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The time for causal designs: Review and evaluation of empirical support for mechanisms of political radicalisation

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Abstract

This paper evaluates the most influential current approaches to the mechanisms of radicalisation on the basis of their empirical evidence and calls for a focus on research designs capable of arbitrating on matters of causality, not just correlation. It shows how the existing evidence converges on a handful of factors involved in radicalisation, including negative life experiences leading to fundamental uncertainty or loss of significance, which again spurs on the search for and identity shift towards groups with strong norms and ideals, including sacred values that enable extreme ingroup defences (e.g. acts of terrorism). The cumulative empirical data indicates support for some, but not all, kinds of interventions. Finally, because both theoretical approaches and current interventions propose cause-and-effect relationships, the paper argues that it is imperative that the field shifts focus to experimental research designs capable of making causal inferences.

Keywords: Radicalisation; psychological mechanisms; causal designs; literature review; interventions.

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1. Introduction

How individuals, often young people, come to accept the use of violence as a legitimate means to achieve political change has emerged as one of the most pertinent questions for policymakers and social scientists in the last decade. The consequences of this radicalisation are often devastating, both in terms of specific acts of violence and the fallout from these events. Our explicit and implicit theories of the mechanisms of this process matter, because interventions – also those targeting the community or societal level – work (or do not) through individual psychological mechanisms (Webber & Kruglanski, 2018). Interventions that explicitly target radicalisation to political violence include programmes as diverse as mentoring and coaching, dialogical workshops, exit programmes, community outreach and collaboration and punitive measures (Romaniuk, 2015). However, the proposed mechanisms through which these programmes are supposed to work are often vague or rest on untested assumptions (Horgan, 2016; Thomas, McGarty & Louis, 2014) despite the fact that “getting it wrong” can have dramatic iatrogenic effects and possibly contribute to further radicalisation (Lindekilde, 2012). As models of radicalisation and the interventions based on these models make claims of relationships in the “real world”, we must evaluate these models based on their empirical support. In this paper, I review and evaluate the most prominent psychological theories of political radicalisation on their empirical merits. I argue that current evidence indicates support for a handful of central factors and mechanisms that should not be neglected when designing interventions targeting groups and individuals at risk of political radicalisation.

The following section presents and evaluates the empirical evidence for the most impactful psychological approaches of the last decade. As the goal of reviews should not merely be to create a list of relevant factors, but actively synthesize our current knowledge (Borum, 2015), the paper goes on to discuss similarities and disparities in the different theories with a synthesis and ranking of the supported mechanisms. These mechanisms are then used to evaluate central kinds of interventions that exist in

current policies across the world, illustrating the usefulness of this kind of research. The paper concludes with a call for a new research focus, one that employs research designs that can arbitrate on matters of causality, not merely correlation. Pre-empting the following review, the central seven approaches presented below are summarised in table 1, which provides an overview of the central tenets, conceptualisation of radicalisation, proposed explanatory factors, as well as a comparative evaluation of the empirical evidence in support of the internal validity (causal connection), external validity (generalisability) and measurement validity of the approaches.

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Table 1. Seven approaches to the psychological mechanisms of radicalisation

Theory	Central papers	Central tenets	Dependent variable	Explanatory variable(s)	Support – internal validity	Support – external validity	Support – Measurement validity
Uncertainty–Identity Theory	Hogg & Adelman, 2013	Motivational and social identity theory	Joining and supporting radical groups Autocratic leadership Behavioural aggression and hostility	Self-uncertainty Group entitativity Social identity complexity Peripheral membership	Strong	Moderate	Area of focus
Significance Quest/“3N”	Webber & Kruglanski, 2018	Social psychological motivational theory	Coming to see as socially normative violent behaviour that is deviant from the majority perspective	Need for significance Narratives legitimising violence Networks and groups	Area of focus	Strong	Moderate
Devoted Actor Model	Atran, 2016	Ideology, values	Unconditional commitment, sacrifice and willingness to engage in extreme behaviour for a group	Sacred values Identity fusion	Moderate	Strong	Moderate
Mindset and Worldview	Borum, 2014	Distinction between mindset factors and worldview factors	Psychological “climate” that increases the risk of involvement in violent extremism	Psychological mindset: authoritarianism	Area of focus	Area of focus	Area of focus
Reactive Approach Motivation	McGregor, Hayes & Prentice, 2015	Motivational framework encompassing personality and social dynamics	Aggressive religious radicalisation	Motivational processes diverted through interaction between personality, threats and group affordances	Area of focus	Moderate	Moderate
Two-pyramid approach	McCauley & Moskalenko, 2017	Distinguishing opinion and action	Radical opinion (support) and radical action (behavioural intentions)	Individual factors Group factors Mass factors	Area of focus	Moderate	Strong

2. Reviewing the literature

In a 2008 paper, Andrew Silke lamented the fact that only a fifth of all papers in the research field of the psychology of radicalisation presented new, original data; and that of the empirical papers that did exist, most were based on “pre-experimental research designs”, which are primarily useful for exploratory research (Silke, 2008). Almost a decade later, this has begun to change (Borum, 2014; Horgan, 2016), and the premise of this paper is that the field has matured to allow for a focus on evaluating theories on their empirical merits. A range of quantitative, large-n studies have emerged, implying that the reliance on qualitative case studies without control can be lessened, which allows for a renewed focus on questions of causal factors of radicalisation rather than mere correlates or indicators. This is not to say that excellent case studies do not exist, but rather that they are better at building theory than evaluating hypotheses, which is the focus of this paper. In the last couple of years, reviews have focused on collecting the theoretical psychological factors involved in radicalisation. To this author’s knowledge, however, no review has yet evaluated these factors on the merit of the strength of their empirical evidence rather than their theoretical merits. A central point in the review relates to the concept of radicalisation itself. Gaining traction in the political and academic worlds since the so-called 9/11 terrorist attacks in the United States, it has received its share of criticism (Schmid, 2013; Sedgwick, 2010). On the one hand, this means that it is essential to be crystal clear in terms of what definitions are used; and in what follows, it will become apparent that the phenomenon under scrutiny differs according to which approach is taken. On the other hand, and as shown in this paper, the concept of radicalisation as more than “what goes on before the bomb goes off” (Neumann, 2008, p. 4) has enabled a common language for talking about specific processes, facilitating research that can be tentatively characterised as cumulative.

2.1 Inclusion criteria and approach

The search strategy proceeded in a two stages. First, a review of seven specialised journals (*Studies in Conflict and Terrorism*, *Aggression and Violent Behavior*, *Studies in Conflict and Terrorism*, *Political Psychology*, *Terrorism and Political Violence*, *Journal of Conflict Resolution*, and *Aggressive Behavior*) was carried out to identify influential theoretical approaches. A particular approach was selected for inclusion if it had recent (within the past six years) empirical studies, if it claimed to provide a framework for understanding radicalisation, and if it explicated individual-level psychological factors. Second, a ProQuest search of PsycINFO, PsycArticles, Worldwide Political Science Abstracts and Research Library: Social Sciences was carried out to identify approaches not included in the first narrative stage. Only peer-reviewed papers published in journals after 2013 were included in the search, as the focus of the review is on theoretical approaches empirical studies published within the past six years. Boolean operators and search terms were ab(radical*) AND ab(psycholog*) AND ab(mechanism*) AND ab(violen*) AND ab(politic*) AND peer(yes). The resulting 1,280 results were screened on the basis of title and abstract. An article was selected for inclusion if it proceeded from a theoretical framework for understanding radicalisation, if it was empirically based and if it explicated individual-level psychological factors. The second stage of the search consisted of reviewing the identified articles to assess approaches for inclusion in the present review. In the end, seven theoretical approaches were left to be reviewed.

2.2 The framework of the review

In the evaluation of the empirical evidence for the approaches outlined below, this paper borrows from the understanding of causality described in the *potential outcomes framework* (Holland, 1986). Causality is understood as the differences in potential outcomes on some factor of interest of a unit in the presence and absence of another factor, often called the treatment. While the causal effect of any factor is fundamentally unobservable due to us viewing each unit only in a single state, the average causal effect

can be teased out through the comparison of units who received the treatment and others that were similar except for the fact that they did not receive the treatment. This borrows language from an experimental framework of treatment and control, but while ethical issues abound in talking about “randomisation” to radicalising treatments, the framework may help guide our thinking in terms of evaluating results when making claims of causal connection and direction. Through this framework, we can more easily distinguish between questions pertaining to the causal relationship between factors, *internal validity*, and factors of generalisability to populations of interest, *external validity*.

In terms of internal validity, we prefer designs that explicitly include a control comparison group. Many of the studies presented below are based on large-n cross-sectional evidence, where internal validity may be problematic, although a few newer studies use control groups (e.g. Baez et al., 2017) or case-control study designs. Judging the external validity of the empirical evidence rests on an evaluation of how similar the subjects under study *on critical parameters* resemble the population of interest. Does the subject of radicalisation unto political violence even allow for designs that simultaneously allow for internal and external validity? While the topic does present some unique challenges, this paper argues that the study of psychological mechanisms is biased towards external validity by focusing excessively on “radicals” at the cost of research designs that allow for investigation of causes. As most models of radicalisation – the psychological models in particular – present factors that supposedly *cause* radicalisation, the investigation of these factors without designs that allow for investigating causality become speculative. Further, we may evaluate the theories based on their *measurement validity*; namely, whether the studies successfully capture the ideas inherent in the concept (Adcock & Collier, 2001); in this case, whether the studies grasp the concept of radicalisation as defined in the specific approach. The internal, external and measurement validities of the approaches are evaluating across the empirical studies in their respective traditions. For example, while a laboratory experimental study might have high internal but measurement validity, another study testing the same model through personal interviews or field experiments may have lower internal but higher measurement validity. Taken

together, however, the model may be said to have acceptable internal *and* measurement validities, although no single study ticks off all the boxes. Finally, this paper aims to show that existing empirical evidence is at a point where the next natural step is designs incorporating the experimental logic and to distinguish between indicators and true causal factors of radicalisation unto political violence. While there is good reason to avoid overreliance on *laboratory* experimental designs, quasi-experimental designs and/or the exploitation of natural experiments provide ways to further our knowledge.

2.3 *Uncertainty–Identity Theory*

Uncertainty–identity theory proposes that the reduction of feelings of uncertainty concerning one’s self and identity is a primary motive for joining distinctive, well-structured groups with strong restrictions on acceptable attitudes and behaviour (Hogg & Adelman, 2013). Under self-uncertainty, the theory argues, there is a drive for more extreme group attitudes and behaviour. Since uncertainty – and in particular uncertainty about self and identity – is aversive, reduction of uncertainty becomes a prime motive. Group identification is a particularly effective way to reduce self-uncertainty, because it categorises the self and others into prototypes, depersonalises behaviour, and restricts and fixes the individual’s world-view. The stronger the “groupyness”, or entitativity, of the group, the stronger its potential to reduce self-uncertainty. Radical groups often embody the extreme end of entitativity.

The empirical evidence of the causal connection between self-uncertainty and group identification is substantial. Several laboratory and field experiments reveal that priming self-uncertainty leads to higher identification with and behavioural intentions to follow radical rather than moderate protest groups (Hogg, Meehan, & Farquharson, 2010). Observational studies (Rast et al., 2012; Rast, Hogg, & Giessner, 2016) support a relationship between self-uncertainty and support for prototypical and autocratic leadership. In observational field experimental studies of Israeli and Palestinian participants and students, there was some support that uncertainty led to stronger support for harsher military tactics and supported aggressive behaviour (Goldman & Hogg, 2016; Hogg & Adelman, 2013). An

online experiment (Goldman & Hogg, 2016) showed that having numerous prominent social identities (high social identity complexity) can act as a buffer from strong identification with *one* group. While impressive in terms of its internal validity stemming from experimental designs, there are weaknesses as well. Most of the studies use a student population that may or may not be meaningfully different from people actually at risk of radicalisation, providing weaker external validity, although the observational studies make up for this weakness to some extent. Furthermore, most of the studies use samples of relatively few participants in each experimental condition, which may be problematic for evaluating the evidence due to low statistical power. While there is strong support that self-uncertainty can cause people to support more radical groups, it is empirically unclear how this relates to the risk of seeing political violence as a legitimate or effective means, questioning the measurement validity of the empirical support.

2.4 Quest for Significance

A recent influential approach situates the causes of radicalisation and deradicalisation in the social domain rather than within the individual. Although personality traits and mental illness *do* play a role in some cases, focus lies with the group and organisational factors. According to Arie Kruglanski and David Webber's "3N" approach, individual motivation (needs), the ideological justification of violence (narratives), and group processes (networks) encompass radicalisation (Webber & Kruglanski, 2018). A perceived humiliation thwarts the individual's need to feel valued and significant in the eyes of others, creating motivation to restore significance. This creates the opportunity for an ideology (a narrative) that assigns blame for the perceived humiliation to an external enemy, legitimises violent aggression against this enemy on moral grounds, and constructs a bleak, Manichean worldview where everything is broken down into good or evil. Along these narrative processes, group processes and networks function to increase the support for engaging in political violence with like-minded individuals who distort norms and create a fusion of individual and group identities.

Evidence for this approach comes from interviews with previously radicalised individuals from ISIS (Neumann, 2015; Speckhard, Shajkovci, & Yayla, 2017) and other extremist groups (Reinares, 2011; Kruglanski et al., unpublished, cited in Webber & Kruglanski, 2018). Observational studies of imprisoned Islamic militants in the Philippines, Muslim immigrants in Spain, and former members of the Liberation Tigers of Tamil Eelam (Jasko, LaFree, & Kruglanski, 2016) have supported the link between a loss of significance and the endorsement of extremist ideology. Furthermore, studies of suicide attacks indicated that the lethality of attacks was related to circumstances that were expected to induce a loss of significance (Kruglanski et al., 2009; Webber et al., in press, cited in Jasko, LaFree, & Kruglanski, 2016). These findings were supported by an investigation of extremist individuals in the US, where the use of violence was related to measures of loss of significance (Jasko, LaFree, & Kruglanski, 2016). The emphasis on measuring the support for violence and extremist ideology among actually radicalised individuals provides for high external and measurement validity. While the empirical support for relationships between the factors in the “3N” or significance quest approach is substantial, there is a lack of experimental designs that can tease out the causality and direction of the purported relationships, weakening the internal validity.

2.5 The Devoted Actor Model

The third major approach shifts the focus to sacred and transcendental values to which “devoted actors” adhere, decoupling behaviour from rational calculations of risk and reward (Atran, 2016). Devoted actors are deontic agents devoid of instrumental rationality willing to sacrifice for an in-group with whom their own sense of identity is fused. Identity fusion is the experience of blurring the lines between “who I am” and “who we are” (Swann et al., 2014). Even though sacred values are specific to particular societies and historical contingencies, the universality of the devoted actor is explained through an evolutionary rationale, where low-power groups with devoted actors immune to instrumental calculations and willing to engage in extreme forms of self-sacrifice were able to stand up

to stronger groups without such actors. Extreme actions, such as suicide attacks, are outcomes of sacred values and fusion with the in-group, endowing members with a sense of significance, mirroring the *significance quest* approach (Kruglanski et al., 2013); people do not just sacrifice for sacred values, but also for each other (Atran, 2010).

Conducting field experiments in the US, Nigeria and the West Bank, Ginges and Atran (2011) found support for the connection between the priming of sacred values and engagement in and support for political violence. Further support for a relationship between identity fusion, sacred values, and self-sacrifice came from samples of Lebanese Muslims and Christians in Lebanon (Sheikh et al., 2014) and samples in Morocco and Spain (Sheikh, Gómez, & Atran, 2016). Ginges and colleagues (2007) found support for the notion of a “backfire” effect, where material incentives to break sacred values created an even more fervent reliance on these values. Whitehouse and colleagues (2014) found support for the notion that identity fusion with family-like groups in armed conflict is related to a willingness to fight and die for the group. Perceived threat strengthened this relationship (Sheikh, Gómez, & Atran, 2016). The assertion that joining and legitimizing terrorist organisations is not the result of rational, instrumental calculations was supported by findings from case studies and surveys of minorities (Putra & Sukabdi, 2014; Rüdiger & Karyotis, 2014). Results from interviews and surveys with Kurdish fighters and captured ISIS militants in Iraq revealed a high degree of identity fusion and devotion to sacred values (Atran, 2016). Overall, the internal and external validity of the model is strong, supported by multiple methods and in a range of contexts and cultures. In terms of measurement validity, we should evaluate the evidence in terms of measuring radicalisation. In terms of violent conflict and preparedness for violence in war zones, measurement validity is strong. However, the studies have less-clear implications for the radicalisation of young people in Europe, and we may be cautious whether the studies tap radicalisation in these settings. The motivating factors for political violence for locals in civil war, foreign fighters who travel to war zones, and radicalised individuals in Western countries may well be different (Hegghammer, 2013), an issue that is worth keeping in mind.

2. 6 Mindset and worldview

In a proposed integrative model of the individual psychology of terrorism, Borum (2014) suggested that relatively stable psychological traits and characteristics (a mindset) combine with a specific worldview to create a psychological climate conducive to radicalism and violent extremism. The mindset factors consist of vulnerabilities and propensities. Vulnerabilities exist in the form of a need for meaning or significance (including the need for uncertainty reduction), need for belonging to a group and perceived injustice or humiliation (Brown et al., 2010). Propensities can be motivational, such as the need for status or revenge (Borum & Fein, 2017); attributional, such as having a negative explanatory style (Peterson et al., 1982); attitudinal, such as the belief that violence is effective; and legitimate or volitional, such as impulsivity and poor self-regulation. Worldview factors consist of the situational factors of dogmatism (Jost et al., 2003; Stankov, Saucier, & Knežević, 2010) and fundamentalism (Strozier et al., 2010), and the contextual factors of authoritarianism (Altemeyer, 1998) and apocalypticism (Strozier & Boyd, 2010).

The main thrust of the integrative model is its insistence that we must understand radicalisation to terrorism in terms of normal psychological traits and motivational states rather than through psychopathological or medical terminology, an assertion backed up by empirical studies of terrorists (Horgan, 2008; Victoroff, 2005). While the factors in the model have been indicated in empirical studies and the mindset factor is indicated in other approaches and empirical studies (Doosje, Loseman, & Bos, 2013), no direct evidence of the specific combination of factors exist, leading to an empirical model of possibly relevant factors rather than a testable model of radicalisation. Therefore, in order to improve the empirical evidence for this approach, a focus on both internal, external and measurement validities is needed. As discussed below, however, the approach has many similarities with the previously presented models, indicating a way to “prune” some of the concepts and labels.

2. 7 Reactive Approach Motivation for Aggressive Religious Radicalisation

Yet another motivational framework focuses specifically on aggressive religious radicalisation (McGregor, Hayes, & Prentice, 2015). In this model, normal motivational processes are diverted through the interaction between personality traits, threats and group affordances. Aggressive religious radicalisation is understood as an often religiously impoverished but behaviourally extreme Manichean and authoritarian position. Motivational structures based on goal dynamics of approach and avoidance (McNaughton & Gray, 2000) lead to anxiety-related threats such as uncertainty, loss of control or goal-frustration and in turn to extreme compensatory reactions (McGregor, Hayes, & Prentice, 2015). This “reactive approach motivation” is empirically linked to support for religious extremes (McGregor et al., 2008). In this framework, “approach” is seen as an adaptive response to anxiogenic threats. Personality traits conducive to aggressive religious radicalisation are proposed to be *oppositional*, *anxious* and *identity-weak*. Narratives of conspiracy, cosmic moral struggles and justification of violent means are particularly difficult to engage with and change, as they often create a core of unfalsifiable beliefs through distortions (McGregor et al., 2010).

Although the authors of the model propose specific ways to test the elements of the framework, to this author’s knowledge, no such test has been published. Individually, laboratory experimental studies have supported both personality and threat factors, providing some internal validity to the factors (McGregor, Hayes, & Prentice, 2015). The anxiety-to-approach link has also been firmly established in the reactive approach motivation framework (Jonas et al., 2014; McGregor, Prentice, & Nash, 2013; Proulx, Inzlicht, & Harmon-Jones, 2012). Support for the uncertainty–anxiety–radicalism link comes from other studies as well. For example, in a sample of 608 Muslims with Pakistani or Bangladeshi origins living in the UK, support for violent protest and terrorism was found to be related to symptoms of depression, religious fervour and youth, although effects were small (Bhui, Everitt & Jones, 2014; Bhui, Warfa, & Jones, 2014). In a large survey of Muslims living in Europe and the US, Victoroff, Adelman and Matthews (2012) found that having concrete experience with discrimination was related to support for suicide bombings in the Muslim diaspora. Similarly, an exploratory psychological and

neuroendocrinological study of 53 14-year-old Muslim Palestinian boys (Victoroff et al. 2010; 2011) found a relationship between trait anxiety, depression, personal trauma related to conflict, perceived injustice and support for religio-political aggression. Therefore, future research in this strand of research should focus on testing the proposed factors in a single design, strengthening internal validity.

2. 8 *The Two-Pyramids Model*

McCauley and Moskaleiko (2017) separate radicalisation of opinion from radicalisation of action. Similar to other models, they place little emphasis on the role of ideology. Radicals are not “crazy”, but simply reacting to perceptions of injustice and opportunity, variously called “unfreezing”, “biographical availability” or “cognitive opening”. Radicalisation to violence is characterised by engaging with a culture of violence, peer pressure and a focus on in-group status (Bartlett, Birdwell, & King, 2010). Terrorists, but not nonviolent radicals, reveal a simple and shallow understanding of ideology (Baez et al., 2017). In a previous paper (McCauley & Moskaleiko, 2008) and in a review of historical cases of radicalisation, McCauley and Moskaleiko (2011) identified twelve factors involved in radicalisation, including personal and group grievances, status seeking, group polarisation and isolation, and mass-level hate and backlash from state repression. They argue that the *emotional* element in radicalisation is central. Since attitudes (e.g. support for violent political action) are only weakly related to actual violence, they argue for viewing radicalisation of behaviour through the “opinion pyramid” and “action pyramid”. In the former, individuals move from being neutral to a political cause at the base to engaging in political violence at the apex (McCauley, 2013). Conversely, the latter consists of people who are passive or *inert* at the base, followed by legal political activists, illegal political activists and terrorists who engage in violence against civilians at the apex. Empirically, in large surveys in different populations, these elements have been found to be distinct psychological dimensions, providing for moderate external validity (McCauley, 2013; Moskaleiko & McCauley, 2009). The observation that non-violent and violent political protest and activism may have different root causes is supported by

other research (Tausch et al., 2011; Thomas, McGarty & Louis, 2014). In an experimental design, Thomas, McGarty and Louis (2014) showed that small-group interaction lead to radicalisation, as opposed to legal political activism, only when extreme action was perceived to be legitimate. Another study (Thomas & Louis, 2014) indicated that the shift from non-violent to violent action rested on the simultaneous de-legitimization of non-violent action (through corruption charges) and legitimization of future extreme action.

The major implication of this approach is that we need to distinguish between the psychological factors leading to radicalisation of opinions from those leading to radicalisation of action. This focus on the operationalisation of the central concept and a standardised measure of activism and radicalism means that this approach has the strongest measurement validity of all of the approaches reviewed here.

Further, it is well-supported that emotional reactions play a role in radicalisation to action (McCauley & Moskaleiko, 2017). However, the model fails to convey concrete causal pathways, weakening the internal validity of the model, and subsequently may better be seen as an overall framework for understanding the mechanisms of radicalisation similar to Borum's framework (2014) described above.

However, support for the assertion that emotions play a central part in radicalisation comes from another part of the literature. In experimental and observational studies, Becker, Tausch and colleagues have shown that while anger was positively related to legal protest and activism, contempt was positively related to extreme action (Tausch et al., 2011). Further, they found collective action to be related to out-group anger and contempt and in-group positive affect (Becker, Tausch & Wagner, 2011). In a broader sense, emotions appear to be as central to motivating political action as any other factor, and presents an avenue for future empirical research in distinguishing the factors of non-violent and violent mobilization (e.g. Bal & van den Bos, 2017; Van Stekelenburg, 2017).

Viewed in isolation, neither of these approaches provide models of radicalisation with overwhelming empirical evidence in terms of internal, external and measurement validity. Individually, the results may

therefore be difficult to interpret in substantial terms. In concert, however, they might enable us to arbitrate between conflicting claims of the causes of radicalisation as well as the implicit or explicit assumptions of how specific interventions work. First, in the next section, common factors between the approaches in terms of evidence for psychological mechanisms of radicalisation are distilled and discussed. The usefulness of this knowledge of the mechanisms is then illustrated through an evaluation of counter-radicalisation interventions at the macro, meso and micro levels.

3. Common and empirically supported factors

From the preceding, and with reference to table 1 from the introduction, we can draw at least three general observations: First, the theories deal specifically with the question of the psychological mechanisms of radicalisation to political violence. Second, the theories conceptualise radicalisation in slightly different ways, which might lead us to doubt whether it is even possible to compare the theories or if they are fundamentally directed towards different phenomena and, therefore, incommensurable. Nevertheless, following from the argument that a common language of radicalisation now exists, the third observation is that there is a large degree of overlap between the different approaches as well as in the evidence used to support them. In terms of the central explanatory factors in particular, there are similarities that allow us to evaluate the empirical evidence on a distinct range of factors. This part of the paper synthesizes the approaches and the literature that were analysed in the preceding sections in terms of central factors of radicalisation. This section reviews the conceptualisation of radicalisation and goes on to consider the central elements drawn from table 1. Table 2 summarises these elements.

3.1 Conceptualisation of radicalisation: attitudes and behaviour

Starting with the phenomenon itself, a first point concerns the distinction between the radicalisation of opinion versus the radicalisation of behaviour. As the two-pyramid approach argues, there are empirical and theoretical grounds for distinguishing between the two, as radicalisation of opinion does not necessarily lead to radicalisation of behaviour and vice versa (McCauley & Moskaleiko, 2017). In

several of the theories above, the two are conflated. At this point, it is unclear that different factors affect the two forms of radicalisation, but the distinction remains a central one requiring explicit mention; it cannot simply be assumed that the radicalisation of opinion necessarily leads to that of behaviour.

Despite this difference, there are commonalities between the different approaches to studying radicalisation. Specifically, all seven approaches include a common core of radicalisation as support and sacrifice for violent behaviour as a means in hostile inter-group political interaction. This is most clearly the case for the significance quest, devoted actor and reactive approach motivation approaches, where sacrifice for the group is essential. In the mindset and worldview approach as well as in the religio-political aggression approach, self-sacrifice for a real or imagined community is evident. This common conceptual core, while keeping the differences in mind, allows us to discuss the similarities and differences in the factors proposed to play a role in radicalisation.

3.2 Normal mechanisms, not psychopathology

A first, but essential, similarity across all models is the point that the psychological mechanisms of radicalisation consist of normal, adaptive mechanisms that are not in themselves expressions of “extreme” or pathological processes. The turn towards groups and ideologies that condone or demand violent behaviour, in all approaches, is to be understood in terms of normal reactions to abnormal situations. A corollary of this point is that essentialising terrorists or radicals as “crazy” may hinder our understanding of the process. While there is some evidence of an overrepresentation of psychopathology in lone actor extremism (so-called “lone wolves”; Corner & Gill, 2017), these actors undergo a process that might represent a qualitatively different behavioural category in which group processes play a different role. Group processes remain important, but in a more peripheral sense. One study (Bhui, Wharfa, & Jones, 2014) found that slightly elevated scores on inventories of depression correlate with support for political violence, which sits well with other studies having found that

increased anxiety is a common feature of radicalisation. Higher scores therefore indicate dispositional anxieties or current pressures rather than actual psychopathology or depressive illness.

3.3 Social-motivational and cognitive processes

All approaches are fundamentally about social-motivational processes rather than merely cognitive or rational processes, although the relative emphasis placed on individual and group processes differ. Whether for worldview defence (Borum, 2014), significance loss (Webber & Kruglanski, 2018), identity-fusion (Atran, 2016), in-group threat (Hogg & Adelman, 2013) or compensatory action (McGregor, Hayes & Prentice, 2015), motivational processes are essential for driving the attitudinal and volitional change towards radicalism. Behind this lies rather primitive mechanisms of aggression and approach as a means of lessening existential turmoil, as expressed by approaches as different as psychodynamic, sociological, existential philosophical and biological theories of behaviour (McGregor, Hayes, & Prentice, 2015, p. 2). An unpleasant motivational state or experience of deficit is central in sparking radicalisation. Proceeding from this observation, we can argue that early against radicalisation must target factors that create negative motivational drive states rather than attempt to simply up the costs and decrease the benefits of moving to a radical ideology, as a pragmatic or instrumental theory might suggest.

3.4 Negative life experiences as “triggers”

Proceeding from the previous point is the general emphasis on negative life experiences that stimulate uncertainty about fundamental existential questions within the individual. Whether labelled as experiences of discrimination, self- or existential uncertainty, or loss of significance, the intuition that radicalisation is most attractive to individuals who are somehow dissatisfied with their position or life is backed up by much of the evidence using biographical, observational and experimental approaches (McCauley & Moskalenko, 2017; Webber & Kruglanski, 2018). While normal psychological and motivational mechanisms drive radicalisation, the process does not spontaneously occur in certain

vulnerable individuals. While not fundamentally unexplainable, radicalisation relies on negative events and psychological “climates” conducive to individuals beginning a search for different groups and communities (Borum, 2014). If the majority culture and norms are not equipped to provide viable alternatives, fringe groups and organisations may strategically leech off the negative life experiences by offering a substitute (Hunter et al., 2017).

3.5 Small-group dynamics

The role of small-group dynamics in driving radicalisation is central in several theories, most notably uncertainty–identity theory (Hogg & Adelman, 2013). Although lone-actor attacks may be on the rise, the overwhelming majority of cases of radicalisation to political violence occur in groups (Atran, 2016). Small groups of like-minded individuals can be seen as a means of reducing negative emotions but in turn can cause further polarisation from mainstream norms and seem to play an essential role in translating radical attitudes to radical actions (McCauley & Moskalenko, 2008). This factor is similar to the “network” concept, and networks often work through small groups (Webber & Kruglanski, 2018). Apart from uncertainty–identity theory, the group factor is central to the devoted actor model (Atran, 2016), the mindset and worldview approach (Borum, 2014) and reactive approach motivation to aggressive religious radicalisation (McGregor, Prentice & Nash, 2013). Despite solid experimental evidence of processes of small-group deliberation leading to more extreme views (Isenberg, 1986) and general factors of loss of significance, uncertainty or anxiety leading to reliance on the group (e.g. Hogg, Meehan & Farquharson, 2010), we still lack studies that show the entire causal chain from negative experiences, motivational states, group dynamics and radicalisation. Furthermore, emotions such as anger and contempt seem particularly important in motivating collective action. Research on disidentification with previous in-groups during radicalisation (Becker et al., 2011) and outgroup dehumanization (Bruneau & Kteily, 2017) further support the central role played by perceived group belonging.

3.6 *Self- and social identity*

A factor mentioned by several models is the self- and social identity dynamic (Atran, 2016; Hogg & Adelman, 2013; Webber & Kruglanski, 2018). A stable of social-psychological approaches to group phenomena (Klandermans, 2014), politicised collective identity is a central causal factor in radicalisation. In uncertainty–identity theory, the quest-for-significance approach and devoted-actor model, radicalisation involves a lessened reliance on the individual’s sense of self-identity, the things and characteristics that make the individual unique, and increased reliance on the social identity of specific groups (Jasko, LaFree & Kruglanski, 2016; Rast et al., 2012; Sheikh, Atran & Ginges, 2014). This process is fundamentally motivational, caused by a loss of meaning or uncertainty, which may be generally termed a “disembeddedness” in the actor’s daily life. The similarities between how this factor is described in the various approaches arguably outweigh the differences in labels. As implied in some of the empirically best-grounded approaches, there is a range of case-control, observational survey and laboratory experimental evidence across general and specific populations for the role played by the shift in identity. Importantly, as Klandermans (2014) has argued, the causal relationship between identity and radicalisation is bidirectional, creating the possibility of a “resonance” effect where reliance on extreme groups and radicalisation mutually strengthen each other.

3.7 *Ideology*

A more controversial factor is *ideology*. Is it simply an attractive worldview for individuals who are already radicalised, or is ideology itself a driver of radical violent behaviour? The preceding discussion and evidence provide enough support to the assertion that ideology is more than an epi-phenomenon. Similarities may be argued to outweigh differences, at least when ideology is understood broadly, encompassing narratives (Webber & Kruglanski, 2018), religion (McGregor, Hayes, & Prentice, 2015), norms (Hogg & Adelman, 2013), sacred values (Atran, 2016) and worldviews (Borum, 2014; Doosje, Loseman, & Bos, 2013). However, while the empirical evidence from these approaches seems to

indicate the necessity of specific ideologies to propel violent behaviour, there is also the possibility that the ideological elements are not in themselves causal factors in radicalisation. One could imagine ideology as a post-hoc explanation or rationalisation of extremist acts rather than as a driving force in itself. Indeed, a recent study (Baez et al., 2017) compared the moral reasoning of 66 convicted terrorists with socio-demographically matched controls as well as murderers with no terrorist background and found that the terrorists judged attempted harm as more legitimate than did the control groups, even in the absence of ideological justifications. As such, it may be premature to assert that the use of violence is driven mainly by ideological prescriptions, because ideology may in many cases come *after* behaviour to provide a rationalisation of it. This is consistent with the finding that radicals and terrorists sometimes show a rather impoverished, bare-boned understanding of the legitimising ideology, even if it is good enough to have it provide clear rules for regulating behaviour and direct intergroup interaction (Borum, 2014).

3.8 Individual differences

A last factor, which runs across several of the models, is the role played by individual differences. Relatively stable individual differences are a common element in some of the approaches as a moderator of the risk that the more situational or external factors lead to radicalisation. In particular, trait anxiety, aggression and authoritarianism are indicated in the mindset and worldview approach, in the religio-political aggression approach and in the survey studies. In several studies, age (younger) and gender (male) seem to predict support for political violence and radical opinions (Doosje, Loseman & Bos, 2013; Thomas & Bond, 2015), even if the lower number of women who participate in political violence compared to men may be due to a lack of organisation-based opportunities. However, these factors are still not well investigated empirically (García Coll & Marks, 2017), perhaps due to the recent nature of designs such as large surveys and studies using control groups that are geared to investigating which individual differences may cause increased vulnerability for radicalisation. This might shift in the

coming years as we see research designs that are better equipped to investigate individual differences in a causal framework.

The schism between individual differences and social influences is a perennial issue, and – as with many other phenomena – both play a role as mechanisms of political radicalisation. For the study of radicalisation, however, this is important for understanding the processes and vulnerabilities that lead to radicalisation. While the adage that there is no *single* profile (Horgan, 2016) may hold true, understanding individual differences as dimensional factors makes clear that specific factors may increase or decrease resilience or vulnerability to social factors that lead to radicalisation. As argued below, studies that disentangle these factors are paramount in designing policy interventions.

4. The state of the field: towards an evidence-based study of radicalisation

Seen in the perspective of the validity of the approaches, the central result of this review is that the external validity has improved during the past decade of research into radicalisation. This has happened in tandem with improved measurement validity, even if there is still a need for more standardised measurements and acknowledgement of the distinction between radicalisation of opinion and radicalisation of action. However, the internal validity of studies, despite being essential for theories making causal claims, generally remains quite poor. While we have come a long way since the conception of the field in 2001, there is still some way to go.

Following the discussion, we can now turn to the implications and ranking of factors in terms of the evidence of their role in driving political radicalisation. There is strong evidence for the proposition that the psychology of radicalisation is essentially about normal mechanisms rather than abnormal or pathological processes. Moreover, radicalisation clearly has more to do with fundamental motivational processes than rational instrumental calculations of risk and reward, and there is a large pool of evidence that indicate the impact of negative life experiences that create a fundamental existential flux. This flux can be felt as a fundamental uncertainty regarding the self and future or as a loss of

significance or meaning. Another factor with strong backing is that mechanisms of shifting social identity towards a single group – rather than a combination of many groups – drives radicalisation along with the small-group dynamics of polarisation and self- and other-categorisation.

We lack knowledge of the personality and individual difference factors that might increase vulnerability to radicalisation. At this point, the few individual difference factors that are empirically supported are heightened anxiety, aggression, impulsivity and low openness to experience in those who radicalise into violent extremism (Brandt, Chambers, & Crawford, 2015). There is evidence that ideology sometimes acts as a justification for extreme acts rather than separate cause (Baez et al., 2017). There is support for the claim that holding “sacred values” that come under perceived threat may cause more extreme behaviour (Atran, 2016). Experimental and larger studies should focus on disentangling this factor in the future. There is also indirect evidence of the role played by a specific “mindset” of authoritarianism, dogmatism and fundamentalism. These factors are presented and ranked in table 2 below, which presents an overview of the psychological mechanisms of radicalisation based on the review and discussion in this paper.

5. Implications for interventions

Having identified factors with empirical support, it is possible to attempt an evaluation of current interventions and their implicit or explicit mechanisms. After all, the practical implications for this research is the explicit goal of much of the research on radicalisation (Young, Roose, & Holsappel, 2015). Here, it is important to distinguish between “upstream” early prevention meant to target vulnerable individuals *before* radicalisation as opposed to “downstream” counter-radicalisation that targets already radicalised individuals, such as those convicted of planning terror attacks or those seeking to exit radicalised milieus (Romaniuk, 2015). The mechanisms reviewed above specifically target the upstream problem of individuals radicalising into political violence. Although the two processes

may be related, there is no necessary connection between the mechanisms leading to and from radicalisation (Schmid, 2013).

Table 2. An overview of psychological mechanisms of radicalisation.

Strong empirical evidence	<ul style="list-style-type: none"> - Normal psychological mechanisms rather than psychopathology - Motivational processes rather than instrumental calculations of risk and reward - Negative life experiences that put the individual in flux in terms of fundamental questions - Experience of fundamental uncertainty or loss of meaning or significance - Shift in social identity towards a single social group rather than many - Small group dynamics drive the process to behavioural extremes - Heightened dispositional anxiety, aggression and impulsivity - “Sacred values” as necessary in later stages of radicalisation
Moderate empirical evidence	<ul style="list-style-type: none"> - Psychological mindset of authoritarianism, dogmatism and fundamentalism - Negative emotions, particularly anger and contempt
More research needed	<ul style="list-style-type: none"> - Other individual difference factors such as ambiguity, intolerance and need for cognitive closure - The relative roles of uncertainty, significance, sacred values etc. - The causal role of ideology: justification or cause?

In practice, programmes that attempt to counter radicalisation cover a broad range of activities, including communication between state, civil society actors and individuals, engagement and outreach programmes, community development programmes and law enforcement (Neumann, 2011). Therefore, a taxonomy with which to understand interventions is helpful. In a report for the Global Center on Cooperative Security, Romaniuk (2015) proposes a four-pronged taxonomy of understanding interventions that includes the scope, proposed causal mechanisms, implementing actor and specific activities involved in the intervention. The scope can be the macro level (e.g. public diplomacy and

online interventions), the meso level (e.g. outreach and dialogue interventions with communities) and the micro level (e.g. one-to-one mentoring or counselling programmes).

Programmes targeting the macro level include public diplomacy programmes, online interventions and broad counter-messaging strategies. These interventions often target the radicalisation of attitudes, skirting the line between interventions that target radicalisation specifically and those that are *relevant* to countering radicalisation (Romaniuk, 2015). Since these programmes are often formulated at the macro level, the individual causal mechanisms through which they are purported to work can often be opaque. By training the population in the liberal values associated with human rights and critical thinking, these interventions can be thought to provide a protective cognitive buffer against attempts at radicalisation. Based on the factors reviewed above, however, this approach has several problems. The targeting of cognitive, attitudinal factors seems to be a relatively “late” element in radicalisation, and not one that is easily changed (Borum, 2014). The specific role of ideology as justification or cause warrants further research. Motivational processes and environments that induce uncertainty and loss of significance and meaning emerged as central to radicalisation (Hogg & Adelman, 2013; Webber & Kruglanski, 2018). While macro-level counter-radicalisation interventions can be part of broader programmes, a lack of specificity and focus on rational processes in radicalisation may provide, at best, a weak effect. Because such interventions are generally expensive (Romaniuk, 2015), they may not be the most efficient tools with which to combat radicalisation. At the macro level, interventions that attempt to create firm foundations and opportunities for young people and those on the margins of society are likely to also counter radicalisation through reducing exposure to negative life events, but are beyond the scope of this paper. This does raise the important point, however, that a strong intervention at this level that includes the factors indicated in radicalisation will also be an intervention that targets the “causes of the causes” of radicalisation; that is, the causes of negative life experiences, fundamental uncertainty and feeling that sacred values are under attack. However, there are also risks associated with adding counter-radicalisation elements to other policy measures, notably “backfire” effects where, for example,

ethnic minority groups perceive an *increase* in intergroup hostility from majority groups (Ginges et al., 2007; Lindekilde, 2012).

Meso-level programmes focus on vulnerable communities in order to engage in outreach and dialogue, often to create capacity-building and resilience in communities (Romaniuk, 2015). For example, these interventions include workshops or courses in classrooms as well as collaborations between civil society organisations, such as religious groups and authorities. These interventions are often based on an identification of “at risk” communities (RAN, 2017). On the one hand, there is a risk that such identification creates a sense of unfairness or distrust between authorities and communities, such as that for which the first version of the so-called Prevent programme in the UK has been criticised (Romaniuk, 2015, p. 24). On the other hand, such programmes enable the specific targeting of the mechanisms that have received empirical support in the review above. Based on the approaches of Uncertainty-Identity Theory, Significance Quest and the Devoted Actor Model, these programmes might impede the creation of singular social identities, provide a viable alternative to problematic attitudes through the expansion of opportunities across communities, and create engagement with and a sense of significance through improving and empowering communities. Meso-level programmes that can be said to receive support from psychological literature are those that successfully reduce daily uncertainty (Hogg & Adelman, 2013), create a sense of significance and worth within the individual (Webber & Kruglanski, 2018), and reduce reliance on single social identities (Grant & Hogg, 2012). One weakness of meso-level interventions is the risk of iatrogenic effect through the targeting of specific communities, indicating a trade-off or optimal level of interventions that minimises false positives and labelling. The limitation of meso-level programmes is that they may still have a hard time in constructing tailored interventions that focus on factors related to individual differences, such as psychological mindset or specific negative life experiences (Borum, 2014; McGregor, Hayes & Prentice, 2015). For this, micro-level interventions are necessary.

Micro-level interventions involve programmes that identify individuals at risk, attempt to dissuade and counsel these individuals, and mentor them towards more positive behaviour and activities (Romaniuk, 2015). Many such programmes, although not all, are downstream interventions targeting individuals that have already undergone radicalisation (RAN, 2017). Interventions based at the micro-level, targeting specific individuals, have been criticised for coming too close to police and counter-terrorism work, creating an army of “spies” in teachers, community workers and others who are involved in identifying at-risk individuals (Lindekilde, 2012; Romaniuk, 2015, p. 25). Screening and identifying individuals at risk of radicalisation requires training, and cannot be carried out as a simple task by teachers or locals without substantially increasing the incidence of false positives. The availability of standardised screening tools, however, developed with a focus on the factors identified above and empirically validated, may improve this endeavour (see e.g. Meloy & Gill, 2016; Scarcella, Page, & Furtado, 2016).

There have also been “success” stories in terms of micro-level interventions, particularly in the second wave of newer interventions. In Denmark, for example, the focus on cognitive radicalisation has taken a backseat to micro-level measures focusing on close collaboration between authorities, a “soft touch” approach, and a corps of trained mentors enabling frequent one-on-one sessions (Bertelsen, 2015). These sessions focus explicitly on embedding or anchoring individuals in their daily lives, supporting or scaffolding the ability to carry out fundamental human life tasks successfully (Bertelsen, 2015, p. 246). Placing the “battle of ideas” and focus on cognitive radicalisation in the background is supported by the mechanisms identified in this paper. In particular, the motivation focused approaches lend theoretical and empirical support to this approach (Webber & Kruglanski, 2018; Hogg & Adelman, 2013). Direct dissuasion is unlikely to counter radicalisation; rather, there is a close overlap between the approach of the Danish mentoring programme and the mechanisms identified in this paper. The mentor–mentee relationship, when successful, can be expected to support coping with the negative life experiences in the individual’s life, protecting against fundamental uncertainty (McGregor, Hayes & Prentice, 2015).

The focus on fundamental life tasks (e.g. getting an education or job) reduce the individual's risk of loss of significance (Jasko, LaFree & Kruglanski, 2016). Being able to tailor programmes to the individual's needs and psychological makeup, furthermore, enables interventions to target specific dispositional elements as well, creating the opportunity of an intervention that targets most of the mechanisms of radicalisation (Sklad & Park, 2017).

An overall recommendation is the imperative for interventions and policy papers to explicitly state the causal channels through which specific activities are thought to work to counter radicalisation. An example of this is the "IC Thinking" approach of Sara Savage and her colleagues (Liht & Savage, 2013; Savage, 2011). From experimental studies of black-and-white thinking, as opposite to integrative complexity, they built the "Being Muslim Being British" intervention targeting young people in Britain at risk of radicalisation (RAN, 2017). With a focus on reducing intergroup conflict and critical thinking and the individual worth of participants, this intervention could also find support in the significance quest (Webber & Kruglanski, 2018) and the mindset and worldview (Borum, 2014) approaches. From the results of the review and discussion of interventions, several connections between existing interventions and the mechanisms supported in the review of the empirical literature are possible. In particular, interventions targeting dialogue and values may be less effective at countering radicalisation than those that ground individuals in their immediate life and attempt to create a foundational embeddedness in their lives. There is no substitute for direct evaluation studies using designs capable of teasing out the mechanisms and causality of interventions. The review and discussion above is a call for such designs to be implemented in practice. Interventions at the meso and micro levels are well-suited for this. For example, evaluation of the effectiveness of classroom interventions could be made using a difference-in-difference design, where the development of those exposed to the intervention is compared to others who have not yet received the programme. For mentoring programmes, incorporating control groups may also function via waiting lists or comparisons with similar others in the community. For such designs to work, however, standardised measures must be developed and

validated. The mechanisms, factors and operationalisations of radicalisation used in the studies described in this paper provide a starting point for doing so.

6. Conclusion

Seven years ago, in a review paper, King and Taylor (2011) concluded that the three factors of relative deprivation, identity conflicts and personality characteristics were central to radicalisation. Today, we are able to nuance these findings. This paper has attempted to create an overview of the newest empirical evidence for psychological mechanisms of radicalisation to political violence. The field has seen a move from case studies of radicals onto stronger designs, including large-n studies, case-control and even recent experimental designs. The review has shown that there are still numerous competing theories but that the proposed causes in the different models share a common core. It should be clear that future research in this area ought to be empirical, focusing on disentangling similar concepts, including the distinction between the social identity theory of the group and identity fusion theory, to further investigate the role of individual difference factors and mechanisms of uncertainty, significance and sacred values. More importantly, future research must clearly distinguish between the radicalisation of opinion and radicalisation of behaviour. Focusing on actual past behaviour or behavioural intentions offers a way of doing so.

A central implication of this review is that understanding the psychology of radicalisation has become an empirical endeavour, one where researcher–practitioner collaborations have great potential to move the field forward. The design and evaluations of the ubiquitous interventions against radicalisation and extremism seen in recent years specifically need to target the mechanisms identified in this paper. Our knowledge of which interventions actually work is even less supported empirically than our knowledge of the mechanisms of radicalisation. It would be simplistic to assume that de-radicalisation is simply the reverse of radicalisation. As such, there is no substitute for rigorous evaluations using control groups for our interventions. For example, the evidence points to the importance of providing basic security, a

predictable worldview and a sense of meaning to the individual to protect from radicalisation. The evidence does not support courses on openness to new ideas or dialogue being the way forward for specifically combating radicalisation, even if there may be other positive consequences of such courses. Rather, meso- and micro-level interventions seem better placed at targeting the identified mechanisms. Finally, the review does not indicate that radicalisation can be understood as an ideological battle between a liberalistic ideal of openness and one of traditionalism – as a “battle of ideas” that some interventions target (Van Dongen, 2010) – but rather an issue of *normal* psychological mechanisms and reactions based on our fundamental motivational, emotional and social makeup.

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References

Adcock, R., & Collier, D. (2001). Measurement validity: A shared standard for qualitative and quantitative research. *American Political Science Review*, *95*(3), 529–546.

Altemeyer, B. (1998). The other “authoritarian personality”. *Advances in Experimental Social Psychology*, *30*, 47–92.

Atran, S. (2010). *Talking to the enemy: Violent extremism, sacred values, and what it means to be human*. London: Penguin.

Atran, S. (2016). The devoted actor: Unconditional commitment and intractable conflict across cultures. *Current Anthropology*, *57*(S13), 192–203.

Baez, S., Herrera, E., García, A. M., Manes, F., Young, L., & Ibáñez, A. (2017). Outcome-oriented moral evaluation in terrorists. *Nature Human Behaviour*, *1*, 0118, doi:10.1038/s41562-017-0118.

Bal, M., & van den Bos, K. (2017). From system acceptance to embracing alternative systems and system rejection: Tipping points in processes of radicalization. *Translational Issues in Psychological Science*, *3*(3), 241-253.

Bartlett, J., Birdwell, J., & King, M. (2010). *The edge of violence: A radical approach to extremism*. London, UK: Demos.

Becker, J. C., Tausch, N., Spears, R., & Christ, O. (2011). Committed dis (s) ident(s): Participation in radical collective action fosters disidentification with the broader in-group but enhances political identification. *Personality and Social Psychology Bulletin*, *37*(8), 1104-1116.

- Becker, J. C., Tausch, N., & Wagner, U. (2011). Emotional consequences of collective action participation: Differentiating self-directed and outgroup-directed emotions. *Personality and Social Psychology Bulletin*, 37(12), 1587-1598.
- Bertelsen, P. (2015). Danish preventive measures and de-radicalization strategies. The Aarhus Model. *Panorama Insights into Asian and European Affairs*, 1, 241–253.
- Bhui, K., Everitt, B., & Jones, E. (2014). Might depression, psychosocial adversity, and limited social assets explain vulnerability to and resistance against violent radicalisation?. *PloS one*, 9(9), e105918.
- Bhui, K., Warfa, N., & Jones, E. (2014). Is violent radicalisation associated with poverty, migration, poor self-reported health and common mental disorders?. *PloS One*, 9(3), e90718.
- Borum, R. (2014). Psychological vulnerabilities and propensities for involvement in violent extremism. *Behavioral Sciences & the Law*, 32(3), 286–305.
- Borum, R. (2015). Assessing risk for terrorism involvement. *Journal of Threat Assessment and Management*, 2(2), 63-87
- Borum, R., & Fein, R. (2017). The psychology of foreign fighters. *Studies in Conflict & Terrorism*, 40(3), 248–266.
- Brandt, M. J., Chambers, J. R., Crawford, J. T., Wetherell, G., & Reyna, C. (2015). Bounded openness: The effect of openness to experience on intolerance is moderated by target group conventionality. *Journal of personality and social psychology*, 109(3), 549-568.
- Brown, A., Abernethy, A., Gorsuch, R., & Dueck, A. C. (2010). Sacred violations, perceptions of injustice, and anger in Muslims. *Journal of Applied Social Psychology*, 40(5), 1003–1027.
- Bruneau, E., & Kteily, N. (2017). The enemy as animal: Symmetric dehumanization during asymmetric warfare. *PloS one*, 12(7), e0181422.

- Corner, E., & Gill, P. (2017). Is there a nexus between terrorist involvement and mental health in the age of the Islamic State?. *The CTC Sentinel*, *10*(1), 1–10.
- Doosje, B., Loseman, A., & Bos, K. (2013). Determinants of radicalization of Islamic youth in the Netherlands: Personal uncertainty, perceived injustice, and perceived group threat. *Journal of Social Issues*, *69*(3), 586–604.
- García Coll, C., & Marks, A. K. (2017). Missing developmental and sociocultural perspectives: Comment on the “Psychology of Terrorism” special issue (2017). *American Psychologist*, *72*(7), 701-702.
- Ginges, J., & Atran, S. (2011). War as a moral imperative (not just practical politics by other means). *Proceedings of the Royal Society of London B: Biological Sciences*, *278*(1720), 2930–2938.
- Ginges, J., Atran, S., Medin, D., & Shikaki, K. (2007). Sacred bounds on the rational resolution of violent political conflict. *Proceedings of the National Academy of Sciences*, *104*, 7357–7360.
- Grant, F., & Hogg, M. A. (2012). Self-uncertainty, social identity prominence and group identification. *Journal of Experimental Social Psychology*, *48*(2), 538-542.
- Goldman, L., & Hogg, M. A. (2016). Going to extremes for one’s group: the role of prototypicality and group acceptance. *Journal of Applied Social Psychology*, *46*(9), 544–553.
- Hegghammer, T. (2013). Should I stay or should I go? Explaining variation in Western jihadists' choice between domestic and foreign fighting. *American Political Science Review*, *107*(1), 1-15.
- Hogg, M. A., & Adelman, J. (2013). Uncertainty–identity theory: Extreme groups, radical behavior, and authoritarian leadership. *Journal of Social Issues*, *69*(3), 436–454.
- Hogg, M. A., Meehan, C., & Farquharson, J. (2010). The solace of radicalism: Self-uncertainty and group identification in the face of threat. *Journal of Experimental Social Psychology*, *46*(6), 1061–1066.

- Holland, P. W. (1986). Statistics and causal inference. *Journal of the American statistical Association*, 81(396), 945–960.
- Horgan, J. (2008). From profiles to pathways and roots to routes: Perspectives from psychology on radicalization into terrorism. *The ANNALS of the American Academy of Political and Social Science*, 618, 80–94.
- Horgan, J. (2016). A call to arms: The need for more psychological research on terrorism. *Social Psychological Review*, 18(1), 25–29.
- Hunter, S. T., Shortland, N. D., Crayne, M. P., & Ligon, G. S. (2017). Recruitment and selection in violent extremist organizations: Exploring what industrial and organizational psychology might contribute. *American Psychologist*, 72(3), 242-254.
- Isenberg, D. J. (1986). Group polarization: A critical review and meta-analysis. *Journal of personality and social psychology*, 50(6), 1141–1151.
- Jasko, K., LaFree, G., & Kruglanski, A. (2016). Quest for significance and violent extremism: The case of domestic radicalization. *Political Psychology*. doi:10.1111/pops.12376
- Jonas, E., McGregor, I., Klackl, J., Agroskin, D., Fritsche, I., Holbrook, C., & Quirin, M. (2014). Threat and defense: From anxiety to approach. *Advances in Experimental Social Psychology*, 49, 219–286.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129(3), 339–375.
- King, M., & Taylor, D. M. (2011). The radicalization of homegrown jihadists: A review of theoretical models and social psychological evidence. *Terrorism and Political Violence*, 23(4), 602-622.
- Klandermans, P. G. (2014). Identity politics and politicized identities: Identity processes and the dynamics of protest. *Political Psychology*, 35(1), 1-22.

- Kruglanski, A. W., Bélanger, J. J., Gelfand, M., Gunaratna, R., Hettiarachchi, M., Reinares, F., ... & Sharvit, K. (2013). Terrorism: A (self) love story. *American Psychologist*, *68*(7), 559–575.
- Kruglanski, A. W., Chen, X., Dechesne, M., Fishman, S., & Orehek, E. (2009). Fully committed: Suicide bombers' motivation and the quest for personal significance. *Political Psychology*, *30*(3), 331–357.
- Liht, J., & Savage, S. (2013). Preventing violent extremism through value complexity: Being Muslim Being British. *Journal of Strategic Security*, *6*(4), 44–66.
- Lindekilde, L. (2012). Neo-liberal governing of "radicals": Danish radicalization prevention policies and potential iatrogenic effects. *International Journal of Conflict and Violence*, *6*(1), 109–125.
- McCauley, C. (2013). Ideas versus actions in relation to polls of US Muslims. *Analyses of Social Issues and Public Policy*, *13*(1), 70–76.
- McCauley, C., & Moskalkenko, S. (2008). Mechanisms of political radicalisation: Pathways toward terrorism. *Terrorism and Political Violence*, *20*(3), 415–433.
- McCauley, C., & Moskalkenko, S. (2011). *Friction: How radicalization happens to them and us*. New York: Oxford University Press.
- McCauley, C., & Moskalkenko, S. (2017). Understanding political radicalization: The two-pyramids model. *American Psychologist*, *72*(3), 205–216.
- McGregor, I., Haji, R., Nash, K. A., & Teper, R. (2008). Religious zeal and the uncertain self. *Basic and Applied Social Psychology*, *30*(2), 183–188.
- McGregor, I., Hayes, J., & Prentice, M. (2015). Motivation for aggressive religious radicalization: Goal regulation theory and a personality \times threat \times affordance hypothesis. *Frontiers in Psychology*, *6*, <http://dx.doi.org/10.3389/fpsyg.2015.01325>.

- McGregor, I., Nash, K., Mann, N., & Phills, C. E. (2010). Anxious uncertainty and reactive approach motivation (RAM). *Journal of Personality and Social Psychology*, *99*(1), 133–147.
- McGregor, I., Prentice, M., & Nash, K. (2013). Anxious uncertainty and reactive approach motivation (RAM) for religious, idealistic, and lifestyle extremes. *Journal of Social Issues*, *69*(3), 537–563.
- McNaughton, N., & Gray, J. A. (2000). Anxiolytic action on the behavioural inhibition system implies multiple types of arousal contribute to anxiety. *Journal of Affective Disorders*, *61*(3), 161–176.
- Meloy, J. R., & Gill, P. (2016). The lone-actor terrorist and the TRAP-18. *Journal of Threat Assessment and Management*, *3*(1), 37-52.
- Moskalenko, S., & McCauley, C. (2009). Measuring political mobilization: The distinction between activism and radicalism. *Terrorism and Political Violence*, *21*(2), 239–260.
- Neumann, P. (2008). *Perspectives on radicalisation and political violence: Papers from the first International Conference on Radicalisation and Political Violence*, London, 17–18 January 2008 (London: International Centre for the Study of Radicalisation and Political Violence). Retrieved from <http://icsr.info/wp-content/uploads/2012/10/1234516938ICSRPerspectivesonRadicalisation.pdf>
- Neumann, P. R. (2015). *Victim, perpetrators, assets: The narratives of Islamic State defectors*. The International Centre for the Study of Radicalisation and Political Violence; 2015. Retrieved from <https://socialutveckling.goteborg.se/uploads/ICSR-Report-Victims-Perpertrators-Assets-The-Narratives-of-Islamic-State-Defectors.pdf>
- Neumann, P. (2011). *Preventing violent radicalization in America*. Bipartican Policy Center National Security Preparedness Group. Available at <http://bipartisanpolicy.org/wp-content/uploads/sites/default/files/NSPG.pdf>.

- Peterson, C., Semmel, A., Von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. (1982). The attributional style questionnaire. *Cognitive Therapy and Research*, 6(3), 287–299.
- Putra, I. E., & Sukabdi, Z. A. (2014). Can Islamic fundamentalism relate to nonviolent support? The role of certain conditions in moderating the effect of Islamic fundamentalism on supporting acts of terrorism. *Peace and Conflict: Journal of Peace Psychology*, 20(4), 583-589.
- Proulx, T., Inzlicht, M., & Harmon-Jones, E. (2012). Understanding all inconsistency compensation as a palliative response to violated expectations. *Trends in Cognitive Sciences*, 16(5), 285–291.
- RAN, Radicalisation Awareness Network (2017). *Preventing Radicalisation to Terrorism and Violent Extremism. Approaches and Practices*. European Commission. Retrieved from https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/networks/radicalisation_awareness_network/ran-best-practices/docs/ran_collection-approaches_and_practices_en.pdf
- Rast, D. E., Hogg, M. A., & Giessner, S. R. (2016). Who trusts charismatic leaders who champion change? The role of group identification, membership centrality, and self-uncertainty. *Group Dynamics: Theory, Research, and Practice*, 20(4), 259-275.
- Rast, D. E. III, Gaffney, A. M., Hogg, M. A., & Crisp, R. J. (2012). Leadership under uncertainty: When leaders who are non-prototypical group members can gain support. *Journal of Experimental Social Psychology*, 48, 646–653.
- Reinares, F. (2011). Exit from terrorism: A qualitative empirical study on disengagement and deradicalization among members of ETA. *Terrorism and Political Violence*, 23(5), 780–803.
- Romaniuk, P. (2015). Does CVE work? Lessons learned from the global effort to counter violent extremism. *Global Center on Cooperative Security*. Retrieved from http://www.globalcenter.org/wp-content/uploads/2015/09/Does-CVE-Work_2015.pdf.

- Rüdiger, W., & Karyotis, G. (2014). Who protests in Greece? Mass opposition to austerity. *British Journal of Political Science*, 44(3), 487-513.
- Savage, S. (2011). Four lessons from the study of fundamentalism and psychology of religion. *Journal of Strategic Security*, 4(4), 131-150.
- Scarcella, A., Page, R., & Furtado, V. (2016). Terrorism, radicalisation, extremism, authoritarianism and fundamentalism: A systematic review of the quality and psychometric properties of assessments. *PloS One*, 11(12), e0166947.
- Schmid, A. P. (2013). Radicalisation, de-radicalisation, counter-radicalisation: A conceptual discussion and literature review. *ICCT Research Paper*, 97, 22. Retrieved from <http://www.icct.nl/download/file/ICCT-Schmid-Radicalisation-De-Radicalisation-Counter-Radicalisation-March-2013.pdf> (2017-05-31).
- Sedgwick, M. (2010). The concept of radicalization as a source of confusion. *Terrorism and Political Violence*, 22(4), 479-494.
- Sheikh, H., Gómez, Á., & Atran, S. (2016). Empirical evidence for the devoted actor model. *Current Anthropology*, 57(S13), S204-S209.
- Sheikh, H., Atran, S., Ginges, J., Wilson, L., Obeid, N., & Davis, R. (2014). The devoted actor as parochial altruist: Sectarian morality, identity fusion, and support for costly sacrifices. *Cliodynamics: Journal of Quantitative History and Cultural Evolution*, 5, 23-40.
- Silke, A. (2008). Holy warriors: Exploring the psychological processes of Jihadi radicalisation. *European Journal of Criminology*, 5(1), 99-123.

- Sklad, M., & Park, E. (2017). Examining the potential role of education in the prevention of radicalization from the psychological perspective. *Peace and Conflict: Journal of Peace Psychology*, 23(4), 432-437.
- Speckhard, A., Shajkovci, A., & Yayla, A. (2017). Following a Military Defeat of ISIS in Syria and Iraq: What Happens Next after the Military Victory and the Return of Foreign Fighters?. *Journal of Terrorism Research*, 8(1), 81-89.
- Stankov, L., Saucier, G., & Knežević, G. (2010). Militant extremist mind-set: Proviolence, vile world, and divine power. *Psychological Assessment*, 22(1), 70-86.
- Strozier, C. B., & Boyd, K. (2010). The psychology of apocalypticism. *The Journal of Psychobiology*, 37(4), 276-295.
- Strozier, C. B., Terman, D., Jones, J., & Boyd, K. (Eds.) (2010). The fundamentalist mindset: Psychological perspectives on religion, violence, and history. New York: Oxford University Press.
- Swann, W., Buhrmester, M., Gómez, Á., Jetten, J., Bastian, B., Vázquez, A., & Zhang, A. (2014). What makes a group worth dying for? Identity fusion fosters perception of familial ties, promoting self-sacrifice. *Journal of Personality and Social Psychology*, 106, 912–926.
- Tausch, N., Becker, J. C., Spears, R., Christ, O., Saab, R., Singh, P., & Siddiqui, R. N. (2011). Explaining radical group behavior: Developing emotion and efficacy routes to normative and nonnormative collective action. *Journal of personality and social psychology*, 101(1), 129-148.
- Thomas, J. L., & Bond, K. D. (2015). Women's Participation in Violent Political Organizations. *American Political Science Review*, 109(3), 488-506.

- Thomas, E. F., & Louis, W. R. (2014). When will collective action be effective? Violent and non-violent protests differentially influence perceptions of legitimacy and efficacy among sympathizers. *Personality and Social Psychology Bulletin*, 40(2), 263-276.
- Thomas, E. F., McGarty, C., & Louis, W. (2014). Social interaction and psychological pathways to political engagement and extremism. *European Journal of Social Psychology*, 44(1), 15-22.
- Van Dongen, T. (2010). Mapping counterterrorism: a categorisation of policies and the promise of empirically based, systematic comparisons. *Critical Studies on Terrorism*, 3(2), 227-241.
- Van Stekelenburg, J. (2017). Radicalization and Violent Emotions. *PS: Political Science & Politics*, 50(4), 936-939.
- Victoroff, J. (2005). The mind of the terrorist: A review and critique of psychological approaches. *Journal of Conflict Resolution*, 49(1), 3-42.
- Victoroff, J., Adelman, J. R., & Matthews, M. (2012). Psychological factors associated with support for suicide bombing in the Muslim diaspora. *Political Psychology*, 33(6), 791-809.
- Victoroff, J., Quota, S., Adelman, J. R., Celinska, B., Stern, N., Wilcox, R., & Sapolsky, R. M. (2010). Support for religio-political aggression among teenaged boys in Gaza: Part I: Psychological findings. *Aggressive Behavior*, 36(4), 219-231.
- Victoroff, J., Quota, S., Adelman, J. R., Celinska, B., Stern, N., Wilcox, R., & Sapolsky, R. M. (2011). Support for religio-political aggression among teenaged boys in Gaza: Part II: Neuroendocrinological findings. *Aggressive Behavior*, 37(2), 121-132.
- Webber, D., & Kruglanski, A. W. (2018). The social psychological makings of a terrorist. *Current Opinion in Psychology* 19, 131-134.

Whitehouse, H., McQuinn, B., Buhrmester, M., & Swann, W. B. (2014). Brothers in arms: Libyan revolutionaries bond like family. *Proceedings of the National Academy of Sciences*, *111*(50), 17783–17785.

Young, H. F., Rooze, M., & Holsappel, J. (2015). Translating conceptualizations into practical suggestions: What the literature on radicalization can offer to practitioners. *Peace and Conflict: Journal of Peace Psychology*, *21*(2), 212-225.

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Highlights

- Current empirical evidence for mechanisms of political radicalization is reviewed.
- Evidence cumulates on a limited number of factors and interventions
- The way forward for research on radicalization lies in causal designs

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