

Anxiety about Digital Security and Terrorism, and Support for Counter-terror Measures

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Purpose: This paper aims to determine the potential predictors of anxiety about digital security, terrorist threats and support for high-tech counter measures.

Design/methodology/approach: In *Study 1*, 195 participants indicated their anxiety about digital security systems, data protection and social networking sites. In *Study 2*, 107 participants indicated their anxiety about domestic terrorism, international terrorism and extremist groups. In *Study 3*, 261 participants indicated their support for high-tech counter terrorism measures.

Findings: *Study 1* suggests that whereas anxiety about digital security systems, data protection and social networking sites were positively predicted by right-wing authoritarianism, anxiety about social networking was also negatively predicted by time spent online. *Study 2* shows that time spent online was a negative predictor of anxiety about domestic terrorism. *Study 3* indicates that the strongest positive predictor of support for all the measures was right-wing authoritarianism, followed by national identity.

Research implications: The findings show the relevance of terror management theory to digital security and counter-terrorism.

Practical implications: It appears that right-wing authoritarianism and national identity may serve as mechanisms for people to subjectively counter the presented threats. This notion may inform relevant policy and practice aimed at making communities safer and potentially help introduce counter-terror measures with less public backlash.

Social implications: When designing counter-terror measures, policy makers should consider compound national identities (e.g., Catalan or Basque people).

Originality/Value: The paper makes contribution to underexplored areas of terrorism anxiety and support for counter-terror measures.

Keywords *Anxiety about terrorism, Digital security, Support for counter-terror measures*

Terrorists have used the Internet for communication (Taylor *et al.*, 2014), fundraising (Keene, 2011), publicity (Narcos, 2016), propaganda (Weimann, 2004), radicalisation (King and Taylor, 2011), research (Stenersen, 2008), planning (Torres, 2011), and building a sense of community (Palasinski and Bowman-Grieve, 2017). While the association between the consumption of online material and engagement in acts of terrorism offline may not always be conclusive (Borum, 2015; McCauley and Moskalenko, 2011), there is a growing concern that the accessibility of interactive extremist contents might increase the potential toward radicalization (McGilloway *et al.*, 2015; Moghaddam, 2015). This is of further concern given that online extremist instructions are often actualized in real-world terrorist attacks (or attempted ones; Edwards and Gribbon, 2013; Jackson and Loidolt, 2013; Lemieux *et al.*, 2014). Von Behr *et al.* (2013) examined the role of Internet in radicalisation and identified 15 cases of extremists who used the Internet to gain radical information and to spread their extremist views. Similarly, Koehler (2014) found that the Internet was a key factor in turning radical beliefs to political activism.

Thus, while the Internet facilitates exposure to extremist activities, it also affords opportunities for those engaged in counter-terrorism as they can gain intelligence about individuals, their connections and likely their intentions (Palasinski and Bowman-Grieve, 2017; Pantucci, 2014). While the increased anxiety about the US government's monitoring was found to be matched by the decreased support for domestic counterterrorism policies (Best *et al.*, 2012), the increased sense of people's threat was moderated by a decreased support for civil liberties (Davis and Silver, 2004). The US approach, characterised by the increased surveillance and profiling of terrorism suspects, is in sharp contrast to the privacy and non-discrimination rights that are core to the European Union's legal frameworks (Brown and Korff, 2009).

What is interesting, then, is that despite the threats of terrorism (including its online-facilitated forms), there is still relatively little support for invasive government policies (Reicher and Haslam, 2016). The strong and negative reactions to the security measures are perhaps counter-intuitive when it is considered that fears of terrorism translate into political threat perceptions (Canetti *et al.*, 2017) and are positively associated with the support for more oppressive and punitive measures (Pyszczynski *et al.*, 2003). This is especially pertinent when measures are directed against those who are suspected of terrorism. Relatedly, after the 9/11 attacks, between 82–91% of Americans approved of the Bush administration's military action against terrorism, while 55–79 % of Americans were willing to sacrifice some of their civil liberties to fight it (Huddy *et al.*, 2002). The majority of Americans who viewed the threat of future terrorism highly likely also supported anti-terrorism policies domestically and globally (Huddy *et al.*, 2005). According to neutralisation theory (Fine *et al.*, 2016), the Americans from these studies could deny the significance of such sacrifice or believe in its greater value. Thus, although people can recognise the potential benefit for the counter-terror measures, it seems to be the case only under an appropriate legal basis (Potoglou *et al.*, 2017).

As already illustrated by Miller and Landau (2005), the salience of mortality might be managed by embracing social norms or values that seem to subjectively counter the threat, which is the basis of terror management theory (Greenberg *et al.*, 1986). The theory suggests that the salience of mortality can be managed by embracing social norms or values that seem to subjectively counter the threat. By providing guidance, such norms and values also confer protection and death transcendence either literally (e.g., through belief in afterlife) or symbolically (e.g., through identification). However, when such norms are compromised, then they cease to serve as existential anxiety buffers (Arndt *et al.*, 2005).

Going beyond the role of some of the already explored individual difference variables, like age, gender, personality and risk-taking propensity in information security

awareness (McCormac, *et al.*, 2017), as well as the role of personality in digital technology preferences (Pearson and Hussain, 2015), it is vital to explore the predictors of anxiety about digital security, terrorist threats and support for high-tech counter measures. They are the omnipresent features of the digital mediascape, which varies between countries and generations (Curran, Coen, Soroka, Aalberg, Hayashi, Hichy Iyengar, Jones, Mazzoleni, Papathanassopoulos and Rhee, 2014). Furthermore, and in line with the previous studies in this area (Cohrs *et al.*, 2005; Crowson 2009; Haider-Markel and Vieux, 2008), this paper will also take account of the role of some important socio-demographic and personality factors already found relevant (Huddy *et al.*, 2005; McFarland, 2005), including: age, *gender*, *social dominance*, and *right-wing authoritarianism*. As the literature covered here is quite sparse and mostly based on American participants, the paper will contribute to the area by examining the generalisability of the hypothetical grounds to British participants.

Study 1

The development of new technologies led to an increase in surveillance opportunities (e.g., people tracking and identification) (Clarke, 2001). Although digital security is aimed at protecting Internet users and electronic data users (Arpaci *et al.*, 2015), who now comprise most shoppers (Chiou and Ting, 2011; Hasan, 2016), it may also evoke concerns about its potential misuse by third parties (Workman, 2005; Workman *et al.*, 2008), like criminals, corporations, governments and law enforcement.

The factors facilitating such anxiety about digital security, therefore, deserve exploration. Drawing on related research on punitive attitudes and right-wing authoritarianism (Altemeyer, 1988; Cohrs *et al.*, 2005; Kossowska *et al.*, 2011; Golec de Zavala and Kossowska, 2011), neuroticism (Muris *et al.*, 2005), religiousness (Baumer and Martin, 2013), national identity (Kinnvall, 2004), belief in a just world (Rubin and Peplau, 1975; Allen *et al.*, 2005) and social dominance (Sidanius and Pratto, 1999; McFarland, 2005),

it was hypothesized that they would be positive predictors of anxiety about digital security systems (H1), anxiety about data protection (H2) and anxiety about social networking sites (H3). These anxiety constructs measured on a Likert-type scale are based on the research on some of the most common concerns about online security (Ben-Asher and Gonzalez, 2015; Fox and Warber, 2014; Gudaitis, 1998). Taking into account the positive association between time spent online and problematic Internet use (Shapira *et al.*, 2003), as well as social anxiety (Lo *et al.*, 2005), it was also hypothesized that such time would also be a positive predictor of these anxiety forms (H4).

Method

Following the main author's institutional review board, 195 participants (90 Males, 105 Females; mean age was 24.90; $SD=10.67$) of various socio-economic backgrounds and from across the UK were cyber-recruited via social media sites, like Facebook and Twitter. The self-report questionnaire took approximately 10 minutes to complete. To maximize participation, the questionnaire featured adapted and shortened 5 item 7-point Likert-type scales (independent variables) relating to participants' neuroticism (Cronbach's $\alpha = .74$), religiousness (Cronbach's $\alpha = .77$), national identity (Cronbach's $\alpha = .81$), right-wing authoritarianism (Cronbach's $\alpha = .82$), belief in a just world (Cronbach's $\alpha = .75$), social dominance (Cronbach's $\alpha = .74$), and estimated minutes spent online per week. The three dependent variables were measured by 7-point Likert-type questions ('how anxious are you about: digital security systems/data protection/social networking?'). Three standard multiple regression models were tested using the above-mentioned anxiety-related variables. Across this whole paper, the design was correlational, the sample was random and the data was collected over the period of 3 months in 2017.

Results

The data were distributed normally, the boxplot indicated no outliers and the variance inflation factor values suggested no multicollinearity.

Anxiety about digital security systems: The total variance explained by the model as a whole was 11%, $F(7, 185) = 2.65, p < .01$, adjusted $R^2 = .11$. Right-wing authoritarianism ($\beta = .19, p < .05$) was the only statistically significant positive predictor here.

Anxiety about data protection: The total variance explained by the model as a whole was 13%, $F(7, 185) = 3.06, p < .01$, adjusted $R^2 = .13$. Right-wing authoritarianism ($\beta = .22, p < .01$) was the only statistically significant positive predictor here.

Anxiety about social networking: The total variance explained by the model as a whole was 18%, $F(7, 185) = 4.57, p < .01$, adjusted $R^2 = .18$. Right-wing authoritarianism ($\beta = .20, p < .01$) was a statistically significant positive predictor, whereas time spent online ($B = -.16, p < .05$) was a statistically significant negative predictor. The other factors were not statistically significant.

Discussion

The aim of *Study 1* was to examine how individual factors could predict anxiety about digital security. *Hypotheses 1, 2 and 3* could be met only partially as right-wing authoritarianism was the only positive predictor of anxiety about digital security systems and anxiety about data protection. It was also the only positive predictor of anxiety about social networking, which was also negatively predicted by time spent online. The predictive power of right-wing authoritarianism is in line with existing research on its positive association with support for greater surveillance (Cohrs *et al.*, 2005; Kossowska *et al.*, 2011) and more punitive measures (Golec de Zavala and Kossowska, 2011). In other words, anxiety about digital security could be understood in the context of high right-wing authoritarianism participants being more likely to support online surveillance and punitive measures. As

Hypothesis 4 was not supported, it appears that the explored anxiety forms are distinct from social anxiety (Lo *et al.*, 2005) and problematic use of the Internet (Shapira *et al.*, 2003).

Study 2

As the role of time spent online was not found to be associated with anxieties about digital security systems, data protection and social networking, in *Study 2* the focus was put on its common security attitude-shaping forms related to the media (Robinson, 1999; Zhang, 2010). More specifically, attention was paid to time spent: online, reading tabloid newspapers, watching the news and watching movies. Given the misuse of the Internet by terrorist groups around the world, the multiple regression models used the following outcome variables related to security: anxiety about: domestic terrorism, international terrorism and extremist groups. These constructs measured on a Likert-type scale are based on the related research on online terrorist threats (McGilloway *et al.*, 2015; Palasinski *et al.*, 2014). Drawing on the research showing a strong impact of sensationalist media on public perception of security (Ray *et al.*, 2011), and their anxiety-inducing effect (Slone, 2000), as well as a positive correlation between greater social media consumption and fear of crime (Intravia *et al.*, 2017), it was hypothesised that such anxieties would be positively predicted by the time spent on the media (H5).

Method

Following the main author's institutional review board, 107 participants (47 males and 60 females; mean age was 31.17; $SD=12.03$) of various socio-economic backgrounds and from across the UK were cyber-recruited via social media sites, like Facebook and Twitter. The self-report questionnaire took approximately 10 minutes to complete and featured items related to participants' media related habits: estimated minutes per week spent: online, reading tabloid newspapers, watching the news and watching movies (independent variables). Three standard multiple regression models were tested and the three dependent variables

were measured by 7-point Likert-type questions ('how anxious are you about: domestic terrorism/international terrorism /extremist groups?').

Results

The data were distributed normally, the boxplot indicated no outliers and the variance inflation factor values suggested no multicollinearity.

Anxiety about domestic terrorism: The total variance explained by the model as a whole was 4%, $F(4,102)=1.59$, $p=.05$, adjusted $R^2=.04$. Time spent online was the only statistically significant negative predictor here ($\beta=-.01$, $p<.05$).

Anxiety about international terrorism: The total variance explained by the model as a whole was 2%, $F(4,102)=.57$, $p>.05$, adjusted $R^2=.02$, however the predictor factors were not statistically significant.

Anxiety about extremist groups: The total variance explained by the model as a whole was 3%, $F(4,102)=.66$, $p>.05$, adjusted $R^2=.03$, however the predictor factors were not statistically significant.

Discussion

The data do not support *Hypothesis 5*. In other words, apart from a negative association between time spent online and anxiety about domestic terrorism, there was no other significant association between the explored forms of anxiety and the media. Although this may appear at odds with the existing research on the effects of media on security perception (Ray *et al.*, 2011) and their effect on anxiety (Slone, 2000), it is likely that the duration of the war on terror, which has lasted for over 15 years now, as well as the recent wave of highly medialised attacks in Europe (Hoffmann and Reid, 2016), have possibly desensitised participants (and the public at large) to terror threats. This possible explanation would be in line with research showing that although the detailed coverage of terrorist attacks is more attractive to media consumers, the inclusion of horrifying details leads to a decline in

their interest (Keinan *et al.*, 2003). Bearing this in mind, in *Study 3*, the focus was on the support for related high-tech counter-terror measures that still remain controversial (McCulloch and Pickering, 2009) due to their privacy-compromising nature.

Study 3

There was an intense surveillance of private data following terrorist attacks, especially those in 2001 in the US, in 2004 in Madrid and in 2005 in London (Clarke, 2014). Also, the continuing terrorist attacks in Europe (Hoffmann and Reid, 2016) have highlighted the urgent need for more effective implementation, improvement and development of counter-terror measures (Bartholomew, 2016). Some of these, however, may encroach upon civil liberties (Haider-Markel *et al.*, 2006), mistake the innocent for the involved (Parmar, 2011), be actually counterproductive (Passas, 2006), or ironically increase the likelihood of terrorism occurring (Lum *et al.*, 2006). In fact, since 2001, many countries have experienced more prominent intrusions into their civil liberties than in the Post-Cold War period of 1946-1990 (Clarke, 2014).

As keeping the balance between security and freedom is complex (Waddington, 2006), and there are differences in terms of people's personality and risk perception (Morakabati and Kapuściński, 2016), it is vital to identify the factors that predict support for counter-terror measures. In this study, therefore, it was hypothesized that right-wing authoritarianism, social dominance, national identity and belief in a just world would be positively associated with support for high-tech counter terror measures, and in particular with support for: closer Internet surveillance (H6), tighter airport security (H7) and computerised identification systems (H8). These hypotheses are based on the insights from *Study 1*, and research on social dominance and right-wing authoritarianism in the context of threats (Cohrs and Asbrock, 2008; Larsson *et al.*, 2012), as well as belief in a just world and redistributive politics (Benabou and Tirole, 2006).

Method

Following the main author's institutional review board, 261 participants (120 males and 141 females; mean age was 38.43; $SD=11.75$) of various socio-economic backgrounds and from across the UK were cyber-recruited via social media sites, like Facebook and Twitter. The self-report questionnaire took approximately 10 minutes to complete and featured the independent variables used in *Study 1*. Three standard multiple regression models were tested and the three dependent variables were measured by 7-point Likert-type questions ('how supportive are you of: closer Internet surveillance/tighter airport security /computerised identification system?').

Results

The data were distributed normally, the boxplot indicated no outliers and the variance inflation factor values suggested no multicollinearity.

Support for closer Internet surveillance: The total variance explained by the model as a whole was 28%, $F(4,253) = 15.64, p < .001$, adjusted $R^2 = .28$). Right-wing authoritarianism ($\beta = .449, p < .001$) and national identity ($\beta = .147, p < .011$) were the strongest significant positive predictors.

Support for tighter airport security: The total variance explained by the model as a whole was 22%, $F(4,253) = 11.99, p < .001$, adjusted $R^2 = .228$). Right-wing authoritarianism ($\beta = .344, p < .001$) and national identity ($\beta = .217, p < .001$) were the strongest significant positive predictors.

Support for computerised identification system: The total variance explained by the model as a whole was 27%, $F(4,253) = 13.60, p < .001$, adjusted $R^2 = .273$. Right-wing authoritarianism ($\beta = .463, p < .001$) was the only positive and statistically significant predictor here.

Discussion

The data partially support *Hypotheses 6, 7 and 8*. In line with *Study 1*, as well as research on the close positive associations between right-wing authoritarianism, increased perception of terrorist threats and reduced support for civil liberties (Cohrs *et al.*, 2005; Kossowska *et al.*, 2011), support for: closer Internet surveillance, tighter airport security and computerised identification system were best predicted by right-wing authoritarianism. Interestingly, support for: closer Internet surveillance and tighter airport security were also found to be positively associated with national identity. This latter finding adds a new layer of complexity to the research on how a sense of insecurity can be sought to be reaffirmed by a collective identity against a perceived collective threat (Kinnvall, 2004). More specifically, it shows how identity can be positively associated with the support for key digital counter-terror measures.

General Discussion

Offering a fresh perspective on increasing cybersecurity threats and privacy-compromising measures aimed at minimising them, this paper examines digital security, anxiety about terrorism and support for counter-terror measures. More specifically, *Study 1* examined how individual factors could predict anxiety about digital security. As right-wing authoritarianism was the only positive predictor of anxiety about digital security systems, anxiety about data protection and anxiety about social networking, *Hypotheses 1, 2 and 3* could be partially supported. This contributes to the research on the close link between punitive measures (Golec *et al.*, 2011) and support for greater surveillance (Cohrs *et al.*, 2005; Kossowska *et al.*, 2011). In contrast to *Hypothesis 4*, time spent online was not positively associated with these anxiety forms, which suggests that they are fundamentally different from the relationship between social anxiety (Lo *et al.*, 2005) and problematic Internet use (Shapira *et al.*, 2003).

Since the role of time spent online was not found to be associated with digital security, in *Study 2* time spent online was explored in terms of attitude-shaping forms of security related to the media (Robinson, 1999; Zhang, 2010). With the exception of a negative association between time spent online and anxiety about domestic terrorism, there was no other significant association between the explored forms of anxiety and the media. Although this might appear in contrast to the research on the effects of media on security perception (Ray *et al.*, 2011) and on anxiety (Slone, 2000), it is plausible that the continuous media focus on the ever-growing terrorist threats may have diluted the link.

Taking the insights from *Studies 1* and *2* into account, *Study 3* was focused on the support for controversial high-tech counter-terror measures. Its results partially support *Hypotheses 6, 7* and *8*. Echoing *Study 1*, support for: closer Internet surveillance, tighter airport security and computerised identification system were best predicted by right-wing authoritarianism. This lends weight to the existing research on the close links between right-wing authoritarianism, heightened perception of terrorist threats and reduced support for civil liberties (Cohrs *et al.*, 2005; Kossowska *et al.*, 2011). National identity was also found to be positively associated with support for closer Internet surveillance and support for tighter airport security, which is in line with terror management theory (Miller and Landau, 2005; Greenberg *et al.*, 1986). Thus, as specific norms and values are adopted to manage the salience of mortality, it seems that right-wing authoritarianism and national identity may be viewed as such protective tools that were adopted to subjectively counter the threat. The overarching conclusion from the three sets of results, then, is that apart from right-wing authoritarianism and, to a smaller degree, national identity, personality dimensions did not appear to be associated with anxiety about digital security and support for high-tech counter-terror measures. The role of time spent on the media was also found to be quite limited in subjectively countering the presented threats.

The issues of terrorist threats, counter-terror measures and civil liberties will likely remain relevant academically, socially and geo-politically for years to come. In order to better communicate cyberterrorist threats and introduce related counter-measures, (including surveillance and interception of risk-indicating messages in the form of policies, regulations and laws more effectively), it is vital to identify the factors behind the favourable attitudes towards them. This is particularly important given the economic and civil rights costs of these measures that are still predominantly based on ideology, intuition or ‘common sense’ rather than on empirical evidence (Lum *et al.*, 2008).

To this end, future studies might address some of the limitations of this research, such as the relatively limited scope of examined factors, by considering a wider and more nuanced range of variables (including socio-economic factors and political attitudes), as well as other dimensions of online behaviours. They might also use a population from a different country, which is likely to reveal different correlates (Potoglu *et al.*, 2017). Such studies might also use qualitative methods, which might in turn inform the design of more sophisticated regression models, structural equation models and experiments. They might also incorporate new methodological tools, like the rule orientation scale (Fine *et al.*, 2016), and explore the relationship between people’s inclination towards norm violation and extreme surveillance that civil rights activists brand personal privacy breach.

As national identity and right-wing authoritarianism were both implicated as positive predictors of anxiety about digital security and support for counter-terror measures, future research should further examine these relationships. Given the apparent predictive power of identity, and its apparent role in countering subjective threats (as implied by terror management theory), it would be interesting to focus on a population with a compound national identity (e.g., Catalan or Basque people) and examine their responses to collective threat and their support for digital counter-terror measures. In the long term, such further

research might potentially help policy makers introduce counter-terror measures with less public backlash.

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