Is Extreme in the Eye of the Beholder? An Experimental Assessment of Extremist Cognitions

Abstract

Scholars have extensively discussed the topic of "online radicalization," often seeking to understand the form and function of online extremist material. However, this work has neglected to examine the role that the Internet plays alongside individual personality factors in the process through which someone develops violent extremist cognitions. This paper aims to extend the understanding of the role of personality differences in the effect of exposure to extremist material online. In this study, we experimentally measure the short-term psychological consequences of exposure to extremist material on extremist cognitions. We use a between-group experimental design in which participants are shown extremist propaganda with either pre- or post-counter messages. Our results indicate that trait personality, and specifically aggression, may be more influential than exposure to extremist propaganda in influencing extremist cognitions. We discuss the implications of these results in the context of future research directions.

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Researchers are increasingly attempting to understand the role and effect of online extremist material within the radicalization process[1] (Weimann, 2004), in which an individual's or groups' strained intercommunity relations may lead one to adopt confrontational or violent behaviors in lieu of dialogue practices (Schmid, 2013); the radicalization process includes both the adoption of extremist thoughts, as well as engagement in extremist behavior. For example, Meleagrou-Hitchens and Kaderbhai (2017, p.4) proposed that (1) the influence of online interactions and propaganda on the processes of radicalization remains a highly contested subject; (2) the consensus is that the Internet is a facilitator and catalyzer of an individual's trajectory towards violent political acts; and (3) empirical evidence to draw convincing conclusions remains scarce, and this has negatively impacted on the strength of research on this topic.

While much has been written on the topic of "online radicalization" (e.g., Bowman-Grieve, 2009; Bowman-Grieve & Conway, 2012; Conway, 2006; Ekman, 2014; Freiburger & Crane, 2008; Gendron, 2017; Hoffman, 2006; Holbrook, Ramsay, & Taylor, 2013; Mair, 2017; Rudner, 2017; Von Behr, Reding, Edwards & Bribbon, 2013; Weimann, 2011), what is lacking is: (a) empirical data to support any assertions of the role of extremist online material and (b) the

[1] Radicalization is defined as an individual or collective process that emerges from the friction of intercommunity relations and is associated with a situation of socio-political polarization, where the practices of dialogue between different groups are abandoned in favor of an escalation of confrontational and violent tactics (Schmid, 2013). Though, it is important to clarify that there is a distinction between the adoption of extremist thoughts (i.e., radicalization) and engaging in extremist actions (i.e., engagement in terrorism; see Horgan, 2014). Similarly, extremism may be defined as ideological position adopted by anti-establishment movements that glorifies violent behavior as a "conflict resolution mechanism" (Bötticher, 2017, p. 74).

consideration (or measurement) of individual personality factors that may influence the effect of exposure to extremist online material.

Given this, we adopt a novel (though not unprecedented; see Hassan et al., 2018; Shortland et al., 2017) experimental design aimed at investigating the effect of exposure to online extremist material on extremist cognitions, while accounting for the role of personality traits. Extremist cognition here is operationalized as militant (i.e., violent) extremist mindset, or being "prepared to accept, strongly support, or even advocate the use of violent means to achieve sociopolitical goals" (Stankov, Higgins, Saucier, & Knežević, 2010a, p. 246). In this study, we examine the effects of exposure to online extremist material on extremist cognitions using the Militant Extremist Mindset questionnaire (MEM, Stankov, Saucier, & Knežević, 2010b; Stankov et al., 2010a), while accounting for the influences of trait empathy, aggression, and hostility. In so doing, we aim to identify the psychological consequences of exposure to extremist material online and, thus inform the directions that counter-extremist messages should take.

Extremist Material Online

Beyond outlining the type of material that can be engaged with online and how individuals and networks engage with it (Caiani & Wagemann, 2009; Klausen, 2015), little research has focused on the role that the Internet plays in the process through which someone supports violent extremist activity. Research focused on online violent extremist propaganda is typically concentrated on explaining the form and function of such material (cf., Wojcieszak, 2009, 2010; Reeve, 2019). As such, it does not seek to answer the more complicated questions about what interacting with such material does at the individual level, and specifically how this may amplify, or attenuate, the process of developing extremist cognitions.

One explanation for the Internet's role is that it offers affordances to the individual, which facilitates their support for violent extremist behavior. Traditionally, an affordance is what the environment offers to the individual, for better or worse (see Gibson, 1977; Chemero, 2010). Hence, cognition and behavior are the result of a dyadic exchange between the individual and what the environment affords to them. As Ramsey (2011) highlights, affordances are "a useful way of bridging the gap between the semantic properties of content, and the material (or virtually material) conditions of its consumption" (p. 52). For example, scholars have argued that the qualities of the Internet invite people into a process that results in the collection of illicit images of children (Taylor & Quayle, 2008). Although a full discussion of the role of affordances in extremist behavior is available elsewhere (see Taylor & Currie, 2012), the overall view is that the presence of online extremist material, coupled with the nature of the Internet, invites individuals (or affords them the opportunity) to engage in a process that can facilitate a wider "radicalization" towards extremist violence.

While the internet is not a sole generator of extremist cognitions, it may facilitate an individual's trajectory towards supporting and/or engaging in socio-politically motivated violence (Meleagrou-Hitchens & Kaderbhai, 2017). Therefore, the Internet has altered the means by which radicalization occurs, but not the basic psychological process of radicalization (see Gill et al., 2015). What is missing, consequently, is not a re-conceptualization (i.e., creation) of a theory of "online radicalization," but a baseline understanding of the ways that online extremist content plays in the development of extremist cognitions (Edwards & Gribbon, 2013).

Personality & Extremist Cognitions

While the Internet may invite people into the process, not all individuals exposed to extremist material online develop extremist cognitions. There are qualities inherent in the

individual that will interact with these affordances, resulting in individual differences in the outcome of exposure to such material. Therefore, what the Internet affords the individual is based upon qualities of that individual (see Model of Affordances, Norman, 1988). To this end, research has extensively focused on the "risk factors" for involvement and, while the findings are complicated and mixed, such works have identified predominantly socio-demographic and behavioral factors associated with engagement in certain forms of radicalized behaviors and certain types of Internet use (Gill et al., 2015; Gill et al., 2017; Gill & Horgan, 2013; Horgan, Shortland, Abbasciano & Walsh, 2016; Horgan, Shortland & Abbasciano, 2018).

Research on the effect of violent media writ large reinforces the importance of considering individual personality (e.g., Giumetti & Markey, 2007). For example, findings from research on violent video games have consistently associated them with antisocial cognitions (e.g., Anderson, 2004; Bushman & Anderson, 2002). Experimental research has also demonstrated that exposure to violent video games leads to an increase in aggressive cognitions (Giumetti & Markey, 2007). This relationship is typically theoretically explained by the general aggression model (GAM; Anderson & Bushman, 2002; Anderson & Ford, 1986; Bushman & Anderson, 2002), which posits that the association between exposure to aggressive stimuli and aggressive cognitions is moderated by an individual's own baseline cognitions, affect, and arousal level. Thus, violent material may not equally affect all people; its effect may be amplified for those with higher baselines of aggression.

One exploratory study adopted methods from previous research on the influence of violent media on aggressive cognitions to explore the effects of extremist propaganda[2] on

[2] Propaganda is defined as any information, doctrines or special appeals that are disseminated to influence opinion, emotions, attitudes and behavior of a specified group to benefit the sponsor either directly or indirectly (NATO glossary of terms, p. 2–205).

aggressive cognitions. Using an ambiguous story stem task, the study found that exposure to violent extremist propaganda did not increase levels of exhibited aggression, but actually decreased it. Furthermore, those who had high levels of trait aggression were unaffected by the (apparent pro-social) effect of extremist propaganda (Shortland et al., 2017). This research, while in need of replication, emphasizes the importance of measuring the role of individual differences in personality when examining the interaction of the individual, extremist online material, and cognitions.

Previous research on individual personalities and attitudes indicate that the presence of proviolent attitudes are linked to more frequent episodes of general violence (Markowitz & Felson, 1998; Polaschek, Collie, & Walkey, 2004). In addition, prior studies of militant extremist mindsets demonstrate that proviolent attitudes represent the belief that violence is a viable way to achieve personal and social goals (Stankov et al., 2010b). Future research, however, should expand on this avenue of work as the overlap of the risk factors for and the effect of violent media on general violence and extremist-related violence remains unclear (see Meloy & Gill, 2016; Sarma, 2017).

Individual personality differences play a role throughout the radicalization process, both during the initiation of extremist behavior and its maintenance. For example, highly impulsive individuals may be more prone to engage in extreme behavior to meet a temporarily dominant need, but it is unlikely that this behavior will be maintained for the long-term (Kruglanski et al., 2017). Likewise, low levels of self-control or conscientiousness may increase the likelihood of that initial engagement in extreme activities but are not likely to lead someone to maintain that behavior (Costa & McCrae, 1992; Tangney, Baumeister, & Boone, 2004).

Measuring Extremist Cognitions

One issue with the research above is that it has neglected to measure extremist cognitions, focusing instead on general aggressive cognitions. The distinction between general violent or aggressive cognitions and extremist cognitions is important to highlight, as extremist cognitions focus on socio-political goals through the (potential) use of violence. The Militant Extremist Mindset (MEM) scale allows for an operationalization specific to extremist cognitions. Here, a militant (i.e., violent) extremist mindset refers to the level of accepting, supporting, or advocating for violence to achieve sociopolitical goals (Stankov et al., 2010b). The psychological components of a mindset include "a pattern of beliefs, feelings, thoughts, and motivation that tends to be mobilized under facilitating conditions" (Stankov et al., 2010a, p. 70).

The MEM Questionnaire is a 24-item scale (see Appendix A) with three subscale factors: Proviolence, Vile World, and Divine Power (see Stankov et al., 2010a for scale creation). Items are scored on a 5-point Likert scale from 1 (*strongly and completely disagree*) to 5 (*strongly and completely agree*). Generally, most people fall on the weaker side of the militant extremism continuum and do not consider violence as a necessary means of achieving their goals. Endorsing a higher level of militant extremist cognitions indicates that a person has a set of beliefs, feelings, and motivations associated with violent behaviors (Stankov, Knežević, Saucier, Radović, & Milovanović, 2018). The nobility of the cause overcomes moral codes that may prohibit violence, allowing for a proviolent attitude in the context of serving the greater good.

The subscale factor Proviolence includes ten items, three of which are reverse-coded. Higher Likert scores on these items indicate general agreement, justification, and support for violence in the context of revenge or redemption. Next, Vile World includes six items. Agreement with these items indicates participants believe something is wrong with the world and view this as despicable. Finally, Divine Power includes eight items, three of which are reverse-

coded. Agreement with these items indicates participants believe in a divine power, heaven, and God (Stankov et al., 2010a; see Appendix A).

Methodological issues remain prevalent in studying the "extremist" which, as a field, often lacks primary source data (Silke, 2003), experimental rigor (Horgan, 2014), and empirical data (Schuurman, 2018). Thus, we view it of the utmost importance that such scales are replicated to ensure they are correctly applied in future research. Understanding the degree of holding an "extremist mindset" can support our understanding of mechanisms that guide extremist behavior (Borum, 2017).

Current Study

The current paper presents an experimental test of the short-term psychological consequences of exposure to extremist material on extremist cognitions via the MEM scale. Given that extremist violence is viewed as both pro-social (i.e., "altruistic violence"; see Pedahzur, Perliger & Weinberg, 2003) and anti-social, we consider on the role of trait-level empathy, aggression, and hostility (measures also used in previous research, see Shortland et al., 2017).

Specifically, we propose the following hypotheses:

H_1: Exposure to counter-messages alongside extremist content online will decrease an individual's level of extremist cognitions.

H_2: The effect of exposure to extremist content online will be moderated by the personality factors, and specifically:

H_{2a}: Those high in trait empathy will have a lower score on the extremist mindset scale post exposure to extremist material online than those with low empathy.

H_{2b}: Those high in trait aggression will have a higher score on the extremist mindset scale post exposure to extremist material online than those with low aggression.

H_{2c}: Those high in trait hostility will have a higher score on the extremist mindset scale post exposure to extremist material online than those with low hostility.

Sample

1,112 participants were recruited via Qualtrics Survey Software and collected as part of wider psychological studies on human behavior (see *Table* 1 for demographic data). Of the total sample, 251 participants were 18-20 (22.57%), 465 were 21-23 (41.82%), and 396 were 24-26 (35.61%)[3]. Most participants were male (N=917; 82.46%), White (N=645; 58.00%), and had a religious affiliation of Christian (N=601; 54.05%). All participants were from the United States.

[Insert Table 1 about here]

Pre-Test Questionnaire Completion

Participants were asked to complete three personality questionnaires prior to study participation and potential exposure to extremist content. These questionnaires measure the participants' baseline levels of empathy, aggression, and hostility. Descriptive statistics for these questionnaires can be found in *Table 2.*

Empathy Questionnaire: Participant empathy was measured using the Toronto Empathy Questionnaire (TEQ), a 16-item measure including 8 items that are reverse-coded (Spreng, McKinnon, Mar, & Levine, 2009). Participants rate how frequently they act or feel in regard to each item using a 5-point scale with responses ranging from *Never* to *Always*. The TEQ includes items such as "*I get a strong urge to help when I see someone who is upset*" and reverse-coded

[3] Participants in this age range were specifically targeted in this study as this age group represents those at a potentially greater risk of radicalization (see Klausen, 2016; Gill et al., 2014).

items such as "*I am not really interested in how other people feel*". Participant scores on the TEQ ranged from 21 to 80, with an average score of 57.40 (SD = 9.32). The items on this scale had a high internal consistency, with Cronbach's alpha equaling .840.

Aggression Questionnaire: Participant aggression was measured using the Buss & Perry Aggression Questionnaire (AQ), a 29-item measure including 2 items that are reverse-coded (Buss & Perry, 1992). Participants rate how items describe them on a 5-point scale from *Extremely uncharacteristic of me* to *Extremely characteristic of me*. The AQ includes items such as "*Once in a while, I can't control the urge to strike another person*" and reverse-coded items such as "*I can think of no good reason for ever hitting a person*". Participant scores on the AQ ranged from 31 to 197, with an average score of 105.82 (*SD* = 33.32). The items on the AQ had a high internal consistency, with Cronbach's alpha equaling .943.

Hostility Questionnaire: Participant hostility was measured using the State Hostility Scale (SHS), a 35-item measure including 11 items that are reverse-coded (Anderson, Deuser, & DeNeve, 1995). Participants rate their agreement to mood statements on a 5-point scale from *Strongly Disagree* to *Strongly Agree*. The SHS includes mood statements such as "*I feel like I'm about to explode*" and reverse-coded items such as "*I feel tame.*" Participant scores on the SHS ranged from 35 to 175, with an average score of 87.26 (*SD* = 24.38). The items on the SHS had a high internal consistency, with Cronbach's alpha equaling .938.

[Insert Table 2 about here]

Study Condition

In order to experimentally measure the short-term psychological consequences of online exposure to extremist content on extremist cognitions, we employ a between-group experimental design in which participants are shown extremist propaganda with either pre- or post-counter

messages. Participants were randomly assigned to one of several study conditions: control (no propaganda video shown), propaganda video with no counter message, propaganda with a counter message pre-video, and propaganda with a counter message post-video. Within the conditions with counter messages, three types of counter messages were utilized: Emotion, Religion, and Threat (see Table 2). In total, there were eight study conditions (control, propaganda only, counter-message (x3) pre, counter-message (x4) post).

In this study, counter-messages were composed of a single page narrative that outlined the issues of extremism and the costs engaging in extremist behavior. The counter-message text was then accompanied by an image that showed either (a) an emotional scene of the damage caused to the civilian population by extremist behavior (emotion condition), (b) a poster showing the religious leader denouncing the ideology of the extremist group (religious condition), or (c) an image showing the potential consequences of joining an extremist group (death and/or arrest, threat condition). This was done to assess the strength of the propaganda message effect and assess if exposure to counter-messages had an inoculation effect similar to research on exposure to other types of media (e.g., Chaffee, Saphir, Graf, Sandvig, & Hahn, 2001; Ivanov, Sellnow, Getchell, & Burns, 2018; Saleem, Prot, Anderson, & Lemieux, 2017).

In six of these conditions, participants viewed an ISIS propaganda video (i.e., extremist online content) of a known ISIS fighter, John Maguire, who spoke about ISIS's goals to facilitate lone wolf attacks in Canada. The video, which lasted 6 minutes and 13 seconds, was also shown (in full or in parts) on several Western media outlets, and the version in this study included acts that implied violence (i.e., firing weapons) but did not show any direct violence against humans (i.e., beheadings, killings, battlefield footage, etc.).

Post-Measure Assessment

Extremist Cognitions: Participant extremist mindset was measured using the Militant Extremist Mind-set (MEM) Questionnaire (Stankov et al., 2010a; see Appendix A). Participant scores on our MEM scale ranged from 30 to 104, with an average of 65.68 (*SD* = 13.11; see *Table 2*). The items on our MEM scale had a high internal consistency, with Cronbach's alpha equaling 0.81.

Analysis

Ordinary least squares (OLS) regression models were performed on the outcome of MEM Questionnaire using the lm function in R (R Core Team, 2019). First, we examined the influence of the predictor variables for the study condition, personality measures (empathy, aggression, and hostility), and religious affiliation (see Table 3). Religious affiliation was included in our modeling with the reference category of No Religious Affiliation; this was used to account for how having a religious affiliation may affect extremist cognitions, as items on the MEM directly related to topics of religious beliefs. We then included interaction effects between each of the three personality measures and the study conditions (see Table 4).

To address issues that may threaten our use of OLS regression, the diagnostics of the models were assessed globally using the gvlma function in R (Pena & Slate, 2019) and then individually. We made adjustments to our regression models in order to address these potential threats to OLS regression. First, the three personality measures (empathy, aggression, and hostility) and the outcome measure MEM were all Z-score standardized by mean-centering variables and dividing by their standard deviations in order to convert them to z-scores. It is important to note that this transformation changes the interpretation of our standardized regression coefficients, where a one-standard-deviation sized change in an independent variable results in a change in the dependent variable equal to the standardized regression coefficient (see

Schroeder, Sjoquist, & Stephan, 2016). After this standardization, through a diagnostic assumption in R, one case was identified as an outlier that had an influence in changing the significance of predictor variables, with the inclusion of the case causing significance and its removal eliminating significance.

Thus, we include two additional models that attempt to minimize threats to OLS regression assumptions. In one version, we present the OLS regression results with the one outlier case dropped from our dataset (see Table 3 Model 2 and Table 4 Model 5). It is important to note that dropping this case eliminates the statistical significance of one variable: propaganda condition with no counter-message. While dropping a case may not always be recommended (see Field et al., 2012 for further discussion), we offer the inclusion of this model in tandem with the other analyses of this paper.

In the second version, we refit our original models with a robust linear regression conducted using the rlm function in the MASS package in R (Venables & Ripley, 2002), using an M-estimator and the Huber weight function (see Table 3 Model 3 and Table 4 Model 6). A robust linear regression allows for the model to be less sensitive to outliers by reducing the weight of their influence (see Fox, 1997; Li, 1985).

[Insert Tables 3 and 4 about here]

Results

The results for the OLS regression model are displayed in *Table 3* and *Table 4*. Several of the results remain consistent across all models presented here. The results of all models indicate that both baseline aggression and religious affiliation have a statistically significant influence on extremist cognitions. As scores on the aggression questionnaire increase, so does the score on the

extremist mindset questionnaire. Additionally, the results indicate that when compared to those who identify as non-religious, those who identify as Christian or Catholic have higher likelihood of higher extremist mindset scores. Also, those who identify as Agnostic or Atheist have a higher likelihood of lower extremist mindset scores.

The measures for baseline empathy and hostility both had mixed results in regards to their influence on extremist cognitions. First, in all three models in Table 3, baseline empathy had a statistically significant influence on extremist cognitions. As the scores on the empathy questionnaire increase, so does the score on the extremist mindset questionnaire. This significance did not hold through to the models assessed in Table 4 that include the interaction between study condition and personality measures.

For baseline hostility, all three models in Table 3 indicate that it had a statistically significant influence on extremist cognitions. As the scores on the hostility questionnaire increase, so does the score on the extremist mindset questionnaire. This significance does hold for two of the models in Table 4 that use traditional OLS regression (Table 4, Models 4 and 5). However, when robust linear regression is applied in Table 4 Model 6, baseline hostility loses its significant association with extremist mindset.

Only one study condition, propaganda video with no counter-message, demonstrated statistical significance in our models, with those in this condition having lower scores on the extremist mindset questionnaire (see Table 3 Model 1 and Table 4 Model 4). This significance, however, was only present in the OLS models that may be threatened by outliers. When this was corrected by either dropping out the outlier case (Table 3 Model 2 and Table 4 Model 5) or by applying robust linear regression (Table 3 Model 3 and Table 4 Model 6), this study condition loses its significant association with extremist mindset.

Finally, only one interaction effect had statistical significance: hostility and propaganda video with a post-video threat counter-message (see Table 4). This finding remained consistently significant across all models tested in Table 4.

Discussion

Given the results, we did not find support for hypothesis 1. The short-term exposure here to extremist content online only had a statistically significant influence on extremist cognitions for the condition of the propaganda video with no counter-message in Table 3 Model 1 and Table 4 Model 4. However, this finding is threatened by an outlier in the data and should be taken with caution, as our corrections in the additional models demonstrate that this statistical significance does not hold.

We did find support for hypothesis 2 and hypotheses 2a-2c with mixed results. Specifically, Hypothesis 2b was supported by the results of all the models examined in this study. Trait aggression played a significant role in affecting extremist cognitions consistently across all three models, leading to increases in MEM score. Higher scores on the baseline measure of aggression were related to higher scores of extremist cognitions on the MEM scale.

Additionally, we found mixed support for Hypotheses 2a and 2c. In the Model without any interactions presented in Table 3, we found that trait empathy played a significant role in extremist cognitions, with higher scores on the baseline measure of empathy being related to lower scores of extremist cognitions on the MEM scale. This finding, however, did not hold through to the models presented in Table 4 that included interaction effects between the personality measures and the study conditions.

When examining trait hostility across all the models presented, we found that trait hostility played a significant role in extremist cognitions in five of our six models, with higher

scores on the baseline measure of hostility being related to higher scores of extremist cognitions on the MEM scale. In Table 4 Model 6, for our robust linear regression model, trait hostility loses its statistically significant relationship with the MEM scale.

Finally, we only found significance for one interaction effect in this study between hostility and the propaganda video condition with a post-video threat counter message. This significance held through all models in Table 4, indicating that this study condition mitigated the effects of trait hostility on extremist cognitions.

This research offers a preliminary investigation into the interaction of online extremist propaganda and personality. We do not purport that these findings explain the effects of propaganda in the wider realm of "radicalization," but that they do provide insight into basic psychological questions surrounding the short-term cognitive effects of exposure to extremist message. From this perspective, this study is much closer to recent studies on the effects of media exposure on cognition (e.g., Saleem, et al., 2017) than to past work on understanding the role of Internet materials on the process of "radicalization" (e.g., Halverson & Way, 2012). This experimental study offers several interesting findings for future research, while also generating many questions around the over-arching statements that are often made about the psychological impact of exposure to extremist content and of exposure to counter messages.

Overall, there was no consistent effect of the propaganda on extremist mindset. Thus, it is possible that the short-term effect of exposure to this material is minimal, at least when compared to the known short-term cognitive effects of exposure to stereotype-driven news media for example (Das, Bushman, Bezemer, Kerkhof, & Vermeulen, 2009; Kalkan, Layman, & Uslaner, 2009; Saleem & Anderson, 2013). Instead there was a far more pervasive effect of personality on the outcomes measured here.

We must as well acknowledge the potential that the manipulations themselves may be weak within the context of this study, and thus facilitate the results that they do not influence extremist cognitions. The lack of interactions with propaganda should be interpreted cautiously, and this lack of interaction does not in and of itself facilitate the significance of personality. Instead, our findings demonstrate that when these factors are compared within our sample, personality factors had a more influential role on extremist cognitions than exposure to the online extremist propaganda used. It is also important to note here that the influence of our online extremist propaganda may be limited by the level of "extreme" of the video shown to participants. For obvious reasons, we could not ethically ask participants to view content that included direct violence against humans. Within this context, our findings imply that the person is more important in determining extremist cognitions than the material they consume.

Identifying the specific role of personality differences in the effect of exposure to online propaganda is important, but at the same time, likely problematic. As a field of scholarly study, we have been overly focused identifying the "personality" of those who become involved in extremism; often, this involves a rather naive view of a "profile," or a specific series of personality "risk factors" that will predict an extremist outcome. Such attempts have remained stagnant (for many reasons; see, for example, Gill & Corner, 2017). The results here support that the lack of progress in this field does not mean that we should abandon efforts and concentrate on just generic counter-extremist materials (Palasinski & Bowman-Grieve, 2017) that focus mainly on situational factors (Palasinski, Granat, Seol, & Bowman-Grieve, 2014). Instead, we might consider the design of counter-propaganda materials that may potentially benefit from tailoring their contents to individuals who have already been identified as being at the highest risk of problematic Internet use (thus also at the higher risk of encountering and getting affected

by extremist propaganda). In other words, in light of our results suggesting the importance of personality, we propose the need for examining how such new tailored contents tap into the cognitive and emotional needs of those who score high on the measures of loneliness, low self-esteem, and depression, the key factors associated with problematic Internet use (Caplan, 2002).

Future research might also employ more sophisticated designs aimed at examining the mid and long-term effects of exposure to extremist material on not just cognition, but also online and offline behavior, the former being easier to monitor. Such research might also consider combining our results with research on online addiction (Wang, Ho, Chang, & Tse, 2015). This, for example, may involve a novel exploration of counter extremist contents that appeal to those who score high in neuroticism, low in conscientiousness (associated with Internet addiction) and those scoring high in extraversion and high in neuroticism (associated with social networking addiction – another extremist propaganda susceptibility risk factor). Further research should also commit to studies involving more nuanced measures of arousal, attention, and behavioral outcomes.

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	N	%
Demographics		
Gender		
Male	917	82.46
Female	195	17.54
Age		
18-20	251	22.57
21-23	465	41.82
24-26	396	35.61
Race/Ethnicity		
White	645	58.00
Black or African American	128	11.51
Hispanic/Latino	117	10.52
Asian	190	17.09
Other	32	2.88
Religion		
Christian	601	54.05
Catholic	110	9.89
Atheist	75	6.74
Agnostic	70	6.29
Non-Religious	191	17.18
Other	65	5.85

Table 1: Sample Demographics (N=1,112)

	Min.	Max.	Mean	St. Deviation
Outcome Variables				
Extremist Score	30	104	65.68	13.11
Personality Measures				
Empathy Score	21	80	57.40	9.32
Aggression Score	31	197	105.82	33.32
Hostility Score	35	175	87.26	24.38
	N	%		
Condition				
Control Group (No Propaganda Video or Counter-Message)	139	12.5		
Propaganda Video Only (No Counter-Message)	139	12.5		
Propaganda Video with Pre-Video Counter-Message:				
Emotion Counter-Message	139	12.5		
Religion Counter-Message	139	12.5		
Threat Counter-Message	139	12.5		
Propaganda Video with Post-Video Counter-Message:				
Emotion Counter-Message	139	12.5		
Religion Counter-Message	139	12.5		
Threat Counter-Message	139	12.5		

Table 2: Scale Descriptives and Study Conditions (N=1,112)

	Model 1	Model 2	Model 3
	OLS model	With Dropped Case	Robust Linear Regression
	B (SE)	B(SE)	B(SE)
Intercept	63.74 (1.16)***	63.71 (1.15)***	63.80 (1.16)***
Religion (Ref = Non-Religious)			
Christian	5.51 (0.94)***	5.53 (0.93)***	5.78 (0.94)***
Catholic	3.23 (1.31)*	3.24 (1.30)*	3.04 (1.31)*
Agnostic	-6.96 (1.53)***	-6.95 (1.52)***	-7.04 (1.54)***
Atheist	-5.38 (1.49)***	-5.36 (1.48)***	-5.25 (1.50)***
Other	2.09 (1.57)	2.08 (1.56)	2.24 (1.58)
Condition (Ref = No Propaganda Video)			
Propaganda Video, No CM	-2.85 (1.36)*	-2.51 (1.36)	-2.19 (1.37)
Propaganda Video, Pre-video Emotion CM	-0.34 (1.31)	-0.33 (1.30)	-0.51 (1.32)
Propaganda Video, Pre-video Religion CM	-1.63 (1.31)	-1.63 (1.30)	-1.75 (1.32)
Propaganda Video, Pre-video Threat CM	-1.60 (1.31)	-1.56 (1.30)	-1.81 (1.32)
Propaganda Video, Post-video Emotion CM	0.10 (1.32)	0.10 (1.31)	-0.44 (1.33)
Propaganda Video, Post-video Religion CM	-0.42 (1.32)	-0.43 (1.31)	-0.45 (1.33)
Propaganda Video, Post-video Threat CM	1.35 (1.33)	1.40 (1.32)	1.40 (1.34)
Personality Pretest Measures			
Empathy†	-0.74 (0.37)*	-0.86 (0.37)*	-0.88 (0.38)*
Aggression†	4.55 (0.43)***	4.61 (0.43)***	4.80 (0.43)***
Hostility†	1.85 (0.46)***	1.83 (0.45)***	2.04 (0.46)***
Adjusted R^2	0.31	0.32	

*p<.05, **p<.01, ***p<.001; CM = Counter-Message; †=standardized.

Table 3: Regression Analysis for Extremist Cognitions on the Militant Extremist Mindset (MEM) Scale

	Model 4	Model 5	Model 6
	OLS model	With Dropped Case	Robust Linear Regression
	B (SE)	B(SE)	B(SE)
Intercept	63.87 (1.17)***	63.87 (1.16)***	63.90 (1.16)***
Religion (Ref = Non-Religious)			
Christian	5.56 (0.94)***	5.56 (0.94)***	5.72 (0.93)***
Catholic	3.49 (1.30)**	3.49 (1.30)**	3.16 (1.29)*
Agnostic	-7.03 (1.53)***	-7.03 (1.52)***	-7.49 (1.51)***
Atheist	-5.36 (1.48)***	-5.36 (1.47)***	-5.14 (1.46)***
Other	1.87 (1.58)	1.87 (1.56)	2.08 (1.56)
Condition (Ref = No Propaganda Video)			
Propaganda Video, No CM	-2.95 (1.38)*	-2.64 (1.37)	-2.14 (1.36)
Propaganda Video, Pre-video Emotion CM	-0.86 (1.36)	-0.86 (1.34)	-0.94 (1.34)
Propaganda Video, Pre-video Religion CM	-1.82 (1.35)	-1.82 (1.34)	-1.85 (1.34)
Propaganda Video, Pre-video Threat CM	-2.36 (1.34)	-2.36 (1.33)	-2.44 (1.33)
Propaganda Video, Post-video Emotion CM	0.17 (1.40)	0.17 (1.39)	-0.41 (1.38)
Propaganda Video, Post-video Religion CM	-0.88 (1.36)	-0.88 (1.35)	-0.93 (1.34)
Propaganda Video, Post-video Threat CM	1.39 (1.37)	1.39 (1.36)	1.81 (1.36)
Personality Pretest Measures			
Empathy†	-0.31 (1.26)	-0.31 (1.25)	-0.90 (1.25)
Aggression†	4.63 (1.27)***	0.63 (1.26)***	4.69 (1.26)***
Hostility†	2.86 (1.41)*	2.86 (1.40)*	2.51 (1.40)
Interactions			
Empathy† & Video, No CM	1.37 (1.64)	0.51 (1.63)	2.20 (1.62)
Empathy† & Video, Pre-video Emotion CM	-1.07 (1.69)	-1.07 (1.68)	-0.79 (1.67)
Empathy† & Video, Pre-video Religion CM	-2.17 (1.66)	-2.17 (1.65)	-1.57 (1.64)
Empathy† & Video, Pre-video Threat CM	-2.80 (1.64)	-2.80 (1.58)	-1.90 (1.58)
Empathy† & Video, Post-video Emotion CM	1.52 (1.72)	1.52 (1.71)	1.59 (1.70)
Empathy† & Video, Post-video Religion CM	-0.22 (1.63)	-0.22 (1.61)	0.32 (1.61)
Empathy† & Video, Post-video Threat CM	0.22 (1.59)	0.22 (1.57)	0.49 (1.57)

Aggression† & Video, No CM	-0.95 (1.84)	-0.17 (1.83)	-0.31 (1.82)
Aggression† & Video, Pre-video Emotion CM	0.23 (1.72)	0.23 (1.70)	0.37 (1.70)
Aggression† & Video, Pre-video Religion CM	0.20 (1.74)	0.20 (1.73)	0.57 (1.72)
Aggression† & Video, Pre-video Threat CM	2.32 (1.86)	2.32 (1.84)	2.52 (1.84)
Aggression† & Video, Post-video Emotion CM	0.24 (1.78)	0.24 (1.76)	0.36 (1.76)
Aggression† & Video, Post-video Religion CM	-2.83 (1.75)	-2.83 (1.74)	-3.24 (1.73)
Aggression† & Video, Post-video Threat CM	1.16 (1.69)	1.16 (1.67)	1.62 (1.67)
Hostility† & Video, No CM	2.34 (1.96)	1.95 (1.95)	3.10 (1.94)
Hostility† & Video, Pre-video Emotion CM	-2.60 (1.96)	2.60 (1.94)	-2.31 (1.93)
Hostility† & Video, Pre-video Religion CM	-0.78 (1.89)	-0.78 (1.87)	-0.13 (1.86)
Hostility† & Video, Pre-video Threat CM	-6.28 (1.96)**	-6.29 (1.95)**	-5.90 (1.94)**
Hostility† & Video, Post-video Emotion CM	-0.16 (1.92)	-0.16 (1.90)	0.52 (1.89)
Hostility† & Video, Post-video Religion CM	0.81 (1.92)	0.81 (1.90)	2.10 (1.90)
Hostility† & Video, Post-video Threat CM	-2.27 (1.84)	-2.27 (1.83)	-2.16 (1.82)
Adjusted R^2	0.32	0.33	--

*p<.05, **p<.01, ***p<.001; CM = Counter-Message; †=standardized.

Table 4: Regression Analysis for Extremist Cognitions on the Militant Extremist Mindset (MEM) Scale with Interaction Effects between Study Condition and Personality