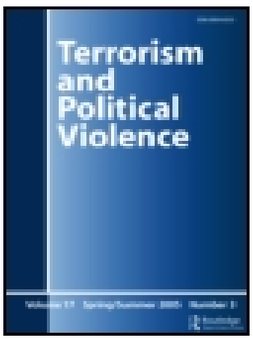

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Perceived Societal Fear and Cyberhate after the November 2015 Paris Terrorist Attacks

Atte Oksanen [a], Markus Kaakinen [a], Jaana Minkkinen [a], Pekka Räsänen [b], Bernard Enjolras [c] and Kari Steen-Johnsen [c]

[a]Faculty of Social Sciences, University of Tampere, Tampere, Finland; [b]Department of Social Research, University of Turku, Turku, Finland; [c]Institute for Social Research, Turku , Norway

ABSTRACT

Fear is one of the negative outcomes of terrorist attacks. Currently, there is a need to understand how societal fear and fear of terrorism might be shaped and induced by social-media discussions. This study analyzed how exposure to cyberhate was associated with perceived societal fear after the November 2015 Paris terrorist attacks. Demographically balanced data sets were collected from France, Spain, Finland, Norway, and the United States four weeks after the attacks. Cyberhate exposure was associated with higher perceived societal fear in all countries studied even when adjusting for confounding factors. This was particularly evident in the case of cyberhate related to terrorism. Hateful online communication after disruptive events may contribute to a social climate of fear and escalate societal uncertainty. There are, however, indications that social trust may bolster against perceived societal fear, hence enhancing resilience.

KEYWORDS

comparative study; fear; hate; Internet; social media; terrorism

Hate is among the most powerful emotions, involving intense hostility, aversion, and anger associating to fear and a sense of physical or psychological injury.[1] Cyberhate (i.e., online hate, online hate speech) targets either individuals or groups of people with intensive and hostile statements and content. Cyberhate is a global phenomenon that typically takes the form of harassing, threatening, or insulting messages concerning, for example, sexual orientation, religious conviction, ethnic background, appearance, or gender.[2] Cyberhate can take many forms including cyber racism.[3] Hence, the definition of cyberhate is close to hate speech as described by the European Commission against Racism and Intolerance:

> Hate speech … entails the use of one or more particular forms of expression—namely, the advocacy, promotion or incitement of the denigration, hatred or vilification of a person or group of persons, as well any harassment, insult, negative stereotyping, stigmatisation or threat of such person or persons and any justification of all these forms of expression—that is based on a non-exhaustive list of personal characteristics or status that includes "race", colour, language, religion or belief, nationality or national or ethnic origin, as well as descent, age, disability, sex, gender, gender identity and sexual orientation.[4]

Examples of cyberhate range from verbal insults to very graphic manifestations of violence, including beheading videos by the Islamic State of Iraq and Syria (ISIS) on YouTube. During the early 2000s, hateful messages were distributed mostly via extremist white supremacist

CONTACT Atte Oksanen atte.oksanen@uta.fi School of Social Sciences and Humanities, 33014 University of Tampere, Finland.

websites, such as Stormfront.org.[5] With the rise of social media, cyberhate became more of an everyday phenomenon.[6] In 2013–2014, the four-country comparative Hate Communities Project found that exposure to cyberhate (i.e., having witnessed hate online) was relatively widespread in the United States (53%), Finland (48%), Germany (31%), and the United Kingdom (39%), though there were some variations. Rates of cyberhate victimization ranged from 4 to 16%, and only a few young people produced hate content.[7]

Exposure is higher in countries such as the U.S. that do not control or regulate hate speech or hateful messages online.[8] Efforts to regulate cyberhate and hate speech have been made especially in Europe.[9] The recent body of literature has shown that preventive measures should be applied because cyberhate may carry many negative consequences for those who see it and become victimized by it.[10] Cyberhate may also increase intergroup conflicts within society[11] and it may act as an incentive for hateful acts off-line.[12] Hence, cyberhate does not involve only what occurs on the Internet and social media, but has wider impact on society, public discourse, and public anxieties.[13]

Cyberhate is a dynamic phenomenon; it takes different forms, it transforms quickly, and it generally follows societal trends and public discussion. Dramatic and disruptive societal events may also be one cause of cyberhate. Williams and Burnap showed how racial and religious cyberhate were triggered in the UK after religious cyberhate escalated in the wake of a murder by Islamic extremists in the UK. Hence, specific societal events act as *trigger events* that make certain forms of expression more common.[14] Terrorist attacks are a type of disruptive event that might be assumed to serve as such triggers for cyberhate,[15] and they are known to evoke personal and sociotropic fear.[16] To date, research has shown that both fear and hate are often expressed after these types of events, but there is no evidence whether exposure to cyberhate is associated with increased fear. Furthermore, there is a need to understand whether specific forms of cyberhate might be more harmful than others in some situations.

In this five-country study, we investigated how exposure to cyberhate was associated with perceived societal fear directly after the November 2015 Paris terrorist attacks. On November 13, 2015, ISIS terrorists killed 30 people in Paris. The impacts of the attacks were not limited to France and Paris: They elicited major societal reactions throughout Europe and across the world, which makes it interesting to compare reactions across countries. We expect here that the November 2015 Paris terrorist attacks had a triggering effect on cyberhate, and we hypothesize that exposure to cyberhate might instigate societal fear.

Psychological vulnerability and cultivation of fear after attacks

Disruptive events such as terrorist attacks have many impacts both at the psychosocial and the societal level. Post-traumatic stress disorder (PTSD), depression, fear, and anxiety are frequently documented after both terrorist attacks and rampage shootings.[17] Rapid upticks in PTSD and acute stress reaction were recorded in Paris on the days following the attack.[18] Typically, it takes time for the affected communities to recover from the impact.[19] In New York, PTSD prevalence dropped after the September 11 attacks from 7.5% after 1 month to 0.6% after 6 months.[20] Other nationwide studies have indicated that the prevalence of arousal and anxiety and PTSD were high 1 and 2 months after the September 11 attacks but declined in the year following the attacks.[21] Similar findings were found after the London attacks.[22]

An important lesson of the studies following September 11 was that the negative effects of terrorist attacks are not limited to direct victims and their families. Local people and even people living far away can be psychologically affected.[23] Thus, terrorist attacks have the potential to make fear a more widespread societal phenomenon. Studies show that terrorist attacks may be followed by an increase in both fear of personal victimization and more general societal fear related to the fate of the nation, even though the effects vary.[24] Moreover, there are indications that terrorist attacks create greater cautiousness, as expressed, for example, in lower trust and increased prejudice toward members of out-groups.[25]

Media exposure has been shown to be an important factor in shaping people's emotional responses. For example, studies conducted after September 11 have shown that the number of hours of footage viewed related to the attacks was associated with PTSD symptoms.[26] Besides PTSD and general anxiety, the footage may also have aroused fear of terrorism and more general societal fear. All three—PTSD, anxiety, and fear—partially overlap and involve aversive and activated states focused on threat.[27] According to Nellis and Savage, exposure to television news was associated with fear of terrorism after the September 11 attacks. Their findings support the media cultivation hypothesis from communication studies.[28] Proponents of this hypothesis emphasize that the more people spend time on TV sets, the more TV becomes part of their reality.[29] Terrorism is just one example of media effects and fear of crime. Criminological studies have documented how crime news can intensify fear and public anxiety.[30]

Although such media effects were important during the TV era, the current social-media era has changed the ways in which information is distributed. Although there is no doubt that more news and information are now accessible and can spread more rapidly than before,[31] researchers disagree as to whether social media has led to more diversified or segmented news consumption[32] and to the development of filter bubbles.[33] The identity bubble reinforcement (IBR) model by Keipi et al. addresses how current social media develop bubbles of influence around us. The theory considers choices related to routine activities, computer algorithms, and social identity that people make online. Social media bubbles generally bring together like-minded individuals, but they may also involve that people are targeted by cyberhate because of their previous social media likes and preferences. In this sense, social media would intensify the exposure to online hate and possibly the experience of it. In addition, social media is always at least partly personal, and hence being exposed to shocking content on social media is likely to be more intimidating than seeing the same content in regular TV news or in the newspaper.[34]

A recent large-scale Facebook experiment by Kramer, Guillory, and Hancock on 689,003 people entailed the manipulation of negative and positive posts. Decreasing the number of positive messages decreased positivity and increased negativity. Decreasing the number of negative messages had an analogous effect. This study concluded that emotions expressed on Facebook can affect people.[35] These results are understandable from the perspective of social contagion theory, which predicts the transference of emotional states within a social network.[36]

After terrorist attacks different rumors are often distributed, and they may have an impact on people's fear.[37] Social media is potentially very powerful compared to traditional media. The social bubbles or "echo chambers" may lead to polarization in public opinions and aggressive commenting between social groups.[38] Such echo chambers are also efficient in spreading fear.

Subsequently, social media differs greatly from traditional media and allows faster potential exposure. It is characterized by rapid interaction going from peer to peer without official control. Social media also involves anonymity in some degree and interaction taking place within differs from face-to-face interaction.[39] This is considered to make different online groups more efficient in drawing people into following their activities and norms, compared to those offline.[40]

In sum, impacts of disruptive events range from PTSD and anxiety and fear[41] to social discussions and potential intergroup conflicts.[42] Perceived societal fear is one of the negative outcomes of disruptive events, and it might be more intense when people are constantly exposed to material on terrorism on their social-media networks. The media cultivation hypothesis, the IBR model, and social contagion theory all indicate that when people are exposed to offsetting media or social-media contents, this might lead to increased fear. These all underline how people are being affected by other people's opinions and the media content around them. Cyberhate especially entails very strong emotions, and it may lead to a negative spiral when expressions of hate foster more hate and more negative emotions.[43]

Psychological and societal resilience after attacks

Although studies have pointed out that PTSD, anxiety, and fear increase after disruptive events, most people are resilient to these negative effects.[44] Psychological resilience is defined as the ability to maintain stable and healthy levels of psychological and physiological functioning after disruptive events.[45] Analogically, societal resilience refers to the capacity of social communities to respond to and recover from the shock of disruptive events such as terrorism.[46] Both psychological and societal resilience are important in understanding the perceived societal fear after attacks. Resilient individuals and communities are not shaken by disruptive events and are expected to recover better.

Previous research has shown that some population groups are more resilient than others to the potentially damaging impact of terrorism. High socioeconomic status, old age, and male gender are associated with resilience.[47] The explanation for these findings is in line with both psychological and sociological mechanisms. Higher socioeconomic position provides assets that facilitate the capacity to tolerate misfortunes during the life course.[48] Besides economic resources, availability of informal social support and strong social ties are assets that buffer against stressors.[49] The adult population has generally better chances of coping compared to children.[50] Girls and women reportedly experience disruptive events more intensively than boys and men.[51] In addition to this, however, women have been found to use coping strategies more actively than men, although they also appraise stressors more than men do.[52]

Despite the fact that the concept of resilience is seldom used in criminology, it bears an analogy to fear-of-crime literature, in which females report higher levels of fear.[53] Results of fear-of-crime studies, however, paradoxically show that people who are older have higher fear of crime although they are the least at risk.[54] Also, in some studies conducted after September 11, older age groups showed more fear of terrorism.[55] Perhaps the most coherent view is provided in a 3-year follow-up study on the September 11 attacks by Scott, Poulin, and Silver. They found lower levels of anxiety and PTSD but higher levels of fear among older adults.[56] Scott et al. suspected that "older adults may experience event-specific anxiety or worry but that this does not necessarily spill over into their general emotional life."[57]

When it comes to societal resilience, trust in institutions and interpersonal trust are two central elements of functioning societies.[58] Institutional trust indicates how people value the ability of their institutions to protect society from disruptive events and prevent future attacks. Interpersonal trust is also highly important after disruptive events. Although some studies have noted an increase in social solidarity and social cooperation after terrorist attacks and mass murders,[59] disruptive events are also likely to cause societal tensions and intergroup conflict as well as to decrease out-group trust.[60] Uncertainty-identity theory predicts that in times of social uncertainty, people tend to identify more strongly toward in-groups and categorize social reality more rigidly and in a more exclusionary manner to overcome the experienced uncertainty. This may eventually lead to extremism, more conflicts, and less interpersonal trust.[61]

Country differences in both vulnerability and societal resilience exist. First, some countries have faced repeated terrorist attacks and threats of terror.[62] This also means that terrorism in these countries may have had a more permanent societal impact, and the attacks might have influenced societal resilience. Studies have investigated, for example, areas subjected to long-term terrorism or civil war[63] and communities that have faced mass-scale shootings.[64] In addition, there are major country differences in social capital and social trust.[65] In line with Norris et al.,[66] social capital is a central element of societal resilience; the hypothesis is that high-trust societies are more resilient. Based on these studies, it is reasonable to assume that high-trust societies are more resilient to terrorism and that it is important to investigate the consequences of terrorism from a comparative perspective.

Although tragedies have specific outcomes in different countries, at least some of the impacts have been similar across the Western world.[67] Cyberhate is likely to play a significant part in creating tension after disruptive events and thus potentially weakens societal resilience. Discussions after terrorist attacks have involved, for example, Islamophobia and racism.[68] These discussions may also weaken the role of societal resilience as they directly disrupt the social cohesion within the community or society. Public policies may have an impact on these issues and provide material and resources for those spreading and sending hate messages online. After the increasing number of terrorist attacks in Western countries since the early 2000s, the position of Muslims has changed from an ethnic minority to a potential security risk group in many countries, such as the UK.[69] Counterterrorism has promoted fear of the next attack and contributed to a climate of fear.[70] In this sense it is necessary to address cross-national variations in societal fear and cyberhate exposure in Western countries.

This study

In this study, our aim was to show whether exposure to cyberhate is associated with the perception of societal fear after the Paris terrorist attacks of November 2015 in France, Spain, Finland, Norway, and the U.S. The analysis focused on both general and specific forms of cyberhate, and we expected exposure to cyberhate, especially that related to terrorism, to predict perceived societal fear. This hypothesis is based on previous studies showing that people exposed to footage or discussions on terrorism show more distress, anxiety, and fear.[71] The hypothesis is also grounded in the perspective provided by the media cultivation hypothesis,[72] the IBR model,[73] and social contagion theory.[74]

Although our primary focus was on the association between perceived societal fear and exposure to cyberhate, based on our literature review it was important to control for general-media and social-media use.[75] We also adjusted factors related to both psychological and societal resilience, including gender, age, institutional trust, generalized trust, and out-group trust. Based on previous research, we expected women and older age groups to show more fear.[76] We also expected high levels of general-media and social-media use to be associated with societal fear, especially if the content concerned the Paris terrorist attacks. Social trust is seen here as a confounding factor that can level off heightened fear experiences. In general, those who are more trusting of state institutions and other people are expected to report lower levels of societal fear.[77]

Five countries from the Organization for Economic Cooperation and Development (OECD) were selected for the study on the basis of potential differences in reactions to the recent terrorist events: France, Spain, Finland, Norway, and the U.S. France serves as the starting point for this study, and it is assumed to have the highest levels of perceived societal fear due to the November 2015 attacks. Spain is the closest European comparison to France because of the repeated number of acts of terrorism in past decades.[78] Finland and Norway represent the Nordic welfare states typically characterized by high social trust of other people and state institutions.[79] Norway, however, had a severe terrorist attack in 2011 on a scale not seen in Finland.[80] Nonetheless, Finland has also had several small-scale tragedies, especially two notorious school shootings.[81] Therefore, Finland and Norway are interesting points of comparison in the Nordic regime. The U.S. was selected as an obvious point of comparison for the European countries. In recent years, the country has suffered several domestically and internationally influenced terrorist attacks.

Methods

Participants and procedure

Demographically balanced data sets were collected from France (n = 2113), Spain (n = 1661), Finland (n = 1003), Norway (n = 1013), and the U.S. (n = 1420) from December 10–15, 2015, only 4 weeks after the attacks in Paris. Participants were drawn from the panel of respondents who volunteered to participate in survey research. The panel was administered by TNS Gallup, and the sample was stratified to mirror the population of each country in terms of age, gender, and region. The quotas used allowed for small differences from official population statistics. Participants were 16–84 years of age (M_{FRA} = 41.61, SD_{FRA} = 15.17; M_{SPA} = 41.51, SD_{SPA} = 13.75; M_{FIN} = 47.68, SD_{FIN} = 17.07; M_{NOR} = 49.63, SD_{NOR} = 17.05; $M_{U.S.}$ = 48.10, $SD_{U.S.}$ = 16.72), and approximately half of them were female (53.72% $_{FR,}$ 51.50% $_{SPA}$; 51.25% $_{FIN}$; 48.47% $_{NOR}$; 54.88% $_{U.S.}$).

All participants filled out an online survey designed immediately after the Paris terrorist attacks as part of a comparative research project on societal resilience and terrorist attacks. The main survey was designed in English and then translated into French, Spanish, Finnish, and Norwegian by native speakers of these respective languages. The full survey includes attitudinal measures on activities after the events in Paris, social trust, attitudes toward immigrants, and terrorism prevention. The respondents completed the survey online, and the survey was optimized for computers and mobile devices. The survey was

tested before the full launch. The median response time was 8 minutes in France, Spain, and the U.S., 9 minutes in Finland, and 10 minutes in Norway.

Measures

Perceived societal fear was measured with a question: "If you compare the [respondent's country] today with the situation before the Paris terrorist attacks, would you say that society is more or less characterized by fear?" The scale varied from 1 (*a lot less*) to 7 (*much more*). See Table 1 for mean scores and standard deviations for each country. Perceived societal fear is used as a dependent variable in the regression models.

Exposure to cyberhate 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 cyberhate[82] and national studies on cyberhate.[83] Those who witnessed cyberhate during the past 3 months were asked a follow-up question: "Which of the following did the hateful or degrading material that you came across online relate to?" Participants were allowed to select as many answers as applied from the following list: sexual orientation, sex or gender, physical appearance, disability, ethnicity or nationality, religious conviction or belief, general hatred of people, and terrorism.

Table 1. Descriptive statistics.

	France		Spain		Finland		Norway		U.S.	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Societal fear (1 = *low*, 7 = *high*)	5.48	1.14	5.21	1.12	5.05	.97	4.77	1.06	5.23	1.21
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Cyberhate exposure	777	35.67	852	42.71	552	57.26	661	67.52	712	52.62
Type of cyberhate exposure										
Sexual orientation	205	9.41	266	13.33	149	15.46	94	9.41	288	21.29
Gender	133	6.11	197	9.87	97	10.06	75	7.51	240	17.74
Physical appearance	161	7.39	179	8.97	97	10.06	95	9.51	188	13.90
Disability	76	3.49	83	4.16	37	3.84	42	4.2	118	8.72
Ethnicity	402	18.46	403	20.20	431	44.71	491	49.15	465	34.37
Political views	274	12.58	417	20.90	234	24.27	287	28.73	410	30.30
Religious conviction	441	20.25	498	24.96	367	38.07	452	45.25	484	35.77
General hatred of people	279	12.81	77	3.86	192	19.92	141	14.11	224	16.56
Terrorism	392	18.00	461	23.11	320	33.20	343	34.33	445	32.89
Control variables	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Gender (female)	1135	53.72	1066	51.50	514	51.25	491	48.47	779	54.86
Age										
16–25	354	16.75	230	13.85	143	14.26	101	9.97	144	10.14
26–40	691	32.70	622	37.45	224	22.33	254	25.07	355	25.00
41–65	909	43.02	735	44.25	430	42.87	438	43.24	685	48.24
>65	159	7.52	74	4.46	206	20.54	220	21.72	236	16.62
Extensive social-media use related to the Paris attacks (yes)	701	30.11	788	38.05	75	7.48	66	6.39	354	24.93
Social-media use time (sqrt)	3.00	3.70	3.88	3.61	2.37	2.89	3.55	3.40	3.04	3.90
Media use time (sqrt)	5.36	3.45	6.09	3.39	6.50	3.01	7.63	3.15	5.65	4.24
Institutional trust	3.92	1.12	3.70	1.21	4.50	1.08	4.77	1.06	4.01	1.18
Out-group trust	3.87	1.39	3.89	1.27	4.15	1.34	4.39	1.24	4.16	1.30
Generalized trust (1 = *low*, 7 = *high*)	2.99	1.62	3.74	1.64	4.95	1.71	5.25	1.52	3.57	1.75

Other variables in this study were treated as controls; they included: a) sociodemographic variables, b) social media and media use, and c) social trust. Gender and age were used as standard controls in the models. Age was categorized into four groups (16–25, 26–40, 41–65, and >65). The distribution of these variables is shown in Table 1.

Extensive social-media use related to the Paris terrorist attacks was measured with a set of five questions concerning: a) getting updates or passing along information, b) expressing support and sympathy, c) talking about events and processing grief, d) getting information about marches or ceremonies, and e) discussing reasons for and consequences of the events. Answer options were: a) not at all, b) not very much, c) to some extent, and d) to a large extent. The five questions had good inter item reliability ($\alpha_{FRA} = .91$; $\alpha_{SPA} = .92$; $\alpha_{FIN} = .90$; $\alpha_{NOR} = .86$; $\alpha_{U.S.} = .94$). A dummy variable was created to indicate those who used social media related to the Paris terrorist attacks to a large extent (0 = *no*, 1 = *yes*).

Daily time spent on news via social media was addressed with the following question: "On an average day, approximately how many minutes do you spend on news via social media (such as Twitter, Facebook, etc.)?" A similar question was used for the *time spent on news via media*: "On an average day, approximately how many minutes do you spend on news via media such as TV, radio, and online/off-line newspapers?" For both, respondents indicated the amount of time in numbers. Due to the skewed distribution of responses square root transformation was used for both variables.

Social trust measures include institutional trust, out-group trust, and generalized trust. All questions on trust were measured with a scale from 1 (*not at all*) to 7 (*completely*), and the measures have been widely used in social sciences.[84] *Institutional trust* was measured with six questions concerning trust of government, congress, or parliament, politicians, police, military, and courts. Interitem reliability was good ($\alpha_{FRA} = .84$; $\alpha_{SPA} = .87$; $\alpha_{FIN} = .87$; $\alpha_{NOR} = .88$; $\alpha_{U.S.} = .85$). For *out-group trust*, three questions were used to measure trust of people from other religions, other nationalities, and immigrants. The three questions had good interitem reliability ($\alpha_{FRA} = .91$; $\alpha_{SPA} = .89$; $\alpha_{FIN} = .92$; $\alpha_{NOR} = .93$; $\alpha_{U.S.} = .88$). *Generalized trust* was measured with the following widely used test question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"

Statistical analyses

Descriptive techniques were applied to provide an overview of the data and key variables. The main analyses were run by ordinary least squares regression to predict perceived societal fear. We first tested how both general and particular cyberhate were associated with societal fear. These models were run separately for each type of cyberhate and for each county. The models were adjusted for age and gender. The second part of analysis focused on the relationship between societal fear and cyberhate related to terrorism. As we were mainly interested in the relationship between perceived societal fear and exposure to cyberhate, we only reported the final models including all covariates. Multicollinearity was not detected, but, because of the heteroscedasticity of residuals, we ran the models using Huber-White standard errors (i.e., robust standard errors). The models were run and reported separately for each country. The coefficients of the regression equations are presented in both nonstandardized (*B*) and standardized (β) form, and standard errors (*SE*) and statistical significances (*p*) are also reported.

Results

Perceived societal fear was higher in France (5.48) than Spain (5.21), Finland (5.05), Norway (4.77), and the U.S. (5.23); see Table 1. General exposure to cyberhate was, however, lowest in France (36%) and highest in Norway (68%). Also, more than half of the respondents in Finland (57%) and the U.S. (53%) reported seeing cyberhate in the preceding 3 months. The most common forms of cyberhate targeted ethnicity or nationality, religious belief or conviction, and terrorism. The least frequently seen form of cyberhate in this study was related to disability.

Table 2 reports the findings of the regression analyses concerning both general and specific types of cyberhate. These analyses were run separately for each type of cyberhate and for each country, and all models were adjusted for gender and age. Table 2 reports only the unstandardized regression coefficients (*B*) of the different forms of cyberhate. The general exposure to cyberhate is significantly associated with perceived societal fear in all countries studied. In other words, those who saw cyberhate were more likely to report higher perceived societal fear. In France, for example, those exposed to cyberhate reported .28 higher perceived societal fear (on a scale 1 to 7) than those who were not exposed to cyberhate.

Analysis of specific types of cyberhate showed that all forms of cyberhate were significantly associated with societal fear in France and the U.S. In Finland, only cyberhate related to ethnicity or nationality, religious conviction, and terrorism were associated with societal fear. Similarly, as revealed in Table 2, in Spain and Norway, only some forms of cyberhate were associated with societal fear. Only cyberhate related to terrorism was significantly associated with societal fear in all countries studied.

Based on the analyses shown in Table 2, the final part of the analysis focused solely on cyberhate related to terrorism. Table 3 reports the final ordinary least squares regression models predicting perceived societal fear in all countries studied. The final models were statistically significant in France, $F(11, 1684) = 12.81$, $p < .001$, $R^2 = .08$, Spain, $F(11, 1446) = 11.05$, $p < .001$, $R^2 = .08$, Finland, $F(11, 866) = 8.22$, $p < .001$, $R^2 = .10$, Norway, $F(11, 908) = 10.60$, $p < .001$, $R^2 = .12$), and the U.S., $F(11, 1202) = 5.52$, $p < .001$, $R^2 = .05$).

Table 2. Perceived societal fear from exposure to general and specific cyberhate (Regression Coefficients, Standard Errors, and p-Values).

	France			Spain			Finland			Norway			U.S.		
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
General cyberhate	**.28**	**.05**	**<.001**	**.19**	**.06**	**.001**	**.15**	**.07**	**.021**	**.16**	**.06**	**.011**	**.39**	**.07**	**<.001**
Specific cyberhate															
Sexual orientation	**.17**	**.08**	**.039**	.04	.08	.593	.05	.09	.544	.02	.10	.821	**.38**	**.08**	**<.001**
Gender	**.26**	**.10**	**.012**	.03	.09	.765	.03	.10	.785	.02	.11	.872	**.33**	**.09**	**<.001**
Physical appearance	**.40**	**.09**	**<.001**	.03	.10	.774	−.01	.11	.898	.12	.10	.205	**.27**	**.10**	**.008**
Disability	**.27**	**.13**	**.044**	−.02	.13	.852	−.19	.16	.257	**.29**	**.14**	**.035**	**.32**	**.12**	**.008**
Ethnicity	**.30**	**.06**	**<.001**	.11	.07	.111	**.14**	**.07**	**.033**	**.17**	**.06**	**.003**	**.19**	**.07**	**.008**
Political views	**.22**	**.07**	**.003**	**.16**	**.07**	**.020**	−.01	.07	.894	**.22**	**.06**	**.001**	**.34**	**.07**	**<.001**
Religious conviction	**.30**	**.06**	**<.001**	**.22**	**.06**	**.001**	**.18**	**.07**	**.006**	.07	.06	.196	**.35**	**.07**	**<.001**
General hatred of people	**.33**	**.07**	**<.001**	−.04	.14	.793	.14	.08	.066	.15	.08	.059	**.31**	**.09**	**.001**
Terrorism	**.27**	**.06**	**<.001**	**.26**	**.07**	**<.001**	**.21**	**.07**	**.002**	**.23**	**.06**	**<.001**	**.37**	**.07**	**<.001**

Note. Statistically significant ($p < .05$) results are in boldface. All models are adjusted for age and gender.

Table 3. Perceived societal fear after the Paris attacks, full models (Regression Coefficients, Standard Errors, and p-Values).

	France				Spain				Finland				Norway				U.S.			
	B	*SE*	*p*	β	*B*	*SE*	*P*	β	*B*	*SE*	*p*	β	*B*	*SE*	*p*	β	*B*	*SE*	*p*	β
Cyberhate exposure (terrorism)	**.21**	**.06**	**.002**	**.07**	**.19**	**.07**	**.004**	**.08**	**.16**	**.07**	**.018**	**.08**	**.26**	**0.06**	**<.001**	**.14**	**.31**	**.07**	**<.001**	**.13**
Gender (male ref.)	**.32**	**.05**	**<.001**	**.15**	**.31**	**.06**	**<.001**	**.14**	**.23**	**.06**	**<.001**	**.13**	**.20**	**0.06**	**.001**	**.12**	.12	.07	.066	.05
Age (16–25 ref.)																				
26–40	−.04	.08	.661	−.02	−.09	.09	.319	−.04	.12	.10	.235	.05	−.01	0.11	.920	−.01	−.05	.12	.708	−.02
41–65	.05	.08	.499	.03	−.09	.09	.332	−.04	**.21**	**.10**	**.036**	**.11**	.06	0.11	.577	.04	.12	.12	.289	.05
>65	**.30**	**.11**	**.007**	**.07**	−.14	.16	.392	−.03	**.30**	**.11**	**.008**	**.13**	−.07	0.12	.546	−.03	**.38**	**.14**	**.007**	**.12**
Extensive social-media use related to the Paris attacks (yes)	**.21**	**.06**	**<.001**	**.09**	**.21**	**.06**	**.001**	**.09**	.16	.13	.243	.04	**.27**	**0.13**	**.041**	**.08**	**.26**	**.09**	**.003**	**.10**
Social-media use time (sqrt)	−.01	.01	.349	−0.03	.00	.01	.818	.01	.01	.01	.413	.03	.01	0.01	.258	.04	.02	.01	.087	.06
Media use time (sqrt)	**.03**	**.01**	**.001**	**.08**	**.02**	**.01**	**.018**	**.07**	.02	.01	.139	.05	.02	0.01	.132	.05	.01	.01	.563	.02
Institutional trust	.01	.03	.632	.01	.05	.03	.057	.05	−.05	.04	.243	−.05	−.01	0.03	.804	−.01	−.01	.04	.767	−.01
Out-group trust	**−.06**	**.02**	**.006**	**−.08**	**−.11**	**.03**	**<.001**	**−.12**	**−.10**	**.03**	**.002**	**−.15**	**−.17**	**0.03**	**<.001**	**−.24**	−.02	.03	.566	−.02
Generalized trust	**−.09**	**.02**	**<.001**	**−.14**	**−.08**	**.02**	**<.001**	**−.12**	**−.08**	**.03**	**.001**	**−.15**	−.02	0.02	.369	−.04	**−.05**	**.02**	**.028**	**−.07**
Constant	3.61	.14	<.001		3.70	.15	<.001		3.63	.21	<.001		3.57	0.22	<.001		3.25	.18	<.001	

Note. Statistically significant ($p < .05$) results are in boldface. All models are adjusted for age and gender.

Cyberhate related to terrorism was associated with perceived societal fear in all countries studied even after adjusting for number of confounding variables. In France, those exposed to cyberhate report .21 higher societal fear ($p = .002$). This was .19 in Spain, ($p = .004$), .16 in Finland ($p = .018$), .26 in Norway ($p < .001$), and .31 in the U.S. ($p < .001$). Females reported more perceived societal fear in all countries studied. In France, Finland, and the U.S., older age groups reported higher perceived societal fear than the youngest age group (16–25 years of age). Extensive social-media use related to the Paris terrorist attacks was statistically significant for all countries studied, except Finland. Media use time was associated with societal fear in France and Spain. Institutional trust was not associated with perceived societal fear, but those reporting higher out-group trust and generalized trust reported generally lower societal fear.

Discussion

This study focused on determining whether exposure to cyberhate was associated with increased societal fear after the Paris terrorist attacks in five countries: France, Spain, Finland, Norway, and the U.S. Our results showed that people in these countries who were exposed to cyberhate reported more societal fear than those who were not. This main finding was consistent in all five countries and concerned both general exposure to cyberhate and cyberhate related to terrorism. Hence, we can confirm the main hypothesis, which was grounded in the media cultivation hypothesis,[85] the IBR model,[86] and social contagion theory.[87] All these theories address the idea that media plays animportant role. Currently, social media are an especially powerful tool for the dissemination of information; there is already evidence that emotions expressed on social media can affect people.[88]

Although the main line of our results was the same in all five countries, we found that the effect of general cyberhate was stronger in France and the U.S. This is partly understandable considering that France was the country most exposed to the Paris terrorist attacks in 2015. In the same year, the U.S. also faced several smaller attacks and threats. The San Bernardino terrorist attack, which caused the death of 14 people, took place on December 2, 2015, only 8 days prior to our data collection. Due to the closeness and impact of these attacks, cyberhate might have also had a stronger role in amplifying the fear. In France and the U.S., all subtypes of cyberhate were positively associated with perceived societal fear. This was not found in Spain or the Nordic countries (Finland and Norway). Of the cyberhate subtypes, only cyberhate related to terrorism was significantly associated with perceived societal fear in all countries studied.

Our full models adjusted for a number of controls including gender, age, media and social-media use, and trust. As we hypothesized, we found that women perceived more societal fear than men in all five countries, except the U.S. Older age was associated with higher perceived societal fear in all countries studied, except Norway. These results generally match what has been reported in both fear-of-crime studies[89] and studies on fear after terrorist attacks.[90] Those respondents who extensively used social media to communicate regarding the Paris terrorist attacks reported higher perceived societal fear in all countries studied, expect Finland. This result also fits into our theoretical framework. Although expressions of sympathy and solidarity may sometimes soothe fear after attacks,[91] previous studies have also indicated that extensive media use is associated with increased fear, anxiety, and PTSD.[92] Time spent following news media was also significant in France and Spain.

Trust in other people and in institutions was expected to mitigate perceived societal fear. In our theoretical model, trust was part of societal resilience and generally part of functioning societies and communities.[93] Distrust and conflicts between social groups and people within society are generally considered to fuel extremism within society.[94] In our model, trust was also an important control because terrorist attacks are likely to cause tensions. Even after adjusting the level of trust among participants, we found that the effect of cyberhate remained in all countries studied. In Nordic countries, people reported higher institutional trust, out-group trust, and generalized trust than in the U.S., France, and Spain. Institutional trust was not associated with perceived societal fear in any of the five countries. Trust of out-groups and people in general was associated with lower societal fear; however, out-group trust was not significant in the US and generalized trust was not significant in Norway.

Our observations indicate that cyberhate is a societal threat as it was associated with an increased level of perceived societal fear. Social media may increase antagonism between different societal groups, which then might be effective in spreading fear, especially after disruptive events. Different ideological "echo chambers"[95] or "identity bubbles"[96] may serve to deepen cleavages and antagonism between different groups. However, this fear could be overcome with societal resilience. Our results show that social trust, either in the form of generalized social trust or outgroup trust, is associated with lower levels of fear across countries. This protective effect of social trust has also been found in other studies.[97] Maintaining trust in other people and especially those in out-groups, is important for any functioning communities and societies. Social trust is the glue that holds the society together and it has an important role in intergroup conflict resolution.[98]

Overcoming cyberhate exposure would be important for building societal resilience. There are policy measures against cyberhate and legal ways to intervene cyberhate offending.[99] Most recently in Germany, a new law taking effect in 2018, sanctions severely social media companies such as Facebook, Google, and Twitter if they do not delete offending messages within 24 hours after being reported. Besides such legal sanctions, self-regulation and raising awareness has been seen as important in the fight against cyberhate.[100] In addition, building community resilience with civil society interventions has been seen as a way to contest cyberhate.[101] From a critical perspective, such resilience building would not involve strategies or policies that might increase the fear of disruptive events as counterterrorism campaigns and policies have sometimes done.[102]

Limitations

Despite the considerable strength of having data from five different countries, our study has limitations. The cross-sectional design does not allow us to determine the causal direction of the associations detected. Obviously, longitudinal research data that allow for analysis of perceived fear both before and after incidents such as the November 2015 Paris terrorist attacks would be useful; however, such data are quite difficult to collect. Despite these limitations, our findings are in line with previous theory and empirical evidence, and our models controlled for a number of pertinent factors, including media and social-media use and trust of other people, out-groups, and institutions. We are therefore confident in the robustness of our findings.

Conclusion

Cyberhate is considered toxic, and it likely fuels negative online interactions and messages.[103] It also spreads rapidly after terrorist attacks;[104] hence, it may increase societal uncertainty and stoke intergroup conflicts both online and off-line. Our comparative study demonstrated that exposure to cyberhate was significantly associated with perceived societal fear after the November 2015 Paris terrorist attacks. The findings highlight the negative role of cyberhate in current social media and indicate that hateful online communication in the aftermath of tragic societal events may contribute to a social climate of fear and exacerbate societal uncertainty. There are, however, indications that social trust may bolster against perceived societal fear, hence enhancing resilience.

As escalation of fear and uncertainty is one of the aims of terrorists themselves, democratic societies should find ways to resist cyberhate. Our findings further underlined the importance of societal resilience and particularly the social trust in other people. Institutional trust does not play a similar role. From our perspective, resilient societies would be able to fight both fear and hate after terrorists' attacks. Building societal resilience is seen also as a preventive measure against inter-group conflicts within society. Resilient societies are better able to bounce forward after terrorist attacks and they are more capable of early prevention. Future studies should continue to investigate the role of cyberhate after terrorist attacks to understand how people can be protected from the harms it engenders.

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Conflict of interest statement

Authors report no conflict of interest.

ORCID

Atte Oksanen http://orcid.org/0000-0003-4143-5580
Jaana Minkkinen http://orcid.org/0000-0002-9457-9599
Pekka Räsänen http://orcid.org/0000-0001-7472-6355

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Notes on contributors

Atte Oksanen, Dr. Soc. Sci., is professor of social psychology at the University of Tampere, Finland. Oksanen's research focuses on emerging technologies and social interaction. He has published in a variety of areas including youth studies, drug and alcohol research and criminology.
Markus Kaakinen, M. Soc. Sci., is a doctoral researcher at the University of Tampere, Finland. His research focuses on social psychology of information and communication technology with a current emphasis on adolescents' and young adults' social identities and networks in social media.
Jaana Minkkinen (Dr.Soc.Sc.) is a postdoctoral researcher at University of Tampere, Finland. Dr. Minkkinen has published in a variety of areas including well-being theory, school well-being,

adolescents' mental health, health behavior, suicide studies and online hate. Her current research includes work intensification and employee well-being.

Pekka Räsänen, PhD, Professor of Economic Sociology, University of Turku, Finland. His current research interests include the sociology of consumption, the use of information and communication technologies, and social science research methodology.

Bernard Enjolras, Phd Sociology, Phd Economics, is a Research Professor and Director of the Center for Research on Civil Society and Voluntary Sector. at the Institute for Social Research in Oslo.

Kari Steen-Johnsen, PhD., is a Research Professor and a Research Director at the Institute for Social Research in Oslo, Norway. Her research interests include political communication, mobilization and participation, with an emphasis on the consequences of digitalization and the emergence of social media. Steen-Johnsen leads a comparative project that examines the societal consequences of terrorism in Norway, France, Spain, the US and Finland, Disruption, Social Capital and Resilience.