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## Reviewing the links between violent extremism and personality, personality disorders, and psychopathy

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### ABSTRACT

Many early published analyses of the terrorist placed psychopathy as the core explanatory variable for terrorist behaviour. This speculative opinion was derived mainly from popular culture, and the desire to attribute mental disorders to those committing such violent acts. Poor research designs and a lack of empiricism ultimately undermined these arguments in favour of terrorism being rooted in disorders of personality. Multiple studies supporting psychopathic and personality-level explanations were conducted in the absence of rigorous clinical diagnostic procedures. Despite the methodological issues, concluding remarks from this research continues to hold instinctive appeal across the research field. This incentivises a need for a rigorous synthesis of the evidence base. The objective of this systematic review is to assess the impact of personality upon attitudes, intentions, and behaviours in the context of radicalisation and terrorism. This paper follows the same systematic process as the Gill et al. paper in this special issue. However, we use the model to interrogate the existing empirical literature on personality and terrorism in terms of its coverage, common themes, methodological strengths and weaknesses and implications. The search strategy for the systematic review is based on the Campbell Collaboration method. Results and their implications are discussed.

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In the quest to explain terrorist behaviour, researchers consistently returned to the most commonly attributed cause of extreme behaviour in society – psychopathy. The earliest form of analysis examining the role of psychopathy in terrorists we are aware of is Pearce and Macmillan (1977). Pearce described three types of hostage takers: The criminal psychopath, the mentally ill, and the political terrorist. The political terrorist, Pearce posits, ‘may be an aggressive psychopath, who

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has espoused some particular cause because extremist causes can provide an external focal point for all the things that have gone wrong in his life' (Pearce & Macmillan, 1977, p. 174). Pearce offers no case studies, confirming literature, nor data of any sort. Despite its scientific limitations, this paper had an unintended lasting effect on how subsequent studies portrayed terrorists and their motivations.

Cooper (1977) argued psychopaths could make ideal terrorists because they are free of the moral constraints that might hinder others to conduct violence. In a separate paper, Cooper (1978) asserted his position further in a number of statements:

Terrorism has an innate 'self-righteousness' about it that is remarkably similar to the attitudes displayed by the psychopath... The terrorist like the psychopath is distinguished by the peculiar slant of his morality. It is not he who is out of step, it is the others, however numerous they might be. It is, perhaps, in this development of, and adherence to, a distinctively personal code of conduct, substantially out of tune with that of the rest of society, that the psychopath and the terrorist are seen at their closest ... an indifference to the rights of others at best and an active, festering hostility at worst... It is small wonder that, on occasion at least, the distinction between them seems scarcely worth making... Despite their conduct and the repugnant side of their personalities, both the psychopath and the terrorist are capable of exciting sympathy even from those whom such a reaction might hardly have been expected. (p. 256)

Cooper (1978) also argued that although psychopathy might indeed drive terrorist behaviour, such individuals are often poor-quality terrorists: 'Terrorism, like any other serious undertaking, requires dedication, perseverance, and a certain selflessness. These are the very qualities that are lacking in the psychopath. They make for mediocrity in performance' (Cooper, 1978, p. 261). Almost a decade later, Tanay (1987) agreed, contending that terrorist acts are merely 'psychopathic tendencies' hidden behind political rhetoric to provide the terrorist with an excuse to aggress.

Subsequent analyses gradually became more sophisticated and empirical in nature, but the focus on psychopathy was never far away. Ferracuti and Bruno (1981) identified nine commonalities that they related to psychopathy among their sample of 908 right-wing Italian terrorists.<sup>1</sup> Strentz's (1988) investigation of left-wing terrorists in the 1960s and 1970s defined (1) leaders, (2) activist-operators, and (3) idealists. Although Strenz defines the activist-operators to present with a psychopathic personality structure, elements within the description of the leaders given by the author also aligns to some diagnostic criteria of psychopathy.<sup>2</sup> Much later, Hamden's (2002) typology of terrorists included the ideal type labelled 'Psychopathic', and Martens (2004) suggested that terrorists and patients with antisocial personality disorder (ASPD)<sup>3</sup> share a range of behavioural and psychological characteristics.

Concurrent to the research purporting terrorists as showing psychopathic traits, a team of German researchers undertook one of the most influential investigations into terrorist behaviour. The *Analysen zum Terrorismus* was a comprehensive mixed-methods study published in four volumes, one of which included Schmidtchen's interviews and subsequent analyses of 250 terrorist careers (Jäger et al., 1981). The results highlighted different personality traits across both leaders and followers, and focused particularly on narcissism. The impact of these findings should not be underestimated. The publication of Schmidtchen's findings still resonates in literature seeking to explain terrorist behaviour today (Houssier, 2016; MacDonald, 2014; Opoku-Agyemang, 2017; Rae, 2012).

Despite the impact of the *Analysen zum Terrorismus*, much of the subsequent literature focused on personality was characterised by poor research designs and a lack of empiricism. Various studies supporting both psychopathic and personality-level explanations were conducted following violent events, with methods focused on profiling individuals on the nature of the attack behaviour, and in the absence of rigorous clinical diagnostic procedures (Akhtar, 1999; Baruch, 2003; Berko, 2007; Billig, 1985; De Cataldo Neuberger & Valentini, 1996; DeMause, 2002; Kellen, 1982; Pearlstein, 1991; Post, 1984; Taylor & Quayle, 1994). Modern reviews of this literature cite the ambiguities and seemingly contrasting findings regularly uncovered within various empirical studies in this area (Gill & Corner, 2017; Horgan, 2005; Victoroff, 2005). These differences may be a by-product of misunderstandings, methodological approaches, sampling and interpretation. This incentivises a need for a rigorous synthesis of the existing evidence base.

To determine the strength of the evidence base regarding the role of psychopathy and personality in violent extremism, it is necessary to interrogate the development and quality of the evidence examining these factors. Systematic reviews offer a comprehensive method for synthesising research findings and assessing the state of the empirical evidence base. While literature reviews can be conducted relatively quickly, they are subject to considerable bias, likely to be incomplete, and do not require a formal process of rating the evidence on which they are based (Robinson & Lowe, 2015). In contrast, systematic reviews are substantial pieces of research requiring the use of reproducible, comprehensive literature searches (the search terms, inclusion criteria and methods used are proposed a priori in an independently reviewed protocol) and formal synthesis methods.

The objective of this systematic review is to assess and synthesise the existing empirical evidence base, including its coverage, common themes, methodological strengths and weaknesses, and implications concerning the functional role of an individual's personality in radicalisation and terrorism. The findings will offer a starting point for further research that seeks to critically understand the relationship between personality and involvement in terrorism.

The review will follow an approach for detailing and indicating the strength and quality of the evidence on which conclusions within the gathered research are drawn. That is, as the research under review will vary in terms of the methodology employed (e.g. qualitative, quantitative, experimental, etc.) it is important to indicate the extent to which causal inferences are warranted and to what issues the evidence can reliably speak (Johnson et al., 2015).

## Method

This study employed two research teams undertaking two systematic search protocols. The search strategy for the systematic review was based on the Campbell Collaboration method (considered to be the standard-bearer for systematic reviews in the social sciences).<sup>4</sup> The primary review team initially identified 191 studies of contributory causes of radicalisation and terrorist behaviour. On scrutiny of these studies, both research teams noted that there was a number of known empirical studies missing from the review. Second to this, a significant proportion of studies that were included for final review were identified during the citation search process (120 out of 191 studies). This discrepancy implied that the databases that were utilised did not hold a large proportion of literature which investigates the criteria under scrutiny. Therefore, a secondary search protocol was undertaken by the secondary review team. This protocol matched that of the primary review team, but examined a different set of databases. The rationale here was to expand the range of empirical studies that would be considered for review, and thus strengthen the findings of this study.

### *Identification stage*

#### *Databases and information sources*

Studies were identified using keyword search of multiple electronic databases (including grey literature and dissertation databases): PsychINFO, ProQuest Central Criminology Collection, ProQuest Central Social Science Database (Primary); International Bibliography of Social Sciences, Sociological abstracts, and Scopus (Secondary); forward and backward citation searches of all eligible candidate studies.

Full-text versions of identified studies were obtained through (in order of preference):

- Electronic copies via the e-journal service available at universities of researchers.
- Electronic copies of studies available elsewhere online.
- Paper copies.

- Electronic/paper copies requested through the Universities inter-library loan systems.
- Electronic/paper copies requested from the authors themselves.

In cases where the full-text versions of the works collated contained insufficient information to determine their eligibility for inclusion according to the coding strategy, where possible the corresponding author was contacted in an attempt to retrieve this information.

More generally, the review considered published and unpublished (grey) studies. No date restrictions were applied. Studies however had to be available in English, French or German since available resources limited our ability to search and translate studies in other languages.

### *Search terms*

In order to identify the relevant items for the review, a number of search terms were used in the above search engines and electronic databases (Table 1). These include terms relevant to radicalisation and causation.

### *Selection criteria*

The selection of appropriate studies was conducted in a number of stages. The first stage involved the research teams screening all identified studies (45,217) based on their title and abstract. Studies were screened against the following criteria:

- The study must report an explicit goal of understanding the determinants of radicalisation or behaviour associated with a terrorist offence.
- The study must report at least one measure in a quantitative or qualitative sense. Outcome data can comprise official measures (such as police recorded data) or unofficial measures (such as self-reported experiences). These measures could relate to causal mechanisms activated in

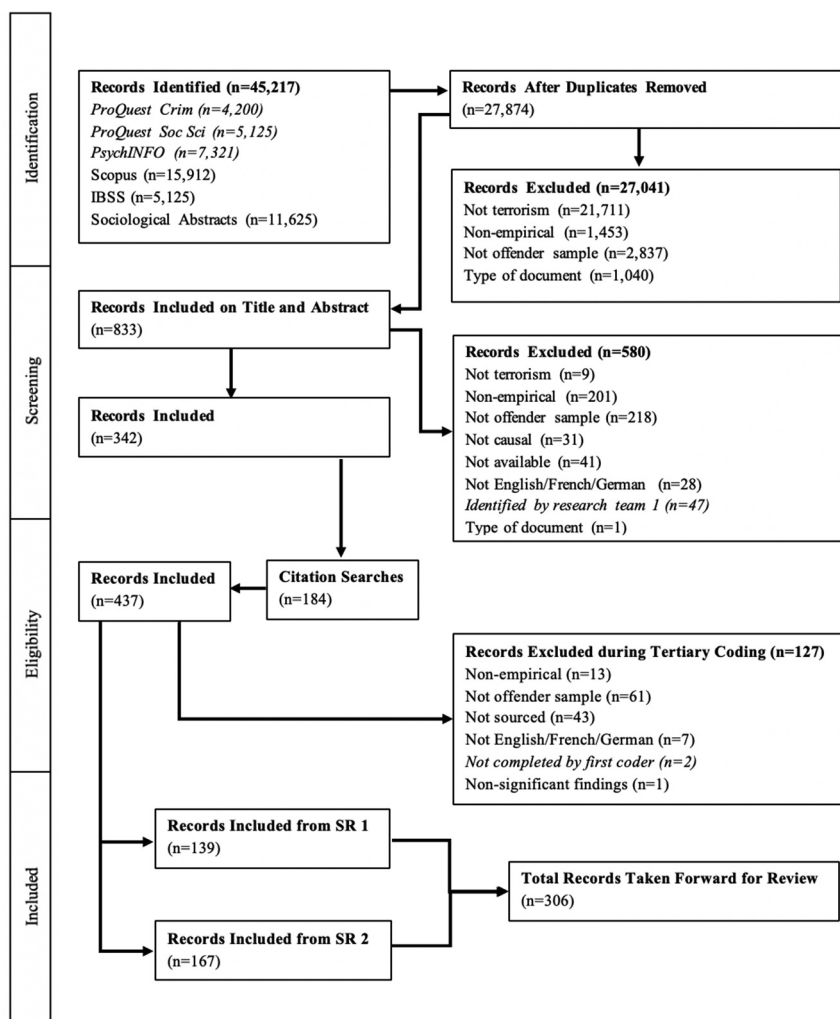
**Table 1.** Search terms used.

Terrorism/Radicalisation		Causation	
Terroris*	Factor	Risk	Pathway
Insurgen*	Mechanism	Vulnerability	Process
Rebel	Caus*	Context	Profile
Radicalisation	Motive	Stressor	Indicator
Radical	Motivat*	Behaviour	Predictor
Extremis*	Determinant	Behavior	Reward
Militant	Propensity	Influence	Attitude
	Trigger	Personality	Root
	Antecedent	Opportunity	Explanation
	Susceptib*	Reward	

the context of radicalisation, substantive information relating to the environmental conditions that impact upon radicalisation, or substantive information relating to the offender that impact upon radicalisation.

### *Data extraction and management*

Following the identification of studies (45,217), the references were uploaded to the EPPI 4 reviewer software. EPPI 4 is a web-based program, developed by the Social Science Research Unit at the Institute of Education at University College London. It was designed to manage and analyse data



**Figure 1.** Full systematic review process. NB – Primary research team activities are italicised for emphasis.

generated from systematic reviews.<sup>5</sup> Once uploaded to EPPI 4, study titles and abstracts which failed to meet the inclusion criteria for the synthesis component of the review were excluded, and rates of attrition were noted (see [Figure 1](#)). Excluded studies were flagged as inappropriate for several reasons (see [Figure 1](#)). At this stage, 833 studies were deemed appropriate for inclusion based on title and abstract.

### ***Screening stage***

During the screening stage, all 833 studies carried forward were read in their entirety to determine their eligibility using the same inclusion and exclusion criteria as above. A further 580 studies were excluded from the final analysis. During this stage, each study was also used to conduct backwards and forwards citation searches to identify further candidate studies. This process involved first reviewing titles of cited studies and also subsequent citations that each candidate study accrued up to July 2019. Each appropriate title was then examined and judged based on the previously mentioned selection criteria. For each study identified in the backwards and forwards searches, additional searches were conducted until all citations had been fully identified. As depicted in [Figure 1](#), 437 studies were brought forward for final review. This included 184 studies identified through the backwards and forwards citation searches.

### ***Eligibility stage***

#### ***Study coding***

The coding protocol for the review required an in-depth critical examination of each of the 437 studies captured during the eligibility phase. This involved two independent coders reading each of the included studies in their totality, extracting information on the source of the data, sample size, participants, and variables of interest. Variables of interest included those indicated by authors of the studies as significantly related to radicalisation and violent extremism. For studies employing a quantitative methodology, significance of variables was determined by examination of the significance values and coefficients of each variable within the models presented in the study.<sup>6</sup> This was a straightforward method of determining which variables to include in the review. For studies employing qualitative methods (for example, participant observation, case studies and small *n* interviews) variables were selected for inclusion based on a reading of the authors' analyses and argument. This was a more complicated way of determining significance as the nature of qualitative results is also influenced by the reader's interpretation.

During this process, each coder also highlighted studies that were deemed inappropriate for inclusion in the review if it became apparent that they did not



match the criteria for the synthesis component. Excluded studies were flagged as inappropriate for several reasons. At the end of this process, the two coders came together to discuss the studies that each coder had highlighted for exclusion. Where the coders could not agree on exclusion, these studies were sent to a tertiary coder for review and final decision on exclusion.<sup>7</sup> A further 131 studies were excluded as a result of this process. This left 306 (139 from the primary review team and 167 from the secondary review team) studies taken forward for final review.

During the coding discussion, the coders also jointly critically re-assessed each of the included studies to ensure consistency across the terminology of variables of each study.<sup>8</sup> This was predominately due to the proportion of qualitative studies included for assessment. During this process, all variables that were identified by both coders were carried forward for analysis, and where there were inconsistencies in variable identification, both coders interrogated each study to reconcile differences in variable inclusion.

### ***Review of methodological quality***

As previously noted, one aim of the review was to critically assess the methodological quality of the studies identified during the review, to determine their validity, and thus the inferences that can be drawn regarding cause and effect. As Farrington (2003, p. 51) identified, the 'main aim of the Campbell validity typology is to identify plausible alternative explanations (threats to valid causal inference) so that researchers can anticipate likely criticisms and design evaluation studies to eliminate them.' There are a wide number of methodological quality scales employed to determine inclusion and exclusion criteria (Farrington, 2003),<sup>9</sup> as there is a recognition that standards of methodological quality vary according to the subject under review. Methodological quality of studies was assessed based on the SIGN grading system (Healthcare Improvement Scotland, n.d.), and involved two coders independently coding the methodological quality of each study. This system was employed previously by Misiak et al. (2019), who conducted a systematic review of the evidence base regarding mental health, radicalisation, and mass violence.<sup>10</sup> This grading system assesses evidence based on the following scale; 1<sup>++</sup> – 'High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias', 1<sup>+</sup> – 'Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias', 1<sup>-</sup> – 'Meta-analyses, systematic reviews, or RCTs with a high risk of bias', 2<sup>++</sup> – 'High quality systematic reviews of case control or cohort or studies ... high quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal', 2<sup>+</sup> – 'Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal', 2<sup>-</sup> – 'Case control or cohort studies with a high risk of confounding or bias and

a significant risk that the relationship is not causal', 3 – 'Non-analytic studies, e.g. case reports, case series', and 4 – 'Expert Opinion'.

## Results

Of the 306 studies taken forward for review, 118 studies identified personality-related variables as significantly related to radicalisation and violent extremism. Of these, 18 studies identified variables that were related to mental illnesses and associated symptoms.<sup>11</sup> Of the remaining studies, no studies were classified as high-quality or well-conducted meta-analyses, systematic reviews or randomised controlled trials, 26 were classified as well-conducted case control or cohort studies, 26 were classified as case control or cohort studies with a significant risk to causality, 45 studies were non-analytical qualitative studies or case studies, and three studies were based on expert opinions. Guided by the SIGN (Healthcare Improvement Scotland, [n.d.](#)) grading system, it is not possible to draw inference of causality from studies supported by evidence from Levels 3 and 4, therefore, this review does not include such studies. Eight studies identified variables related to clinical features of either psychopathy or personality disorders (including diagnostic traits). All other variables that were identified were categorised by personality type and their accompanying traits. Given these findings, the following sections are clustered into two broad themes – clinical features and personality types (with two subthemes covering both positive and negative traits).

### *Clinical features*

#### *Psychopathy*

Only two studies utilised procedures to clinically measure psychopathy, with both using online questionnaires. Jones (2013) conducted an online survey on 157 adults in the United States using the 29-item short form of the Self-Report Psychopathy Scale (SRP-SF; Paulhaus et al., 2009). Jones identified that there was no relationship between psychopathy and right-wing authoritarianism. While the correlation results indicated a significant but weak relationship between psychopathy and racism, the regression models did not identify a significant relationship.<sup>12</sup> Bélanger et al. (2014) also examined psychopathy using the SRP-SF and the Levenson self-report psychopathy scale (LSRP; Levenson et al., 1995). These measures were employed on a sample of 675 Canadian university students.<sup>13</sup> The multivariate results demonstrated that overall scores for psychopathy were not significantly predictive of self-sacrifice for a cause, but the antisocial elements within were.

### *Personality disorders*

Only three studies reviewed identified a potential causal role for personality disorders in radicalisation and terrorism. Soliman et al. (2016) employed structural equation modelling (SEM) to examine how cognitive, psychopathological, and psychosocial factors are related to radicalisation. The authors administered a range of measures<sup>14</sup> to 662 Egyptian adults. The results identified that all personality disorders (of the 13 tested) were strongly related to radicalism in their sample, with  $r^2$  values ranging between 0.50 and 0.84. However, the results also indicated that personality disorders alone were not able to explain the variance in the model, and it is the combination of all three factors (cognitive, psychopathological, and psychosocial) that gives the greatest explanatory power. This study also did not examine personality disorders independently, so these results are unable to offer insight into which disorders are most pertinent to radicalisation.<sup>15</sup>

The remaining studies exclusively measured ASPD, and its precursor, conduct disorder.<sup>16</sup> Coid et al. (2016) reported on the results of a survey first employed by Coid et al. (2013). The survey was based on quota and random location sampling across areas of the U.K. The analysis for the 2016 work was based on a cross-sectional survey of 3679 adult males, screened for ASPD using the Structured Clinical Interview for DSM-IV (Ullrich et al., 2008). The results demonstrated that ASPD was significantly associated with both pro-British and anti-British extremist attitudes.<sup>17</sup> However, given the study's design, it was not possible to determine if this disorder was causally related to such attitudes. Dhumad et al. (2020) employed a cross-sectional study in Iraq to critically examine differences in personality, familial, and childhood risk factors between convicted terrorists ( $n = 160$ ), convicted murderers ( $n = 65$ ), and controls ( $n = 88$ ).<sup>18</sup> The authors employed the symptom items in the DSM-5 to determine the prevalence of symptoms of conduct disorder and ASPD across the three populations. Bivariate results demonstrated that both terrorists and murderers were significantly more likely to meet the threshold for diagnoses of both conduct disorder and ASPD compared to controls. Further multivariate analyses identified that the terrorist sample were more likely to show symptoms of conduct disorder, with the murderer sample more likely to display symptoms of ASPD. However, as the average ages<sup>19</sup> across samples was mid-thirties (controls; 34.27 years, terrorists; 34.06 years, murderers; 33.79 years), and there was limited information regarding the diagnostic procedures applied to conduct disorder in the sample, the applicability of the conduct disorder diagnoses may be called into question.

One further study identified non-clinical traits of antisocial behaviours. Barber (1999) employed SEM on adolescent social and psychological factors, using data from the Palestinian Family Study. In this study, 7000 families with children who were involved in the Intifada completed a self-report survey in the West Bank and Gaza Strip. Antisocial behaviour was measured using a series of

questions related to substance use, theft, and running away from home. The results demonstrated that involvement in the intifada was significantly related to subsequent antisocial behaviour. This study is unique within the review as it implies that experience of conflict may affect personality. However, given the study design, it is not possible to determine this causal direction.

### ***Personality traits<sup>20</sup>***

Given the lack of empirical examination of clinical symptoms of psychopathy and personality disorder, the remainder of the review focuses on non-clinical traits identified by studies. In 1931, Allport first defined personality traits using eight criteria. Now there is a consensus that traits are relatively stable patterns of behaviour, thoughts, and emotions (McCrae & Costa, 2003). They impact on our psychological experiences and behaviours, and there are those who state that our experiences and behaviours are actually expressions of personality traits (Holland, 1997). Taking this reasoning, some have inferred that individuals engaging in radical and terrorist behaviours may have different personality traits than individuals who do not engage (Hiebert & Dawson, 2015). For the purposes of this review, we classified the identified traits under two themes; negative, as measured by the dimensions within the Dark Tetrad (Chabrol et al., 2009), and positive, as measured by the dimensions within the Five-Factor model (McCrae & John, 1992).<sup>21</sup>

### ***The Dark Tetrad***

The Dark Tetrad are a group of four personality dimensions that have been individually and collectively linked to harmful or antisocial outcomes (Lee et al., 2013; Međedović & Petrović, 2015). Initially, authors described three dimensions – psychopathy, narcissism, and Machiavellianism (Paulhus & Williams, 2002). Later, researchers included sadism, bringing the model to its current form (Chabrol et al., 2009). Research examining the dimensions within the Dark Tetrad has connected the constituent traits with a range of delinquent behaviours, including bullying (Baughman et al., 2012), online trolling (Buckels, Jones, & Paulhus, 2013), juvenile delinquency (Chabrol et al., 2009), racist attitudes (Jones, 2013), and criminal activity (Hare & Neumann, 2008). Alongside this evidence from other domains, modern terrorism researchers cite the consistent early focus on pathology, to hypothesise the causal influence of traits of psychopathy (Baez et al., 2017; Martens, 2004), narcissism (Lloyd & Kleinot, 2017; Tschantret, 2020), and Machiavellianism (Pavlović & Storm, 2020). To determine the strength of these hypotheses, an interrogation of the empirical literature regarding the link between aspects of the Dark Tetrad and radicalisation and terrorism is therefore necessary.

Three studies identified for review specifically examined the role of the dimensions within the Dark Tetrad in radicalisation and terrorist behaviour.

Morgades-Bamba et al. (2018) undertook online questionnaires to a sample of 643 French female university students. They measured traits using language appropriate versions of the Machiavellianism Inventory (composed of 20 items), the Youth Psychopathic traits Inventory (15-item subscale), the Narcissistic Personality Inventory (16 items), and the Short Sadistic Impulse Scale (11 items). The results demonstrated that narcissistic, sadistic, and Machiavellian traits were significantly related to radical cognitions, and narcissistic traits were also significantly related to radical behaviours. Psychopathic traits were not significantly related to radical cognitions or behaviours without the presence of dogmatism/cognitive rigidity. In a secondary study using the same sample and measures, Chabrol et al. (2020) performed a cluster analysis that identified that participants with high levels of sadism, psychopathy, and machiavellianism also presented with the highest levels of radical cognitions and behaviours. Jones (2013) critically examined the roles of Machiavellianism, narcissism, and psychopathy in racism and right-wing authoritarianism. Much like the findings regarding psychopathy, across both sub-studies, narcissism was not found to be significantly associated with racism or right-wing authoritarianism. However, the results did highlight that Machiavellianism, when in conjunction with right-wing authoritarianism was significantly related to racism.

Further to these studies focusing on the specific dimensions within the Dark Tetrad, the review identified 23 studies that identified a number of personality traits associated with the dimensions within the Dark Tetrad. Table 2 highlights these studies, the traits identified within, their corresponding dimensions, descriptions of the samples employed, the data utilised, and the level of evidence as per the SIGN (Healthcare Improvement Scotland, n.d.). In the majority of publications, outcomes were measured using online surveys; however, some studies also employed open-source data. Samples ranged from randomly sampled populations, through to specific child, adolescent, and adult groups, and a small range of studies employed offender samples. Quality of evidence was scored at 2<sup>+</sup> in 16 studies, as the samples investigated were either representative of the population under scrutiny or the general population, or multiple samples were gathered from multiple geographical locations were gathered. All other studies were scored as 2<sup>-</sup> predominately due to the sampling methodologies employed affecting representativeness, and thus causality.

The largest amount of empirical evidence for dimensions within the Dark Tetrad was found for psychopathy, with 13 studies (84.6% classified as 2<sup>+</sup>) identifying empirical support for traits of psychopathy. Seven studies that were reviewed identified significant associations between radicalisation and terrorist behaviour and sensation, risk, and thrill-seeking traits (De Waele & Pauwels, 2016; Egan et al., 2016; Nussio, 2017; Pauwels et al., 2014; Pauwels & Hardyns, 2018; Pauwels & Heylen, 2014; Pauwels & Schils, 2016). Relatedly, six studies also identified impulsivity and poor self-control as a common trait



**Table 2.** Dark Tetrad model and associated personality traits identified during the review.

Dimension and traits	Study	Sample	Data	Total N	Level of evidence
<b>Psychopathy</b>					
Sensation/Risk/Thrill seeking	De Waele and Pauwels (2016)	Adolescent and young adult Flemish nationals	Survey	723	2+
	Egan et al. (2016)	Violent extremist offenders	Open source	182	2-
	Nussio (2017)	Colombian ex-combatants	Survey, open source	1495	2-
	Pauwels et al. (2014)	Adolescents and young adults in Belgium, young extremists in Belgium	Survey, interviews	4473	2+
	Pauwels and Hardyns (2018)	Adolescent and young adult Flemish nationals	Survey	6020	2+
	Paulwels & Heylen (2014)	Adolescent and young adult Flemish nationals	Survey	723	2+
	Pauwels and Schils (2016)	Adolescent and young adult Flemish nationals	Survey	6020	2+
	L. J. Pauwels and Svensson (2017)	Adolescent and young adult Flemish nationals	Survey	6020	2+
Poor self-control	Perry et al. (2018)	Young adults (UK)	Interviewer-led questionnaire	684	2+
	Schils and Pauwels (2016)	Adolescent and young adult Flemish nationals	Survey	6020	2+
	Pauwels et al. (2020)	Adolescent and young adult Flemish nationals	Survey	6020	2+
Low empathy	Sys et al. (2014)	Incarcerated Canadians (radical and non-radical)	Closed and open source	23,711	2+
Impulsivity	Pauwels et al. (2014)	Adolescents and young adults in Belgium, young extremists in Belgium	Survey, interviews	4473	2+
	Pauwels and De Waele (2014)	Young adults	Survey	2879	2+
<b>Narcissism</b>					
Superiority	Doosje et al. (2013)	Dutch Muslim youth	Online questionnaire	131	2-
	De Waele and Pauwels (2016)	Adolescent and young adult Flemish nationals	Survey	723	2+
Greedy	Paulwels & Heylen (2014)	Adolescent and young adult Flemish nationals	Survey	723	2+
	Arjona and Kalyvas (2009)	Colombian ex-combatants (insurgents and counterinsurgents)	Survey, interviews	890	2+

(Continued)

Table 2. (Continued).

Dimension and traits	Study	Sample	Data	Total <i>N</i>	Level of evidence
<b>Machiavellianism</b>					
Self-interest	Hagan et al. (1999)	East and West German high school students	Survey	2229	2-
Weak morality	Perry et al. (2018)	Young adults (UK)	Interviewer-led questionnaire	684	2+
Status seeking	Bartlett and Miller (2012)	Terrorists, radicals, Canadian Muslims, officials	Open source, interviews, focus groups	234	2+
Moral neutralisation	Nivette and Eisner (2017)	Children in Zurich	Interviews	1214	2+
Inflexibility	Zmigrod et al. (2019)	UK and US population	Survey	1047	2+
<b>Sadism</b>					
Moral disengagement	Mafmiesebi and Thorne (2017)	Ex-militants in the Niger Delta	Survey	753	2-
Intolerance	Soliman et al. (2016)	Sunni Arab Muslim Egyptians	Survey	662	2-
Need for dominance	Dunwoody and McFarland (2018)	US population, US students	Survey	602	2+
	Jones (2013)	US adults	Survey	246	2-

Some traits are common across all dimensions of the model, e.g. superiority, but for clarity they are attributed to one dimension (order of importance for classification).

across adolescents, young adults, and extremists (L. J. Pauwels & Svensson, 2017; Pauwels et al., 2014; Pauwels & De Waele, 2014; Pauwels et al., 2020; Perry et al., 2018; Schils & Pauwels, 2016).<sup>22</sup> Another trait that is strongly associated with psychopathy is low empathy. One Canadian study in this review found a significant association between low empathy and radical and terrorist behaviour. Stys et al. (2014) examined 23,711 offenders in Canadian prisons. Principal Component Analysis identified that those with reduced empathy may be more susceptible to radicalisation.

The remaining elements of the Dark Tetrad, narcissism, Machiavellianism, and sadism, were empirically associated to radicalisation and terrorism across the same number of studies that supported psychopathy, 13. Superiority received the most empirical support, with three studies identifying significant relationships. Doosje et al. (2013) undertook an online questionnaire, garnering a sample of 131 young Muslims in the Netherlands.<sup>23</sup> The results demonstrated that superiority was significantly related to the formation of a radical belief system. Paulwels and Heylen (2014) and De Waele and Paulwels (2016) undertook surveys on a sample of 723 Flemish nationals. Structured equation modelling corroborated their hypotheses that superiority is significantly related to right-wing extremist beliefs.

### *The Five-Factor model*

The Five-Factor model offers a comprehensive overview of traits that define human personality across cultures (McCrae & Terracciano, 2008; Terracciano & McCrae, 2006). The model has shown strong validity and is empirically supported (Widiger et al., 2013). The five dimensions to the model are: Openness, which is defined as the tendency to be creative, imaginative, and emotionally and artistically sensitive; conscientiousness, which is the tendency to be a follower of rules and ethical and moral principles, organised, reliable, and strong-willed; extraversion, which includes the propensity to be active, assertive, cheerful, sociable, and warm; agreeableness, which is characterised by altruism, cooperativeness, modesty and trustworthiness; and neuroticism, which is the tendency to experience negative emotions and emotional instability (McCrae & John, 1992).

Unlike the dimensions within the Dark Tetrad, and at odds with the amount of research supporting the dimensions within the Five-Factor model across other domains (Hiebert & Dawson, 2015), there has been scant attention paid to the potential functional role of openness, conscientiousness, extraversion, agreeableness, and neuroticism in radicalisation and terrorism, with the exception of a stream of research critically examining right-wing authoritarianism (Dallago & Roccato, 2010). In order to fully understand the functional role of personality in radicalisation and terrorism, it is important to move beyond the 'negative' traits within the Dark Tetrad, and also critically examine the empirical support for the traits within the Five-Factor model.



**Table 3.** Five-Factor Model and associated personality traits identified during the review.

Dimension and traits	Study	Sample	Data	Total N	Level of evidence
<b>Openness</b>					
Adventure seeking	Bartlett and Miller (2012)	Terrorists, radicals, Canadian Muslims, officials	Open source, interviews, focus groups	234	2+
Courage	Botha (2014)	Terrorists, family members	Interviews	141	2-
	Corneau-Tremblay (2015)	Tunisian foreign fighters/Saudi foreign fighters	Open source	160	2-
Passion	Bélanger et al. (2014)	US and Canadian adults and students, environmentalists, LTTE members, Christians.	Survey	2981	2+
Creativity	Sikkens (2018)	Young extremists, families, teachers, and guardians	Interviews	163	2-
	Meloy and Gill (2016)	Lone actor terrorists	Open source	111	2-
	Meloy et al. (2019)	Lone actor terrorists, non-violent individuals of national security concern	START database, law enforcement data	56	2-
<b>Conscientiousness</b>					
Fairness seeking	Soliman et al. (2016)	Sunni Arab Muslim Egyptians	Survey	662	2-
Goal commitment	Bélanger et al. (2014)	US and Canadian adults and students, environmentalists, LTTE members, Christians.	Survey	2981	2+
<b>Agreeableness</b>					
Altruism	Corneau-Tremblay (2015)	Tunisian & Saudi foreign fighters	Open source	160	2-
Bravery	Hegghammer (2008)	Saudi foreign fighters	Open source	205	2-
	Pedahzur et al. (2003)	Suicide and non-suicide terrorists	Open source	819	2-
	Ozerdam and Podder (2012)	Communities in Lanao, Cotabato and Maguindanao Provinces, Philippines	Survey	229	2-
Belonging	Botha (2014)	Terrorists, family members	Interviews	141	2-
Selflessness	Sikkens (2018)	Young extremists, families, teachers, and guardians	Interviews	163	2-
	Corneau-Tremblay (2015)	Tunisian and Saudi foreign fighters	Open source	160	2-

(Continued)

Table 3. (Continued).

Dimension and traits	Study	Sample	Data	Total N	Level of evidence
<b>Neuroticism</b>					
Fear	Botha (2014)	Terrorists, family members	Interviews	141	2-
	Ozderdam and Podder (2012)	Communities in Lanao, Cotabato and Maguindanao Provinces, Philippines		229	2-
Guilt Uncertainty	Botha (2014)	Terrorists, family members	Interviews	141	2-
	Doosje et al. (2013)	Dutch Muslim youths		131	2-
	Gøtzsche-Astrup (2019)	US population	Online questionnaire Survey	7295	2+
	Gøtzsche-Astrup (2020)	US adults, Danish adults		2488	2+
	Soliman et al. (2016)	Sunni Arab Muslim Egyptians	Surveys	662	2-

Some traits are common across all dimensions of the model, e.g. superiority, but for clarity they are attributed to one dimension (order of importance for classification).

No studies under review specifically sought to examine the Five-Factor Model. However, 15 studies reviewed did identify significant variables that correspond to the personality traits within the five-factor model. These publications, descriptions of the samples employed, the data utilised, and the level of evidence as per the SIGN (Healthcare Improvement Scotland, n.d.) are detailed in Table 3. Quality of evidence was scored at 2<sup>+</sup> in four studies, as the samples investigated were either representative of the population under scrutiny or the general population, or multiple samples were gathered from multiple geographical locations were gathered. All other studies were scored as 2<sup>-</sup>.

No studies under review identified significant associations between traits associated with extraversion and radicalisation or terrorism, and only two studies identified significant associations between traits of conscientiousness and radicalisation or terrorism. Bélanger et al. (2014) tested the validity of a self-sacrifice scale on 769 participants from the United States and Canada, finding that commitment to a goal was a strong significant predictor of self-sacrifice. Soliman et al. (2016) identified that a number of psychosocial factors, including fairness seeking, or a strong sense of injustice, had a positive effect on radicalism.

Traits of Openness, Agreeableness and Neuroticism were identified across a total of 14 studies, with seven identifying traits of openness, six identifying traits of agreeableness, and six identifying traits of neuroticism. The highest levels of empirical evidence were found for traits of neuroticism, with 33.3% of studies classified as 2<sup>+</sup> (compared to 28.6% for openness and 0% for agreeableness), with both 2<sup>+</sup> studies using population samples, and identifying significant associations between uncertainty and radicalisation and terrorism (Gøtzsche-Astrup, 2019, 2020). Other personality traits that were supported by studies coded as having a moderate probability of highlighting causal relationships between variables were a seeking adventure and passion for a cause. Bartlett and Miller (2012) noted that attraction to violent Jihad was identified across the sample as it was perceived as an adventure. Indeed, the authors noted, the Washago training camp run by the Toronto 18 was promoted an adventure trip, rather than a terrorist training camp. Bélanger et al. (2014), identified harmonious and obsessive passion for a cause as significant predictors of self-sacrifice in their validity sample of 769 participants, and also identified a significant relationship between obsession passion and self-sacrifice in a sample of 281 U.S. Christians.

## Discussion and conclusion

Historically, the examination of psychopathy and personality within the field of terrorism has been marred by subjective opinion and poor empirical evaluation. This work has presented an opportunity for researchers to begin to shift away from these issues. Over 300 studies were identified during the systematic review. Each of these offered empirical evidence which will greatly

enhance our understanding of the multiple interacting causes of radicalisation and terrorism, not just those associated with personality. Specifically, for the focus of this work, almost half of the studies are able to offer some initial insights into the complex role of personality disorders and traits. As highlighted, and expected, there is no one causal factor in personality that acts as a predominant driver for individuals who engage in terrorism. This should not be a surprise. The fields of personality, personality disorders, and psychopathy are vast and conflicted, and the papers reviewed reflect that conflict.

Importantly, the range of clinical and non-clinical traits identified across the studies examined in this review spanned multiple theoretical models and constructs, which has made it extremely difficult to draw out singular observations that would have credibility and predictive value. Intrinsically related to this, the results of each study have highlighted that no single personality trait is reliably associated with decision-making in radicalisation or terrorism. This is true across all forms of violence, so it is unsurprising that it is also reflected here.

This systematic review of empirical evidence further reflects conclusions made during seminal reviews of the literature in terrorism studies; there are very few published empirical studies supporting the assertions that psychopathy drives terrorism (Gill & Corner, 2017; Horgan, 2003, 2005; Victoroff, 2005). Much like all studies that were reviewed, examination of the studies examining clinical aspects of psychopathy empirically demonstrated that at best, psychopathy may play an indirect role in an individual's movements towards terrorist behaviour. The complexity of clinical procedures for accurately capturing psychopathy likely underlies the lack of systematic interrogation of its role in radicalisation and terrorist behaviour. Also, those studies investigating traits associated with psychopathy and ASPD; sensation-seeking, poor self-control, low empathy, and impulsivity, identified that, in conjunction with a wide range of experiences and behaviours, such traits appear to be equally or more readily associated with radicalisation and terrorism.

The review also provides tentative evidence that other dimensions of personality may play a role in radicalisation and terrorism. Traits of Machiavellianism were the second most prominent out of the four Dark Tetrad dimensions. In particular, and related to self-interest, status seeking, and moral neutralisation, Doosje et al. (2016) argue, terrorist groups are well equipped to foster or restore feelings of significance and commitment by providing recruits with a sense of belonging and status. Of the Five-Factor model personality dimensions, agreeableness and its corresponding traits, was the most frequently cited within the reviewed literature, with altruism identified as the most common trait significantly associated with this personality dimension (Corneau-Tremblay, 2015; Hegghammer, 2008; Pedahzur et al., 2003). However, this dimension also had the weakest empirical evidence base with all included studies receiving an evidence score of 2<sup>-</sup>, which is likely due to the reliance on self-report measures,

which have received wide critique in the field of personality assessment (Paulhus & Vazire, 2007).

Within this review, the allocation of personality traits across dimensions sometimes proved difficult. Some traits are presents across multiple dimensions, for example, bravery could be attributed to both extroversion and conscientiousness. Within the study of personality, it is also well recognised that traits are not merely present or absent, but they are present, and their impact on our personality is due to how much of each trait we have (low to high). The current studies under review did not recognise this complexity, and this impacts our causal understanding.

Currently, a gap exists between quantitative and qualitative approaches to understanding engagement in terrorism. Qualitative works provide contextually rich and immersive accounts of the process through which individuals move through radicalisation and towards terrorism. Such efforts are the cornerstone on which theoretical pathway models are built. Yet, they have potentially limited external validity or generalisability because they are so few. Quantitative work, on the other hand, provide concrete prevalence rates of certain demographics, behaviours, outcomes, and the correlations and relationships between them. Yet they offer no insight into the typical sequences in which behaviours are experienced as a pathway. They also provide very little insight into causality. The presence of a factor does not equal causality nor does it highlight that such a factor is facilitative in the outcome. It might, in fact, be completely irrelevant to the outcome.

As noted, of the 118 studies identified that included variables related to personality noted as significantly related to radicalisation and terrorism, 59% were removed during the assessment of methodological quality. A large proportion of the works reviewed were thus quantitative, and while Large-*N* samples are abundant across the literature, the methodological and analytical procedures are often limited. Some studies do construct inferential pathways, and these currently offer a more in-depth understanding than those adopting static methods. A number of qualitative works in the initial sample used smaller samples, but these samples were more likely to consist of individuals who engaged in terrorism, offering first-hand accounts of their own experiences, which offers the opportunity to further our understanding of those who do engage in terrorism. Those works using qualitative methods, however, are not able to offer insight into what elements might act as risk or protective factors across general populations.

As noted previously, and covered elsewhere by authors in this issue, the lack of empirical quality of studies in the area of mental health, psychopathy, and personality as causal indicators of radicalisation and terrorism is replicated across other areas of studies investigating terrorist behaviour (see Schuurman, 2020 for a comprehensive review), and this placed further constraint on the review of methodological quality. Further reviews may follow

the work of Pawson and Tilley (1997), who challenge the Campbell approach, and developed the 'realist evaluation'. Pawson and Tilley argued that the Campbell tradition of primarily including experimental and quasi-experimental research places too greater emphasis on 'what works.' Instead, they argue, evaluation research should primarily be concerned with 'what works for whom in what circumstances and in what respects, and how?' (Pawson & Tilley, 1997, p. 2). The inclusion of interpretive, qualitative data will further enhance our understanding of the causal role of personality in radicalisation and terrorism.

This research has presented the results of a large systematic review of empirical research in the field of terrorism. Specifically, we examined the causal role of psychopathy and personality. The results offer us a preliminary understanding of the complex role of personality traits, and support the assertions of earlier seminal literature reviews in this area. The results should be unsurprising given personality's central role in much behaviour-oriented understandings of the world. Terrorism should be no different. The search for a single 'terrorist personality' was always overly ambitious, yet at the same time overly simplistic. It was doomed to failure from the start.

Much like literature focusing on the mental health of terrorists, for a long time, it is as if the research literature treated the lack of an overarching 'terrorist personality' as an excuse not to conduct methodologically rigorous personality-oriented research. Indeed, many of the variables identified during this review were drawn from studies including personality traits as variables without an appreciation for the strict methodological procedures required for valid measurement of personality, or in some instances, an appreciation that such variables are personality traits. Other studies included personality traits as variables, with a predominant theoretical and conceptual focus on other, non-personality related variables. Each of these issues further degrades the strength of the findings highlighted above. This review is the first step in moving to understand the role of personality in terrorist behaviour. Much like the work examining mental health in terrorists, what we need next is a movement toward personality-oriented empirical testing and replication efforts across multiple domains and contexts, to determine the strength (and potential generalisability) of the results of the studies reviewed.

## Notes

1. These are (1) ambivalence toward authority, (2) defective insight, (3) adherence to convention, (4) emotional detachment from the consequences of their actions, (5) sexual role uncertainties, (6) magical thinking, (7) destructiveness, (8) low education, and (9) adherence to violent subculture norms and weapons fetishes.
2. As given in both the PCL-R (R. D. Hare, 2020) and the description of antisocial personality disorder in the DSM-5 (American Psychiatric Association, 2013). Strentz

(1988) defines that leaders cloak their paranoia through charismatic self-confidence and a commanding presence, whereas the activist-operators are defined by a history of criminal activity and desire for violence and hedonism.

3. Currently, there exists a distinction between the diagnosis of ASPD, dissocial personality disorder (DPD), and that of psychopathy (although the DSM-5 notes that these diagnoses are referred to interchangeably (American Psychiatric Association, 2013, p. 659)). Some authors, however, consider that, much like other personality disorders, ASPD and DPD diagnoses focus on observable behaviours, whereas the diagnosis of psychopathy also requires interrogation of personality traits (R. Hare, 1996; Ogloff, 2006; Venables et al., 2014). Whereas others argue that psychopathy and ASPD are at ends of the same diagnostic continuum (Coid & Ullrich, 2010).
4. For more information, see [www.campbellcollaboration.org](http://www.campbellcollaboration.org)
5. For more information, see <http://eppi.ioe.ac.uk/cms/Default.aspx?alias=eppi.ioe.ac.uk%2Fcms%2Fer4>
6. Studies that did not measure significance, but reported other outcomes, such as effect size were assessed using the discretion of the coder. This predominately relied on assessing the core value of the statistics measured during the study and following appropriate guidelines regarding individual statistical tests.
7. Within the primary review team.
8. For example, the reviewer identified all use of the term 'radical peers', 'radical friends' and 'social bonds' and, after checking the source document to ensure accuracy in the meaning of the term, changed this to 'social networks' for greater consistency across the variables.
9. For example, Weisburd et al. (2001) identified differences between effect sizes of interventions between randomised experiments and quasi experiments. Weisburd et al. found that those studies with weaker methodological designs were more likely to find that an intervention was effective due to extraneous influences from confounding variables on offending.
10. The novelty of this review as compared to the work of Misiak and college is explained elsewhere in this issue (Gill et al., 2021)
11. These studies were not taken forward for analysis (and are covered elsewhere in this issue – see Gill et al., 2021).
12. As Jones did not employ a control group and was measuring attitudes using correlations (and the regression models identified that any significance disappeared), this indicates that there are high threats to internal validity and it is not possible to establish causal order between psychopathy and right-wing authoritarianism.
13. Bélanger et al. (2014) randomly assigned participants to a number of conditions, helping to remove threats to internal validity.
14. The activism-radicalism intention scale (Moskalenko & McCauley, 2009), the short Coolidge axis II inventory (Coolidge et al., 2010), cognitive complexity instrument (Bagdasarov, 2009), intolerance of uncertainty scale – short form (Carleton et al., 2007), rational decision-making style (Scott & Bruce, 1995), cognitive style index (Allinson & Hayes, 1996), the frustration-discomfort scale (Harrington, 2005), need to belong scale (Leary et al., 2013).
15. Although the authors employed SEM, which enables the testing of direct and indirect effects of relationships, no control group was employed, and the employed measure of radicalism (the activism-radicalism intention scale (Moskalenko &

McCauley, 2009) has not yet been tested for validity across populations, and was only first tested for reliability in the Soliman et al. (2016) sample.

16. Although none of the below studies cite Bélanger et al. (2014), given their results, it is reasonable to assume that antisocial behaviours may be of utility in explaining radical behaviour.
17. As measured using the following proxy statements: "I feel strongly British (English, Scottish, Welsh or Northern Irish) if that means standing up for yourself or your country"; "I feel more like people with my own religious, cultural or political beliefs than people who are British"; "I support the war in Afghanistan"; "I oppose the war in Afghanistan"; "I could fight in the British army in Afghanistan"; "I could fight against the British army in Afghanistan" It could be argued that these items do not accurately capture extremist attitudes (see Ozer & Bertelsen, 2018), and using these statements to measure extremist attitudes may introduce threats to internal validity.
18. The inclusion of comparable groups of offenders reduces threats to the internal validity of the study.
19. With standard deviations from the mean also not differing across groups (controls; 9.61, terrorists; 9.66, murderers; 10.46).
20. We note that a high proportion of the studies reviewed undertook self-report surveys and questionnaires. These designs are problematic for determining disordered presentations, so the conclusions from these studies are interpreted with regards to personality traits only and not clinical presentations.
21. In order to determine the most appropriate traits for inclusion in the review, the authors undertook substantial thematic work of wider personality literature to help guide the allocation of all personality traits identified as significant across all studies reviewed.
22. Pauwels et al. (2014) examined rates of self-reported political violence and extremist propensity in their sample of 4473 young people in Belgium and Antwerp. They identified that impulsivity was significantly associated with political violence to both persons and property. Schils and Pauwels (2016), L. J. Pauwels and Svensson (2017), and Pauwels et al. (2020) furthered this work, identifying that those with the lowest self-control showed the highest levels of extremist beliefs.
23. Superiority was assessed using four items, with the authors reporting that the validity for these items 'was satisfactorily (.71)' (Doosje et al., 2013., p. 593)

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