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Is a Meaningless World Easier to Destroy?

Low Meaningful World Belief Predicts Violent Extremism Intentions

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Author Note

We have no conflicts of interest to disclose.

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Abstract

Objective: This research explored the relationships between primal world beliefs (i.e., general beliefs about the fundamental nature of the world) and intentions to engage in violent extremism. **Methods:** We tested for these relationships in seven studies conducted with activists for a variety of ideologies, some of whom had already endorsed or committed violence for their cause (total $N=2,245$). **Results:** After exploring all primal world beliefs across four US ideological groups, only Meaningful world belief—the belief that most things, including people, tend to matter and have meaning—was consistently and negatively associated with violent extremism intentions. After establishing this relationship across ideological samples, a quasi-experiment showed that imprisoned Kazakhstani jihadist terrorists had significantly lower Meaningful world belief scores than non-terrorist violent offenders (e.g., murderers, rapists) in the same prisons. Next, an experiment found that a 10-day photography-based intervention to increase Meaningful world belief significantly reduced violent extremism intentions in a sample of Republicans who endorsed the January 6th, 2021 capitol insurrection. Finally, an additional experiment found that this same intervention reduced violent extremism intentions among a general US sample, especially for people with above-minimum baseline levels of violent extremism intentions, although it failed to increase Meaningful world belief, limiting causality. **Conclusion:** Overall, the results align with motivational theories of violent extremism, which suggest that having limited sources of meaning can contribute to extremism, and suggest the potential utility of positive psychology interventions in policy and programming to prevent violent extremism.

Keywords: Primal world beliefs, Violent extremism, Terrorism, Beliefs, Meaningful world belief

Public Significance Statement

These studies provide evidence that among the many general beliefs people have about the world, believing the world is a place where meaning is rare is the most significant predictor of people's intentions to do violence for their causes. Experiments showed that helping people find meaning in more things may help make them less interested in doing violent extremism.

Is a Meaningless World Easier to Destroy?

Low Meaningful World Belief Predicts Violent Extremism Intentions

Across the world, violent extremism—the endorsement or commission of violence for ideological goals—is on the rise (Global Terrorism Database, 2024). Today in the US, more than a quarter of Americans believe that violence is justifiable to support their political views—for decades prior to 2020, less than 10% believed this (Institute for Economics and Peace, 2020; Wintemute et al., 2022; 2025). In 2021, Trump supporters stormed the U.S. Capitol to prevent the confirmation of former President Biden’s election victory, in 2024 there were multiple assassination attempts on (then) former President Trump, and in 2025 there were several serious incidences of violent extremism in the US, including an arson attacks on the New Mexico Republican Headquarters and the Pennsylvania Governor’s Mansion (currently Democrat Josh Shapiro; PBS, 2025), an anti-Semitic terrorist attack in Colorado (Sottile et al., 2025), and an ideologically motivated assassination spree in Minnesota (Anderson et al., 2025), and the assassination of right wing ideologue Charlie Kirk. Already in 2026, there have been several instances of ideological violence. The question of why people are willing to carry out violent extremism in the US, and worldwide, is urgent.

Researchers and governments around the world have devoted massive amounts of time and money to understanding violent extremism, but it remains one of the slipperiest phenomena in psychology and novel approaches are needed (Sageman, 2014). Research has yet to examine the role that beliefs about the *overall* or *basic* character of the world, called primal world beliefs (Clifton et al., 2019; Clifton & Yaden, 2021), may play in violent extremism. In the present research, we explore which of these primal world beliefs, if any, are related to violent extremism across different ideological groups, including US political partisans, environmentalists, Black

Lives Matter activists, jihadist terrorists, and January 6th, 2021 insurrection supporters. We then experimentally test whether changing primal world beliefs can reduce violent extremism.

Primal World Beliefs

Primal world beliefs (or “primals”) are beliefs about the *overall* character or nature of the world, defined as the broadest psychologically meaningful habitat from the perspective of the observer (Clifton et al., 2019). Primals provide answers to the question “What kind of world/universe is this?” and reflect simple, adjectival dimensions such as (the world is) safe/dangerous or interesting/boring.

Until recently, there had been little research on overall world beliefs, other than research focusing on Just and Dangerous world beliefs. This approach is limited, overlooking many basic beliefs about the world. With this in mind, Clifton et al. (2019) identified 26 primal world beliefs by analyzing people’s observations about the nature of reality from diverse sources, including 358 historical texts, 80,677 tweets, 10 religious focus groups, the 840 most-used adjectives in American English, and literature reviews from six social sciences and humanities disciplines (Clifton et al., 2019), followed by factor analyses to remove redundancies and establish dimensionality. These 26 primals sort empirically into three tiers (see Figure 1 below).

Figure 1

Definitions for Primary, Secondary, and Tertiary Primal World Beliefs (Clifton et al., 2019)

Insert Figure 1 here

Primals have several characteristics that make them uniquely useful for studying psychological phenomena. Like other beliefs, primals help us organize and interpret information. They assist in top-down processing, enabling people to organize information (especially ambiguous information) according to the beliefs they already hold (Clifton et al., 2019; Janoff-Bulman, 1989; McNamara et al., 2006). Like other beliefs, primals operate predominantly at the automatic, unconscious level, and are relevant to goal pursuits, playing a major role in motivating how we think, feel, and act (e.g., one who sees the world as dangerous may exhibit stress responses more often; Clifton et al., 2019). However, unlike other beliefs, primals are as general as possible, providing base-rate expectations of the world across *all* situations (Clifton & Crum, 2024). Thus, primals expand previous research on how beliefs about the world help us to interpret incoming information (Janoff-Bulman, 1989; Koltko-Rivera, 2004), by providing a comprehensive set of beliefs about the world's overall character and systematizing what those world beliefs are (see Clifton & Yaden, 2021).

Primal World Beliefs and Violent Extremism

The fact that primals are general, and therefore unattached to specific ideological beliefs, means they should apply similarly across ideological groups, which makes them ideal for understanding violent extremism. Beliefs play an important role in violent extremism. Extremists' specific ideological beliefs (e.g., white people are superior to non-whites, a global Islamic Caliphate must be established at all costs) are part of the narratives that enable them to justify violence (Kruglanski et al., 2019; Rogers et al., 2007; Taylor & Horgan, 2001; Windisch

et al., 2018). However, because these beliefs are specific to certain ideological groups, they cannot explain why violent extremism occurs in general across many groups with very different (often diametrically opposed) ideologies. For example, Salafi-jihadi beliefs are associated with Islamist terrorism, but not white supremacist terrorism; likewise, white supremacy beliefs do not motivate Islamist terrorism. That is, consistent with a large body of research indicating violent extremism is not mono-causal (Borum, 2011; Horgan, 2005; Sageman, 2004), specific ideological beliefs do not always contribute to violent extremism. But because primal world beliefs are so simple and general, none belong to a specific ideological group. For example, one can have a high score for Just world belief whether one is a Hindu who believes in karma, a Christian who believes in divine justice, or an atheist who happens to believe people tend to get what they deserve. Thus, primal world beliefs transcend specific doctrine and can be compared ‘apples-to-apples’ across many ideological groups.

Research has established that some beliefs that are not ideology-specific also contribute to violent extremism. For example, the belief that one’s ingroup has been victimized by an outgroup is a common belief among violent extremists (Jensen et al., 2018), as is Social Dominance Orientation, the belief that social groups inherently exist in a hierarchy (Henry et al., 2005). Importantly, such research explores how specific beliefs about *subcomponents* of the world (rather than the world overall) relate to violent extremism. The novel question that primal world beliefs can help us answer is, what role (if any) do *general* beliefs about the nature of the world *as a whole*, play in violent extremism?

Primal world beliefs are strongly associated with a wide variety of important psychological variables, including depression, life satisfaction, gratitude, health, education, quality of relationships, and both positive and negative emotion (even when controlling for the

influence of personality traits; see Clifton et al., 2019; Clifton and Yaden, 2021). Enticing world belief, for example, correlates with well-being as strongly as distance from the equator correlates with earth surface temperature (for both, $r=.60$; Clifton & Meindl, 2022). If primal world beliefs can impact such outcomes, it is plausible that one or more will have meaningful relationships with violent extremism, particularly since certain primal world beliefs correlate with other political psychology variables (e.g., Hierarchical world belief and greater political conservatism, Good world belief and greater political activism; Clifton et al., 2019; Clifton & Kerry, 2022).

Primal world beliefs have only recently been comprehensively mapped, providing a novel opportunity to assess their relationships with violent extremism. It is not immediately apparent, based on existing evidence, which primals should be theoretically expected to relate to violent extremism. Furthermore, even when predictions are theoretically justified, researchers have often been wrong about what primals are related to their outcome of interest (Clifton & Kerry, 2022; Kerry et al., under review). With so many primal world beliefs that could affect violent extremism in unknown ways, it did not seem prudent to make *a priori* guesses that might miss the mark and leave important stones unturned. As such, we opted to take a data-driven, exploratory approach in our initial studies (Studies 1-5), and then, after gathering correlational data, shift to an experimental framework (Studies 6-7).

Overview of Studies and Research Goals

Seven studies examined how beliefs about the world relate to violent extremism. Studies 1-4 tested which primal world beliefs were consistently related to intent to engage in violent extremism across diverse ideological groups in the US: Democrats, Republicans, environmentalist activists, and Black Lives Matter activists. To add ecological validity, Study 5 compared primal world beliefs between individuals who had engaged in terrorism behaviors and

those who had not by surveying Kazakhstani prisoners, half of whom were convicted terrorists, and half of whom were violent, but non-terrorist, criminals. Finally, Study 6 and 7 then experimentally tested whether changing primal world beliefs can change violent extremism intentions.

Our research goals were as follows:

1. Assess if any tertiary world beliefs were consistently associated with violent extremism intentions in each of the samples from Studies 1-4.
2. Assess differences in world beliefs between those who have committed ideological violence (convicted terrorists) and those who have committed violence for other reasons (convicted violent, but non-terrorist, offenders; Study 5).
3. Assess the impact of a primal world beliefs-based intervention to reduce violent extremism intentions (Study 6).
4. Assess the replicability of such an intervention (Study 7).

Studies 1-4:

Testing Relationship between Meaningful World Belief and Violent Extremism Intentions

Which primal world beliefs, if any, are related to violent extremism? Studies 1-4 aimed to test which tertiary world beliefs (see Figure 1) were most closely associated with violent extremism intentions in four separate data collections with four different US ideological samples: Democrats, Republicans, environmental activists, and Black Lives Matter (BLM) activists.

Method

Transparency and Openness

For each study in this article, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. All data and research

materials are available at the following link:

https://osf.io/yjtdz/?view_only=e53a084f0aa7445bad21b53419ede264. All analyses for all

studies were conducted using IBM SPSS and AMOS; the analysis code for these studies are not available. Studies 1-6 designs and analyses were not pre-registered. Studies 1-4 were approved by the New York University Abu Dhabi IRB prior to data collection and Studies 5-7 were approved by the Florida Gulf Coast University IRB prior to data collection.

Participants

We used Monte Carlo simulations to calculate sample size for multiple regression (assuming small effect sizes (Cohen's $f^2 = 0.2$) and power set at .80), which suggested a sample size of 134 people per study. Participants were recruited via Amazon Mechanical Turk. To ensure data quality, we used CloudResearch (Litman et al., 2017), applying filters such as high approval ratings and exclusion of duplicate IP addresses. In a pre-survey, participants residing in the US identified which ideology was most important to them from a set of 10 major ideologies, including political party, single-issues (e.g., environmentalism, pro- or anti-abortion, Black Lives Matter movement), or religions (e.g., Christianity, Islam). We identified large potential samples for four ideological groups, US Democrats, US Republicans, environmental activists, and Black Lives Matter (BLM) activists, whom we invited to participate in Studies 1-4, respectively, in four separate data collections across a six-month period (Study 1 data collected April 2022, Study 2 data collected December 2021, Study 3 data collected January 2022, Study 4 data collected May 2022). After removing participants who failed attention checks for each study, this yielded a sample of 354 self-identified Democrats (194 Males, 156 Females, 4 Other; $M_{Age} = 39.68$, $SD_{Age} = 11.47$) for Study 1, a sample of 212 self-identified Republicans (116 Males, 96 Females; $M_{Age} = 43.11$, $SD_{Age} = 11.54$) for Study 2, a sample of 262 self-identified environmental

activists (132 Males, 128 Females, 2 Other; $M_{Age} = 42.61$, $SD_{Age} = 12.71$) for Study 3, and a sample of 579 self-identified BLM activists (219 Males, 343 Females, 17 Other; $M_{Age} = 38.94$, $SD_{Age} = 12.54$) for Study 4. For each of the studies, we oversampled in order to ensure statistical power and to potentially break the datasets down according to other variables if desired (e.g., by gender, education, etc.), though this was never done.

Measures

Primal World Beliefs

We used the full version of the Primal World Beliefs Inventory (PI-99; Clifton et al., 2019), which contains 99 items and assesses all 22 tertiary world beliefs (all scales had acceptable reliability, see the following link: https://osf.io/yjtdz/?view_only=e53a084f0aa7445bad21b53419ede264). Reliability ranges are as follows for each of the 22 tertiary primal world belief subscales: Abundant ($\alpha = .81$ to .86), Acceptable ($\alpha = .77$ to .80), Beautiful ($\alpha = .79$ to .84), Changing ($\alpha = .75$ to .80), Cooperative ($\alpha = .77$ to .84), Funny ($\alpha = .85$ to .86), Harmless ($\alpha = .86$ to .92), Hierarchical ($\alpha = .75$ to .81), Improvable ($\alpha = .78$ to .83), Intentional ($\alpha = .79$ to .86), Interactive ($\alpha = .83$ to .91), Interconnected ($\alpha = .82$ to .88), Interesting ($\alpha = .82$ to .86), Just ($\alpha = .75$ to .84), Meaningful ($\alpha = .85$ to .91), Needs Me ($\alpha = .88$ to .90), Pleasurable ($\alpha = .87$ to .91), Progressing ($\alpha = .89$ to .92), Regenerative ($\alpha = .84$ to .86), Stable ($\alpha = .79$ to .84), Understandable ($\alpha = .79$ to .86), and Worth Exploring ($\alpha = .73$ to .81).

For each statement, participants were asked to rate their level of agreement on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). To view the full PI-99 items, organized by tertiary world belief, see Clifton et al., 2019, p. 11-12, or visit myprimals.com. While participants in Studies 1-3 completed the entire PI-99, measuring all tertiary primal world

beliefs, participants in Study 4 completed only the PI-99 measures for the primal world beliefs that had been the top predictors from the Studies 1-3, that is, only for the Meaningful, Interactive, and Needs Me world beliefs. This was to prevent Study 4's survey from being overly long.

Violent Extremism Intentions

To assess intent to engage in violent extremism for their ideology, participants were presented with the violent activism scale (Gousse-Lessard et al., 2013), which is a commonly used measure of violent extremism (e.g., Adam-Troian & Bélanger, 2024; Bélanger et al., 2019; Bélanger et al., 2021). The scale comprised six items, all prefaced by the statement, "To what extent do you agree you would be willing to engage in the following behaviors for your [ideological group]?" An example item is, "Using any means, even violent ones, to help the [Democratic/Republican Party; Environmental cause; Black Lives Matter movement]" (Study 1 $\alpha = .88$, Study 2 $\alpha = .92$, Study 3 $\alpha = .85$, Study 4 $\alpha = .86$). For each statement, participants were asked to rate their level of agreement on a 7-point scale ranging from 1 (*not agree at all*) to 7 (*very strongly agree*).

Results

Across all four samples, low Meaningful world belief was more strongly and consistently associated with violent extremism intentions than any other primal world belief. Using simultaneous multiple regression (i.e., with other tertiary world beliefs included in the model) and stepwise multiple linear regression¹ as a supplementary analysis (Stepwise Criteria: Probability-of-F-to-enter < .05, Probability-of-F-to-remove > .100) we tested which world beliefs had significant relationships with VEI across all four samples (Research Goal 1). The full results

¹ Although results should be interpreted cautiously due to the known limitations of stepwise regression (see, Menton, 2020; Thompson, 2001), we include the results of the stepwise multiple regression as a supplementary analysis to increase information and transparency.

of the simultaneous regression analyses for Studies 1-4 are reported in Tables 1-4 (after the References section) and are summarized in Table 5 below².

In each study, Meaningful world belief was the single variable most strongly associated with violent extremism intentions. Stepwise regressions excluded all other tertiary world beliefs from the primary model for failing to explain any significant additional variance (see Figure 2). The Meaningful world belief is not the belief that the self matters—that would be the Needs Me world belief, nor is it the belief that there is inherent meaning or an underlying purpose or plan for everything in the world—that would be Intentional world belief (see Figure 1). Instead, just as Safe world belief merely concerns *prevalence* of threats and Abundant world belief concerns *prevalence* of resources, Meaningful world belief concerns the prevalence of things that matter. Ergo, a person who believes most things in the world tend to have meaning will have a higher Meaningful world belief score and one who believes that things that matter in the world are rare will have a lower score. This is important because it distinguishes Meaningful world belief from constructs like Meaning in Life (the sense that one’s life has meaning), Significance as defined in the 3N theory of radicalization (a sense of mattering on a personal and social level Kruglanski et al., 2019), and existential nihilism (the belief that there is no inherent or underlying meaning to life; Forsythe & Mongrain, 2023). Like all primals, Meaningful world belief is roughly normally-distributed in the US (e.g., in Clifton et al., 2019). The scale has four items, including “The world is a place where most everything matters” and “Nothing really matters all that much” (reversed). Thus, results of Studies 1-4 indicated that among the 22 general beliefs people have about the nature of reality (tertiary world beliefs), the belief that the world is a place where few

² The p-values shown in Studies 1-4 were not corrected for familywise error. Given the inclusion of multiple predictors in each model, isolated statistically significant effects should be interpreted cautiously as they may reflect Type I error. However, effects for Meaningful were highly robust and remained significant even after correction.

things matter was the only one that was reliably and significantly related to violent extremism intentions and, furthermore, this occurred across ideological groups.

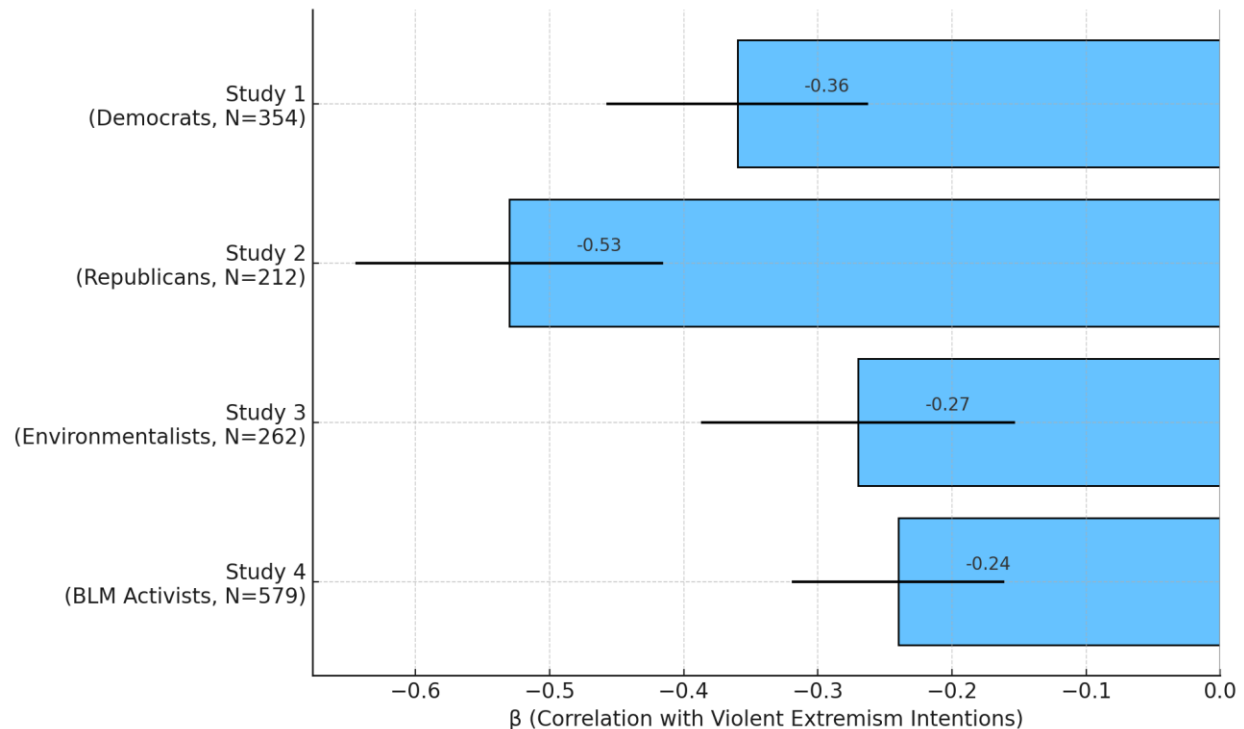
Table 5

Top Three Primal World Belief Predictors of VEI from Multiple Regressions in Studies 1-4

Study 1 (N= 354 Democrats)			Study 2 (N= 212 Republicans)		
	β	p		β	p
1. Meaningful	-0.27	0.000	1. Meaningful	-0.54	0.000
2. Regenerative	-0.22	0.001	2. Interactive	0.25	0.000
3. Needs Me	0.22	0.001	3. Needs Me	0.21	0.003
Study 3 (N= 262 Environmentalists)			Study 4 (N= 579 BLM Activists)		
	β	p		β	p
1. Meaningful	-0.26	0.003	1. Meaningful	-0.19	0.000
2. Harmless	-0.17	0.041	2. Needs Me	-0.11	0.052
3. Interactive	0.15	0.045	3. Interactive	0.03	0.529

Figure 2

Results of Stepwise Multiple Regressions in Studies 1-4



Note: All p values < .001

Study 5: Testing the Relationship between Meaningful World Belief and Terrorism

To further assess the relationship between Meaningful world belief and violent extremism, we conducted a quasi-experiment measuring Meaningful world belief in two samples: men incarcerated in Kazakhstan for terrorist offenses for Islamist-jihadist causes and men incarcerated in Kazakhstan for violent, but not terrorist-related offenses. Based on the results of Studies 1-4, we hypothesized that Meaningful world belief scores would be lower among the terrorist sample compared to the non-terrorist sample.

Method

Participants

Coauthors with Kazakhstani citizenship worked collaboratively with the Ministry of Internal Affairs of the Republic of Kazakhstan to collect data from incarcerated men within the Kazakshtani prison system using surveys. With power set at 0.8 and assuming medium effect

sizes (Cohen's $d = 0.5$), *G*Power* (Faul et al., 2007) suggested a sample size of 102 people per study for independent samples *t*-tests. The target goal for the total sample was 200 participants, with 100 participants from each group. Researchers worked with the prison administrators to identify a list of convicted Islamist-jihadist terrorists to serve as potential participants, as well as a list of inmates convicted for violent crimes (rape, murder, assault, armed robbery, etc.) that were not ideologically motivated (e.g., they could not have been convicted for terrorism or hate crimes) to serve as potential participants. Participants who met these criteria were informed, via an information sheet, of the opportunity to participate in the research at least one week prior to data collection. Those who chose to participate were allowed one hour to take the survey in a private room and their surveys were kept anonymous. The university (blinded) IRB approved all study procedures. One hundred and eighty-three participants completed the surveys, but unfortunately many of the surveys (59) were not completed in earnest, with participants missing attention check questions and failing to complete a third or more of the questions, and this data had to be removed. The final sample was 125 participants, about half of which (64) were convicted Islamist-jihadist terrorists, while the other half (61) were violent, but non-terrorist, offenders. Participants were all men, were predominantly ethnically Kazakh (94%), predominantly Muslim (91%), and had a mean age of 34.65 years ($SD = 8.28$). Among the jihadist prisoners, participants were predominantly ethnically Kazakh (95%), predominantly Muslim (97%), and had a mean age of 30.21 years ($SD = 11.99$). Among the non-terrorist violent prisoners, participants were predominantly ethnically Kazakh (84%), predominantly Muslim (90%), and had a mean age of 35.11 years ($SD = 12.55$). All data are available at the following link: https://osf.io/yjtdz/?view_only=e53a084f0aa7445bad21b53419ede264

Procedure

All surveys were provided in Kazakh (they were also available in Russian and English, though no participants chose this option). Between August 2022 and November 2024, coauthors collected data in five prisons across four provinces in Kazakhstan. Information sheets were provided to potential participants at least one week before data collection took place at a given prison. Participants were told via the information sheet that they would receive no compensation for their participation and that their choice to participate or not participate would not influence their treatment in the prison or their sentencing in any way. On days when data was collected, prisoners who had received the information sheet and agreed to participate were given an informed consent form reiterating study information, including risks and benefits, and were required to sign the form to participate in the study. Surveys were conducted via pen and paper.

The ethical treatment of this vulnerable group was considered with the utmost seriousness and was rigorously assessed by the BLINDED university IRB. Participants were instructed not to record their name in any way on the surveys so that the surveys remained totally anonymous; no identifiable information whatsoever was collected. To ensure privacy, participants took the surveys in a private room, while the researcher waited outside. Participants were able to knock to ask the researcher questions if they found any items confusing. When they completed the survey, participants were instructed to place their survey in an opaque envelope and seal it, to protect anonymity, even from the researcher. Prison administrators and government officials were required to agree in writing that the identity of any participants completing the surveys would not be revealed in any way to prison guards or other prisoners and that surveys would not be revealed to anyone in the prison administration for any reason. Strict protocols were set in place and were agreed upon in writing to protect the identity of the participants, for instance, by masking research visits as meetings with family members or lawyers. When the data collection

was completed, surveys (which again, included no identifying data) were digitized (i.e., the responses were transferred by researchers from paper surveys into spreadsheets) for data analysis and paper surveys were destroyed.

Measures

All measures were translated and back-translated over multiple iterations by coauthors who are native Kazakh speakers and born and raised in Kazakhstan, prison administrators, and other coauthors. This process took place over the course of approximately one year, including initial translation of measures from English to Kazakh, back-translation, and editing to ensure accurate meaning.

Primal World Beliefs

We used the full version of the Primal World Beliefs Inventory (PI-99; Clifton et al., 2019), including the Meaningful world belief subscale to assess Meaningful world belief ($\alpha = .94$).

Violent Extremism Intentions

To make the items appropriate for both jihadist terrorist prisoners (who had a known ideological cause) and non-terrorist violent prisoners (who did not have a pre-identified ideological cause), we used a non-ideologically-specific version of the violent activism scale (Gousse-Lessard et al., 2013) used in Studies 1-4 to evaluate violent extremism intentions ($\alpha = .88$); an example item is, “Using any means, even violent ones, to help advance an important cause.” This version, which references any cause rather than a specific ideology (e.g., environmentalism) was needed in this context to validly make comparisons across the jihadist terrorist and non-terrorist groups, though it was not separately validated outside of the original study. Such non-ideologically-specific measures are commonly used in violent extremism

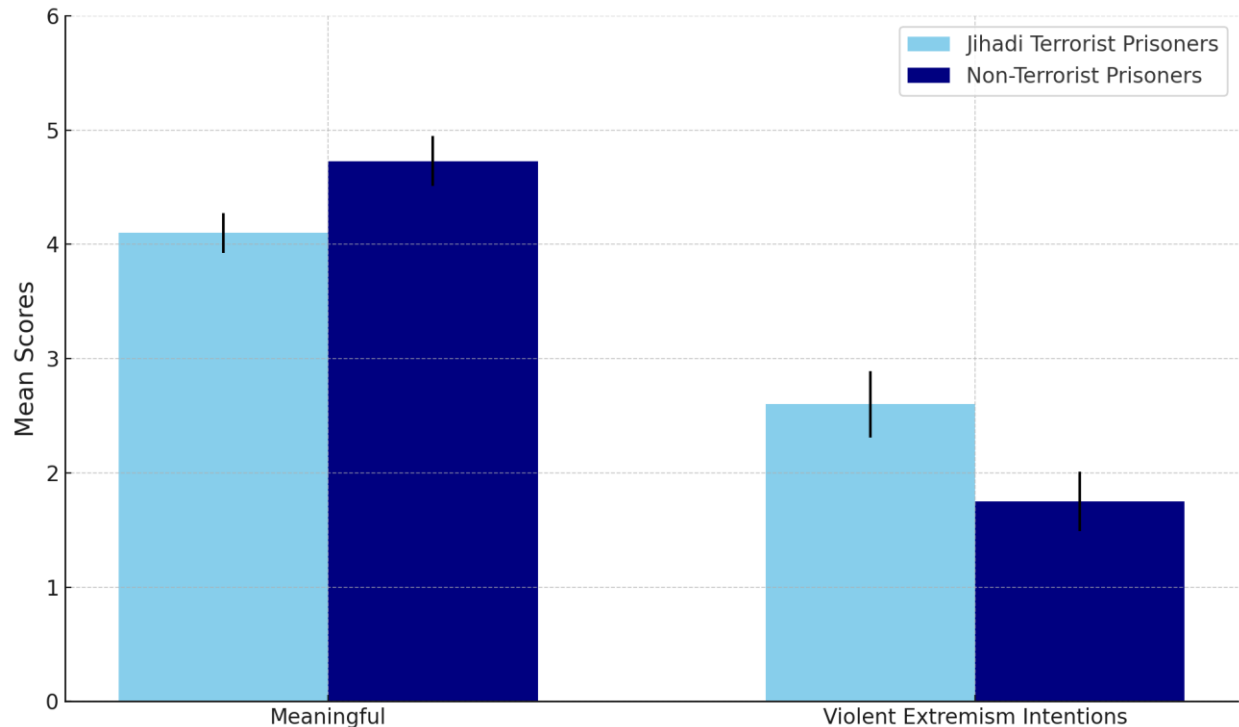
research (e.g., Support for Political Violence Scale, Kalmoe & Mason, 2022; the ARIS Scale, Moskalenko & McCauley, 2009; Violent Extremist Attitudes Scale; Nivette et al., 2017).

Results

We conducted an independent-samples *t*-test to test for differences in the mean scores for Meaningful world belief between the terrorist and violent non-terrorist samples (see Figure 3 below). Meaningful world belief scores for the terrorist group ($M = 4.10$, $SD = 0.70$) were significantly lower than those of the non-terrorist group ($M = 4.73$, $SD = 0.88$, $t(123) = 4.47$, Cohen's $d = .80$, $p < .001$). As a quasi-“manipulation check” (though, of course, there was no true experimental manipulation), we also tested if the terrorist sample showed higher support for ideological violence than the non-terrorist sample, as one would expect, by comparing their mean violent extremism intention scores. Mean violent extremism intentions scores for the terrorist group ($M = 2.60$, $SD = 1.16$) were significantly higher than those of the non-terrorist group ($M = 1.75$, $SD = 1.04$, $t(123) = -4.25$, Cohen's $d = -.77$, $p < .001$). These findings indicate that our sample of terrorists, a group that has engaged in violence specifically for an ideological cause, had lower Meaningful world belief than their non-terrorist counterparts, who also engaged in violence, but for more common (e.g., economic, personal), rather than ideological reasons.

Figure 3

Means Comparisons for Meaningful World Belief and Violent Extremism Intentions for Terrorist and Non-Terrorist Violent Prisoners



While there was insufficient statistical power to conduct multiple regression for both the terrorist and non-terrorist samples separately (the sample sizes were insufficient with so many predictors), we also conducted a simultaneous multiple regression testing all 22 tertiary primal world beliefs as predictors of violent extremism intentions with the entire sample of violent offenders ($N=125$). Similar to Studies 1-4, Meaningful world belief was the strongest predictor of violent extremism intentions (see Table 6).

Study 6: Experimental Intervention among January 6th Insurrection Supporters

Based on the results of Studies 1-5, there was reason to think that Meaningful world belief could influence violent extremism intentions, with the following theoretical rationale: people who see the world as a place where few things and people matter may have an easier time destroying things and people for a dearly held ideological cause, one of the rare things they do find meaningful. To test for a causal relationship between Meaningful world belief scores and violent extremism intentions, we designed a 10-day longitudinal intervention intended to

increase Meaningful world belief and thereby decrease violent extremism intentions. Due to the extremely low base rate of violent extremism in the general population (see Sageman, 2021), this experiment targeted participants who had already reported support for violence for their ideology: Republicans who endorsed the January 6th, 2021 capitol insurrection.

Methods

Experimental Design and Participants

We designed the 10-day intervention according to existing intervention design principles in positive psychology and primal world beliefs research (Clifton, 2020). Many practices known to improve well-being, such as gratitude, mindfulness, and faith-based practices (e.g., prayer, meditation, chanting, etc.) involve intentionally contemplating and savoring specific experiences. For example, gratitude interventions hinge on intentionally experiencing and re-experiencing an attitude of thankfulness for a variety of things and occurrences. Such practices create mental habits through repetition and re-appraisal (Davis et al., 2016).

Following several smaller-scale pilot experiments (see Supplementary Materials), we designed Study 6's intervention to impact attentional habits by asking participants to use their cell-phone camera to take three pictures of people, places, or things in their environment that they believed "mattered, that is... [things that had] value, importance, or meaning" every day for ten days. At the end of each day, they uploaded their photos to a study portal, chose one photo that they found to be the most meaningful, and wrote a journal entry about why the subject of that photo mattered. The domain of meaning changed each day, for nine days. For example, one day's prompt asked participants to take photos of the natural world (e.g., scenery, plants, a sunset, etc.) and another day's prompt asked them to photograph things that they thought often go overlooked. On the tenth day of the intervention, participants were instructed to look at the

nine photos they had chosen to write about over the previous nine days and to write two final paragraphs about 1) “how these nine photos represent only a few of the many things and people in the world that matter...only the tip of a huge iceberg of people and things with true value, importance, and meaning” and 2) to consider how many things and people in our world matter in many different ways to many different people across history and culture. For the full instructions and prompts for the intervention surveys, please see the following link:

https://osf.io/yjtdz/?view_only=e53a084f0aa7445bad21b53419ede264.

With power set at 0.8 and assuming medium effect sizes (Cohen’s $d = 0.5$), *G*Power* (Faul et al., 2007) suggested a sample size of 102 people for independent samples *t*-tests. Please see the CONSORT (Hopewell et al., 2025) flow diagram in Figure 4 for a visualization of the experiment’s phases and participants. From February to May of 2023, we surveyed 6,500 US participants on Amazon Mechanical Turk with CloudResearch (Litman et al., 2017) data quality filters to identify 790 January 6th insurrection supporters (i.e., Republicans who responded “yes” to the following question: “Do you support the January 6, 2021 US Capitol riots to stop and overturn the 2020 election steal (do you view this event as justified and/or beneficial)?”). These 790 people were randomly assigned to either the control or intervention group to form two equal groups of 395 participants. Intervention group participants completed measures for Meaningful world belief and violent extremism intentions (Time 1), then they completed the 10-day intervention. Next, they completed the Meaningful world belief and violent extremism intentions measures again (Time 2). At this time, the passive control group participants also completed these measures. Finally, one month after intervention was complete, intervention group participants completed identical measures a third time (Time 3). Given higher than expected costs associated with identifying a large sample of January 6th insurrection supporters, we

prioritized available funding for data collection on focal variables for the intervention group at Times 1, 2 and 3 and for the control group at only one time point.

Of the 395 invited, 359 control group members (184 Males, 175 Females, 0 Other, $M_{Age}=39.11$, $SD_{Age}=12.19$) completed a follow-up survey with no errors (e.g., no failed attention checks). For the intervention group, 395 people were invited to complete the ten-day intervention. Of these, 179 (81 Males, 98 Females, 0 Other, $M_{Age}=38.25$, $SD_{Age}=12.27$) completed the first day of the intervention (i.e., submitted all three photos and wrote a journal entry about one of the photos) and 71 (33 Males, 38 Females, 0 Other, $M_{Age}=39.82$, $SD_{Age}=10.88$) people completed all ten days of the intervention with no errors (e.g., no failed attention checks; an attrition rate of 60.3%). In addition, 57 (25 Males, 32 Females, 0 Other, $M_{Age}=40.49$, $SD_{Age}=11.27$) of these 71 intervention group participants completed the one-month follow-up after the intervention ended.

Insert Figure 4 here

Measures

Meaningful Primal World Belief

We used the same Meaningful world belief subscale of the PI-99 (Clifton et al., 2019) to assess Meaningful world belief ($\alpha=.90$).

Violent Extremism Intentions

We used the same measures as those used in Study 2 to evaluate violent extremism intentions for the US Republican Party ($\alpha=.87$).

Results

Attrition

We ran several tests to assess the impact of attrition. There were no statistical differences in the demographic variables between the 359 control group participants and the 71 participants who completed the final day of the intervention (Age: $t(428) = -0.46, p = .649$; Gender: $\chi^2(1, N = 430) = 0.54, p = .462$) or between the 108 participants who completed the first day of the intervention, but did not finish the intervention, and the 71 participants who completed the final day of the intervention (Age: $t(428) = -0.91, p = .362$; Gender: $\chi^2(1, N = 430) = 0.03, p = .860$). In addition, there were no statistical differences for key study variables between the 359 control group participants and the 71 participants intervention participants prior to intervention (i.e., at Time 1; Meaningful world belief: $t(428) = 1.45, p = .152$; Violent extremism intentions: $t(428) = -1.02, p = .310$). If anything, intervention group participants had lower Meaningful world belief scores prior to the intervention ($M = 4.39, SD = 1.34$) than control group participants ($M = 4.63, SD = 1.16$) and higher violent extremism intentions ($M = 2.15, SD = 1.21$) than control group participants ($M = 2.01, SD = 1.11$). There was a statistical difference for Meaningful world belief between the 108 participants who completed the first day of the intervention, but did not finish the intervention, and the 71 participants who completed the final day of the intervention prior to intervention ($t(428) = 2.39, p = .018$), such that those who did not finish the intervention actually began with higher Meaningful world belief scores ($M = 4.16, SD = .81$) than those who would go on to finish the intervention ($M = 3.86, SD = .94$). There was no significant difference between violent extremism intentions for these groups prior to intervention ($t(428) = -1.29, p = .198$). These results indicate that pre-existing differences in main study variables did not predict attrition in the intervention group, mitigating any internal validity threat from attrition.

Within-Subjects Comparisons

Repeated measures analysis of variance (ANOVA) show that participants exhibited greater Meaningful world belief and lower violent extremism intentions at Time 2 (after intervention) than at Time 1 (before intervention); furthermore, these effects remained observable one month after the intervention ended (Time 3). The overall model comparing scores for Meaningful world belief for the intervention group at each of the three time points was significant ($F(2, 55) = 14.36, p < .001, \eta^2 = .34$). Post-hoc comparisons on intervention group data using Fisher's least significant difference correction indicated that mean Meaningful world belief scores were significantly higher at Time 2 ($M_{T2} = 5.38, SD_{T2} = 0.78$) than at Time 1 ($M_{T1} = 4.57, SD_{T1} = 1.28$; Mean Difference = .81, Cohen's $d = .76, p < .001$). Scores on Meaningful world belief were still higher one month later at Time 3, although the difference was no longer statistically significant ($M_{T3} = 4.82, SD_{T3} = 1.19$, Mean Difference = .26, Cohen's $d = .20, p = .058$).

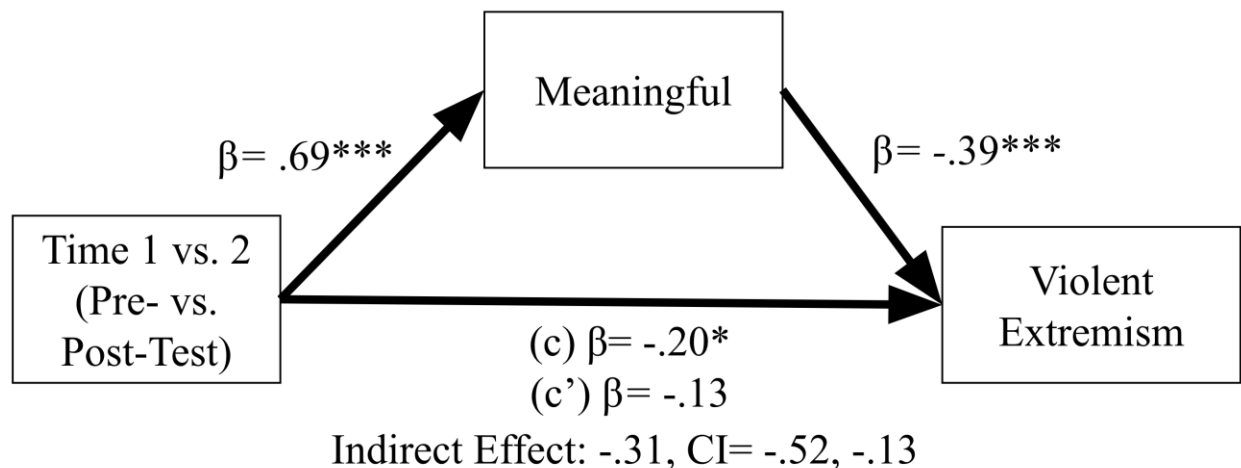
The overall model comparing the mean scores for violent extremism intentions for the intervention group at each of the three time points was also significant ($F(2, 55) = 7.72, p < .001, \eta^2 = .22$). Post-hoc comparisons using Fisher's least significant difference correction indicated that mean violent extremism intentions scores at Time 1 ($M_{T1} = 2.08, SD_{T1} = 1.18$) were significantly higher than at Time 2 ($M_{T2} = 1.58, SD_{T2} = 0.84$, Mean Difference = -.50, Cohen's $d = -.49, p < .001$) and were also significantly higher than those at Time 3 ($M_{T3} = 1.58, SD_{T3} = .91$, Mean Difference = -.50, Cohen's $d = -.47, p < .001$). These results are consistent with the interpretation that the intervention may have decreased violent extremism intentions and that this effect held one month after the intervention.

In addition, we conducted mediation analyses to assess the extent to which the effects of the intervention (i.e., pre-intervention scores compared to post-intervention scores) on violent extremism intentions could be explained by changes in the Meaningful world belief. We used a

‘shiny’ application developed by Qin (2024) to conduct a power analysis for mediation assuming a power of .80 and standardized coefficients of 0.30, which suggested a sample size of 130 participants. As such, the model was underpowered. The model was tested with standardized predictor variables using Hayes’ (2018) Process macro Model 4 via bootstrapping method to test for mediation. The results revealed that Meaningful world belief mediated the relationship between Time 1 and Time 2 in the intervention condition and violent extremism intentions (see Figure 5). The effect of the intervention on Meaningful world belief (the ‘a’ path) was significant ($\beta = .69$, $t(69) = 4.34$, $p < .001$), the effect of Meaningful world belief on violent extremism intentions (the ‘b’ path) was significant ($\beta = -.39$, $t(69) = -4.81$, $p < .001$), the direct effect (c’ path) of the intervention on violent extremism intentions was not significant ($\beta = -.13$, $t(69) = .79$, $p = .429$), and the indirect effect of the intervention on violent extremism intentions, obtained with 5,000 bootstrapped resamples, was significant ($\beta = -.31$, 95% CI[-.52, -.13]). These results suggest that not only was the intervention successful in decreasing violent extremism intentions, but also that this effect took place by increasing Meaningful world belief.

Figure 5

Results of Study 6’s Within-Subjects Mediation Analysis



*Note: $p < .001$ ***, $p < .01$ **, $p < .05$ **

Between-Subjects Comparisons

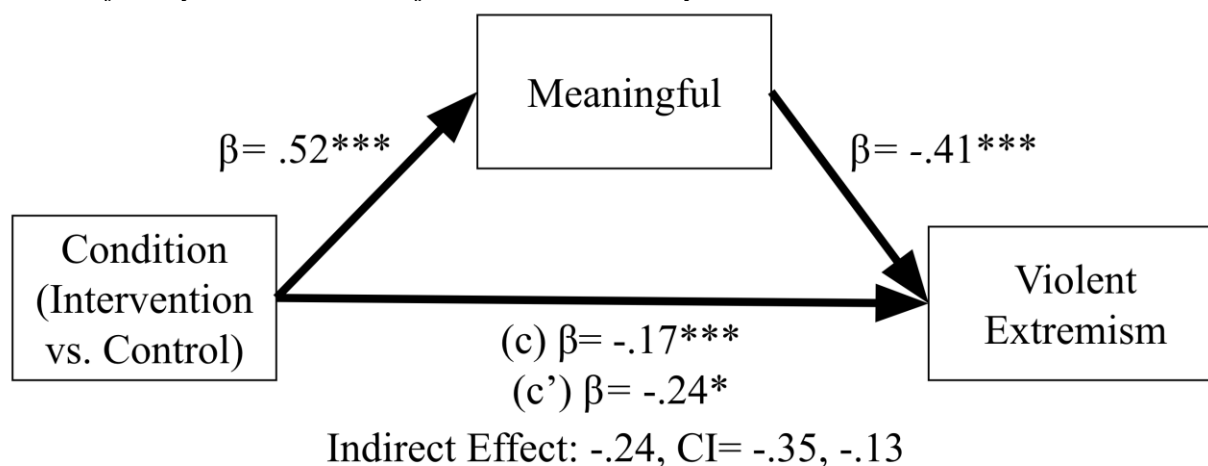
At Time 2 (after intervention), Meaningful world belief scores for the intervention group ($M= 5.16$, $SD= 1.20$) were significantly higher than those of the control group ($M= 4.47$, $SD= 1.37$, $t(427)= 4.30$, Cohen's $d= .51$, $p< .001$) and mean violent extremism intentions scores for the intervention group ($M= 1.74$, $SD= 1.00$) were significantly lower than those of the control group ($M= 2.26$, $SD= 1.19$, $t(427)= -3.88$, Cohen's $d= -.45$, $p< .001$). These findings indicate that the intervention also increased Meaningful world belief and reduced violent extremism intentions compared to a control group.

In addition, we conducted mediation analyses to assess the extent to which the effects of the intervention (i.e., whether one was in the intervention or control group) on violent extremism intentions took place via change in the Meaningful world belief. We used a 'shiny' application developed by Qin (2024) to conduct a power analysis for mediation assuming a power of .80 and standardized coefficients of 0.30, which suggested a sample size of 130 participants. As such, the model was well powered to detect effects. The model was tested with standardized predictor variables using Hayes' (2018) macro Process Model 4 via bootstrapping method to test for mediation. The results revealed that Meaningful world belief mediated the relationship between the experimental condition (control vs. intervention) and violent extremism intentions (see Figure 6). The effect of the intervention on Meaningful world belief (the 'a' path) was significant ($\beta= .52$, $t(427)= 3.93$, $p< .001$), the effect of Meaningful world belief on violent extremism intentions (the 'b' path) was significant ($\beta= -.41$, $t(427)= -9.20$, $p< .001$), the direct effect (c' path) of the intervention on violent extremism intentions was significant ($\beta= -.24$, $t(427)= 2.00$, $p= .046$), and the indirect effect of the intervention on violent extremism intentions, obtained with 5,000 bootstrapped resamples, was significant ($\beta= -.24$, 95% CI[-.35, -.13]). The direct

bivariate effect of the intervention on violent extremism intentions (c path) was significant ($\beta = -.17$, $t(427) = 3.47$, $p < .001$), indicating partial mediation. These results suggest that interventions to diversify and increase sources of meaning in people's lives may reduce violent extremism intentions.

Figure 6

Results of Study 6's Between-Subjects Mediation Analysis



Note: $p < .001$ ***, $p < .01$ **, $p < .05$ *

Overall, evidence indicates that Study 6's 10-day intervention had the intended effect, helping participants expand their perspective on what is meaningful and to find meaning more often, and in more places, than before. Unplanned qualitative analysis of participants' journal entries also seemed to support this interpretation. For example, Day 10 journal entries included the following comment:

When I really think about it, just about anything can have meaning to someone no matter what it is...everywhere I look, my eyes land on something that I imagine has meaning & value for someone...It actually makes me feel like the world overall has more meaning & value...One thing is for certain, this study has changed the way I look at the world.

Another participant mentioned the following:

I think they [the pictures] were very well the tip of a very big iceberg...these images are just a tiny fraction of the things that matter to me. The fact that there is an entire world out there waiting to be discovered is pretty amazing...and in some type of way I am pretty proud of the feeling that gives me—joy.

This reported increase in the Meaningful world belief also produced a decrease in violent extremism intentions, in line with theory considered in the Discussion below.

Study 7: Experimental Intervention in General Population

To further assess the effects of the intervention described in Study 6, we tested it in a general population sample of US political partisans, including both Republicans and Democrats. We also included an active control group that participated in all three points of data collection in Study 7's experiment. We hypothesized that there would be significant interactions (Time*Condition) in mixed-effects ANOVAs, such that intervention group participants who completed the 10-day intervention to increase Meaningful world belief would have higher Meaningful world belief scores and lower violent extremism intention scores than a control group participants that received a 10-day intervention on an unrelated topic.

Methods

Participants

With power set at 0.8 and assuming small effect sizes (effect size $f = .15$), *G*Power* (Faul et al., 2007) suggested a sample size of 74 people for the total sample for within-between interaction for repeated measures ANOVA. Please see the CONSORT (Hopewell et al., 2025) flow diagram in Figure 7 for a visualization of the experiment's phases and participants. Using Prolific Academic, we recruited a sample of US Republicans and Democrats to participate in a 10-day study, which proceeded from December 9 to December 18, 2024. After removing data

with major errors (e.g., failed attention checks), the total sample for participants that completed all 10 days of the survey, as well as a follow-up survey one month later (on January 18th, 2025), was 297 (161 Democrats and 136 Republicans). Of these, 129 were in the intervention group and 168 were in the control group. The mean age was 41.87 ($SD= 12.15$) and there were 124 male participants, 173 female participants, 0 other gender participants. All data are available at the following link: https://osf.io/yjtdz/?view_only=e53a084f0aa7445bad21b53419ede264

Procedure

Study 7 followed the same procedure of Study 6, with the exceptions that 1) the study used a general population sample, 2) participants were recruited through Prolific rather than MTurk's Cloud Research, and 3) Study 7 included an active control group.

Participants were randomly assigned to be in either the intervention group or the control group, both of which involved participating in a 10-day study. Both groups were measured for Meaningful world belief and violent extremism intention scores at the beginning of the study, before they had participated in any intervention (T1), at the end of the study, immediately following the intervention (T2), and one month after the intervention (T3). Thus, there were a total of three data collection time-points for each group. The intervention group received exactly the same intervention as the one used in Study 6, described above. The control group was instructed to follow a 10-day course on online safety, asking them to read and write responses to training modules on different topics for each of the 10 days, such as password selection and IP-address security.

Insert Figure 7 here

Measures

Meaningful Primal World Belief

We used the same Meaningful world belief subscale of the PI-99 (Clifton et al., 2019) to assess Meaningful world belief ($\alpha = .90$).

Violent Extremism Intentions

We used the same measures as those used described in Studies 1 and 2 to evaluate violent extremism intentions for the US Republican or Democratic Party depending on the participant's self-identification ($\alpha = .92$).

Results

Attrition

A series of chi-squared analyses revealed that attrition rates across the whole sample were no different in the intervention group versus the control group at either T2 or T3 (all χ^2 s < 0.10 , all p values $> .78$). Baseline scores in key variables were weak predictors of dropout rates. Correlational analyses show that those higher in Meaningful world belief scores at T1 were somewhat more likely to complete T2 ($r = .06$, $p = .123$) and T3 ($r = .10$, $p = .007$) surveys, while people higher in violent extremism intentions at T1 were slightly less likely to complete at T2 ($r = -.08$, $p = .034$) and T3 ($r = -.11$, $p = .004$). Importantly, neither the interaction of violent extremism intentions at T1 and group nor the interaction of Meaningful world belief scores at T1 and group predicted dropout at either T2 or T3 (all p values $> .41$), showing that there was no differential dropout by condition as a function of baseline levels of either of the key variables (see Table 7 below). Thus, it is unlikely that attrition could explain any effects of condition or Condition*Time interaction effects.

Table 7

Completion Rates for Time-Points 2 and 3 by Condition

Time-Point	Control Group	Intervention Group
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T2	(197/415) 47.5%	(156/329) 47.4%
T3	(168/415) 40.5%	(129/329) 39.2 %

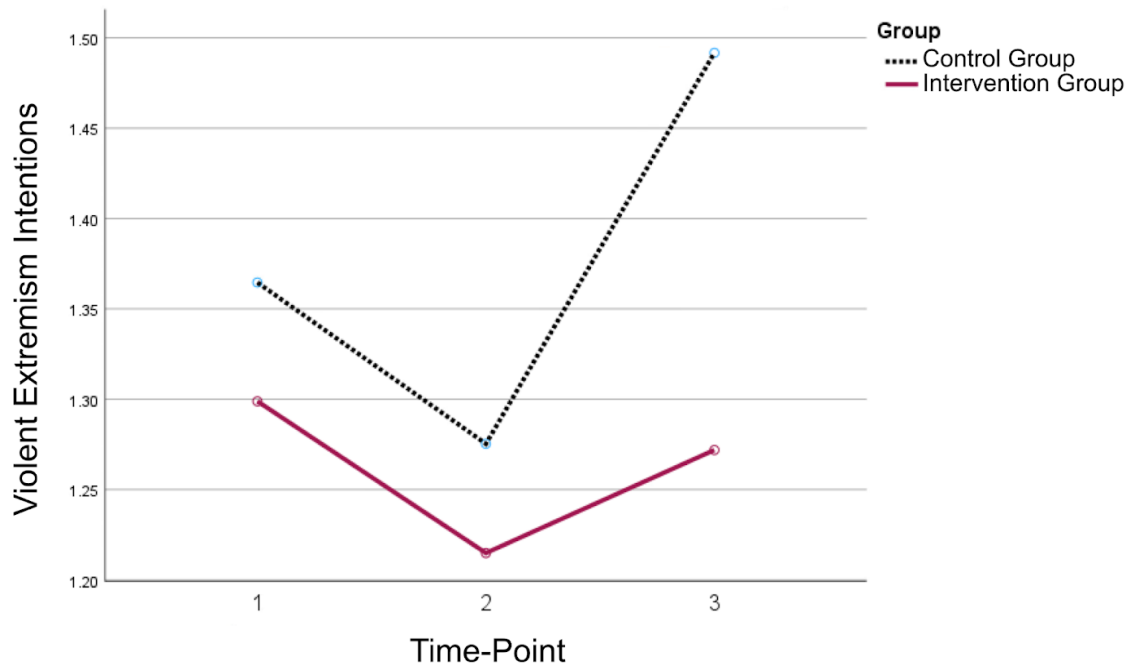
Violent Extremism Intentions

Pre-Registered Analysis

The study was preregistered at https://osf.io/ngbcz/?view_only=07bb4b7f23cb43c9ad58299c31efe805, where we had planned to test for a significant interaction between within-and between-subjects effects in a mixed ANOVA. Following our pre-registration and data collection, we conducted a mixed-effects ANOVA to test the interaction between the within-subjects variable, violent extremism intentions measured across three time-points, and the between-subjects experimental variable group (intervention vs. control). This interaction was labeled in analyses as “Time*Condition.” As predicted, we found a statistically significant effect of the Time*Condition interaction ($F(2, 588) = 3.09, p = .046$). The conditional means, depicted in Figure 8 below, show the nature of the interaction, such that violent extremism intentions appear to have decreased for both groups from T1 to T2 and increased for both groups from T2 to T3, but that this increase was less pronounced for the intervention group. While the exact reasons for the sharp increase in violent extremism intentions from T2 to T3 are unclear, one plausible explanation is that T3 data was collected shortly after Donald Trump’s inauguration as US president, an event that was highly politically divisive.

Figure 8

Conditional Means Plot for Violent Extremism Intentions for Study 7



Exploratory Analyses

Perhaps because this was a general population sample, unlike the extremist sample collected for Study 6, our analysis showed that most participants (70.70% of the total sample) had scored the *minimum* possible score for the violent extremism intentions scale at Time-Point 1 (i.e. “1.0” scale score on a 1-6 scale), indicating floor effects. While we did anticipate a low base rate for violent extremism intentions among general population participants (see Sageman, 2021), we did not anticipate floor effects of this magnitude. The goal of the intervention was to reduce violent extremism intentions, which is, of course, impossible for participants who had already scored at the minimum. We thus decided to run a series of exploratory analyses to probe intervention effects for participants with higher and lower scores baseline violent extremism intentions scores.

After dividing participants between those who scored at minimum for violent extremism intentions ($n = 210$) and those who did not ($n = 87$), we ran two mixed-effects ANOVAs. These tests were purely exploratory, rather than confirmatory, undertaken specifically to probe these

effects further to generate future hypotheses and pre-registered tests. These revealed that, among people who scored at minimum for violent extremism intentions at T1, there was no Condition*Time interaction effect ($F(2, 414) = 0.72, p = .456$, Greenhouse-Geisser adjusted), but among those who scored *above* the minimum possible score there *was* a significant Condition*Time interaction ($F(2, 170) = 3.75, p = .026$, Greenhouse-Geisser adjusted).

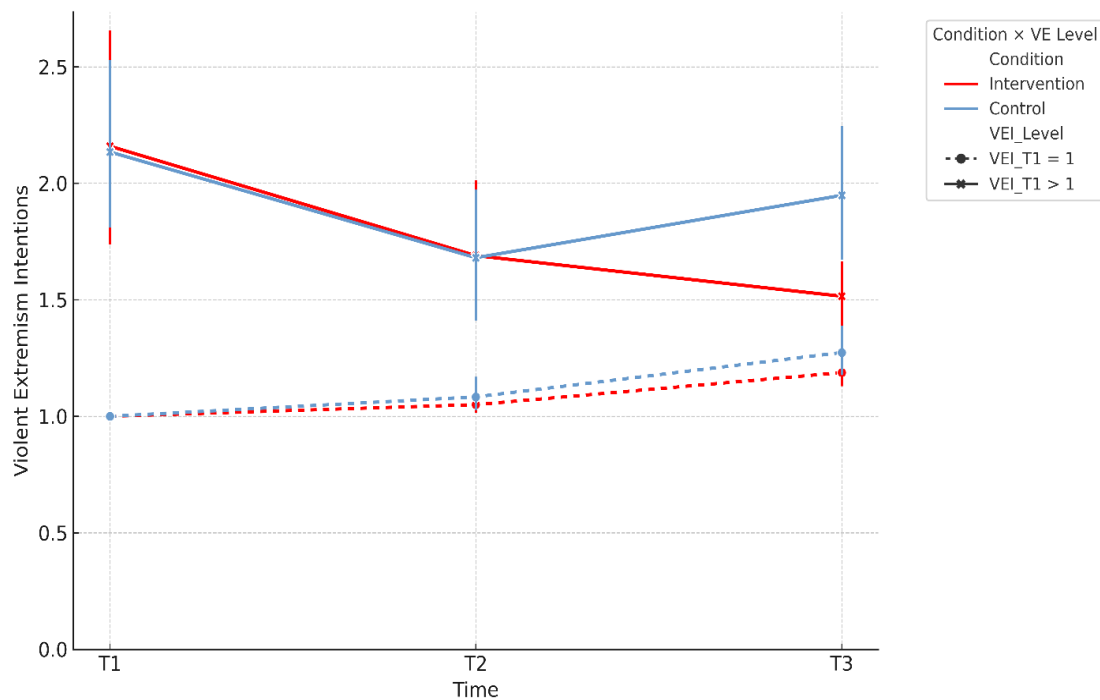
To further probe the effects of Condition across different time-points at these two different levels of baseline VEI, we conducted a series of linear multi-level models by specifying Participant ID as a random intercept variable, including Condition (dummy-coded) and baseline violent extremism (T1) as fixed effects, and adding their interaction (Condition * VEI_T1), with post-intervention violent extremism intentions (T2 and T3) as the dependent variables (see Figure 9 below). These models revealed no effect of Condition at T2. However, at T3, there was a significant effect of Condition on violent extremism intentions. Testing the Condition*Time interaction term in addition to main effects for T3 revealed that this was qualified by a Condition*VEI_T1 interaction ($b = -0.47 [-0.77, -0.18], p = .002$), such that effects were stronger at higher baseline levels of VEI. A simple slopes analysis of this interaction using raw scores revealed a large negative effect of condition among people higher in VEI at T1 (+1SD), $b = -1.25, p < .001$, with a small positive effect among people lower in VEI at T1 (-1 SD), $b = 0.36, p = .038$. We include this slopes analysis as additional information, but would urge caution in interpreting these estimated effect sizes, since they are based on small numbers of participants who scored above the minimum for VEI at T1 ($n = 87$).

Overall, these additional analyses demonstrate that the effects of condition (intervention vs. control) were null among people who scored at the minimum for baseline violent extremism intentions, but significant for people who scored above the minimum, and for whom it was

possible to show a reduction in violent extremism intentions. This effect appeared to be substantial among this group. Effects were also more pronounced at Time 3 than at Time 2, perhaps as a result of political division relating to Trump's reelection and inauguration increasing violent extremism intentions overall, thus reducing floor effects and creating more room for change in participants' VEI scores.

Figure 9

Changes in Violent Extremism Intentions (VEI) by Condition and Baseline VEI score.



Controlling for Measures of Positive Affect

A major issue for positive psychology interventions is that asking people to engage in positive cognitions often leads them to answer in positive ways across a wide range of variables—perhaps as a consequence of changes in mood or perhaps due to demand effects—which can lead to spurious conclusions about more specific mechanisms that are, in fact, simply explained by changes in mood (Kerry et al., 2023; Lyubomirsky & Layous, 2013). Accordingly,

we ran an exploratory analysis controlling for four additional measures that were not directly meaning-related, but were highly valenced—happiness, depression, and the character strengths kindness and gratitude—at each of the three time-points (these were included as exploratory outcome variables for a separate project). All of the findings for violent extremism intentions described above held when controlling for these variables; that is, the Time*Group interaction in a mixed-effects ANOVA remained statistically significant, ($F(2, 176) = 4.72, p = .011$) when including these variables as covariates.

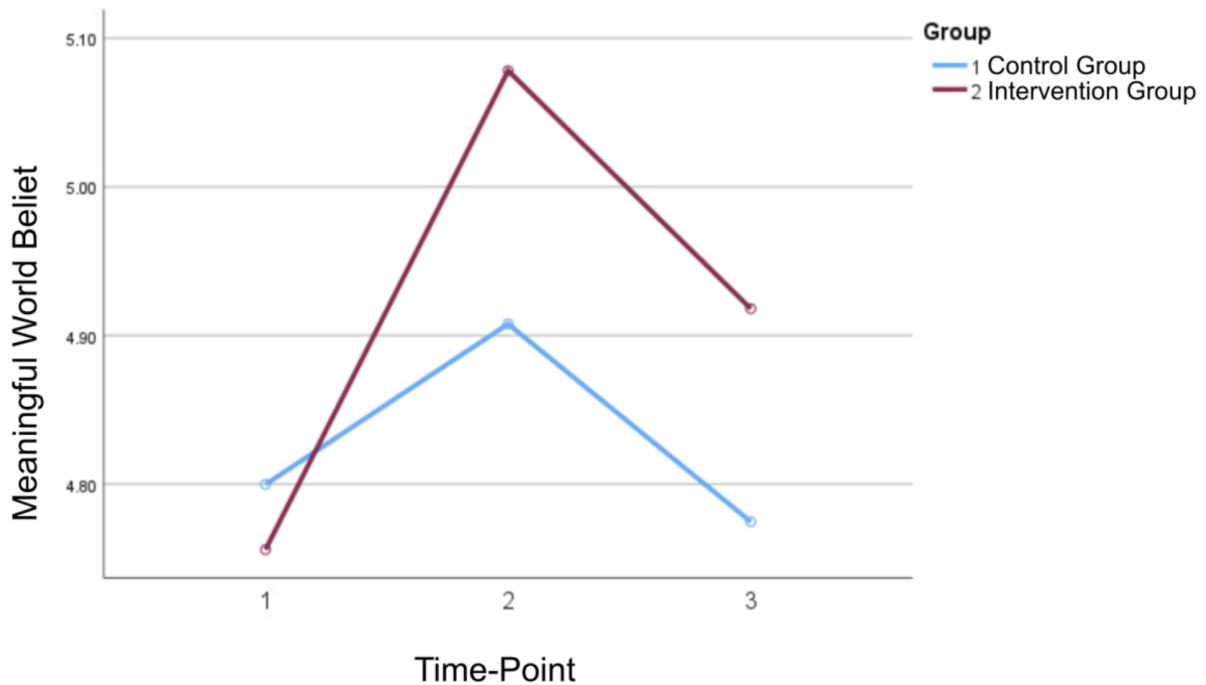
Meaningful World Belief

Pre-Registered Analysis

Following our pre-registration and data collection, we conducted a mixed-effects ANOVA to test the effects of the experimental group (intervention vs. control) on Meaningful world belief across three time-points. Contrary to our pre-registered hypothesis, there was no significant overall effect of Time*Condition, $F(2, 604) = 2.30, p = .101$, although means showed that effects were in the predicted direction (see Figure 10).

Figure 10

Conditional Means Plot for Meaningful World Belief for Study 7

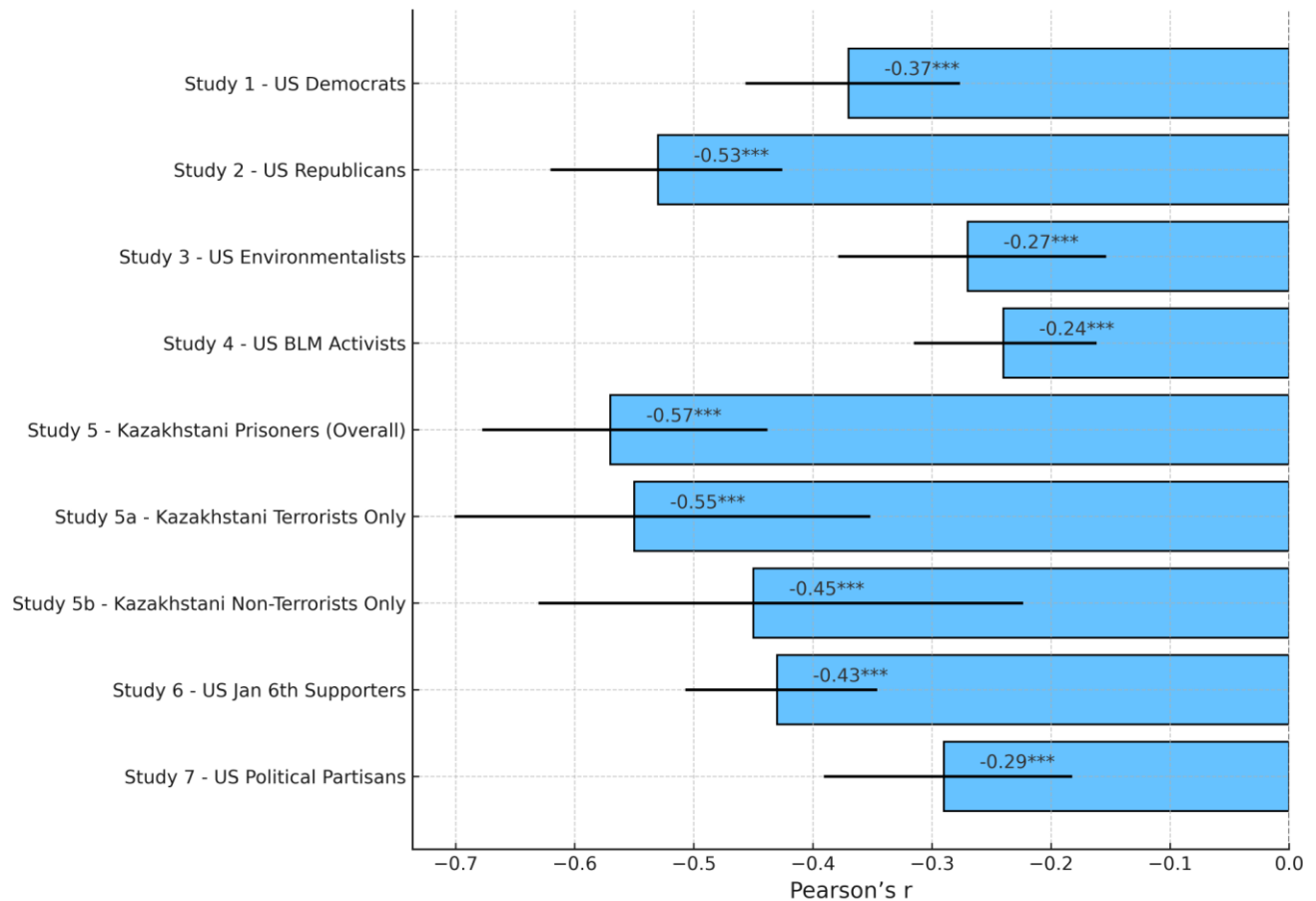


Overall Bivariate Relationship for All Studies and Samples

The overall results from all seven studies demonstrate a strong connection between Meaningful world belief and violent extremism intentions, as evidenced by the bivariate correlations summarized in Figure 11 below.

Figure 11

Bivariate Correlations between Meaningful World Belief and Violent Extremism Intentions across All Studies



Note: *** indicates $p < .001$

General Discussion

The seven studies presented here, conducted with samples of Democrats, Republicans, Environmentalists, BLM activists, January 6th insurrection supporters, and imprisoned Kazakhstani jihadist terrorists, found consistent evidence that Meaningful world belief is a strong negative predictor of violent extremism intentions. Further, an intervention that aimed to increase the perceived frequency and diversity of meaningful things in the world led to sustained decreases in violent extremism intentions among those who previously endorsed violent extremism.

These studies allow two major contributions. First, the results identified a particular primal world belief associated with violent extremism across multiple ideologies: Meaningful

world belief. Those who see the world as a place where few things matter are considerably more attracted to violence as a means to their ideological ends. The second contribution is the design of a novel intervention that yielded tentative experimental evidence that at least one primal world belief (Meaningful world belief) can potentially be changed and, when it does, violent extremism can change, too. These results have implications for violent extremism and primal world belief research, as well as prevention strategies and policy.

Contributions to Violent Extremism Research

An innovative contribution of this research is its systematic assessment of how *general* world beliefs (primals) relate to violent extremism. The above studies connect low Meaningful world belief to intentions to use violence for a variety of ideological causes, including environmentalism, anti-racism, salafi-jihadism, and the Republican or the Democratic Party. The finding that low Meaningful world belief is tied to violent extremism intentions, as well as past engagement in violent extremism (in the case of Study 5), is consistent with previous violent extremism research on multiple levels.

Rational Actor Theories of Extremism

First, the findings are in line with theories that state that people who engage in violent extremism are not mentally ill, psychopathic, or irrational, but rather weigh the costs and benefits of using violent means to achieve ideological goals (Altier et al., 2017; Horgan, 2008). These theories suggests that people who want to advance their ideology make decisions about how they do this, a major decision being whether to use peaceful or violent methods. In these ongoing cost-benefit analyses, people with low Meaningful world belief, who tend to believe that most things/people have little or no meaning, may see less cost in destroying things/people (i.e., using violence) to advance one of the few things they do find meaningful (i.e., their ideology). For

such individuals, the ends are simply more able to justify the means, since the means appear less costly. The decision to harm others to establish an ideal society (e.g., a Whites-only utopia or a caliphate that manifests “true” Islam) becomes easier when one has a primal world belief that minimizes the perceived collateral damage, that is, when one believes those they will harm to advance their ideology do not matter anyway. In this way, violent extremists are rational, utilitarian agents (Snook et al., 2025).

Motivational Theories of Extremism

Second, our results add to theories showing that unmet needs and motivational imbalances are often the starting points for violent extremism (i.e., Ideological Obsession Theory, Bélanger, 2021; Significance Quest/3N Theory, Kruglanski et al., 2019). Unfulfilled psychological needs (e.g., belonging, achievement, meaning, closure, etc.) can produce an overwhelming urge to attain personal significance, even at the cost of other goals, and this motivational imbalance can lead people to engage with violent extremist ideologies, groups, and behaviors (Significance Quest Theory; Kruglanski et al., 2019). Similarly, Ideological Obsession Theory (Bélanger, 2021), which expands on the Dualistic Theory of Passion (Vallerand, 2015), holds that having unmet psychological needs results in an obsessive passion for one’s ideology, wherein participating in one’s ideology consumes one’s identity and goal-pursuits. In cases where people form an obsessive passion for their ideology, people feel that they *need* to participate in their ideology in order to fulfill their psychological needs, motivating them to pursue ideological goals at the cost of other goals (Bélanger, 2021; Lalande et al., 2017). Conversely, those who have their psychological needs satisfied are more likely to develop a harmonious passion for their ideology, where they still care deeply about their ideology, but their goal-pursuit for their ideology is in balance with other goal pursuits, not consuming their

motivation and identity (Bélanger, 2021). Experimental and meta-analytic evidence shows that obsessive, but not harmonious, passion for an ideology is a major predictor of violent extremism (Bélanger, 2021; Wolfowicz et al., 2021).

Such theories suggest that diversifying one's sources of need satisfaction, such as sources of meaning, would reduce the imbalanced motivational drives associated with support for and participation in violent extremism. Studies 1-4 showed that low Meaningful world belief (i.e., when one believes few things are meaningful and has few sources of meaning) scores were correlated with intent to engage in violent extremism across several disparate ideological groups. Study 5 showed that those who commit violence for ideological reasons (i.e., convicted terrorists) had lower Meaningful world belief scores than those who commit violence for more non-ideological reasons (i.e., economic or intrapersonal reasons). In Study 6, the results indicate that expanding the sources of meaning for January 6th insurrection-supporting Republicans may have helped them to view more things outside of their ideology as meaningful, increasing ideological harmony and reducing ideological obsession to reduce violent extremism intentions. Consistent with this interpretation, mediation analysis and manipulation checks indicate that Study 6's intervention may have decreased violent extremism intentions by increasing Meaningful world belief. Interpreting these results in light of 3N and Ideological Obsession theories suggests that for ideologically committed individuals (i.e., all the participants in our samples) who believe few things matter (low Meaningful world belief scores), their ideology (one of the few things that do have meaning for them) has little to compete with, so expanding sources of meaning outside their ideology was impactful. Study 7 generally echoed these findings. Study 7's significant interaction indicates that the intervention reduced violent extremism intentions, and further analyses indicated that the intervention's effect was especially

pronounced among those who score above the minimum for violent extremism intentions at the beginning of the study. It is also worth noting that the intervention's effects on violent extremism were robust even when controlling for positive psychology variables (e.g., happiness).

However, it is also important to consider that the intervention's effect on Meaningful world belief was not significant in Study 7, which casts doubt on whether its intervention decreased violent extremism intentions by directly influencing Meaningful world belief. Due to this failed manipulation check, it is unclear by what mechanism the reduction of violent extremism intentions took place in Study 7, with the possible implication that the intervention may not work through Meaningful world belief at all, but rather another mechanism. One possible explanation is that Study 7's intervention did not increase Meaningful world belief *per se*, but rather increased the salience of meaningful things in people's daily lives, which the Meaningful world belief scale is not designed to measure. Thus, the intervention may have increased the *effects* of Meaningful world belief, without increasing the *amount* of Meaningful world belief (similar to how an SSRI is an agonist for serotonin, not by increasing the actual amount of serotonin, but by increasing its availability in the synapse). Future studies should work to tease out the relationships between Meaningful world belief and salience of sources of meaning.

Overall, Studies 6 and 7's experimental results indicate that the tested 10-day, cell phone photography based intervention reduced violent extremism intentions, most likely by increasing the salience, amount, and variety of what participants find meaningful, which reduced motivational imbalances known to contribute to ideological obsession and violent extremism.

Contributions to Primal World Beliefs Research

The second major contribution of this research is initial, hopeful evidence that primal world beliefs can be changed via intervention in a randomized, controlled experiment. Despite increased interest in primal world belief research over the past few years, a reliable experimental paradigm for engendering stable change in a primal has not previously emerged. In fact, many naturally occurring life events—even being diagnosed with cancer or growing up in poverty—appear to have little long-term impact on primals (Kerry et al., 2024), forcing the question of whether primal world beliefs *can* be changed. The present research helps provide some preliminary answers.

In Study 6, the intervention was able to produce changes in the target primal world belief (Meaningful world belief) lasting for at least a month, which also resulted in a similar change in violent extremism intentions. This intervention ought to be further tested and, in the future, similar interventions could be adapted to influence other primal world beliefs and associated downstream outcomes, such as changing Hierarchical world belief to change left-right political ideology (Clifton & Kerry, 2023) or Enticing world belief to increase wellbeing (Clifton & Meindl, 2022).

Limitations

These studies have several major limitations to consider that limit conclusions, especially strong claims of causation (see Table 9). First, Study 6 used an empty control group, not an active control group; that is, the control group did not complete measures at all time points, but only at Time 2, which greatly weakens causal claims. Second, in Study 7, the intervention's effect on Meaningful world belief was not significant, which makes the causal mechanism of the reduction in violent extremism intentions unclear and further weakens internal validity. This casts doubt on where in the radicalization process low Meaningful world belief may take its

effects. For instance, in the context of the 3N model (Kruglanski et al., 2019), is Meaningful world belief a precursor that makes one vulnerable to significance loss/quest (i.e., early in the radicalization process), a belief that enhances the appeal of violence-justifying ideological narratives (i.e., in the midst radicalization process), or a belief that makes violence feel less morally wrong as the decision to carry out violence is being made (i.e., late in the radicalization process). In addition, the nature of the intervention used in Studies 6 and 7 may have produced demand characteristics that weaken internal validity. That is, the intervention asked experimental group participants to identify sources of meaning and discuss what makes them meaningful, and Meaningful world belief items ask about the extent to which things in the world tend to be meaningful, and therefore experimental group participants may have had increased awareness of the intervention's aims, possibly affecting internal validity. Another concern with Studies 6 and 7 are their attrition rates. Although attrition did not impact demographic make-up or key variables for the intervention group (see Attrition subsections of Results for Studies 6 and 7), other unmeasured differences may have emerged. In particular, individuals who completed the 10-day intervention in Study 6 may differ in key ways from the control group, for instance, in terms of their motivation and conscientiousness. Finally, while this research is a critical first step in demonstrating how primal world beliefs relate to violent extremism, without strong internal validity in Studies 6 and 7, more research is needed to understand if Meaningful world belief causes changes to violent extremism intentions only, or if a bidirectional relationship exists between these variables, in which endorsing or engaging in violent extremism also reduces Meaningful world belief. Considering all these substantial threats to internal validity, the results of Studies 6 and 7 ought to be interpreted cautiously. Strong evidence of a causal relationship

between Meaningful world belief and VEI has yet to be established and will require further testing.

There are also important limitations regarding generalizability. This research, with the exception of Study 5, only measured participants' self-reported violent extremism intentions for their cause (a behavioral intention), rather than actual violent extremism (a behavior). Although these are related (Wolfowicz et al., 2021), they should not be conflated (see McCauley & Moskalenko, 2017). However, in Study 5, variables that could have systematically differed between terrorist and non-terrorist samples (e.g., time served, education) were not reported or controlled. One related limitation is the lack of relevant covariates across analyses in general, such as meaning in life.

Table 9

Table of Limitations

Limitation	Dimension	Assessment
Internal Validity	Were experimental methods used?	Yes, in Studies 6 and 7
	Were longitudinal methods used?	Yes, in Studies 6 and 7
	Were the manipulations validated with manipulation checks or other methods?	Yes, Study 6's manipulation checks validated manipulations, but Study 7's manipulation checks were not significant (no significant interaction term in predicting Meaningful world belief).
	Was an active control group used?	Yes, in Study 7
	Did groups compared remain equivalent in terms of potential third variables following attrition?	Groups compared remained equivalent in terms of measured third variables, but may have differed systematically in unknown ways.
Statistical Validity	Was the statistical power at least 80%?	Yes, for all analyses except for the within-subjects mediation analysis in

		Study 6.
	Was the reliability and validity of the dependent measure established in existing literature?	Yes
External Validity	Were the experimental results replicated?	Study 7 was not a direct replication of Study 6, because it sampled a different population, but its results suggest a consistent pattern of effects
	Were different measures used?	Most studies presented assessed the relationship between primal world beliefs and self-reported violent extremism intentions, whereas Study 5 assessed the relationships between primal world beliefs and past participation in either terrorist or non-terrorist violence.
	Was the phenomenon assessed in a field setting?	Study 5 was conducted in a real-world setting
	Are the results generalizable to different historic periods and populations (e.g., different ages, cultures, or nationalities)?	This was not explicitly tested, but it is reasonable to assume results may differ in other historic contexts and populations.

Future Research Directions

One area for future research is to explore how ideological alignments interact with the relationship between Meaningful world belief and violent extremism intentions. Although Meaningful world belief was the world belief most strongly associated with violent extremism intentions in Studies 1-4, the strength of these relationships varied widely (from $-.19$ among Black Lives Matter activists to $-.54$ among Republicans). It is not clear why these differences across ideologies occurred or the extent to which these differences are theoretically important, warranting further study.

Due to the limitations in the experimental studies listed above, future research ought to continue to test and refine the intervention described in Studies 6 and 7 for influencing Meaningful world belief and violent extremism to assess how consistently this effect can be replicated. In addition, future research should explore whether Meaningful world belief influences violent extremism intentions for ideologies that are not represented in our samples, such as moderate religious believers for major religious worldviews, like moderate Muslims, Christians, Buddhists, Hindus, and religious “nones” (i.e., atheists and agnostics).

Future research questions ought also to contextualize the effects of low Meaningful world belief in the broader radicalization process. One such question is to what extent is low meaningful world belief a precursor to unmet psychological needs, a common starting point in many theories of radicalization (e.g., Borum, 2011; Kruglanski et al., 2019)? While the present research did not measure the extent to which psychological needs were met, future research could conduct cross-lag correlational or fully experimental studies to assess the temporal relationships between Meaningful world belief and measures of significance loss or psychological needs (e.g., Chen et al.’s (2015) measure based on Self-Determination Theory). Other important future work could assess the extent to which having low Meaningful world belief facilitates moral neutralization (aka., moral disengagement; Ribeaud & Eisner, 2010) and ideological obsession, which meta-analytic (Wolfowicz et al., 2021) and mega-analytic (Bélanger et al., under review) evidence indicate are two of the strongest predictors of violent extremism. Specifically, future studies could assess the extent to which Meaningful world belief moderates the relationships between moral neutralizations, utilitarian moral reasoning (see Snook et al., 2025), and violent extremism, as this seems the most plausible mechanism by which Meaningful world belief may influence violent extremism intentions. That is, a person’s

level of Meaningful world belief may influence the extent to which one morally justifies violence against ideological opponents. For example, a person with low levels of Meaningful world belief may see the lives of ideological opponents as meaningless, making it easier to rationalize their destruction (moral neutralization) or justify using violent means if the consequences are ultimately positive (utilitarian moral reasoning). As for ideological obsession, one might theoretically predict that low Meaningful world belief is one of the mechanisms by which ideological obsession increases violent extremism (see Bélanger, 2021), in other words, that those with ideological obsession are more likely to have low Meaningful world belief and that this increases their violent extremism. However, it is also possible the reverse relationship could be present instead, in which low Meaningful world belief increases ideological obsession, which increases violent extremism, or that a bidirectional relationship exists in which both Meaningful world belief and ideological obsession increase each other and that they jointly increase violent extremism. All these possibilities warrant further experimental testing. Finally, as described before, research to assess the extent to which a bidirectional causal relationship exists between meaningful world belief and violent extremism is worth exploring in a series of experiments.

Prevention and Policy Implications

The primary practical implications of this research is that the results demonstrate the potential of inexpensive positive psychology interventions designed to promote relevant psychological strengths, like Meaningful world belief, to build resilience to violent extremism (see Clifton, 2020). For example, the intervention utilized in Studies 6 and 7 could easily be implemented as a smart phone application that could be used to consistently build diversity, scope, and depth in one's perceived sources of meaning in the long-term. Other positive psychology based interventions, such as workshops or applications to promote positive

worldviews or character virtues, like intellectual humility, could also be implemented to reduce ideological polarization and violent extremism. We recommend that policymakers at federal, state, and institutional levels (e.g., in school systems, universities, or corporations) consider implementing such interventions and assessing their effects,

Conclusion

It can be tempting to dismiss violent extremists as irrational, immoral, and inhuman—as constitutionally unlike the rest of us. However, decades of research have shown that this is simply not the case; for instance, violent extremists tend to be no more psychopathic or mentally ill than the general population (Corner et al., 2021; Horgan, 2005; Post, 2007; Sarma et al., 2022). While writing violent extremists off as insane fanatics is comforting to many, this approach has not yielded useful insights. This article argues that, historically, violent extremism researchers have overlooked the main general belief about the world that contributes to violent extremism. It is not a primal world belief one might have initially hypothesized or expected, like the beliefs the world is a dangerous, competitive, or intentional place. Instead, it is the belief that the world is a place where meaning and meaningful things are rare. Of all the general beliefs about the world, only the Meaningful world belief appears to be consistently related to violent extremism across ideological groups. Experimental evidence, employing a novel 10-day photography-based intervention, showed that increasing Meaningful world belief may have decreased violent extremism in a significant and durable way in both extremist and non-extremist samples. With violent extremism on the rise (START GTD, 2025), these results suggest that interventions targeting primal world beliefs could potentially be leveraged to mitigate violent extremism and, hopefully, other societal ills.

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Regression Tables**Table 1***Study 1 Simultaneous Multiple Regression Results (N= 354 Democrats; Outcome Variable: VEI)*

Variable	<i>M</i>	<i>SD</i>	β	<i>SE</i>	<i>t</i>	<i>p</i>
Abundant	4.40	1.06	-0.052	0.077	-0.806	0.421
Acceptable	4.73	0.90	0.142	0.067	2.978	0.003
Beautiful	4.30	0.96	0.112	0.095	1.529	0.127
Changing	4.30	0.96	-0.080	0.065	-1.615	0.107
Competitive	3.06	1.25	0.078	0.064	1.231	0.219
Funny	3.81	1.13	0.008	0.058	0.154	0.878
Harmless	3.56	1.11	0.050	0.068	0.832	0.406
Hierarchical	3.12	1.13	0.014	0.056	0.275	0.783
Improvable	4.13	0.98	0.089	0.080	1.429	0.154
Intentional	3.27	1.28	-0.152	0.064	-2.351	0.019
Interactive	9.43	1.23	0.216	0.051	4.369	0.000
Interconnected	4.14	1.13	0.050	0.058	0.972	0.332
Interesting	4.67	1.17	-0.185	0.070	-2.847	0.005
Just	3.31	1.17	0.140	0.070	2.150	0.032
Meaningful	2.46	1.28	-0.274	0.063	-4.265	0.000
Needs Me	3.32	1.48	0.221	0.057	3.326	0.001
Pleasurable	3.94	1.07	0.054	0.096	0.663	0.508
Progressing	3.42	1.23	0.098	0.061	1.648	0.100
Regenerative	3.96	0.98	-0.222	0.086	-3.325	0.001
Stable	3.79	1.15	-0.001	0.057	-0.011	0.992
Understandable	3.41	1.10	-0.071	0.059	-1.392	0.165
WorthExploring	4.55	0.91	-0.145	0.080	-2.487	0.013

Table 2*Study 2 Simultaneous Multiple Regression Results (N= 212 Republicans; Outcome Variable: VEI)*

Variable	<i>M</i>	<i>SD</i>	β	<i>SE</i>	<i>t</i>	<i>p</i>
Abundant	4.86	0.76	-0.176	0.094	-2.545	0.012
Acceptable	4.22	0.94	-0.019	0.064	-0.335	0.738
Beautiful	4.50	0.87	0.094	0.096	1.186	0.237
Changing	4.33	0.88	-0.053	0.075	-0.829	0.408
Competitive	3.20	1.13	0.115	0.062	1.725	0.086
Funny	3.70	1.05	0.021	0.063	0.321	0.749
Harmless	3.47	1.05	0.102	0.072	1.402	0.162
Hierarchical	3.94	1.00	0.035	0.058	0.626	0.532
Improvable	4.43	0.85	0.059	0.086	0.843	0.400
Intentional	4.18	1.04	0.024	0.066	0.359	0.720
Interactive	3.41	1.25	0.246	0.048	4.235	0.000
Interconnected	4.17	1.12	-0.148	0.064	-2.150	0.033
Interesting	4.37	1.05	-0.101	0.079	-1.265	0.208
Just	4.15	0.94	0.075	0.076	1.088	0.278
Meaningful	1.91	1.04	-0.544	0.078	-6.974	0.000
Needs Me	4.08	1.26	0.213	0.058	3.023	0.003
Pleasurable	4.29	0.99	0.198	0.096	2.173	0.031
Progressing	3.08	1.35	0.035	0.059	0.453	0.651
Regenerative	4.07	0.98	-0.167	0.083	-2.121	0.035
Stable	3.59	1.05	0.109	0.063	1.694	0.092
Understandable	3.79	1.09	0.000	0.059	0.000	1.000
WorthExploring	4.40	0.98	0.029	0.073	0.429	0.668

Table 3

Study 3 Simultaneous Multiple Regression Results (N= 262 Environmental Activists; Outcome Variable: VEI)

Variable	<i>M</i>	<i>SD</i>	β	<i>SE</i>	<i>t</i>	<i>p</i>
Abundant	4.47	0.99	-0.122	0.079	-1.495	0.136
Acceptable	3.14	0.64	0.020	0.103	0.297	0.767

Beautiful	4.50	0.91	-0.030	0.101	-0.316	0.752
Changing	4.50	0.96	0.006	0.066	0.097	0.923
Competitive	4.10	1.10	-0.009	0.068	-0.121	0.904
Funny	3.77	1.10	0.012	0.063	0.162	0.872
Harmless	3.54	1.08	-0.171	0.074	-2.055	0.041
Hierarchical	3.14	1.15	0.080	0.057	1.164	0.246
Improvable	4.35	0.90	0.070	0.088	0.838	0.403
Intentional	3.50	1.36	0.095	0.064	1.047	0.296
Interactive	3.01	1.11	0.146	0.063	2.018	0.045
Interconnected	4.41	1.10	0.069	0.063	0.962	0.337
Interesting	4.74	0.96	0.142	0.083	1.721	0.087
Just	3.54	1.08	-0.095	0.078	-1.089	0.277
Meaningful	4.86	1.16	-0.260	0.072	-2.993	0.003
Needs Me	3.72	1.48	-0.122	0.079	-1.495	0.136
Pleasurable	4.53	1.02	-0.097	0.077	-1.635	.103
Progressing	3.29	1.24	0.000	0.063	0.000	1.000
Regenerative	4.01	0.98	-0.035	0.064	-0.429	0.668
Stable	3.11	1.10	-0.066	0.083	-0.777	0.438
Understandable	3.57	1.15	0.123	0.061	1.748	0.082
WorthExploring	4.80	0.78	-0.001	0.055	-0.017	0.987

Table 4

Study 4 Simultaneous Multiple Regression Results (N= 579 BLM Activists; Outcome Variable: VEI)

Variable	<i>M</i>	<i>SD</i>	β	<i>SE</i>	<i>t</i>	<i>p</i>
Interactive	3.20	1.05	0.027	0.062	0.63	0.529
Meaningful	4.65	1.21	-0.192	0.062	-4.027	0.000
Needs Me	3.91	1.37	-0.109	0.056	1.946	0.052

Table 6

*Study 5 Simultaneous Multiple Regression Results (N= 125 Violent Kazakhstani Prisoners;
Outcome Variable: VEI)*

	<i>M</i>	<i>SD</i>	β	<i>SE</i>	<i>t</i>	<i>p</i>
About Me	4.63	0.91	0.36	0.13	2.99	0.004
Abundant	4.48	0.92	-0.10	0.13	-0.63	0.532
Acceptable	4.40	0.92	-0.08	0.16	-0.50	0.617
Beautiful	4.32	0.92	0.01	0.16	0.09	0.927
Changing	3.13	1.19	0.06	0.17	0.39	0.695
Cooperative	3.76	1.09	-0.20	0.11	-1.61	0.112
Funny	3.52	1.08	-0.22	0.16	-1.64	0.105
Harmless	3.53	1.07	0.12	0.16	0.78	0.437
Hierarchical	4.28	0.92	0.01	0.19	0.05	0.965
Improvable	3.73	1.16	0.05	0.19	0.23	0.823
Intentional	6.42	1.24	0.22	0.19	1.27	0.207
Interconnected	4.16	1.13	-0.22	0.16	-1.29	0.201
Interesting	4.52	1.11	-0.34	0.14	-2.25	0.027
Meaningful	3.73	1.06	-0.37	0.15	-3.22	0.002
Just	2.19	1.16	-0.08	0.18	-0.44	0.665
Needs_Me	3.70	1.37	0.17	0.16	1.01	0.314
Pleasurable	4.12	1.03	0.09	0.20	0.45	0.657
Progressing	3.25	1.29	0.19	0.17	1.21	0.229
Regenerative	4.02	0.98	-0.02	0.19	-0.09	0.927
Stable	3.69	1.10	0.28	0.13	2.25	0.028
Understandable	3.60	1.10	0.04	0.14	0.33	0.742
Worth Exploring	4.48	0.95	0.15	0.12	1.27	0.208