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Basic Psychological Needs and Extremism: Understanding Theories Through Meta-Analysis

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ABSTRACT

Extremist attacks pose a dangerous threat to society and past work suggests that many factors can contribute to radicalization. The present project aims to combine literature from multiple theories of radicalization to meta-analyze the association between basic psychological needs and extremism. From 46 articles containing 75 samples, 248 effect sizes were retrieved ($N = 30,082$). There is not a significant overall association between basic psychological needs and extremism. However, the operationalization of the need explains a significant amount of variance in the effect sizes, such that *need satisfaction* is negatively associated with extremism ($r = -0.09$, 95 percent CI [−0.15, −0.03]) whereas *desire for a need* is positively associated with extremism ($r = 0.21$, 95 percent CI [0.14, 0.28]). This finding suggests that how researchers define basic psychological needs is important when examining the role of needs in radicalization and theorists should continue to incorporate them in their models. Furthermore, the nature of extremism explains a significant amount of variance in the effect sizes, such that basic psychological needs are positively associated with Islamist extremism and negatively associated with far-left extremism. Directions for future research and implications for countering violent extremism interventions are discussed.

Why do some people develop extreme attitudes or commit extreme actions? Theoretical and empirical work seem to suggest that social contexts and individual drives can both influence radicalization. However, the degree to which different factors affect extremism may be convoluted by the plethora of theories, each with a unique understanding of radicalization but often referring to similar constructs. For example, the Significance Quest Theory suggests that people become extreme in order to matter (i.e., be significant) to others and the world around them,[1] whereas the Comprehensive Model of Terrorist Radicalization posits that people may radicalize if their need for significance/transcendence (among others) is thwarted.[2]

The present project aims to combine literature from multiple fields and similar theories of radicalization in order to meta-analyze the association between basic psychological needs and extremism. In particular, we investigate the overall effect size of the association between basic psychological needs (e.g., the need to belong, desire for certainty) and extremism, and also explore other factors that further break down this effect, such as the operationalization of needs and the nature of extremism. This meta-analysis empirically summarizes the current state of an aspect of the extremism literature, outlines implications for extremism-related policies, and suggests directions for future research.

Conceptualizing extremism

Defining extremism is challenging, and researchers recognize that "extremism is rarely simple."[3] It is outside the scope of this meta-analysis to provide a comprehensive definition,

and this analysis largely relies on the authors of the original work to identify their research as examining the extremism phenomenon. However, for the purposes of this paper, it is important to highlight that extremism is a belief, attitude, intention, or behavior that is 1) non-normative, 2) gradational, and 3) motivational. Extremism involves a worldview that encapsulates a desire for social or political change.[4] Specifically, this project focuses on violent extremism, or "the active pursuit or acceptance of the use of violence to attain the stated goal,"[5] and also the beliefs/attitudes/intentions that *could* lead to violent extremist behavior (e.g., extreme anti-abortion attitudes).

As stated previously, extremism is becoming more common, yet for something to be extreme it must be rare (i.e., non-normative) in the population of interest, even if it seems non-extreme to those who participate in or are close to the extreme ideology (e.g., U.S. adults).[6] This feature taps into how we use "extreme" colloquially as "exceeding the ordinary, usual, or expected."[7] Therefore, a comparison to other people is required to determine the degree to which something is extreme—it is a "willful deviation from the norms of conduct in a given context or situation."[8] For example, political participation can be normative: Someone can hold beliefs aligned with a primary political party and can vote consistent with these beliefs. However, political participation can also be non-normative (i.e., extreme), such as participating in an attack on government property to disrupt government proceedings.

There is variability in extremism—rather than a distinct cutoff, someone can be more or less extreme—which might look different for the various forms of extremism. This variability is evident through the recognition that radicalization is an individual *process* of belief development that is highly context specific and unique to each person.[9] People can hold extreme beliefs (e.g., believing humans should never conduct research on animals) or have extreme attitudes without intending to ever commit extreme acts. Others go beyond their beliefs and attitudes to enact extreme behavior (e.g., committing arson on an animal research laboratory). Thus, beyond the non-normativity of extremism, there is a range of extremity, as McCauley and Moskalenko highlight in their definition of radicalization, "[a] change in beliefs, feelings, and behaviors in directions that increasingly justify intergroup violence and demand sacrifice in defense of the ingroup."[10] Furthermore, the radicalization of opinions and action can be thought of as separate pathways.[11]

Extremism is also motivational. Kruglanski and colleagues focus on this aspect of extremism (along with the rarity and magnitude) and define it as "states or events [that are] infrequent phenomena whose rarity results from a pronounced intensity or magnitude of their underlying motivation."[12] They argue that extremity *results from* a motivational imbalance: When a need becomes overwhelming, the motivation to satisfy the need becomes all consuming, and people's resulting behavior is less constrained by other needs that are momentarily deemed less important. For example, if someone has an overwhelming need to make money, they may devalue other needs such as physical safety (e.g., have a dangerous profession) or belonging (e.g., excessive work hours limit time spent with friends and family), and then may commit extreme actions like robbing a bank.

An application of the extremism definition comes from the Federal Bureau of Investigation (FBI) and Department of Homeland Security (DHS), the organizations that are responsible for investigating domestic terrorism within the United States. They define a violent extremist as "an individual . . . who seeks to further political or social goals, wholly or in part, through unlawful acts of force or violence dangerous to human life."[13] This definition also recognizes the motivational aspect of extremism (e.g., goal fulfillment), yet exclusively focuses on violent extremism, as the violent acts (or threats) of terrorism are what can be legally prosecuted. An example of an extremism category using this definition is anti-government or anti-authority violent extremism (e.g., anarchist, militia, or sovereign citizen violent extremists), and the resulting behavior of such extremism might be tax violations, use or possession of explosives, or assault or murder of law enforcement.

What causes extremism?

No single social context or individual motivation leads to extreme beliefs or committing extreme action. Instead, there are varied radicalization *pathways*, which are often non-linear and influenced by many internal and external factors that are unique to the person and context.[14] Despite the abundance of extremism theories, many suggest that individual differences and situational factors can interact to promote or inhibit radicalization. For example, McCauley and Moskalenko suggest that there are individual (e.g., personal victimization), group (e.g., within-group competition), and mass (e.g., martyrdom) levels of mechanisms that can lead to extremism.[15] One type of individual influence of radicalization might be basic psychological needs. The Staircase to Terrorism Theory suggests that the longer these needs are not met, the more extreme means people will adopt to satisfy them.[16]

Basic psychological needs

A basic psychological need is a fundamental psychological state required/essential for well-being—people thrive when their needs are satisfied and fail to thrive when they are not.[17] These needs may also be referred to as fundamental needs or innate psychological needs.[18] In their seminal article, Baumeister and Leary outline that in order for a need to be fundamental, people must be driven to satisfy it and that a variety of consequences (such as illbeing) results when it is thwarted.[19]

There are two ways to operationalize basic psychological needs. First, because these needs are required for well-being, current *satisfaction of needs* can be measured. An example of this operationalization is measuring current sense of belonging with questions like, "I feel like an outsider" (reverse-coded) and "I feel disconnected" (reverse-coded).[20] If interested in the satisfaction of a basic psychological need, researchers can also manipulate or measure if these needs are currently threatened (e.g., by one's environment) or thwarted (i.e., unfulfilled). One's current need states influence actions/goals that would result in need satisfaction, and the satisfaction of basic psychological needs is associated with well-being.[21]

Second, many theorists recognize that needs are motivational and people have an intrinsic drive to satisfy their needs.[22] Thus, the *desire for a need* can be measured. An example of this operationalization is measuring the need (i.e., desire) to belong, with questions like, "I need to feel that there are people I can turn to in times of need" and "I want other people to accept me."[23] The desire for a need implies that the need is the goal. While these two operationalizations are similar and related, they are measuring different constructs.[24] The desire for a need is motivational and may lead people to act in ways that fulfill the need.[25] This differs from need satisfaction, which is the degree to which a basic need currently feels fulfilled.

Recognizing that there are many broad theories positing differing but defensible schemes for how to categorize a set of basic psychological needs,[26] in this analysis we use a non-hierarchical adaptation of Maslow's system of needs.[27] In particular, this analysis uses four broad basic psychological needs categories: relatedness, self-esteem, reputation/respect, and self-actualization. Maslow theoretically suggested these needs are fundamental, but these needs have also all been shown to influence affect, thereby satisfying a condition for being considered a basic psychological need.[28] These categories largely overlap with approaches like self-determination theory and the temporal need threat model, but more closely align with the needs that are measured in the current literature on extremism.[29] The definition of each need and its theoretical relation to extremism are provided below.

Relatedness

Relatedness is the need to be (and feel) connected to other people—in other words, belong.[30] There is an evolutionary cause for the need to belong: Being part of a group and having close others increases one's chances of survival (and reproductive success), through resource sharing and protection, especially during threatening times.[31] Furthermore, relatedness needs can begin as early as infancy.[32] Exemplary of a basic need, people's well-being thrives when they belong and

they suffer ill-being when excluded.[33] And, often dependent on context, people may be more or less driven to seek out social bonds,[34] though there are individual differences in baseline desire to belong.[35]

After being excluded—an inherent lack of belonging—people may act aggressively,[36] display less prosocial behavior,[37] and become more open to extremism.[38] In particular, when someone's relatedness need is thwarted, they are more open to joining a group and will display behaviors that improve their chances of becoming included, such as mimicking the group's behavior and complying with requests.[39] Social identity theory posits that the social categories/groups to which people belong help form their identities and make sense of their environment.[40] Thus, belonging to an extreme group—like any group—will increase one's sense of belonging and they will receive the benefits of group membership, such as a lens through which to see the world. Furthermore, once a member of an extremist group, the network will likely support further radicalization, through the legitimizing of violent beliefs and behaviors.[41] Even the FBI recognizes the role acceptance seeking can play in radicalization, as extremist groups can be an avenue to form social relationships.[42]

Self-esteem

Self-esteem refers to attitudes about oneself,[43] most preferably a positive attitude,[44] such as having achievement, confidence, and independence in the world.[45] Specifically within the United States, self-esteem may be the most essential need to satisfy.[46] Self-esteem can serve as a buffer from negative aspects of life—like the anxiety surrounding death[47]—and serve as a detection system to threats to belonging (suggested by the sociometer theory).[48] As a fundamental need, satisfied self-esteem is associated with well-being,[49] and low (e.g., thwarted) self-esteem is associated with depression.[50] Furthermore, people differ in their pursuit to maintain self-esteem.[51]

Self-esteem is consistently theorized to impact radicalization.[52] For example, experiencing self-threats or decreased self-esteem is associated with compensatory zeal (i.e., becoming more extreme in response to threat).[53] This might be due to using outgroup degradation as a means to increase self-esteem. But, when people have low self-confidence (i.e., low self-esteem), they might be less likely to deviate from the norm (i.e., be extreme) because they need to conform in order to receive approval from others which could help restore their thwarted self-esteem.[54]

Reputation

In addition to esteem from the *self*, as mentioned previously, people also have a need for the esteem from *others*.[55] The need for reputation involves mattering to and obtaining respect from other people (i.e., having honor and status).[56] This need is "awoken" when there is a loss, or threat of loss, of significance (e.g., humiliation) or when there is an opportunity for significance gain. Across cultures, people feel good when they perceive that others respect them and feel negatively when they feel they are not respected.[57] Nevertheless, there are individual differences in the strength to which people desire to matter in others' opinion.[58]

The Significance Quest Theory suggests that significance in the eyes of others is a driving force of radicalization.[59] This theory supports the notion that people have a fundamental need to be significant (i.e., gain significance, avoid losing significance). Then, an extremist narrative guides them to this goal and a social network supports extreme means to achieving significance. This theory is in line with other work that suggests the desire for glory is a driving factor in radicalization.[60] Specifically looking at potential recruits to terrorist groups, someone may be a "status seeker" and interested in joining the group because doing so provides esteem from others.[61] And holding extreme beliefs may increase someone's perceived reputation because they believe those attitudes to be better than others, as past research suggests that extreme political views—regardless of ideology—are associated with belief superiority.[62] At the most extreme, martyrdom may be a useful way to "live forever" in the eyes of others.[63]

Self-actualization

Self-actualization is a difficult construct to define. In general, it refers to the realization of one's true potential, including being one's authentic self and being in a peaceful cognitive state.[64] Examples include the need for cognition, cognitive closure, and self-meaning. In Maslow's original needs hierarchy, once one's lower order needs (e.g., physiological, safety, love, and esteem) are met, people will have the freedom to focus on self-actualization growth needs. These needs are not necessary for physical and psychological survival, but people can more freely express themselves by satisfying them. For example, someone does not need to fulfill their need for closure to survive on a daily basis, but if they do, they will be more at peace with who they are as a person. Fiske summarizes the history within psychology of recognizing self-enhancement as a basic need stemming from the early 1900s.[65] And theorists argue that meaning is fundamental to helping people understand the world around them.[66] People have greater well-being when self-actualization constructs are fulfilled (e.g., meaning in life).[67] Furthermore, people differ in the extent to which they desire these self-actualization needs (e.g., cognitive closure).[68]

When people lack a sense of self or personal meaning, they often become more extreme,[69] perhaps because they turn to a worldview to fulfill this need. Extremist groups, in particular, support narratives that give people an understanding of their place in the world. Theorists have suggested that people may be drawn to extremism through an existential choice that aids them in being their ideal self and live their ideal life.[70] Extreme beliefs and being a member of an extreme group can serve as a means to reduce self-uncertainty and cope with threats to mortality.[71] This is especially true because extreme groups are highly entitative—they have clear and impermeable ingroup/outgroup delineation—and thus are particularly useful in creating self-certainty.[72] Additionally, the devoted actor framework suggests that people will make extreme sacrifices in support of their sacred values, especially when these values are tied to their identity,[73] as identity (or the need for one) plays a key role in terrorism motivation and commentators have highlighted the importance of applying identity theory to deradicalization efforts.[74]

A theorized consequence of an unmet need is extremism and people are willing to sacrifice more the greater a need is deprived.[75] The present project focuses on the association between basic psychological needs and extremism. These needs are likely impacted by social contexts—such as rejection, poverty, or in-group/out-group conflict—and are just one aspect of someone's radicalization process. While recognizing that other factors and contexts contribution to radicalization are important, they are outside the scope of the present meta-analysis.

The current study

The events of September 11, 2001 resulted in the deadliest domestic extremist attack in recent U.S. history. A scholarly result of this incident was a proliferation of research devoted to studying the methods, motivations, targets, and perpetrators of modern terrorism.[76] At first, much of this work was devoted to developing extremism/terrorism theories, largely drawing from criminological and psychological theory.[77] Recently, much effort has been devoted to empirically studying extremism, including the motivations that drive radicalization. However, potentially due to the newness of this empirical work, researchers have only just begun to quantitatively summarize the findings.

Criminologists, psychologists, political scientists, and anthropologists, just to name a few, have applied their discipline's theories and empirical methods in an attempt to better understand extremism's antecedents and consequences. This increased interest in extremism has resulted in theories that are often disconnected from each other. Many of the theories are tapping into similar constructs, yet because each field is unique, the names and measurements of the constructs are slightly different. For example, Borum's Mindset and Worldview theory suggests that (lack of) belonging contributes to extremism,[78] whereas McCauley and Moskalenko's Two-Pyramid model would refer to this construct as love and connection.[79] It may be difficult for researchers to interpret the current state of the field as it experiencing an unfortunately common "theory crisis" in which theories come and go without

substantive progress being made on one before another is introduced.[80] The overabundance of extremism theories is impractical and makes research less accessible to non-researchers who aim to implement policies based on the current literature.[81]

The consequences of extreme beliefs and behaviors necessitate continuously studying the potential precursors to radicalization. Luckily, over the past two decades, the number of publications exploring extremism has considerably increased, and a portion of the empirical work has been devoted to investigating individual-level psychological processes that affect extremism. The present project will meta-analyze the data on the statistical association between basic psychological needs and extremism.

A few meta-analyses have been published on extremism, but they were limited to examining risk factors of a single theory's operationalization of extremism or focus on personality.[82] To our knowledge, this is the first to specifically focus on extremism's association with basic psychological needs and will also use research from different samples, study designs, and operationalizations of extremism. A goal of this meta-analysis is to create connections between similar extremism theories and combine literature from multiple disciplines. A secondary goal of the meta-analysis is to outline possible priorities for future research by highlighting gaps in the current literature, as it relates to individual motivations. Thus, the purpose of the present meta-analysis is to 1) analyze the overall strength and direction of the association between basic psychological needs and extremism, 2) investigate the effect sizes of specific needs and operationalizations of needs, and 3) explore additional moderators that influence the association between basic psychological needs and extremism.

Method

Literature search and study inclusion criteria

Studies were identified using bibliographic databases, additional searching, and a call for unpublished data. The bibliographic database search occurred in July 2022. The following databases were searched: Academic Search Premiere, APA PsycArticles, APA PsycInfo, Criminal Justice Abstracts, Political Science Complete, Psychology and Behavioral Science Collection. Each search included a combination of an individual-level word (i.e., "individual," "psych*"), a basic psychological need word (i.e., "motivation," "need"), and an extremism word (i.e., "extremis*," "radical*," "terroris*," "violen*"). An additional search was conducted using the reference list of relevant articles and targeting specific journals (e.g., *Terrorism and Political Violence*). Lastly, a call for unpublished data was placed on the Society of Personality and Social Psychology email listserv.

Studies were included in the meta-analysis if they met the following criteria: 1) reported a quantitative measure of an individual need (e.g., Need for Closure Scale, current feelings of belonging), 2) reported a quantitative measure of extremism (e.g., Activism and Radicalism Intention Scales, Extremism Scale), 3) a sample size and correlation between the need and extremism measures was provided, and 4) published in the English language. There were no publication date restrictions. Both correlational and experimental studies were included—many of the experiments did not manipulate basic psychological needs and instead manipulated another construct (e.g., ostracism) and also measured needs.[83]

See Figure 1 for information regarding article inclusion and exclusion. The bibliographic database search resulted in 47,795 articles. Articles were first screened by their title and abstract. If they clearly did not meet inclusion criteria, they were excluded. Next, articles' abstracts were screened and irrelevant articles were excluded. A full-text screening was conducted and only articles that met all inclusion criteria were kept. Finally, we added articles and data that were found through additional searching and unpublished data calls. References for articles included in the analyses are listed in the Appendix.

Coding procedure

After all studies were identified, data were extracted. Study characteristics (i.e., article title, authors, journal, year published, and sample size) were recorded. The specific basic psychological need, the
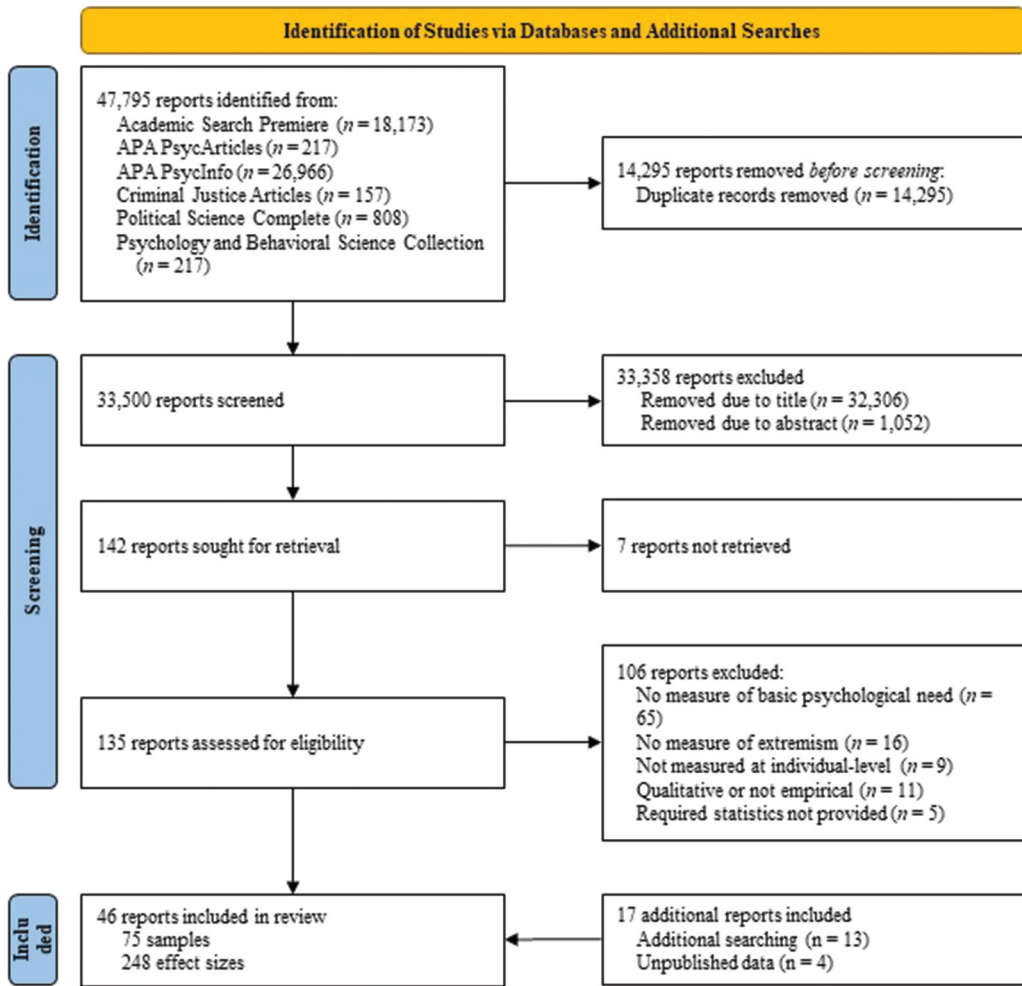
Figure 1. Flowchart of the screening process. The term "report" refers to a discrete article, which may include multiple samples and effect sizes.

operationalization of extremism, and additional moderators (i.e., study design, publication status, sample type) were recorded. Finally, the effect size (r) of the association between the basic psychological need and extremism was recorded.

Statistical analyses

All analyses were conducted using R,[84] specifically the metafor package.[85]

Effect size

This meta-analysis uses r as the effect size of the association between basic psychological needs and extremism. r was the most commonly reported effect size in the included studies, especially because most of the studies had a correlational design. If r was not reported, the reported effect size was converted to r using the Practical Meta-Analysis Effect Size Calculator.[86] Due to the bias when estimating the standard error of correlations,[87] we transformed r into Fisher's z and used this as the effect size in the analyses. Fisher's z is a slightly more conservative estimate of the correlation with a usually negligible difference.

However, when reporting analyses, unless stated otherwise, we have converted the effect sizes back to *r*. When relevant, an effect size refers to the correlation between a need *satisfaction* and extremism. If a study measured a need *threat*, the effect size sign was reversed to indicate a need satisfaction. A positive correlation indicates that people who are high in a basic need are high in extremism.

Meta-analytic model

Due to the clustering of effect sizes within samples present in the data, we estimated a three-level meta-analysis.[88] The first level was participants nested within effect sizes (i.e., the effect of a need on extremism for a given sample that researchers recruited). The second level was the effect sizes nested within a sample (i.e., multiple effect sizes coming from a single sample; e.g., a researcher measured the effect of both belonging and self-esteem within the same sample). Finally, the third level clustered the aggregated clustered effects into an overall effect size. This level is analogous to a between-samples overall effect (similar to the pooled true effect in a traditional two-level meta-analysis). We included effect sizes from studies with different, yet similar, operationalizations of needs and extremism. Thus, we used a random effects model which assumes that there is variability in the true effect sizes and accounts for the different operationalizations and design conditions of the included studies.[89] Finally, we used a restricted maximum-likelihood method to estimate the model.

Results

Data and R script are available at https://researchbox.org/1194. In total, 46 articles containing 75 samples with 248 effect sizes were recorded for coding. The range of publication years of the included articles is 1996 to 2022. The mean sample size was 401.09 (SD = 502.41), and there was a total of 30,082 unique participants in all samples.

Main analysis

A three-level meta-analysis of the association between basic psychological needs and extremism was conducted. See Figure 2 for the forest plot of all study estimates. There is not a significant overall association between basic psychological needs and extremism. The pooled correlation is r = 0.02, p = .348, 95 percent CI [−0.03, 0.08]. Additionally, the prediction interval is −0.44 to 0.48, which suggests that the true association between basic psychological needs and extremism will be as low as −0.44 in some populations and as high as 0.48 in others. These results suggest there is not an overall relationship between basic needs and extremism and, due to variability of the association, there is a large dispersion of effect sizes that includes both negative and positive correlations.

We ran an additional model that ignored the clustering within samples. Although the model was still not significant, r = 0.03, p = .245, 95 percent CI [−0.02, 0.08], results suggest that the three-level model provided a significantly better fit, χ^2 = 50.77, p < .001.

Heterogeneity

The true effect size varies considerably across studies, $Q(247)$ = 4,045.57, p < .001. The estimated variance of the true effect for the third level was $\tau^2_{Level\ 3}$ = 0.03, and $I^2_{Level\ 3}$ = 49.36 percent of the total variation can be attributed to between-sample heterogeneity. The estimated variance of the true effect for the second level was $\tau^2_{Level\ 2}$ = 0.03, and $I^2_{Level\ 2}$ = 46.18 percent of the total variation can be attributed to within-sample heterogeneity.

Publication bias

To probe for the possible presence of publication bias, we estimated a two-level meta-analysis that averaged effect sizes within a sample (another method that accounts for the sample clustering). Results of the Egger's test suggest there is no evidence of publication bias, $t(73)$ = −0.85, p = .400. The funnel plot (see Figure 3) is relatively symmetrical and roughly funnel-shaped, further supporting this
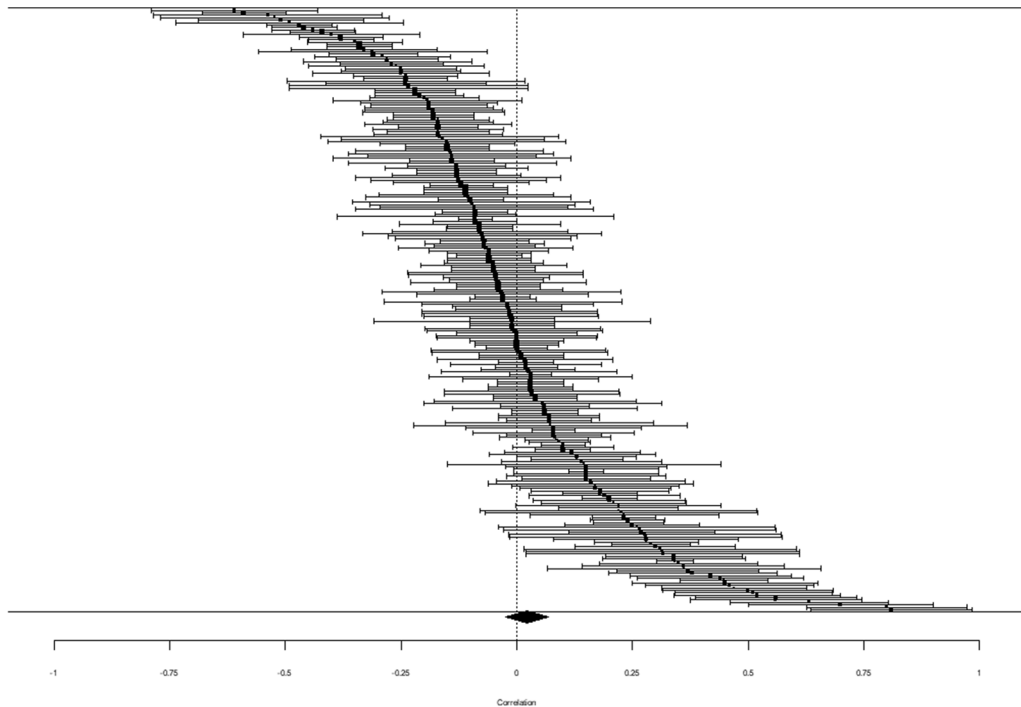
Figure 2. Forest plot of all included correlations. Correlations are in r units. Bars represent 95 percent confidence intervals. Effect sizes are arranged from most negative to most positive. The vertical dashed line corresponds to a correlation of 0.

notion.[90] A factor that may explain the lack of visual publication bias is that the basic psychological need measure was not the main focus of many of the studies included in the analysis, especially the experiments. Thus, data would be less likely to experience the file drawer problem if the association between the need and extremism was not significant.

As a robustness check, we also ran a subgroup analysis exploring the effect of publication status (published vs. unpublished) on the effect sizes. Publication status does not explain a significant amount of variance in the effect sizes, $Q(1) = 1.21$, $p = .270$. This result also points to a lack of visible publication bias.

Need satisfaction versus desire for a need subgroup analysis

Next, we examined the operationalization of the basic psychological needs measurement. Some studies ($n = 178$) measured basic psychological need satisfaction, such as how much someone currently feels like they belong (e.g., "I feel rejected" reverse coded). Other studies ($n = 70$) measured the desire for a particular basic psychological need, such as how much does someone have a need to belong (e.g., "My feelings are easily hurt when I feel that others do not accept me"). The operationalization of the need explains a significant amount of variance in the effect sizes, $Q(1) = 142.13$, $p < .001$ (see Figure 4). Specifically, there was a significant negative association between the satisfaction of a need and extremism, such that lower need satisfaction (greater need threat) is associated with greater extremism. The pooled correlation is $r = -0.09$ ($p = .005$, 95 percent CI [−0.15, −0.03]) and the prediction interval is −0.50 to 0.36. Additionally, there was a significant positive association between the desire for a need and extremism, such that greater desire for a need is associated with greater extremism. The pooled correlation is $r = 0.21$ ($p < .001$, 95 percent CI [0.14, 0.28]) and the prediction interval is −0.25 to 0.59. Thus, *lower* current need satisfaction is associated with extremism, but *greater* desire for a basic psychological need is associated with greater extremism.
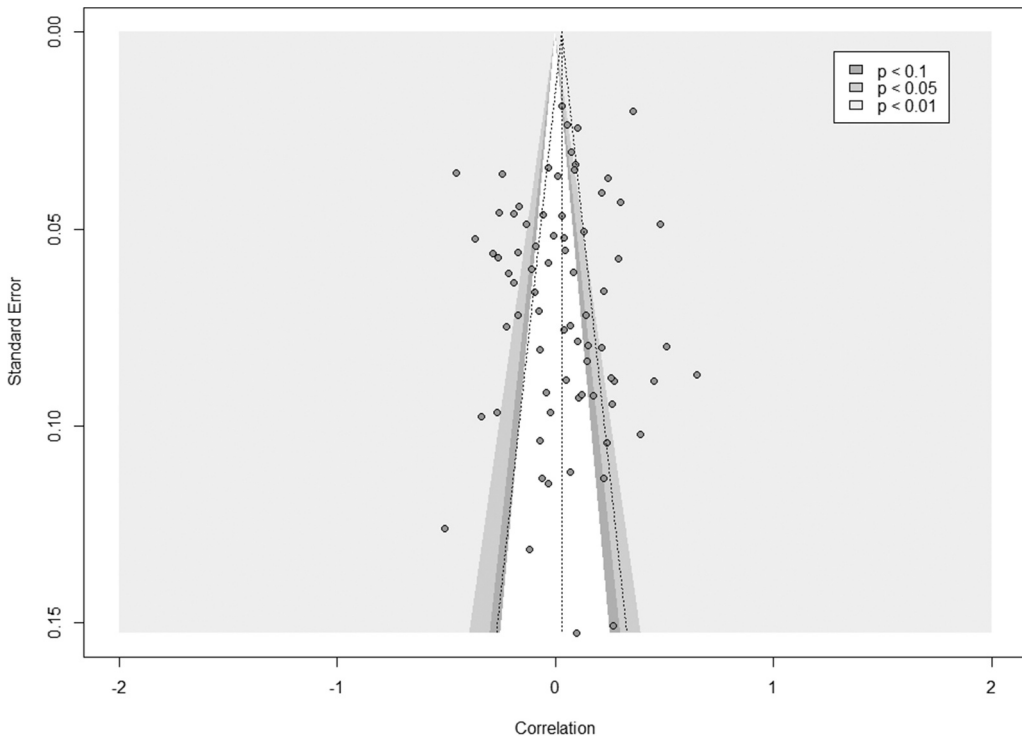
Figure 3. Funnel plot. Each dot represents a sample's averaged effect size.

Need type subgroup analyses

To further explore the association between particular basic psychological needs and extremism, we also broke down the effect sizes by separate needs using a non-hierarchical adaptation of Maslow's system of needs.[91] Twenty-nine percent (n = 73) of effect sizes corresponded to a relatedness need (e.g., belonging), 29.00 percent (n = 72) corresponded to a self-actualization need (e.g., meaningful existence, certainty), 23.80 percent (n = 59) corresponded to a reputation/respect need (e.g., significance), and 17.70 percent (n = 44) corresponded to a self-esteem need (e.g., self-esteem). The type of need explains a significant amount of variance in the effect sizes, $Q(3)$ = 8.95, p =.030 (see Figure 5). A separate meta-analysis for each type of need is reported below to break down the pooled correlation between each individual type of need and extremism.

There was not a significant association between relatedness needs and extremism. The pooled correlation is r = −0.06 (p =.135, 95 percent CI [−0.14, 0.02]) and the prediction interval is −0.49 to 0.40. There was also not a significant association between self-esteem needs and extremism. The pooled correlation is r = −0.01 (p =.839, 95 percent CI [−0.12, 0.10]) and the prediction interval is −0.37 to 0.35. Additionally, there was also not a significant association between reputation/respect needs and extremism. The pooled correlation is r = 0.08 (p =.152, 95 percent CI [−0.03, 0.20]) and the prediction interval is −0.58 to 0.68. Finally, there was not a significant association between self-actualization needs and extremism. The pooled correlation is r = 0.05 (p =.092, 95 percent CI [−0.01, 0.11]) and the prediction interval is −0.28 to 0.37. Thus, none of the specific needs were significantly associated with extremism, though they differed from each other, which explains the significant effect of need type.
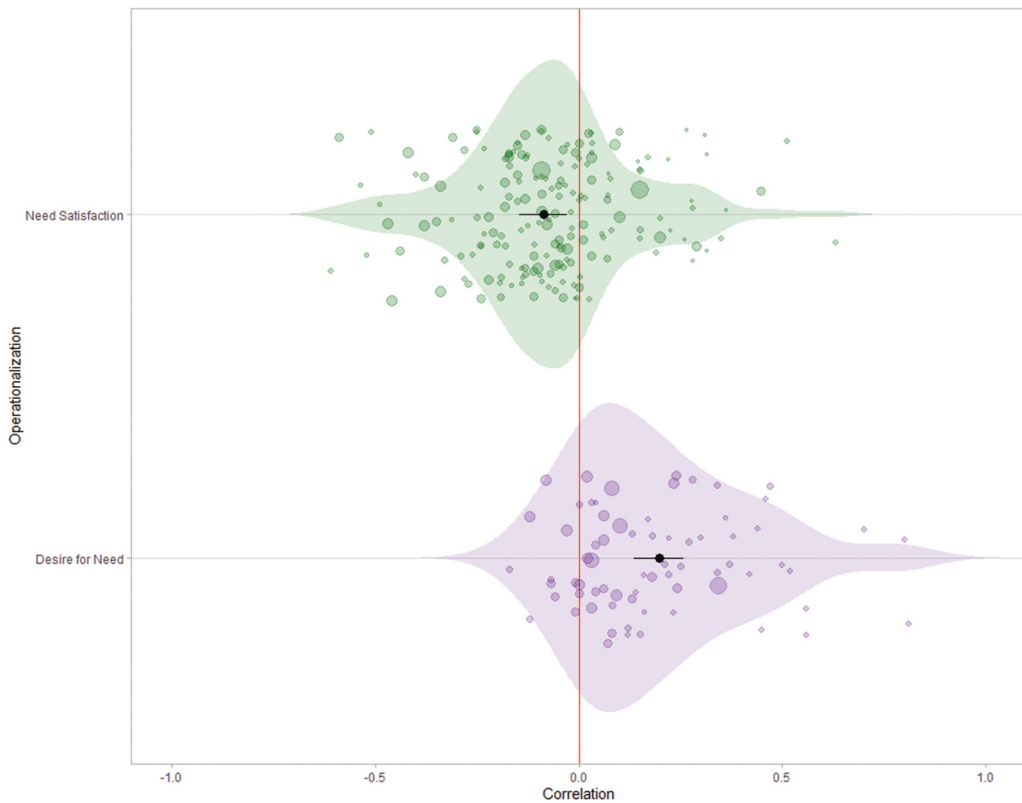
Figure 4. Need satisfaction versus desire for a need subgroup analysis. Each dot represents an effect size. The black dot represents the subgroup aggregated effect size and the black bars represent the aggregated effect size's 95 percent confidence interval. Subgroup analyses figures were inspired by Figure 4 in Costello et al., "Revisiting the Rigidity-of-the-Right Hypothesis."

Extremism operationalization subgroup analysis

We also broke down the way in which extremism was operationalized for each of the effect sizes loosely based on the Theory of Planned Behavior.[92] These operationalizations included: attitudes/ beliefs ($n = 80$; e.g., "The Tamils should strictly follow the LTTE [Liberation Tigers of Tamil Eelam] goal of a separate state"), intentions/willingness ($n = 118$; e.g., "I would participate in a public protest against oppression of my group even if I thought the protest might turn violent"), endorsement/ support for action ($n = 18$; e.g., "When using violence to further a just cause, everybody is fair game"), behavior ($n = 2$; e.g., number of people killed), and support for a group or desire to join a group ($n = 30$; e.g., "How willing would you be to come to a meeting?"). The operationalization of extremism does not explain a significant amount of variance in the effect sizes, $Q(4) = 7.84$, $p = .098$.

Nature of extremism subgroup analysis

Next, we broke down the nature of the extremism measured for each effect size. The subgroups were chosen less by a formal system (because, to our knowledge, one does not exist) and instead by grouping together extremism measures. These groups represent beliefs systems and while the belief is not inherently extreme, those who endorse the non-normative version of the belief system (e.g., viewing the belief system in absolutist terms, supporting violence to further the belief system) would be considered extreme. These subgroups included:
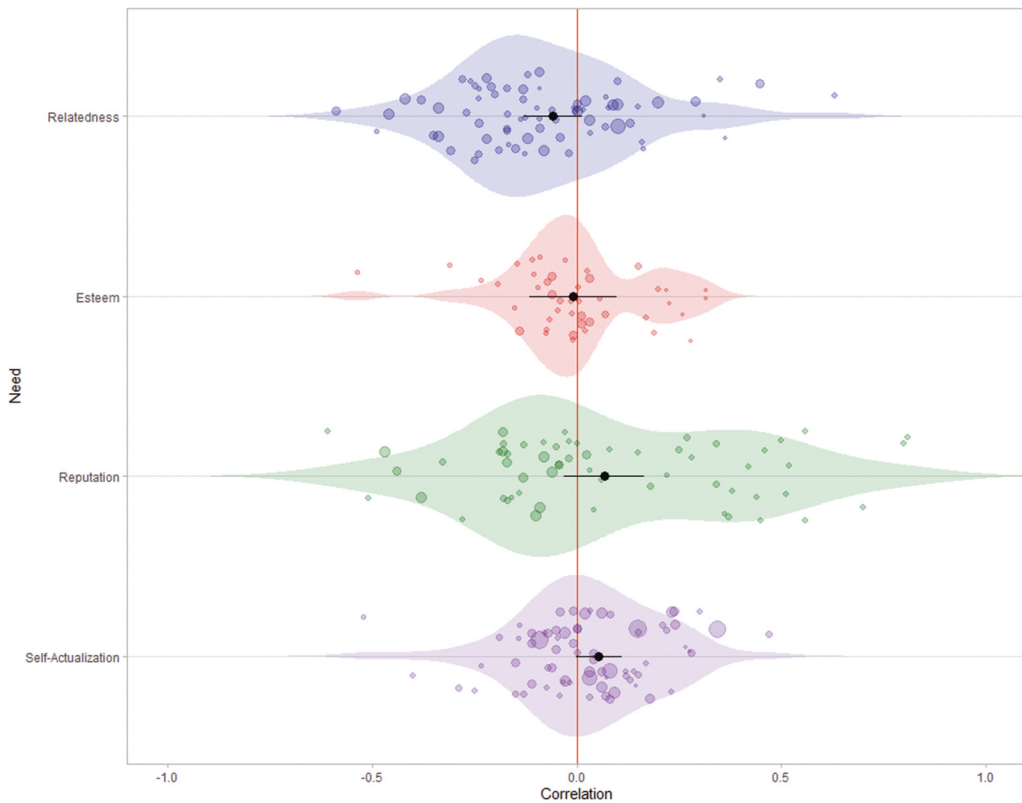
Figure 5. Need type subgroup analysis. Each dot represents an effect size. The black dot represents the subgroup aggregated effect size and the black bars represent the aggregated effect size's 95 percent confidence interval.

- general extremism (no specific topic; $n = 57$)
- another topic or cannot specify (e.g., self-sacrifice for a participant-generated cause; $n = 70$)[93]
- animal/environmental rights (concerned about the rights of animals and the environment; e.g., willingness to join the Animal Liberation Front; $n = 41$)
- Islamist (adheres to a strict interpretation of Islam; e.g., support for ISIS; $n = 46$)
- far-left/socialist (concerned with a just distribution of resources; e.g., intentions to engage in activism for the Yellow Vests; $n = 18$)
- nationalism/pro-country (securing/maintaining a territory for their group is the goal; e.g., pro-Chile self-sacrifice; $n = 16$)

The nature of the extremism explains a significant amount of variance in the effect sizes, $Q(5) = 18.36$, $p =.003$ (see Figure 6).

There is not a significant association between basic psychological needs and animal/environmental rights extremism. The pooled correlation is $r = -0.02$ ($p =.663$, 95 percent CI [−0.12, 0.07]) and the prediction interval is −0.23 to 0.19. There is also not a significant association between basic psychological needs and nationalism/pro-country extremism. The pooled correlation is $r = 0.05$ ($p =.316$, 95 percent CI [−0.05, 0.16]) and the prediction interval is −0.33 to 0.42. Additionally, there is not a significant association between basic psychological needs and another type of extremism (or extremism that could not be specified). The pooled correlation is $r = 0.00$ ($p =.991$, 95 percent CI [−0.07, 0.07]) and the prediction interval is −0.36 to 0.36. Finally, there is not a significant association between basic psychological needs and general extremism. The pooled correlation is $r = -0.03$ ($p =.389$, 95 percent CI [−0.11, 0.04]) and the prediction interval is −0.45 to 0.39.
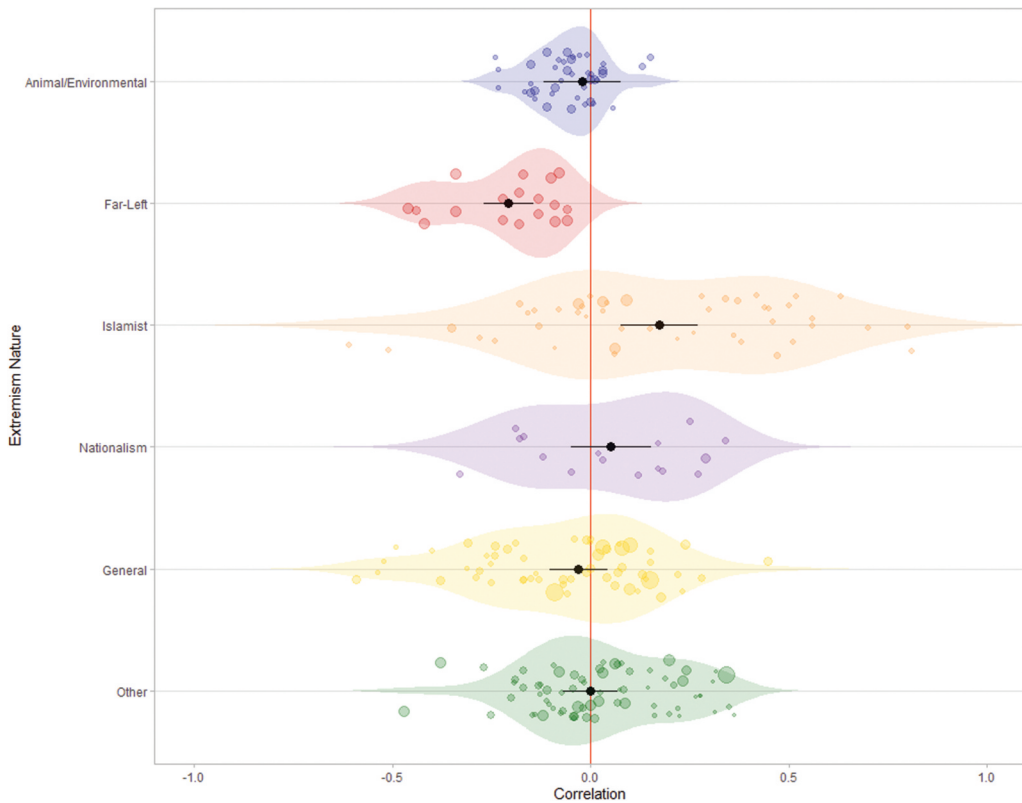
Figure 6. Nature of extremism subgroup analysis. Each dot represents an effect size. The black dot represents the subgroup aggregated effect size and the black bars represent the aggregated effect size's 95 percent confidence interval.

However, there is a significant positive association between basic psychological needs and Islamist extremism, such that greater need is associated with greater Islamist extremism. The pooled correlation is $r = 0.19$ ($p = .001$, 95 percent CI [0.08, 0.30]) and the prediction interval is −0.51 to 0.74. There is a significant negative association between basic psychological needs and far-left/socialist extremism, such that greater need is associated with lower far-left extremism. The pooled correlation is $r = -0.21$ ($p < .001$, 95 percent CI [−0.28, −0.14) and the prediction interval is −0.46 to 0.07. Thus, greater basic psychological need is associated with *greater* Islamist extremism and *lower* far-left extremism, but it was not associated with animal/environmental rights, nationalism, general, or other type of extremism.

Sample extremity subgroup analysis

We also examined the extremity of the sample of each effect size. These subgroups include non-extremist samples (e.g., college students; $n = 218$) and extremist samples (e.g., former terrorist operatives; $n = 30$). Sample extremity explains a significant amount of variance in the effect sizes, $Q(1) = 6.71$, $p = .010$ (see Figure 7). Specifically, there was not a significant association between basic psychological needs and extremism in non-extremist samples. The pooled correlation is $r = 0.002$ ($p = .933$, 95 percent CI [−0.04, 0.05]) and the prediction interval is −0.39 to 0.39. Additionally, there was not a significant association between basic psychological needs and extremism in extremist samples. The pooled correlation is $r = .19$ ($p = .057$, 95 percent CI [−0.01, 0.38]) and the prediction interval is −0.62 to 0.81. Thus, there is not an association between basic psychological needs and extremism in either extremist or non-extremist samples, however the effect is significantly greater in extremist samples than non-extremist samples
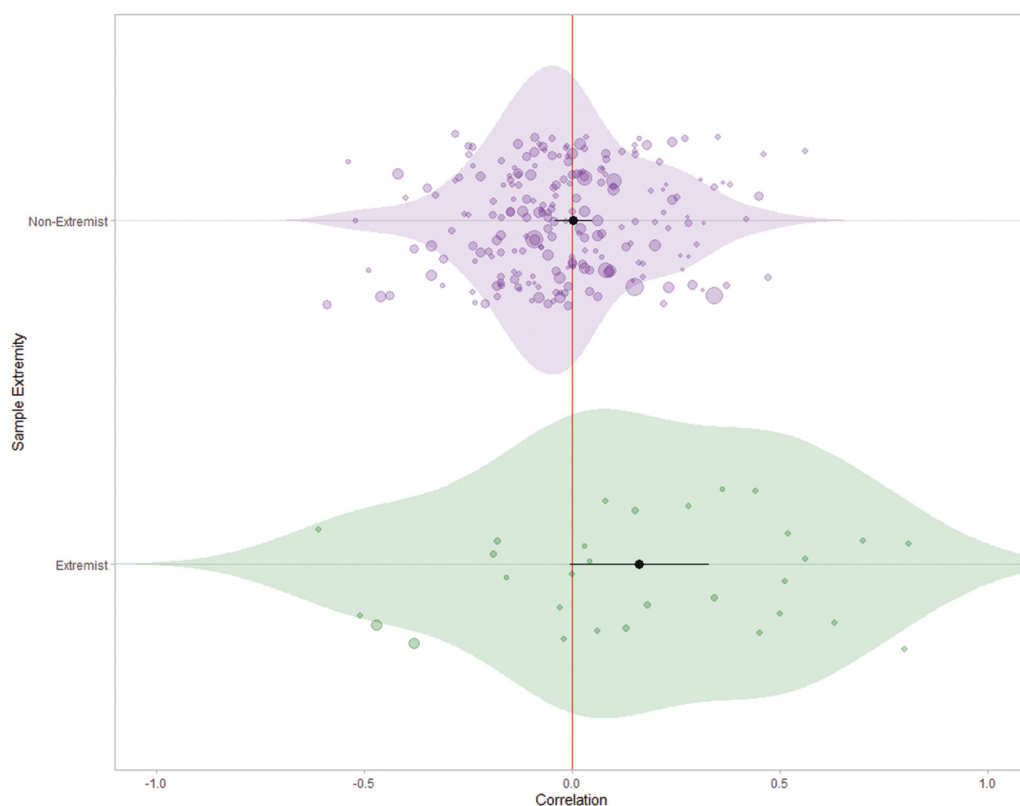
Figure 7. Sample extremity subgroup analysis. Each dot represents an effect size. The black dot represents the subgroup aggregated effect size and the black bars represent the aggregated effect size's 95 percent confidence interval.

(p =.010). It is important to note that the samples in the extremist subgroup are considered extreme by the original researchers and theoretically compared to the general population, though there is still variation when compared amongst other extremists. For example, holding an extreme belief that is not shared with others is less extreme than distributing an ideological manifesto and killing people in accordance to that ideology.

Additional meta-regression analyses

We ran additional sample demographic meta-regression analyses. First, we examined age—operationalized as the average age of the sample—as a moderator. Age was reported for 199 effect sizes and the pooled average age is 26.30 years (SD = 8.41). Age does not explain a significant amount of variance in the effect size, $Q(1) = 0.85$, p =.357. Next, we examined gender—operationalized as percent of the sample that is male—as a moderator. Gender was reported for 204 effect sizes and the pooled average percent of the sample that is male is 43.42 percent (SD = 19.32). Gender also does not explain a significant amount of variance in the effect size, $Q(1) = 1.45$, p =.228.

Discussion

The results of this meta-analysis suggest that the relationship between basic psychological needs and extremism is nuanced. If no distinction is made between need satisfaction versus desire for a need, then basic needs are not detectably associated with extremism, and—at least in aggregate—the effect is smaller than the average effect within social psychology ($r ≈.24$).[94] However, when distinguishing

between how needs are measured, there is clear evidence of a relationship. The current state of the literature suggests that greater satisfaction of needs is associated with less extremism, whereas having greater desire for needs is associated with more extremism.

While these relationships were present and detectable, they were not particularly large in absolute terms (the effect of desire for a need, $r = 0.21$, is a typical effect in psychology, but the effect of satisfaction was only about half this size, $r = 0.09$). So, extremism theories should recognize that other individual-level and context factors likely also contribute to the development of extreme beliefs and behaviors. This is often the case. For example, in their Radicalization in the Pyramid Model, McCauley and Moskalenko recognize that individual-level factors, such as basic psychological needs, contribute to extremism, but factors at the group (e.g., within-group competition) and mass (e.g., jujitsu politics) levels of radicalization are also key.[95]

The primary finding of this analysis is that, when the operationalization of a need—need satisfaction or desire for a need—is taken into account, the associations with extremism are clearly present. These two operationalizations are associated in the opposite direction: need satisfaction is *negatively* associated with extremism and desire for a need is *positively* associated with extremism. Thus, the two effects cancel each other out, resulting in a non-significant overall effect. This result suggests that extremism researchers need to distinguish between need satisfaction and desire for a need when examining a need or else the cross-over effect may result in an underestimation of the effect.

First, need satisfaction is *negatively* associated with extremism. This finding aligns with theories that suggest people experience ill-being when their basic psychological needs are thwarted.[96] Unsatisfied basic needs are so aversive that people will resort to any means necessary to fulfill them. This result also conforms to the notion that basic psychological needs are only a small contributing factor to the radicalization process and are likely influenced by situations and environments that threaten basic needs. For example, ostracism—the painful social experience of being ignored or excluded—threatens people's needs for belonging, self-esteem, control, meaningful existence, and self-certainty, which is then associated with increased willingness to join an extreme group.[97]

Second, the desire for a need is *positively* associated with extremism. At times when some of people's basic psychological needs are at least partially satisfied, perhaps they may still feel a sense of *relative* deprivation, such that they want even more of a certain basic psychological need, especially when compared to other people/groups. For example, in related experimental work, participants who experienced a threat to their psychological needs (via ostracism) were more aggressive than those who did not, and this effect occurred through feelings of relative deprivation.[98] This finding suggests that instead of solely focusing on current need satisfaction when investigating extremism, we should also study the role of desire for needs, or needs-as-motives.[99] When people feel a sense of injustice and relatively deprived, they are more open to nonnormative options to fight for solutions to this deprivation.[100]

Looking at specific types of needs broken down by operationalization, an additional exploratory analysis showed that lower reputation need satisfaction ($p = .041$) and greater desire for reputation ($p < .001$) is associated with greater extremism (see Figure 8). This finding is in line with Kruglanski and colleague's conceptualization of radicalization, which suggests that extremism results when a single need (such as the need for reputation) overpowers other needs and creates a motivational imbalance.[101] Furthermore, in Maslow's traditional need hierarchy, if esteem from others (i.e., reputation) is a struggle for people to obtain, it will keep people from reaching the self-actualization level.[102] Because this need is difficult to satisfy, people may go to extreme means to achieve it. This finding supports the culture of honor theory in which people will often resort to violence to protect their reputation.[103] Indeed, former extremists cite the desire for respect as a driving factor in their decision to enter extremist groups. In a case study of a former White supremacist, after being alienated, he saw the power and intimidation offered by the group as a means to gain social respect.[104]
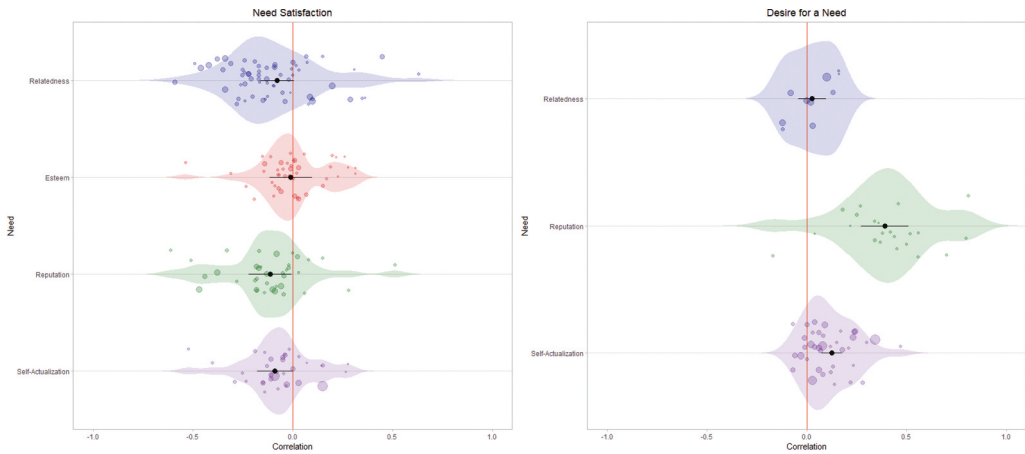
Figure 8. Need type subgroup analysis within each need operationalization. Each dot represents an effect size. The black dot represents the subgroup aggregated effect size and the black bars represent the aggregated effect size's 95 percent confidence interval. There is not data for desire for self-esteem need because there was not an effect size in this subgroup.

Finally, the subgroup analyses suggest that basic psychological needs and extremism are positively associated only for Islamist extremism (far-left extremism did not follow this pattern and is addressed below). Past work supports the claim that ideologies attract different types of people. For example, engineers—which serves as "a proxy for personality traits" (p. 127)—are more common in Islamist (and far-right extremist groups), perhaps motivated by relative deprivation (e.g., living in countries with economic crises).[105]

Limitations

The present meta-analysis included different operationalizations of basic psychological needs and extremism. We made this decision for needs because most theoretical models of fundamental needs recognize that there are many basic needs instead of a single all-encompassing fundamental need.[106] Similarly, while many researchers use similar umbrella definitions of extremism, they sometimes differ in their specific operationalization (e.g., use different self-report measures). We accounted for this variance by using a random effects meta-analytic model, which accounts for the variance in effect sizes (potentially due to unique variable operationalizations). We also ran subgroup analyses to broadly test for differences in operationalizations: Specific need and extremism operationalization did not account for variance in effect size. As more research is published that explores the association between basic psychological needs and extremism, this meta-analysis can be attempted again in the future.

Implications for interventions

Horgan suggests that while engagement/disengagement with extremism is a group process, "thinking about individual issues represents an important step in working towards a comprehensive, multi-level model that describes the properties of the disengagement process."[107] Indeed, preventing/countering violent extremism interventions often take current basic psychological need satisfaction into account.[108] These interventions match with the current finding that need satisfaction is negatively associated with extremism—so if an intervention increases one's current psychological need state, extremism should decrease. Past work suggests that disillusion that the extreme group can fulfill one's needs is a common push factor for disengagement,[109] such as the group no longer providing opportunities to belong (e.g., friendship).[110]

But, there is also a positive association between the desire for a need and extremism, so countering violent extremism interventions could also target people's desire for a need. It is possible that these interventions take place at any level of preventing/countering violent extremism.[111] Primary prevention programs target the general population of people who are not at immediate risk of radicalizing. For example, while decreasing the desire for a need could reduce extremism, it might also have other benefits in the general population (e.g., decreasing the need to belong might also decrease loneliness).[112] Secondary prevention programs target at-risk individuals. Because there may be additional benefits to reducing certain basic need desires, this type of intervention might not need to label at-risk people, which often occurs with secondary prevention but can have a reactance effect.[113] Finally, tertiary prevention programs target already radicalized individuals, where it will be particularly useful to target disillusionment that the extremism group is beneficial to psychological needs.

While possible in theory, creating prevention/counter violent extremism interventions that target desire for a need seems daunting in three main ways. First, in targeting the need *desire*. Most current psychological interventions focused on basic needs aim to increase current satisfaction of that need, and often within a specific context (e.g., increasing someone's sense of belonging within the STEM field). To our knowledge, psychological interventions have yet to specifically target people's desire for a need. However, interventions could normalize and reframe extreme beliefs and behaviors as being tied to their need desire and thus suggest other means to fulfill this goal. This is similar to acceptance and commitment therapy, in which people acknowledge/embrace their feelings and commit to behaving in appropriate ways that are in line with their values.[114] An example of applying this to countering violent extremism is that one could learn to accept their sufficient basic psychological need and then implement prosocial (or at the very least, not antisocial) beliefs and behaviors that may reduce the desire for the need. Second, this task also seems daunting in targeting people who have high desires for basic psychological needs. On a large scale, how does one go about testing people's basic psychological needs and then just recruiting people who have a high desire for needs? Especially considering the low base rate of extremism, the vast majority of people with high desire for a need will likely not become extreme. Thus, countering violent extremism interventions should target people with high desire for basic needs but who are also flagged to be at-risk groups (such as accessing extremist websites). Third, current countering violent extremism interventions already in place should be sure to not exacerbate a high desire for a basic psychological need, which may in turn intensify extremism. For example, an intervention aimed at integrating at-risk people into a community should be cautious of intensifying *expectations* regarding basic psychological needs (e.g., the desire to belong).

A takeaway from the subgroup analyses is that both current and need for reputation are important. This finding provides meta-analytic support for the Quest for Significance Theory, an avenue of research that has been given much attention.[115] This theory posits that people are motivated by a need to matter (i.e., need for reputation) and have social worth, which is then affirmed by a narrative and validated by a social network. When this need is unmet (i.e., low reputation need satisfaction)—yet a compelling narrative and one's network conveys that it should be fulfilled—people act in ways that attempt to achieve significance. A potential outcome of an unmet need for significance is extreme beliefs and behaviors.[116] Thus, countering violent extremism interventions that focus on fulfilling thwarted needs should concentrate on reputation-based needs, like the need for significance. For example, one way in which the need for significance can be threatened is from unemployment.[117] Thus, wide-spread employment interventions may have implications for decreasing extremism. This example is noticeable given the mass hiring and firing occurring within the United States alongside the population-level increases in extremism.[118]

Finally, the nature of extremism subgroup analysis indicates that the association with basic psychological need satisfaction is only significant for Islamist and far-left extremism. In particular, there is a positive association between basic psychological needs and Islamist extremism, and a negative

association between basic psychological needs and far-left extremism (this surprising finding is explored below in the Future Research section). This finding suggests that countering violent extremism interventions might need to be tailored to the nature of the individual or group's extreme beliefs. Specifically, basic psychological needs should be addressed when creating interventions for Islamist and far-left extremists. Some current extremism interventions collaborate with former extremists because they can rely upon their past experiences and gain credibility with at-risk populations or extremists with whom they are trying to deradicalize (e.g., the Against Violent Extremism network).[119] Countering violent extremism interventions—like those that use content-specific language and experiences—would benefit from recognizing that a one-size-does-not-fit-all approach is best and incorporating basic needs into interventions is only useful for certain populations.

Future research suggestions

One way in which the current extremism literature is lacking is in the use of behavioral measures of extremism. The only behavioral measure of extremism found for this analysis was the number of killed casualties (by extremists).[120] This is one way to measure the upper bound of extremism, but there are more nuanced extreme behaviors that future research could examine. For example, in college student or general adult samples, social media may be a way to capture extreme behavior, such as following or messaging known extremists or posting on extreme websites. Additionally, the federal government has organized a list of behavioral indicators of extremism that future research could measure. Such indicators range from acquiring/building weapons or explosives to composing a manifesto/last statement.[121] In extremist samples, other non-lethal criminal behaviors, such as assault or hate crimes may also be adequate measures of extremism.

This meta-analysis only found three studies that clearly measured far-right extremism. This gap may be due to a bias in extremism literature—especially early work—that focuses on Islamist extremism.[122] However, far-right perpetrators currently pose the greatest domestic terrorism threat to the United States (i.e., commit the greatest number of attacks).[123] While other psychological constructs related to political conservatism are highly studied in psychology (e.g., right-wing authoritarianism, social dominance orientation), they are more stable and common than the definition of extremism used in the present meta-analysis.[124] Thus, it would be beneficial for future research to study the antecedents specifically to *extreme* far-right beliefs and behaviors. Because this ideology is on the rise, conducting timely research can best help inform countering violent extremism interventions.

The negative association for far-left extremism was surprising, especially given that the opposite association was found in Islamist samples. Future research should explore other factors and mechanisms that help explain the difference in the basic psychological needs and extremism association in these groups. For example, far-left extremist worldviews (e.g., extreme social justice) might be more aligned with Western liberal values and attitudes, such as harm and fairness moral foundations.[125] Therefore, many of their psychological needs are likely satisfied and thus associated with less extremism. Another avenue to explore this further may be the rigidity of the right hypothesis, which suggests that conservative beliefs (particularly social conservativism; e.g., Islamism) are more likely in people who are cognitively rigid.[126] Perhaps the basic psychological needs and more conservative extremism association are more prominent in people who are cognitively rigid and thus the extremism that they would most likely endorse are more conservative (e.g., Islamism) and less likely to endorse more liberal beliefs/behaviors (e.g., far-left extremism).

Similarly, future research should focus on topic-specific measures of extremism. About half (51.20 percent) of the effect sizes included in this meta-analysis measured general extremism or an unspecifiable nature of extremism. Neither of these "types" of extremism were significantly associated with basic psychological needs. This is consistent with past research suggesting that the consistency between attitudes and behavior is greatest when highly specific measures are used.[127] Thus, if researchers are interested in the influence of a basic psychological need on extremism, it would be best for them to use a more specific measure of extremism. While some appropriate measures exist

(e.g., Jasko et al. use an Islamist measure; Pfundmair uses an animal/environmental rights measure),[128] measures for some ideologies may still need to be developed.

Conclusion

The present work meta-analyzed the association between basic psychological needs and extremism. A key strength of this analysis is that it incorporates data derived from multiple extremism theories. Thus, it may be useful in curbing the theory crisis within the extremism field by suggesting where support lies so current theories can be more comprehensively quantitatively examined (e.g., investigating multiple natures of extremism, in different sample extremities). The overall effect suggests there is not an association between basic psychological needs and extremism. Though this does not minimize the importance of this result,[129] it instead suggests that not only does the environment and context of radicalization likely play an important role, but the way we talk about basic needs should be clarified. Specifically, this overall effect is qualified by the operationalization of the need— *lower* need satisfaction and *greater* desire for a need are associated with greater extremism. Future extremism theories and empirical research should continue to highlight the role basic psychological needs can play in the radicalization process, but be careful to not conflate the operationalization of needs and specifically focus on either current need satisfaction or desire for a need. Furthermore, the overall effect was qualified by the nature of extremism—basic needs were *positively* associated with Islamist extremism and *negatively* associated with far-left extremism. This suggests that studying specific extremism—instead of general attitude/belief extremity—may be a useful direction when studying extremism from current theoretical perspectives.

As noted in the methods of this analysis, there are conceptual overlaps in many extremism theories —contributing to the extremism theory crisis. Moving forward, theorists should build upon current extremism theories and researchers should empirically investigate a theory in full before conceptualizing another. Furthermore, interdisciplinary collaborations could help merge different theoretical perspectives and combine the current findings on basic psychological needs (a mainly psychological approach) and the likely importance of context/environment (a focus of many criminological theories outside the scope of the present analysis). The implications of this work also extend to countering violent extremism interventions which can use the findings to help curb further radicalization and the devastating toll of extremism on society.

Disclosure statement

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