or attitudes. Being exposed to worldview conflicting information may even "backfire" and strengthen preexisting attitudes (Karlsen et al., 2017; Lewandowsky, Stritzke, Freund, Oberauer, & Krueger, 2013; Schmuck et al., 2020).

However, social media may be more likely to influence a user's perception of how other people feel or think. Earlier research has reported that the online environment shapes people's beliefs about public opinion (Porten-Cheé & Eilders, 2015; Schulz & Rössler, 2012; Zerback & Fawzi, 2017). Given this, encountering hateful communication in social media after terrorist attacks is likely to be associated with a perception that the society is characterized by fear.

Van der Bless and colleagues (2018) note that the *Zeitgeist* of discontent may originate in specific subgroups within society but then spread when communicated to the wider public. When seeing others protesting, individuals do not necessarily experience increased personal discontent, but they

infer that most other members of the society are dissatisfied. Similarly, online hate content may at first be mainly shared by certain online communities but become more visible in everyday social media after terrorist attacks (Kaakinen et al., 2018; Williams & Burnap, 2016). When being exposed to material identified as hateful and inappropriate, users are not likely to experience higher fear of terrorism (Oksanen et al., 2020; Schmuck et al., 2020), but they are more likely to infer that the society is characterized by fear.

Current Study

The Cross-National Sample

In this study, we analyzed longitudinally how social media use and especially exposure to online hate content after the Paris terrorist attacks on November 13, 2015, are related to a fear of terrorism in Norway, Finland, Spain, France, and the United States. Previous studies suggest that indirect media exposure to terrorism can induce fear among people in countries with no history of terrorist violence and in locations far away from the actual events (see e.g., Comer et al., 2016; Comer & Kendall, 2007; von Sikorski et al., 2021). Thus, our samples allow us to analyze whether similar relationships between social media use, exposure to online hate content, and fear of terrorism can be observed in five Western countries with varying exposure to Jihadist terrorism and proximity to the Paris events.

Of the selected countries, the United States, Spain, and France represent countries where Jihadist terrorist events have been reoccurring during the 2000s. Furthermore, France and Spain are among the countries that are most affected by terrorist attacks during recent decades (LaFree, Morris, & Dugan, 2010). Norway and Finland, in turn, represent Nordic welfare states that had no experience of Jihadist terror at the time of the Paris attacks. Yet both countries have witnessed other forms of mass violence: in Finland through several school shootings and in Norway through the massive July 22, 2011, attacks performed by a right-wing extremist that led to the death of 77 young people.

In addition to the background with Jihadist terror, the five selected countries vary in geographical proximity to the Paris attacks. The sample includes France where the studied assaults took place and in the neighboring country of Spain. Finland and Norway represent two slightly more distant North European countries that do not share a border with France. The United States represents a nation that is geographically most distant from the Paris attacks.

Study Hypotheses

The starting point of our study hypotheses is the notion that social media is an important forum for collective terror management and sense-making after terrorist attacks (Fischer-Preßler et al., 2019; Williams & Burnap, 2016). To manage the threatening and uncertain situation, social media users seek information about the assaults and share emotional reactions with others (Fischer-Preßler et al., 2019; Gruebner et al., 2016; Williams & Burnap, 2016). Media exposure is an important factor determining the fear reactions after terrorist attacks (Comer et al., 2016; Comer & Kendall, 2007; Matthes et al., 2019; Nacos, 2002), and emotions tend to spread particularly effectively on social media (see e.g., Kramer et al., 2014; Rosenbusch et al., 2019). We hypothesize (see Figure 1) that:

H1: Using social media to follow the unfolding of the events after the Paris attacks will be positively correlated with fear of terrorism after the attacks.

Social media may expose users to online hate deliberately or accidentally because of the networked character of the social media sphere (Taneja, Wu, & Edgerly, 2018). This is especially likely

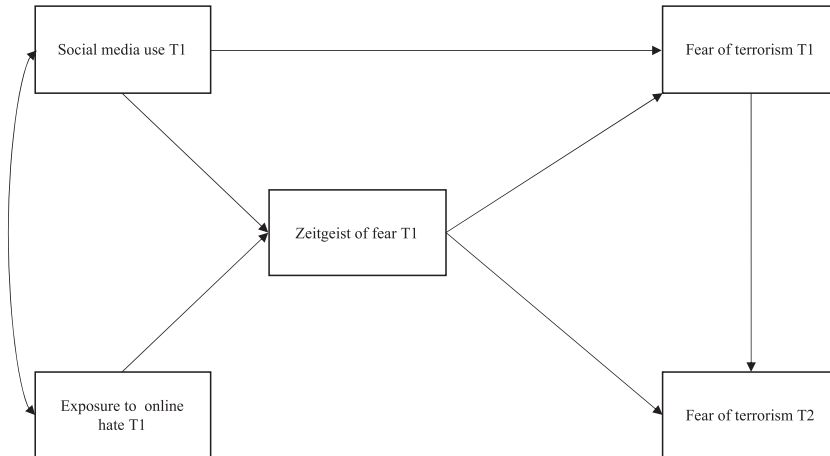


Figure 1. The hypothesized model with associations between social media use, exposure to online hate, perceived Zeitgeist of fear, and fear of terrorism. All the arrows in the figure indicate hypothesized positive correlations.

after a terrorist attack as intensive threats and fear motivate hate towards the perceived enemies (Fischer et al., 2018; Halperin, 2008; Shapiro, 2016), and, thus, online hate content increases following terrorist attacks (Fischer-Preßler et al., 2019; Gruebner et al., 2016; Kaakinen et al., 2018; Williams & Burnap, 2016). Especially national, ethnic, or religious categories are increasingly targeted in online hate content after Jihadist assaults (Awan & Zempi, 2016; Kaakinen et al., 2018; Williams & Burnap, 2016). Based on this, we hypothesize that:

H2: Using social media to follow the unfolding of the events after the Paris attacks will be positively correlated with exposure to online hate.

In addition to information and emotional sharing, individuals make inferences about the social climate on the basis of their social media experiences (Schulz & Rössler, 2012; Zerback & Fawzi, 2017). After terrorist attacks, social media users are increasingly exposed to others' assault-related posts and emotions (Fischer-Preßler et al., 2019; Gruebner et al., 2016; Williams & Burnap, 2016) and to increasing amount of hate content motivated by the threatening situation (Kaakinen et al., 2018; Williams & Burnap, 2016). The exposure is likely to shape their perception of the collective climate of fear within the society. Based on this, we hypothesize that:

H3: Using social media to follow the unfolding of the events after the Paris attacks will be positively correlated with perceived Zeitgeist of fear.

H4: Exposure to online hate will be positively correlated with perceived Zeitgeist of fear.

A perceived Zeitgeist of fear has been reported to correlate with personal emotions (Conejero & Etxebarria, 2007). Thus, our final hypotheses are:

H5: A perceived Zeitgeist of fear will be positively correlated with fear of terrorism immediately after the terrorist attacks.

H6: A perceived Zeitgeist of fear mediates the positive indirect effect between exposure to online hate and fear of terrorism immediately after the terrorist attacks.

We will also test whether the hypothesized associations of Hypothesis 5 and Hypothesis 6 remain one year later. In addition to study hypotheses (see Figure 1), we state an additional exploratory research question: Can the hypothesized relationships between social media use, online hate, and fear be found in different national settings with varying exposures to Jihadist terrorism and proximity to the Paris events?

Method

Participants

The baseline data for this study were collected from France ($N = 2113$), Spain ($N = 1661$), Finland ($N = 1003$), Norway ($N = 1013$), and the United States ($N = 1420$) from December 10 to December 15, 2015, only four weeks after the attacks in Paris. The follow-up data were collected in the same countries in January–February 2017. Out of the original respondents, 32.2% responded to the follow-up survey. The final sample ($N = 2325$, 50.1% female, mean age [M] = 46.42, standard deviation [SD] = 14.74) consisted of the combined responses to the baseline and follow-up survey from Norway ($n = 549$), Finland ($n = 502$), Spain ($n = 450$), France ($n = 490$), and the United States ($n = 334$) (for demographic information for our country samples, see Appendix A). The final sample included only those respondents who replied to both surveys. The demographic distributions (gender, age, and immigration background) of our country samples are reported in Appendix A. For each country sample, less than 1% of respondents were members of the Muslim population (not reported in the Appendix A).

Participants (all older than 15 years) were drawn from the panel of respondents who volunteered to participate in survey research. The panel was administered by TNS Gallup. The surveys were tested before the full launch. All participants filled out surveys online. The main survey was designed in English and then translated into French, Spanish, Finnish, and Norwegian by native speakers of those respective languages. The validity of the translations was maintained by using back translation and research assistants with skills in all languages involved.

Before the decision to participate, respondents were given information about the survey. They were told that the survey was about the societal consequences of the recent terrorist attacks in Paris and that it included sensitive questions. Later in the survey, the attacks were sometimes referred to as “the events in Paris.”

Measures

Exposure to online hate was initially measured with a question: “In the past three months, have you seen hateful or degrading writings or speech online that inappropriately attack certain groups of people or individuals?” (*yes/no*). This question has been widely used in comparative research on online hate (see e.g., Keipi et al., 2017). Those respondents who had encountered hateful or degrading material in the past three months were asked a follow-up question concerning which characteristics the material had related to. The list of characteristics included sexual orientation, sex or gender, physical appearance, disability, ethnicity or nationality, religious conviction or belief, general hatred of people, and terrorism (each respondent could list more than one option).

Based on these follow-up questions, a dichotomous variable measuring exposure to hate targeting ethnicity, nationality, or religious convictions was coded. Thus, the variable measured exposure to hate content that was based on national, ethnic, or religious social categories. According to earlier research, these categories become focal in online hate content after Jihadist terrorist attacks (Awan & Zempi, 2016; Disha et al., 2011; Fischer-Preßler et al., 2019; Kaakinen et al., 2018; Williams & Burnap, 2016). The variable was coded as 1 if the respondent had been exposed to hateful and

degrading material attacking ethnicity, nationality, or religious conviction or belief and as 0 for those who had not been exposed to this kind of hate material in the previous three months. This coding allowed us to compare those respondents who had been exposed to hate targeting national, ethnic, or religious categories with respondents who had not been exposed to online hate content at all or had been exposed to hate targeting other categories (e.g., gender) or to online hate related to misanthropy, for example. Respondents could also choose the option “don’t want to answer” or could choose not to answer the question at all. In both of these cases, the observation was coded as missing.

The measurement of social media use after the Paris attacks was based on a survey item in which respondents were asked to indicate how they “follow[ed] the unfolding of the events in Paris?” In the case of social media services, the list included Twitter, Facebook, and Other social media. A binary variable was coded indicating whether the respondent had used social media to follow the unfolding of the events. Here again, respondents were able to choose the option “don’t want to answer” or could choose not to answer the question. Both were coded as missing values in the analyses.

Perceived Zeitgeist of fear was measured with the following survey item: “If you compare [respondent’s country] today with the situation before the Paris attacks, would you say that society is more or less characterized by fear?” This measure has been used in earlier studies on individuals’ perceptions of climate of fear after terrorist attacks (Oksanen et al., 2020). The question had a response scale from 1 (*a lot less*) to 7 (*much more*). Options “don’t know” and “don’t want to answer” were also included, and respondents could choose not to answer at all. These options were coded as missing values for the analyses. In our analyses, this variable measured each individual’s global assessment of the social climate of fear within the society, that is the Zeitgeist of fear. (For a similar conceptualization, see van der Bles et al., 2015.)

Personal fear of terrorism was measured with the following survey item: “How worried are you about terrorist attacks in [respondent’s country] in the next 12 months?” The response scale included following options: (1) not worried at all, (2) not very worried, (3) somewhat worried, and (4) very worried. The scale also included an option of “don’t want to answer” and the respondents could also choose not to answer the question at all. Missing answers and “don’t want to answer” options were coded as missing values. Personal fear was measured both at time point 1 (after the Paris attacks) and time point 2 (January–February 2017).

Frequencies for online hate exposure and the mean values and standard deviations for the continuous study variables are reported in Table 1. Missing values by country are reported in Appendix B.

Statistical Techniques

For descriptive analyses, we calculated frequencies for online hate exposure and social media use and means and standard deviations for the continuous independent variables. To test whether the

Table 1. Descriptive Statistics by Country

	Range	Norway		Finland		Spain		France		United States	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Continuous variables											
Zeitgeist of fear T1	1–7	4.86	0.87	5.04	0.97	5.12	1.06	5.45	1.09	5.28	1.18
Fear of terrorism T1	1–4	2.35	0.69	2.56	0.83	3.11	0.75	3.24	0.74	3.06	0.84
Fear of terrorism T2	1–4	2.14	0.74	2.51	0.86	3.02	0.81	3.09	0.78	2.89	0.86
Categorical variables											
	Coding	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Online hate exposure T1	No = 0	226	42.3	261	53.7	322	74.2	364	79.1	197	62.0
	Yes = 1	308	57.7	225	46.3	112	25.8	96	20.9	121	38.1
Social media use T1	No = 0	472	86.1	377	75.6	320	71.9	413	85.9	274	84.3
	Yes = 1	76	13.9	122	24.4	125	28.1	68	14.1	51	15.7

personal fear of terrorism was lower at time point 2 than time point 1, we used a one-sided paired *t*-test. Our hypothesized correlations (Figure 1) were tested separately for each country sample using path modeling. For our models, we report standardized loadings and their statistical significance for estimated direct and indirect associations along with model fit indices.

The fit of our models was assessed via root mean squared error of approximation (RMSEA), standardized root mean squared residual (SRMR), comparative fit index (CFI), and Tucker-Lewis index (TLI) estimates and the χ^2 -statistic-based significance test. Our cut-off criteria for the fit measures were based on suggestions by Hu and Bentler (1999), and they include values of .06 for RMSEA, .08 for SRMR, and .95 for CFI and TLI. To compare our hypothesized model against the saturated model (with added paths from social media use to fear of terrorism T2 and from online hate exposure to fear of terrorism T1 and T2), we report sample-size-adjusted Bayes information criterion (SABIC). This model comparison method has been suggested for use in simulation studies (Kim, 2014; Tofighi & Enders, 2008). According to this approach, the model with the smaller SABIC should be preferred.

In the estimation process, we used full-information maximum-likelihood estimation with robust (Huber-White) standard errors and a scaled test statistic (Yuan-Bentler) along with an observed Hessian information matrix to account for multivariate nonnormality (Savalei, 2010). Estimation was done with the Lavaan package for R statistical software (Rosseel, 2019).

Results

In all our country samples, the personal fear of terrorism was lower at time point 2 than it had been at time point 1. This decrease was significant in Norway ($p < .001$), Spain ($p = .004$), France ($p < .001$), and the United States ($p < .001$) but not in Finland ($p = .075$). At time point 1, fear of terrorism was highest in France ($M = 3.24$) followed by Spain ($M = 3.11$) and the United States ($M = 3.06$). The order of mean fear was the same one year later (3.09, 3.02, and 2.89 for France, Spain, and the United States, respectively). At both time points, the level of fear was lowest in Norway ($M = 2.35$ for time point 1 and $M = 2.14$ for time point 2) and Finland ($M = 2.56$ for time point 1 and $M = 2.51$ for time point 2).

The fit between our hypothesized model and the data varied from excellent to acceptable in our country samples (see Table 2). According to SABIC, the hypothesized model was preferred over the saturated model in all samples. Our path models along with standardized loadings and their statistical significance are reported in the Figure 2.

Using social media to follow the unfolding of the events after the Paris attacks was positively associated with exposure to online hate in Finland ($\beta = .30$, $p < .001$), the United States ($\beta = .23$, $p < .001$), Norway ($\beta = .17$, $p < .001$), France ($\beta = .19$, $p = .001$), and Spain ($\beta = .14$, $p = .006$). Social media use after the attacks was not associated with higher personal fear in any of our samples. There was a positive correlation between social media use and perceived Zeitgeist of fear only in the

Table 2. Fit Statistic for Structural Equation Models by Country

	Norway	Finland	Spain	France	United States
RMSEA	.031	.039	.056	.000	.055
SRMR	.022	.023	.031	.008	.030
CFI	.995	.994	.984	1.000	.986
TLI	.983	.981	.948	1.034	.954
Chi-Squared	.198	.148	.066	.894	.112
Adj. BIC hypoth. model	4627.33	4776.05	4211.25	4236.22	3160.18
Adj. BIC full model	4632.19	4779.97	4212.67	4244.68	3162.06

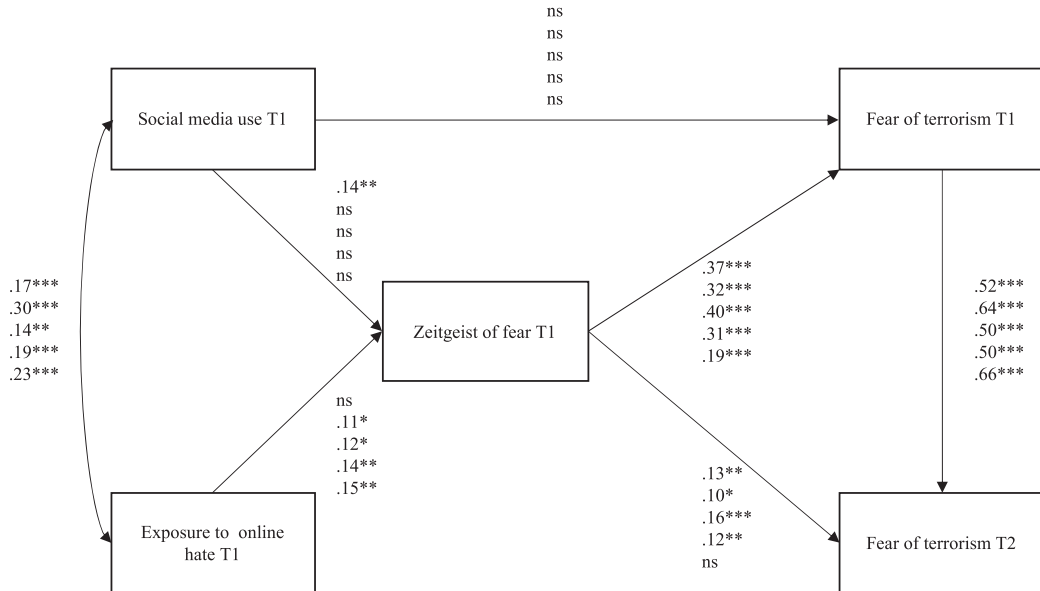


Figure 2. Estimated path model including the hypothesized correlations between our study variables for Norway (atop), Finland, Spain, France, and the United States. Standardized regression coefficients and their statistical significance. * $p < .05$, ** $p < .01$, *** $p < .001$. ns = nonsignificant

Table 3. Indirect Effect of Online Hate Exposure by Country

	Norway		Finland		Spain		France		United States	
	β	p	β	p	β	p	β	p	β	p
Indirect effect (online hate -> Zeitgeist of fear)										
Fear of terrorism T1	.01	.457	.03	.027	.05	.023	.04	.004	.03	.036
Fear of terrorism T2	.00	.467	.01	.090	.02	.050	.02	.040	.00	.555
Indirect effect (Zeitgeist of fear -> fear of terrorism T1)										
Fear of terrorism T2	.19	<.001	.20	<.001	.20	<.001	.16	<.001	.13	.001

Norwegian sample ($\beta = .14, p = .005$). Exposure to online hate was positively associated with the perceived Zeitgeist of fear in Finland ($\beta = .11, p = .024$), Spain ($\beta = .12, p = .022$), France ($\beta = .14, p = .002$) and the United States ($\beta = .15, p = .013$) but not in Norway ($\beta = .03, p = .459$).

The perceived Zeitgeist of fear was positively correlated with personal fear of terrorism in all the samples at time point 1. The association was strongest in Spain ($\beta = .40, p < .001$) and Norway ($\beta = .37, p < .001$) followed by Finland ($\beta = .32, p < .001$), France ($\beta = .31, p < .001$) and the United States ($\beta = .19, p < .001$). The perceived Zeitgeist of fear after the attacks predicted personal fear at time point 2 in Spain ($\beta = .16, p < .001$), Norway ($\beta = .13, p = .002$), France ($\beta = .12, p = .007$), and Finland ($\beta = .10, p = .010$).

The perceived Zeitgeist of fear mediated the association between online hate exposure and fear of terrorism at time point 1 in Spain ($\beta = .05, p = .023$), France ($\beta = .04, p = .004$), Finland ($\beta = .03, p = .027$), and the United States ($\beta = .03, p = .036$) (Table 3). In the case of Norway, there was a significant indirect effect between social media use after the attack and fear of terrorism via the perceived Zeitgeist of fear ($\beta = .05, p = .008$; not reported in tables). The online hate exposure was indirectly associated with personal fear at time point 2 only in France ($\beta = .02, p = .040$) and Spain ($\beta = .02, p = .050$).

Discussion

This longitudinal study analyzed how the use of social media and exposure to online hate are related to perceived Zeitgeist of fear (perceived collective fear) and fear of terrorism after the Paris terrorist attacks in 2015 in Finland, Norway, Spain, France, and the United States. According to our descriptive findings, the fear of terrorism, both after the attacks and one year later, was highest in France where the attacks took place and in neighboring country Spain, followed by the United States. All these countries have background with frequent Jihadist terrorism (LaFree et al., 2010). Fear of terrorism was lower in two Nordic countries, Norway and Finland, that had not witnessed Jihadist terror at the time of the events. This implies that earlier experiences with Jihadist terrorism might be more relevant for fear reactions than geographical proximity of the events (see e.g., von Sikorski et al., 2021).

Using social media to follow the unfolding of the events after the terrorist attacks was not correlated with personal fear of terrorism or perceived Zeitgeist of fear (except Norway). This leaves our first and third hypotheses unsupported. These findings are perhaps surprising as fear reactions are highly visible in social media after terrorist attacks (see e.g., Gruebner et al., 2016). However, social media is not the only channel through which information about the assaults and collective reactions is conveyed, as events are also strongly featured in traditional media, for example (for mass-mediated terrorism, see Nacos, 2002). This may explain why following the events via social media was not linked to the fear of terrorism or the perceived Zeitgeist of fear as similar exposure may happen through other media outlets. Social media may be a factor in the spread of fear, but its role appears to depend on the information encountered rather than on the mere use of social media. However, the exception of Norway deserves some attention.

In Norway, national fears and resilience have been the subject of public debate in the context of past mass violence. After the experience of the July 22, 2011 attack, strong collective narratives of the Norwegian way of responding to terrorism emerged; emphasizing trust, fearlessness, and tolerance (Wollebæk, Enjolras, Steen-Johnsen, & Ødegård, 2012). A similar narrative of societal response may have dominated in the Norwegian mass media, and, according to our findings, Norwegians indeed reported lowest fear of terrorism and perceived Zeitgeist of fear of all the studied countries.

However, social media likely challenged the Norwegian narrative as those who followed the unfolding of the events were exposed to shared fear and hate reactions as well. This reasoning is in line with our finding that of all our country samples Norwegians actually reported most exposure to online hate. Thus, while the collective narrative emphasized the tolerant and fearless Norwegian way of responding to terrorism, social media communication offered a different and more polarized picture. On the other hand, this finding might also imply mutually reinforcing spirals (see Slater, 2007) instead of one-way causality. In that case, those Norwegians who perceived fear around them might have been more inclined to follow information and emotions shared via social media, which have then further strengthened the perception of collective fear.

There was a significant positive correlation between the use of social media after the attacks and exposure to online hate in all our country samples. Thus, our second hypothesis was supported by our results. This is in line with earlier studies reporting that there is an increase in online hate targeting national, ethnic, and religious social categories after Jihadist acts of terror (Awan & Zempi, 2016; Kaakinen et al., 2018; Williams & Burnap, 2016). People who use social media to follow the unfolding of the assaults are also more likely to be exposed to this content.

In line with our fourth hypothesis, the results showed that exposure to online hate was associated with perceived Zeitgeist of fear in Finland, France, Spain, and the United States. Earlier research has reported that social media users tend to make inferences about public attitudes and sentiments based on online communication (Schulz & Rössler, 2012; Zerback & Fawzi, 2017). Here, encountering content that threatens or degrades national, ethnic, or religious groups in the aftermath of terrorist

attacks is used to infer that the society is characterized by fear. This suggests that online hate content, and not the mere use of social media, is a potentially effective factor in shaping the perception of fear after terrorist attacks. People encounter a host of different emotional reactions in social media including negative emotions, but also empathy and solidarity, while online hate is characterized by antipathies and terror, for example (Gruebner et al., 2016; Kaakinen et al., 2018).

It should be noted, however, that some country differences concerning this finding remained, as we did not find an association between hate exposure and collective fear in the Norwegian sample. As mentioned above, *Zeitgeist* of fear was associated with social media use in Norway. The research on online hate content is still relatively new field, and, thus, it is difficult to find an explanation for this lack of connection from the existing research literature. One possibility is that the same narrative of trust, fearlessness, and tolerance that dominated the Norwegian media create a certain resilience to explicitly hateful content on social media (Wollebæk et al., 2012).

A perceived *Zeitgeist* of fear was associated with personal fear of terrorism immediately after the attacks in all our country samples. These findings support our Hypothesis 5 and are in line with earlier research reporting the connection between collective and personal emotions (Conejero & Etxebarria, 2007; Kim, 2016). Furthermore, this was the first study to examine the relationship between collective and personal emotional responses over a longer period (over one year). According to our findings, the perceived *Zeitgeist* of fear predicted higher personal fear of terrorism one year later in all samples except the United States. This indicates that the societal *Zeitgeist* immediately after the Paris attacks partly determines how societies recover from the fear of terrorism in following months. In the United States, the only non-European country in our cross-national sample, this association did not remain one year later. This suggests that the future fear of terrorism was influenced more by country-specific factors such as local events of mass violence (e.g., Orlando nightclub shooting of June 12, 2016) and social climate due to the presidential campaigns (e.g., Barkun, 2017) than by the perceived collective fear after terrorist attacks taking place in Europe.

As hypothesized (H6), the perceived collective fear mediated the association between online hate exposure and fear of terrorism immediately after the attacks in all our country samples except Norway (where online hate exposure was not associated with the perceived *Zeitgeist* of fear). Thus, our results concerning fear reactions are in line with earlier research findings suggesting that exposure to online hate has indirect effects on personal attitudes (Soral et al., 2018). Individuals may be relatively resistant to online communication they find hateful and inappropriate, but the exposure can affect the way they perceive social norms, public reactions, and opinions within social media. These factors, in turn, shape personally held emotions and attitudes.

The indirect association between hate exposure and fear of terrorism one year later was significant only in the French and Spanish samples. This implies that the indirect effects of online hate tend to be temporally limited. Earlier research has shown that the amount of online hate increases rapidly after the terrorist attacks but then starts decreasing (Williams & Burnap, 2016). Highly visible online hate seems to be more effective in shaping personal fear via the perceived *Zeitgeist* immediately after the attacks when there is a lack of more reliable information and social media and others' emotional reactions are used intensively in the collective terror management (Gruebner et al., 2016; Williams & Burnap, 2016). As time passes, other factors such as increased official communication and media coverage and societal resilience likely become more important.

However, in France where the attacks took place, and in the neighboring country of Spain, the indirect relationship remained significant one year later. Thus, even though earlier research suggests that the media effect of fear should not be dependent on geographical proximity (see e.g., von Sikorski et al., 2019), the indirect effect of online hate on fear of terrorism seems to be more prolonged in close countries with similar background with terrorism. In addition to the shared border, France and Spain are both among the countries that are most affected by terrorist attacks during recent decades (LaFree et al., 2010), and, thus, their citizens might react in a similar way to terrorist

attacks. The effect was not found one year later in the case of a geographically more distant country (the United States) or in countries without a history of similar Jihadist attacks (Norway and Finland at the time of the event).

Limitations

This study has several limitations that should be noted when interpreting its results. First, the measurement of online hate exposure was based on self-reporting. Experimental manipulation of hate exposure, for example, could have induced different results. In addition, the time window for our online hate measure was three months which covers weeks preceding the attacks as well. It is therefore possible that some of the respondents would have been exposed to online hate before the Paris attacks but not after them. A narrower time window might have enabled us to observe stronger effects as it would have included only exposure that took place after the events.

Second, our analyses were based on single-item measures. This approach was due to practical reasons as our study was based on a cross-national survey focusing on the societal consequences of disruptive events such as terrorist attacks more generally. In surveys like this, multi-item measures for individual concepts are highly challenging because of restraints in the total interview time. Future studies, however, should develop more nuanced measures of Zeitgeist of fear, for example (see e.g., van der Bles et al., 2018).

Third, as our study was based on cross-national comparison, it should be noted that the meaning of such terms as *hate*, *degrading*, or *ethnicity* can vary between cultures. This means that ethnicity-based characteristics, for example, can evoke distinct interpretations among the respondents in our cross-national sample due to national demographic differences. The specific targeted ethnic groups likely vary between countries as well, but it should be noted that our interest lies in whether ethnic characteristics have been targeted by online hate in the first place, not in the specific groups targeted. In addition, content perceived hateful, for example, in one national context might not be conceived as such in another setting. Here, our focus was not on this potential cultural variation, but it would be an important topic for future research to emphasize.

Fourth, this analysis focused on fear of terrorism. The fear of terrorism is a well-established research topic and highly important factor in the resilience of societies after terrorist attacks. However, studies analyzing other emotional reactions such as anger or attitudinal and behavioral consequences (e.g., intolerance or support for extreme movements) on personal and collective levels would be a valuable addition to the literature as well (for more detailed discussion, see e.g., Jost, 2019; Jost, Stern, Rule, & Sterling, 2017; Vasilopoulos, Marcus, Valentino, & Foucault, 2019).

Conclusion

Social media is a selective environment in which users can downplay or ignore counter-attitudinal information (Bakshy et al., 2015; Karlsen et al., 2017; Keipi et al., 2017; Zollo et al., 2017). However, earlier research has suggested that exposure to online hate content may still at least indirectly affect personal attitudes (Soral et al., 2018). This is also suggested by our finding that exposure to online hate is indirectly associated with personal emotions via shaping the perception of Zeitgeist of fear within the society. Thus, one major risk of online hate is that it may skew perceptions of societal climate. Because of this, online hate can support the major aims of mass-mediated terrorism, to generate fear within societies and to maximize the visibility of political violence (Nacos, 2002).

According to van der Bles and colleagues (2018), negative Zeitgeist may originate in specific subgroups of society but then spread via cross-group communication. In line with this, online hate may be initially shared within online communities (Keipi et al., 2017) but start affecting the Zeitgeist of fear when it becomes highly visible in mainstream social media. Moreover, being exposed to

material that is identified as hateful and inappropriate does not induce a personal experience of fear but the perception that others in society are fearful.

ACKNOWLEDGMENT

This research was funded by the Research Council of Norway, the SAMRISK II program, grant no. 238118. Correspondence concerning this article should be addressed to Markus Kaakinen, Institute of Criminology and Legal Policy, University of Helsinki, 00014, Helsinki, Finland. E-mail: markus.kaakinen@helsinki.fi

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Appendix A

DEMOGRAPHIC DISTRIBUTIONS OF OUR COUNTRY SAMPLES

	Norway		Finland		Spain		France		United States	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Continuous variables										
Age T1	52.68	15.96	49.2	16.92	42.72	12.89	46.14	14.72	56.3	14.09
Categorical variables	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Female	249	45.4	227	45.2	226	50.2	270	55.1	195	58.4
Immigrant background	223	10.8	84	4.2	267	13.4	55	11.2	93	27.8

Note. *M* = mean, *SD* = standard deviation, Immigration background = the respondent or at least one of her/his parents was born in another country.

Appendix B

MISSING VALUES FOR THE STUDY VARIABLES BY COUNTRY

	Norway		Finland		Spain		France		United States	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Social media use T1	1	0.18	3	0.60	5	1.11	9	1.84	9	2.69
Zeitgeist of fear T1	6	1.09	11	2.19	15	3.33	18	3.67	16	4.79
Fear of terrorism T1	3	0.55	1	0.20	4	0.89	10	2.04	6	1.80
Fear of terrorism T2	5	0.91	8	1.59	5	1.11	21	4.29	14	4.19
Online hate exposure T1	15	2.73	16	3.19	16	3.56	30	6.12	16	4.79