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Familiarity Bias: Examining a Cognitive-Affective Mechanism Underlying Ideological Support for the Status Quo

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Familiarity Bias: Examining a Cognitive-Affective Mechanism Underlying Ideological Support for the Status Quo

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Abstract

It is well established that people like familiarity over novelty. Because that which is most familiar is frequently indicative of the way things are, favoring familiarity should create a psychological advantage for the status quo. In two studies, I tested the hypothesis that familiarity bias—susceptibility to the mere-exposure effect whereby attitude objects receive increasingly favorable evaluations due to repeated sensory experience—is foundational to ideological support for the status quo. In Study 1, individual variation in familiarity bias predicted greater Right-Wing Authoritarianism. Existential threat was experimentally manipulated via the salience of international terrorism in Study 2, but was unsuccessful due to a major terrorist attack against Brussels, Belgium during data collection. The present research offers mixed support for a link between familiarity bias and ideological support for the status quo. Further tests are necessary to determine if and how susceptibility to the mere-exposure effect is related to and right-wing ideology and motivations to manage threat and uncertainty.

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I. Introduction

People like to believe their attitudes and values are the products of logical analysis. Psychological research points to other, less obvious sources. One potential source is familiarity bias, which I define as susceptibility to the mere-exposure effect whereby attitude objects receive increasingly favorable evaluations due to repeated sensory experience. For example, people prefer name brand products (Janiszewski, 1993), political incumbents (Grush, McKeough, & Ahlering, 1978; Schaffner & Wandersman, 1974), known methods and strategies (Litt, Reich, Maymin, & Shiv, 2011), and comfort foods (Wansink, Cheney, & Chan, 2003) because these options possess heightened familiarity. Essentially we come to like, prefer, and favorably evaluate stimuli that are accompanied by a *feeling* of knowing (see Zajonc, 2001).

Ideological attitudes that dictate "ought" from "is" may similarly extend from familiarity bias. Because that which is most familiar is frequently indicative of the way things are, familiarity is an advantageous characteristic of the status quo (Eidelman & Crandall, 2009). Moreover, support for the status quo and bias favoring familiarity appear connected by the same psychological motivations. Resistance to change, defense of tradition, and support for social convention follow from needs for certainty and security (for a review, see Jost, Glaser, Kruglanski, & Sulloway, 2003), as does susceptibility to a cognitive-affective bias favoring familiarity over novelty (e.g., Faulkner, Schaller, Park, & Duncan, 2004; Kruglanski, Freund, & Bar-Tal, 1996; Lee, 2001). From these connections, I develop an argument that familiarity bias is foundational to ideological support for the status quo, and it is through this basic cognitive-affective mechanism that psychological needs for certainty and security promote the adoption of right-wing attitudes favoring the status quo.

A. The Psychology of Familiarity

Familiarity refers to a subjective feeling of knowing usually based on prior experience. Familiarity cues what is good, right, appropriate, and true (Bornstein, 1989; Dechêne, Stahl, Hansen, & Wänke, 2010; Harrison, 1977; Zajonc, 1968), and its accompanying "warm glow" affords comfort and confidence (Titchener, 1915). Novelty, in contrast, is inherently associated with risk, uncertainty, and a potential for danger (Bronson, 1968). Thus, it is not surprising that people and animals like and prefer familiar stimuli to novel stimuli (Bornstein, 1989; Bronson, 1968; Harrison, 1977; Zajonc, 1968).

Two complementary accounts attest to why positive evaluation is a consequence of familiarity. First, Zajonc (1968) proposed that "mere exposure" signals safety. In the absence of reinforcement and punishment, people and animals come to learn that familiar stimuli are benign, or void of risk and danger. This process is akin to classical conditioning whereby a novel unconditioned stimulus is paired with non-aversive outcomes upon each exposure; the result is a nonthreatening conditioned response that culminates in enhanced liking (Zajonc, 2001). Another account emphasizes a processing fluency advantage for familiar stimuli (Alter & Oppenheimer, 2009). Familiar stimuli are recognized and processed faster and easier, and people instinctively misattribute the pleasantness of this easier processing to qualities of familiar stimuli (Alter & Oppenheimer, 2009; Dechêne et al., 2010).

Several markers indicate that familiarity bias operates automatically. It is fast and efficient (Kawakami & Miura, 2014), occurs independent of conscious awareness (Bornstein & D'Agostino, 1992; Kunst-Wilson & Zajonc, 1980), and requires control to stifle its influence on explicit attitudes (Kawakami & Miura, 2014). In fact, stronger effects emerge when repeated exposure is outside of conscious awareness (Bornstein, 1989), suggesting that explicit

recognition may help people to reject processing fluency cues and thus attenuate familiarity bias (Bornstein & D'Agostino, 1994).

The ubiquity of favoring familiarity across many species and circumstances implores consideration of its functional properties. Put simply, an instinct towards favoring familiarity over novelty possesses survival value (Bornstein, 1989; Bronson, 1968; Zajonc, 1968). Organisms indifferent to or unruffled by novelty surely expose themselves to more risks and dangers, such as disease, toxic foods, and aggression from strangers or outsiders. Bias favoring familiarity facilitates attachment and social bonding, which are essential to survival (see Baumeister & Leary, 1995). For example, mimicking newborn infants' preference for the sound of their mothers' voice, Rajecki (1974) found that baby chicks showed a strong preference for a tone repeatedly played while in an unhatched egg. Similarly, the "propinquity effect" demonstrates that people are more likely to form close relationships with others to which they are more proximal to and thus more familiar with (Festinger, Schachter, & Back, 1950). Because we are repeatedly exposed to our kin and community members, we form close relationships that promote collective survival. In summary, familiarity bias is adaptive for the reason that it promotes safety and solidarity. As advised by the old axiom, "Better the devil you know than the devil you don't."

B. Needs for Certainty and Security

Familiarity affords one with a sense of certainty and security. People have an idea of what they will get when selecting familiar options, whereas unfamiliarity invites uncomfortable feelings of uncertainty. Indeed, evidence suggests that people seek out familiarity as a means to reduce epistemic uncertainty (see Lee, 1994, 2001). J. E. Crandall (1968) observed that those high (vs. low) in ambiguity intolerance evaluated stimuli more positively as a function of

familiarity. Moreover, experimentally inducing motivation for achieving epistemic certainty increases preferences for familiar stimuli in the classic mere-exposure paradigm (Kruglanski et al., 1996).

People also seem to reach for what they know in response to threats. The threat of disease contamination corresponds with less openness to experience (Schaller & Murray, 2008), increases social conformity (Wu & Chang, 2012), and promotes the rejection of unfamiliar foods (Kandiah, Yake, Jones, & Meyer, 2006; Wansink et al., 2003) and peoples (Faulkner et al., 2004; Navarrete & Fessler, 2006; Navarrete, Fessler, & Eng, 2007). Experiencing anxiety amplifies favoritism of familiarity in humans (Schick, McGlynn, & Woolam, 1972), and rats show strong preferences for familiar areas of a maze after receiving electric shocks (Aitken, 1972; Aitken & Sheldon, 1970). More generally, stress triggers a desire to stay with what is is familiar (Vanbeselaere, 1980), even when such decisions lead to suboptimal outcomes (Litt et al., 2011). However, positive affect that signals safety and affirms security attenuates bias favoring familiarity (de Vries, Holland, Chenier, Starr, & Winkielman, 2010).

Research and theory suggest that familiarity bias should strengthen in response to heightened needs for certainty and security. When feeling uncertain or perceiving threats, people are likely to seek out and trust in people, places, and things they have experience with. This adaptive, motivational bias favoring familiarity over novelty should be detectable at a cognitive-affective level whereby subliminal repeated exposure produces positive evaluation.

C. Connections to Right-Wing Ideology

At its core, right-wing ideology is characterized by preference for the status quo and acceptance of inequality and hierarchy (Altemeyer, 1981; Bobbio, 1996; Conover & Feldman, 1981; Jost et al., 2003; Pratto, Sidanius, Stallworth, & Malle, 1994; Wilson, 1973). These two

dimensions are embodied by complementary sets of attitudes and beliefs in Right-Wing Authoritarianism (RWA; Altemeyer, 1981, 1988) and Social Dominance Orientation (SDO; Pratto et al., 1994; Sidanious & Pratto, 1999). Whereas Altemeyer's (1988) RWA scale includes items emphasizing tradition, conventionalism, and the status quo (e.g., "The 'old-fashioned ways' and the 'old-fashioned values' still show the best way to live," "The established authorities generally turn out to be right about things, while the radicals and protestors are usually just 'loud mouths' showing off their ignorance"), Pratto et al.'s (1994) SDO scale taps preference for group-based hierarchy over egalitarianism (e.g., "Some groups of people are simply inferior to other groups," "It's OK if some groups have more of a chance in life than others"). Together, RWA and SDO culminate in sociocultural worldviews that form the basis of right-wing or conservative ideology (Duckitt & Sibley, 2009).

Connections can be drawn between familiarity bias and right-wing ideology's emphasis on support for the status quo. Due to direct experience or incidental exposure, existing states, normative practices, and traditions are accompanied by a sense of subjective familiarity. Staying with what is familiar is essentially staying with the status quo (e.g., Eidelman & Crandall, 2009), and enacting change usually involves embracing the unknown. Preferences for familiarity and the status quo are similarly rooted in psychological needs for certainty and security (Faulkner et al., 2004; Jost et al., 2003; Jost et al., 2007; Kruglanski et al., 1996; Lee, 1994, 2001; Schaller & Murray, 2008; Schick et al., 1972). Because status quo options possess familiarity, and familiarity affords one security and certainty, people may instinctively form attachments to the status quo through basic cognitive-affective mechanisms advantaging familiarity over novelty. It stands to reason that susceptibility to familiarity bias may serve as the psychological basis of ideological support for the status quo.

In contrast, acceptance of inequality and hierarchy seems weakly connected to familiarity bias. Social arrangements in Western democracies tend to be hierarchical, but it is also common or normative for people to endorse egalitarian values over hierarchy values (e.g., Pratto et al., 1994; Van Berkel, Crandall, Eidelman, & Blanchar, 2015). Moreover, social hierarchy attitudes appear to follow from perceptions of the world as competitive and uncaring rather than dangerous and threatening (Duckitt, 2001; Duckitt & Sibley, 2010). Only to the extent that attitudes endorsing social inequality and hierarchy are in direct defense of a status quo ingrained in past experience would I expect familiarity bias to promote this dimension of right-wing ideology. Familiarity bias should underlie ideological support for the status quo, but not ideological endorsement of inequality and hierarchy.

I test these hypotheses in two studies. In Study 1, individual variation in susceptibility to familiarity bias was measured via a novel task adapting and integrating the mere-exposure (e.g., Monahan, Murphy, & Zajonc, 2000; Moreland & Zajonc, 1976) and signal detection theory paradigms (e.g., Macmillian & Creelman, 2005). Bias in memory recognition due to repeated exposure was expected to be distinct from familiarity bias (e.g., Bornstein & D'Agostino, 1992; Moreland & Zajonc, 1977, 1979). Correlations were examined among familiarity bias and measures of ideological support for the status quo, social hierarchy attitudes, epistemic need for certainty, and a proclivity to think effortfully and carefully. Familiarity bias was predicted to correspond positively with ideological support for the status quo and needs for certainty, but to be unrelated to social hierarchy attitudes. Designed with consideration of Study 1 findings, Study 2 aimed to investigate the causal role of perceived threat in facilitating familiarity bias. Prior to measuring familiarity bias, participants were randomly assigned to receive low- or high-threat salience information in the context of international tourism or terrorism. Variation in familiarity

bias should correlate positively with individual differences in perceptions of a dangerous world, epistemic needs for certainty, and ideological attitudes promoting the status quo, and experimentally manipulated threat was predicted to strengthen familiarity bias.

II. Study 1

Study 1 was conducted for four reasons. First, it was necessary for developing a novel measure of familiarity bias through the adaptation and integration of the mere-exposure and signal detection theory paradigms. Initial attempts at construct measurement are rarely, if ever, optimal and require refinement. Second, I wanted to gauge whether enough individual variation in susceptibility to familiarity bias was meaningfully quantifiable across participants. Restricted variance would make it difficult to predict differences in ideological attitudes and motivational needs. Third, initial data allow for estimates of expected effect sizes, and thus help guide decisions on setting appropriately powered sample sizes for future research. Fourth, I desired a preliminary test of my hypothesis that bias from favoring subjective familiarity extends from psychological needs to manage uncertainty and threat and thus underlies ideological support for the status quo. I predicted that familiarity bias would positively correlate with RWA (i.e., ideological support for the status quo) and Need for Cognitive Closure (i.e., epistemic need for certainty), but to be unrelated to SDO (i.e., ideological endorsement of social hierarchy). Mediation analyses will assess if, and to what extent, familiarity bias is able to explain the relationship between need for cognitive closure and RWA.

A. Method

Participants and procedure. General psychology students from the University of Arkansas were recruited for a study about "visual processing and social opinions." Sample size was set to a minimum of 200 participants, and data collection across six weeks produced a final

sample of 220 participants (150 females; M_{age} = 19.37, *SD* = 2.50). Eleven additional participants failed to complete the study; five because the allotted time expired (30 minutes), two because of a language barrier, two because of an unscheduled power outage, one because she felt physically ill, and one because of a computer malfunction. After providing informed consent, participants completed a novel task designed to assess individual variation in susceptibility to familiarity bias and several measures of ideological attitudes and cognitive style. All measures are provided in Appendix A.

Measuring familiarity bias. Individual differences in susceptibility to familiarity bias were assessed via a novel adaptation and integration of the mere-exposure (e.g., Monahan et al., 2000; Moreland & Zajonc, 1976) and signal detection paradigms (e.g., Macmillian & Creelman, 2005). Participants studied 20 Chinese ideographs one at a time for 10 seconds each for a memory test. Next, in a supposed distractor task, participants attended to the center of a computer monitor (60 Hz refresh rate) for a slideshow subliminally presenting 40 Chinese ideographs: 20 studied ("old") and 20 novel ("new"). Each ideograph was flashed rapidly at 16.67 ms followed by a patterned mask (see Figure 1); 10 of the 20 studied ideographs and 10 of the 20 novel ideographs were presented 35 times ("high familiarity") and the other half presented only once ("low familiarity"). This subliminal exposure phase was broken into five blocks (for details, see Figure 2). After a brief demographics survey, participants were shown each of the 40 ideographs and responded to three questions to assess recognition memory and stimulus evaluation: (1) "Did you see this ideograph earlier in the study phase?" (*New Image* or *Old Image*), (2) "How confident are you in this judgment?" (-3 = *Not At All Confident*, +3 *Very Confident*), and (3) "How much do you like this ideograph?" (-3 = *Don't Like It At All*, +3 *Like It Very Much*).

Ideological attitudes. Participants completed the 14-item Right-Wing Authoritarianism (RWA) scale (Rattazzi Bobbio, & Canova, 2007; α = .79) and the 16-item Social Dominance Orientation (SDO) scale (Pratto et al., 1994; α = .92). RWA represents a set of stable and enduring ideological attitudes stressing conventionalism and traditionalism, submission to dominant leaders, and aggression towards social deviants (Altemeyer, 1981; Duckitt, 2001). SDO is a complementary ideological dimension stressing support for intergroup dominance and anti-egalitarianism (Ho et al., 2015; Pratto et al., 1994). Collectively, RWA and SDO represent goal schemas yielding sociocultural worldviews that form the core of conservative ideology (Duckitt & Sibley, 2009; see also Jost et al., 2003).

Cognitive style. Individual differences in cognitive style were assessed via the 15-item Need for Cognitive Closure scale (NfCC; Roets & Van Hiel, 2011; α = .84) and the 18-item Need for Cognition scale (NfCog; Cacioppo, Petty, & Kao, 1984; α = .88). Need for cognitive closure represents motivation to acquire firm and unambiguous answers (i.e., uncertainty intolerance), and need for cognition is a proclivity to enjoy and engage in effortful thinking.

Demographic survey. Participants reported their age, gender, race/ethnicity, ACT score, political ideology (1 = *very liberal*, 7 = *very conservative*), political partisanship (1 = *more Democrat*, 7 = *more Republican*), and whether they spoke Chinese.[1]

B. Results

Stimulus evaluation. Replicating the classic "mere exposure" effect, a paired-samples *t*-test indicated that participants overall evaluated high frequency exposure ideographs ($M = 3.56$, $SD = 0.76$) more favorably than low frequency exposure ideographs ($M = 3.44$, $SD = 0.74$), $t(219) = 4.15$, $p < .001$, $d = .16$, 95% CI for difference [0.06, 0.18]. However, because the mere exposure paradigm uses novel stimuli and studying half of the ideographs affords conscious

exposure, I conducted separate tests of novel (i.e., non-studied or "new") and studied (i.e., "old") ideographs. For novel ideographs, participants evaluated high frequency exposure ideographs (M = 3.39, SD = 0.82) more favorably than low frequency exposure ideographs (M = 3.17, SD = 0.82), $t(219) = 5.54$, $p < .001$, $d = .27$, 95% CI for difference [0.14, 0.30]. However, no difference in evaluation emerged for studied ideographs (Ms = 3.74 vs. 3.72), $t(219) = 0.47$, $p > .64$, $d = .02$, 95% CI for difference [-0.06, 0.10]. A two-way repeated measures ANOVA confirmed this interaction pattern between ideographs (novel vs. studied) and exposure repetitions (high-frequency vs. low-frequency), $F(1, 219) = 12.67$, $p < .001$, $\eta^2_p = .055$, and also revealed a main effect of ideograph with participants evaluating studied ideographs more favorably than novel ideographs, $F(1, 219) = 119.70$, $p < .001$, $\eta^2_p = .353$, 95% CI for difference [0.37, 0.53] (see Figure 3).

Computing familiarity bias scores. Using only non-studied ("new") stimuli, a *familiarity bias score* was computed for each participant by subtracting his/her evaluative ratings of low exposure ("unfamiliar") ideographs from evaluative ratings of high exposure ("familiar") ideographs. Overall, participants scored above the zero mark (M = 0.22, SD = 0.59), suggesting a tendency to favor familiar stimuli over novel stimuli in evaluative judgments, $t(219) = 5.54$, $p < .001$, 95% CI [0.14, 0.30], $d = .75$.

Memory performance. Several indexes of memory performance were examined. First, an overall *d'* score ($d'_{composite}$) was computed (for details, see Green & Swets, 1966; Macmillan & Creelman, 1991) (*d'* = *z*(probability of "Hit") – *z*(probability of "False Alarm")). Next, separate *d'* scores were computed for bias-compatible ("old" ideographs + high exposure frequency; "new" ideographs + low exposure frequency) and bias-incompatible trials ("old" ideographs + low exposure frequency; "new" ideographs + high exposure frequency). A paired-

samples *t*-test revealed that participants performed significantly better on bias-compatible trials (M = .81, SD = .49) relative to bias incompatible trials (M = .55, SD = .55), $t(219) = 6.81$, $p <$ .001, d = .50, 95% CI for difference [0.04, 0.18]. Difference scores were computed as an index of individual variation in familiarity bias in memory judgments ($d'_{familiarity\ bias}$), whereby positive scores indicate better performance on bias-compatible trials relative to bias-incompatible trials and vice versa for negative scores.

Zero-order correlations. Descriptive statistics and zero-order correlations among study variables are reported in Table 1. Supporting my primary hypotheses, RWA and NfCC positively correlated with individual variation in familiarity bias (rs = .21 and .15, 95% CIs [.09, .32] and [.04, .32], respectively) (see Figure 4). Endorsement of SDO was unrelated to familiarity bias in evaluative judgments (r = -.01, p > .92, 95% CI [-.16, .10]). Familiarity bias in memory judgments, as indicated by $d'_{familiarity\ bias}$ scores, was unrelated to RWA, SDO, and NfCC. Although familiarity bias in evaluative judgments and in memory performance were positively correlated (r = .23, p = .004, 95% CI [.10, .34]), these two scores appear to represent distinct constructs (i.e., they are not collinear; see Tolerance and VIF) and only familiarity bias predicted RWA in a multiple regression model, b = 0.32, SE = .10, p = .003, 95% CI [0.11, 0.52], Tolerance = .95, VIF = 1.05.

Mediation analysis. Using Hayes's (2013) PROCESS macro for SPSS, I tested the prediction that the effect of need for cognitive closure on RWA would be mediated by individual variation in evaluative familiarity bias. NfCC predicted greater familiarity bias, b = 0.11, SE = .05, $t(218) = 2.26$, $p <$ .025, 95% CI [0.01, 0.20], and familiarity bias predicted greater endorsement of RWA, b = 0.24, SE = .10, $t(217) = 2.50$, $p <$ .014, 95% CI [0.05, 0.44]. The indirect effect through familiarity bias was significant, b = 0.03, SE = .016, 95% CI [0.004,

0.07], but the direct effect of NfCC on RWA remained statistically significant, $b = 0.31$, $SE = .07$, $t(217) = 4.60$, $p < .001$, 95% CI [0.18, 0.44]. These data suggest that the relationship between need for cognitive closure and RWA is partially mediated by susceptibility to familiarity bias in evaluative judgments.

C. Discussion

Study 1 data afford several important conclusions. First, adaption of the mere-exposure paradigm for the familiarity bias task was successful. Participants evaluated high-exposure stimuli more favorably than low-exposure stimuli, and they also demonstrated suitable variability in susceptibility to familiarity bias in both evaluative and memory judgments. While these scores were positively correlated, they do appear to represent distinct constructs. Second, initial support was found for my hypothesis that familiarity bias is related to dimensions of right-wing ideology that emphasize tradition, conventionalism, and the status quo. RWA, but not SDO, was predicted by familiarity bias. Susceptibility to the mere-exposure effect may predispose ideological support for the status quo, but it is not connected to hierarchy attitudes emphasizing group dominance and anti-egalitarianism. Finally, these data are somewhat consistent with my prediction that epistemic psychological needs contribute to familiarity bias. Those high in NfCC demonstrated a stronger familiarity bias, and this partially mediated the positive relationship between NfCC and endorsement of RWA. However, it should be noted that this indirect effect through familiarity bias was very weak ($R^2 = .02$).

These initial data are promising. However, I urge caution in their interpretation. Only correlational conclusions may be drawn and replication is necessary. Furthermore, the indirect effect through familiarity bias was weak ($R^2 = .02$) and only partially explained the relationship between need for cognitive closure and RWA.

III. Study 2

Study 2 aimed to replicate and extend Study 1 findings by examining the causal role of perceived threat. Threat management has been linked to ideological support for the status quo (e.g., Duckitt & Fisher, 2003; Jost et al., 2007; Kay et al., 2009; Sales, 1972, 1973; Ullrich & Cohrs, 2007) and preferences for familiar stimuli (e.g., Faulkner, Schaller, Park, & Duncan, 2004; Schaller & Murray, 2008; Schaller & Park, 2011). To manage perceived threats, people should find appeal in subjective familiarity. In turn, this should promote ideological support for the status quo in the form of RWA and system justification. This hypothesis was tested correlationally by assessing individual differences in needs for certainty and security, ideological attitudes, and familiarity bias, and also experimentally by manipulating threat salience (low/control vs. high) prior to measuring familiarity bias. Needs for certainty and security should predict ideological support for the status quo, and this relationship mediated by familiarity bias scores. Additionally, experimentally increasing the salience of threats is predicted to cause stronger familiarity bias.

A. Method

Preregistration. Hypotheses, materials, and a priori decisions about sample size and data analysis have been preregistered online at the Open Science Framework (https://osf.io/).

Participants and sample size. A target sample of 300 general psychology students from the University of Arkansas was set to participate in a study about "visual processing and social opinions." Sample size was determined a priori using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009) by estimating the number of participants necessary to reach statistical power of .80 for a Pearson's *r* effect size of .21 (see Study 1) for a two-tailed test with an alpha-level of .05. The results of this analysis suggest a minimum sample of 173 participants.

However, this study also includes a between-subjects experimental component with an unknown effect size, and therefore sample size was conservatively set a priori to 300 participants. A total of 406 volunteers completed the study, but a computer network error caused a loss of data from 106 participants, resulting in a final sample size of 300 participants (178 female; M_{age} = 19.18, *SD* = 2.10). No statistical analyses were computed en route to this sample; I analyzed the data and formed conclusions only after collecting this entire sample.

Procedure. Participants were run in the lab in groups up to five but worked independently with privacy dividers separating individual workspaces. After providing informed consent, participants completed measures of epistemic certainty, existential security, and ideological attitudes. Next, participants completed the familiarity bias task. However, a high-threat vs. low-threat/control manipulation was administered prior to the test phase. Finally, participants responded to items concerning their perceptions of international terrorism and completed a demographics survey. All measures are available in Appendix B and the experimental manipulation is available in Appendix C.

Epistemic certainty. Individual differences in epistemic need for certainty were assessed via the 15-item Need for Cognitive Closure scale (NfCC; Roets & Van Hiel, 2010), the 10-item Openness to Experience subscale of the Big Five Inventory (John et al., 2008), and the Experience-Seeking subscale of the Sensation Seeking scale (Zuckerman, Eyesnck, & Eyesnck, 1978). Respectively, these measures gauge a desire for achieving and maintaining firm and unambiguous answers (Kruglanski, 2004), "recurrent need to enlarge and examine experience" (McCrae & Costa, 1997, p. 826), and the "seeking of experience through the mind and senses, travel, and a nonconforming life-style" (Zuckerman et al., 1978, p. 140).

Existential security. Individual differences in existential need for security were assessed via the 10-item Perceptions of a Dangerous World scale (Duckitt, 2001), the 7-item Fear of Death subscale of the Death Attitude Profile-Revised (Wong, Reker, & Gesser, 1994), and the 6-item Disease Avoidance subscale of the Fundamental Social Motives Inventory (Neel, Kenrick, & Neuberg, 2016). Each of these measures taps a desire to manage threats, whether they come in the form of a frightening and dangerous world, existential terror surrounding one's own mortality, or risk associated with pathogens and disease.

Ideological attitudes. Participants completed several ideological measures assessing support for the status quo and opposition to equality. Ideological support for the status quo were measured via the 14-item RWA scale (Rattazzi et al., 2007) and 8-item System Justification scale (Kay & Jost, 2003). Ideological opposition to equality was measured via the 8-item SDO scale (Ho et al., 2015).

Familiarity bias. Susceptibility to familiarity bias was assessed via an updated and streamlined version of the Familiarity Bias Test (for details, see Figure 5). The signal detection phase was removed because Study 1 indicated that familiarity bias was not due to recognition memory. Participants attended to a computer monitor (Philips Brilliance 242G5, 144 Hz refresh rate) for a slideshow subliminally presenting images of Chinese ideographs. Two sets of eight ideographs (Set A, Set B) were flashed rapidly on the screen for 6.94 ms with each followed by a patterned mask. Subliminal exposure to one set of ideographs 40 times (high frequency) and the other set of ideographs only once (low frequency) were randomly counterbalanced. Next, participants read one of two versions of a paragraph manipulating high-threat salience vs. low-threat/control (see below) and then indicated how much they like each of the 16 Chinese ideographs using a -3 (*don't like it at all*) to +3 (*like it very much*) response scale.

Threat salience. Prior to making evaluative ratings of Chinese ideographs within the Familiarity Bias Task, participants were randomly assigned to read one of two versions of a paragraph manipulating high-threat vs. low-threat/control salience in the context of international affairs. In the *high threat* condition, participants were reminded of recent terrorist attacks against Western countries and also noted worry over another possible attack on American soil. In the *low threat/control* condition, participants were informed of international tourism opportunities for Americans. For details, refer to the materials in Appendix C.

International terrorism. As a manipulation check, participants indicated the extent to which they endorse (1 = *strongly disagree*, 7 = *strongly agree*) three statements about the threat of international terrorism (adapted from Ullrich & Cohrs, 2007).

Demographic survey. Participants reported their age, gender, race/ethnicity, ACT score, political ideology (1 = *very liberal*, 7 = *very conservative*), political partisanship (1 = *more Democrat*, 7 = *more Republican*), religion, and whether they speak Chinese.

B. Results

Addressing a potential external threat to validity. At times societal events may, depending upon their relevance and level of impact, change how people respond within ongoing research in the social and behavioral sciences. On the morning of March 22, 2016, a major international terrorist attack was struck against Brussels, Belgium. This terror attack embodied the essence of my experimental manipulation of threat salience. Serendipitously, the University of Arkansas's spring break occurred during the week of March 21st to 25th, and thus data collection was paused with a clean break between participation before and after this international terrorist attack. For the purposes of addressing this unexpected potential threat to internal validity, I computed analyses according to my original a priori data analysis plan, but also

amended this plan to include versions of these analyses accounting for time of participation before/after the Brussels terror attacks.

Check on threat manipulation. Participants indicated their concern about international terrorism targeting the United States. Overall, participants in the high-threat salience condition ($M = 5.16$, $SD = 1.12$) more strongly endorsed concern about the threat of international terrorism compared to those in the control/low-threat condition ($M = 4.87$, $SD = 1.25$), $t(298) = 2.10$, $p < .04$, 95% CI for difference [0.02, 0.56], $d = .24$, $\eta^2_p = .015$. However, a two-way ANOVA including participation time before ($n = 65$) vs. after ($n = 235$) the Brussels terror attack as a between-subjects factor only revealed a main effect of time, $F(1, 284) = 11.71$, $p = .001$, $\eta^2_p = .04$, 95% CI for difference [0.24, 0.89], with those participating after the Brussels attack reporting stronger concern about the threat of international terrorism ($M = 5.13$, $SD = 1.16$) than those participating before ($M = 4.56$, $SD = 1.24$). The effect of the threat manipulation ($M_{Threat} = 4.87$, $SD = 1.25$ vs. $M_{Control} = 4.87$, $SD = 1.25$) did reach conventional significance, $F(1, 284) = 3.36$, $p = .068$, $\eta^2_p = .01$, 95% CI for difference [-0.02, 0.63], nor was there an interaction, $F < 1$, $p > .81$.

Stimulus evaluation. Evaluative ratings of Chinese ideographs were assessed in a 2 (Ideograph Set Ratings: Set A, Set B) × 2 (Subliminal Familiarity: Set A, Set B) × 2 (Threat Salience: low/control, high) mixed-model ANOVA with ratings of Ideograph Set within-subjects and Familiarity and Threat between-subjects. This analysis revealed a statistically significant effect of Ideograph Set, $F(1, 296) = 4.32$, $p < .04$, $\eta^2_p = .01$, 95% CI for difference [0.01, 0.18]; participants reported a relative preference for ideographs Set A ($M = 4.64$, $SD = 0.89$) over Set B ($M = 4.42$, $SD = 0.88$). A main effect of threat salience also reached significance, $F(1, 296) = 4.09$, $p < .05$, $\eta^2_p = .01$, 95% CI for difference [0.01, 0.38], with participants liking all ideographs

less in the high-threat condition (M = 4.50, SD = 0.82) compared to the control condition(M = 4.69, SD = 0.81). Demonstrating the mere-exposure effect, a significant Ideograph Set × Familiarity interaction was found, $F(1, 296) = 42.82$, $p < .001$, $\eta^2_p = .13$ (see Figure 6). Participants liked ideographs from Set A more when these stimuli were made subliminally familiar (M = 4.82, SD = 0.81) compared to when Set B was made subliminally familiar (M = 4.43, SD = 0.94), $F(1, 296) = 14.35$, $p < .001$, $\eta^2_p = .05$, 95% CI for difference [0.19, 0.59], and participants liked ideographs from Set B more when these stimuli were made subliminally familiar (M = 4.66, SD = 1.01) compared to when Set A was made subliminally familiar (M = 4.44, SD = 0.86), $F(1, 284) = 3.86$, $p = .05$, $\eta^2_p = .01$, 95% CI for difference [0.00, 0.43]. An uninteresting interaction between Threat and Ideograph Set barely failed to reach conventional criteria for statistical significance, $F(1, 296) = 3.71$, $p = .055$, $\eta^2_p = .01$, and no evidence was found for a main effect of subliminal familiarity or for any additional interactions, Fs < 1, ps > .45.

Next, I recomputed this analysis as a four-way mixed-model ANOVA with the addition of participation time before/after the Brussels terror attack as a between-subjects factor. The results indicated the same significant Ideograph Set × Familiarity interaction demonstrating the classic mere-exposure effect, $F(1, 292) = 29.74$, $p < .001$, $\eta^2_p = .09$, and also a four-way interaction between ideograph set, subliminal familiarity, threat condition, and participation time, $F(1, 292) = 3.90$, $p < .05$, $\eta^2_p = .01$. No other effects emerged. This four-way interaction suggests that before the Brussels terror attack, participants favored whichever ideograph set was made familiar through subliminal repetition in the high-threat condition but not in the control condition. However, after the Brussels attack, participants only favored ideograph Set A (and not Set B) in the high-threat condition when it was made familiar. For ease of theoretical

interpretation, I computed a version of this analysis using familiarity bias scores as the dependent variable instead of within-subjects ratings of ideograph sets (see below).

Familiarity bias. As in Study 1, familiarity bias scores were computed by subtracting participants' evaluative ratings of low subliminal exposure ("unfamiliar") ideographs from evaluative ratings of high subliminal exposure ("familiar") ideographs. Overall, participants scored above the zero mark ($M = 0.32$, $SD = 0.79$), indicating a propensity to favor familiar stimuli over novel stimuli in evaluative judgments, $t(299) = 6.89$, $p < .001$, 95% CI [0.23, 0.41], $d = .81$.

Next, I computed a 2 (Subliminal Familiarity: Set A, Set B) × 2 (Threat Salience: low/control, high) × 2 (Time: before, after Brussels attack) between-subjects ANOVA. This analysis revealed a non-significant effect of threat condition, $F(1, 292) = 2.98$, $p = .085$, $\eta^2_p = .01$, 95% CI for difference [-0.03, 0.41], and a qualifying significant Threat x Time interaction, $F(1, 292) = 3.90$, $p < .05$, $\eta^2_p = .01$ (see Figure 7). Before the Brussels terror attack, participants in the high-threat condition demonstrated greater familiarity bias ($M = 0.48$, $SD = 0.98$) than those in the control condition ($M = 0.07$, $SD = 0.60$), $F(1, 292) = 4.37$, $p < .04$, $\eta^2_p = .02$, 95% CI for difference [0.02, 0.79]. However, after the Brussels terror attack, no difference in familiarity bias was found between participants in the high-threat ($M = 0.31$, $SD = 0.78$) and control conditions ($M = 0.34$, $SD = 0.80$), $F(1, 292) = 0.70$, $p > .79$, $\eta^2_p = .00$, 95% CI for difference [-0.18, 0.23].

I further probed this Participation Time by Threat Condition interaction by examining changes in familiarity bias with respect to the number of days and weeks before/after the Brussels terror attack. Illustrated in Figure 8, LOESS curves plotting the relationship between familiarity bias and the number of days before/after the Brussels attack within each threat

condition (high-threat vs. control) suggest that high-threat increased familiarity bias prior to the Brussels attack but was attenuated following the attack with a resurgence of the effect of threat two weeks later. Next, I computed a 2 (Subliminal Familiarity: Set A, Set B) × 2 (Threat Salience: low/control, high) × 2 (Time: before, 1 week after, 2 weeks after, 3 weeks after attack) between-subjects ANOVA to assess for changes in the effect of threat on familiarity bias as a function of week participated. Only a significant effect of subliminal familiarity was found, $F(1, 284) = 6.16$, $p < .02$, $\eta^2_p = .02$, 95% CI for difference [0.05, 0.43], such that familiarity bias was stronger when Set A ($M = 0.41$, $SD = 0.86$) vs. Set B ($M = 0.22$, $SD = 0.71$) was made subliminally familiar. The Threat Condition × Participation Time interaction failed to reach conventional significance criteria, $F(3, 284) = 1.60$, $p = .19$, $\eta^2_p = .02$. Although the overall pattern was discernable (see Figure 9), a customized linear contrast (weights: control -1, 1, 1, -1; high-threat 1, -1, -1, 1) testing for attenuation and then reemergence of the threat of effect on familiarity bias post-two weeks also fell short of conventional significance, $F(1, 292) = 3.11$, $p < .08$, $\eta^2_p = .01$.

Zero-order correlations. Descriptive statistics and zero-order correlations among study variables across all conditions and time periods are reported in Table 2. Overall, a positive correlation was found between Belief in a Dangerous World and Familiarity Bias, $r = .11$, $p = .05$, 95% CI [.002, .23]; the more dangerous participants perceived the world, the greater familiarity bias they demonstrated. No relationship was observed between RWA and Familiarity Bias, $r = .01$, $p > .87$, 95% CI [.002, .23]. Self-reported preference for familiarity over novelty corresponded with greater RWA, $r = 19$, $p = .001$, 95% CI [.08, .30], NfCC, $r = 25$, $p < .001$, 95% CI [.15, .34], and self-reported conservatism, $r = .12$, $p = .04$, 95% CI [.02, .23], and corresponded with less Openness to Experience, $r = -.12$, $p < .05$, 95% CI [-.24, .003], and

Experience-Seeking, r = -.28, p = .05, 95% CI [-.37, -.19]. Self-reported preference for familiarity was unrelated to System Justification, SDO, and measures of existential security (Belief in a Dangerous World, Fear of Death, and Disease Avoidance). Replicating past research, political conservatism was associated with greater RWA, System Justification, SDO, NfCC, Belief in a Dangerous World, and Disease Avoidance, and associated with less Openness to Experience and Experience-Seeking (see Table 2). However, contrary to past research, political liberalism was associated with greater Fear of Death (cf. Jost et al., 2007).

Zero-order correlations were also broken down by threat condition and participation before/after Brussel terror attack in Tables 3 and 4, respectively. Because linear relationships were fairly consistent across threat conditions and this manipulation was administered following all measures except the Familiarity Bias Task and manipulation check, I focus on differences observed across participation time. Before the Brussels attack, Familiarity Bias was positively associated with System Justification, r = .21, p = .095, 95% CI [-.02, .42], and Disease Avoidance, r = .23, p < .07, 95% CI [.01, .41], and negatively associated with Experience Seeking, r = -.24, p < .06, 95% CI [-.46, -.02]. After the attack, Familiarity Bias was only positively associated with Belief in a Dangerous World, r = .13, p = .052, 95% CI [-.02, .26].

Shifts in response to the Brussels attack. Reported in Table 5, I next examined shifts in study variables as a function of the number of days before/after the Brussels terror attack. Since this terror attacked was unexpected, the number of days leading up to the morning of March 22nd should not be related to any study variables. However, if the participants were affected by the Brussels terror attack, the number of days following it should reflect a return to "homeostasis" levels. Days before the attack was negatively associated with self-reported conservatism; I suspect this is a spurious effect found in one of 13 tests. Interesting, the number of days

following the terror attack was negatively associated with RWA, r = -.11, p = .085, 95% CI [-.24, .01], System Justification, r = -.10, p = .13, 95% CI [-.22, .04], NfCC, r = -.16, p = .014, 95% CI [-.28, -.04], and Disease Avoidance, r = -.12, p = .074, 95% CI [-.24, .00], and it was positively associated with Openness to Experience, r = .15, p = .021, 95% CI [.04, .26], and Experience Seeking, r = .16, p = .013, 95% CI [.05, .28]. The clearest trend indicates that epistemic needs for certainty may have become heightened in response to the Brussels terror attack with participants readjusting to return to their normative baseline levels over time. While not as strong, the same may be true for ideological support for the status quo with regard to RWA and System Justification, which also tended to decline following the attack.

For greater confidence in these linear trends, I examined time-based changes in ideological variables (RWA, System Justification, SDO), epistemic needs variables (NfCC, Openness to Experience, Experience-Seeking), and existential needs variables (Belief in a Dangerous World, Fear of Death, Disease Avoidance) within the context of MANCOVA and MANOVA. Separate versions of each MANCOVA were computed for number of days before and number of days after the attack. MANOVAs were computed with week of participation as a between-subjects factor (before, 1 week, 2 weeks, 3 weeks after) and follow-up with customized linear trend analyses. The details of these analyses are reported in Table 6 and support the interpretation that right-wing ideological views and epistemic needs for certainty became heightened immediately following the attack and gradually declined with the passage of time.

C. Discussion

Study 2 again reproduced the classic mere-exposure effect. Participants favored high-frequency ideographs to low-frequency ideographs. While Study 1 conflated exposure frequency

with ideograph pattern, Study 2 provides stronger evidence by counter-balancing which of two sets of ideographs was made subjectively familiar with repetition.

Other designed tests were complicated by unforeseeable and unavoidable circumstances. The internal validity of Study 2 was disrupted by the Brussels terror attack and its news coverage. The threat salience manipulation was overshadowed, the effect of threat on familiarity bias was attenuated, and epistemic needs shifted all as a function of participation time before vs. after the attack. Because of these complications, interpreting the results of Study 2 is challenging and the reliability of these outcomes uncertain. Prior to the attack, participants reminded of dangerous threats posed by terrorist organizations demonstrated susceptibility to the mere-exposure effect. However, this effect of high-threat salience suddenly vanished among those participating after the attack, and the manipulation check failed. While this could be interpreted as evidence that threat causes greater familiarity bias, it is possible that "the effect" simply vanished with a larger sample size. Correlational evidence was also inconsistent. Familiarity bias scores positively corresponded with belief in a dangerous world but not with RWA, system justification, disease avoidance, and fear of death.

Methodological changes in the Familiarity Bias Test between Studies 1 and 2 are also noteworthy. It is possible that the memory test component employed in Study 1 more effectively distracted participants from the source of familiarity. In Study 2, participants may have made a clearer connection between the exposure and evaluation tasks. When participants are able to consciously attribute a sense of familiarity to exposure, the exposure-affect link is disrupted (see Bornstein, 1989). It is plausible that these changes contributed to the inconsistent findings between Studies 1 and 2.

IV. General Discussion

People overwhelming like what feels familiar to what is novel. Across two studies, participants reported preference for Chinese ideographs to which they received greater subliminal exposure. These findings come at a time when concerns about the replicability of psychological science have cast doubt and uncertainty upon cherished theories and findings (see Nosek et al., 2016; Simmons, Nelson, & Simonsohn, 2011; cf. Klein et al., 2014). However, the mere-exposure effect appears to be alive and well. Effect sizes in Study 1 (d = .75) and Study 2 (d = .81) were consistent and large in magnitude, echoing Bornstein's (1989) conclusion three decades earlier that "the exposure-affect relationship is robust and reliable" (p. 268). Additionally, a unique contribution of this work is the creation of an individual difference measure of susceptibility to the mere-exposure effect. Familiarity bias is quantifiable and people show appreciable variability that is distinct from memory recognition. While further validation is necessary, this psychological instrument may prove to be a promising tool for future research.

I proposed that this propensity to positively evaluate high-frequency stimuli may act as a cognitive-affective basis of ideological support for the status quo. Relative to its alternatives, the status quo is apt to receive considerable exposure, albeit incidental, and thus enjoy evaluative benefits. Supporting this hypothesis, familiarity bias scores predicted stronger endorsement of RWA, but not SDO, in Study 1. However, inconsistent results were found in Study 2 with no linear relationship between familiarity bias and RWA, and conditional evidence based on time of participation for a positive relationship between familiarity bias and system justification. Because of the threat to internal validity posed by the Brussels terror attack, interpreting the results of Study 2 data is challenging and uncertain. Additionally, it is possible that the methodological changes in the Familiarity Bias Test from Study 1 to Study 2 played a role in

these inconsistent findings. The memory test component in Study 1 provided a better cover story, and so participants in Study 2 may have had some knowledge of what was being studied. According to Bornstein's (1989) research, naivety of the source of familiarity is essential to the mere-exposure paradigm.

A. Threat Management and Familiarity Bias

Preference for subjective familiarity should be evolutionarily adaptive in that avoiding novelty reduces one's exposure to dangers and risks. However, arguments connecting the mere-exposure effect to threat management have been limited to theoretical discussions with no direct evidence for or against (e.g., Bornstein, 1989; Harrison, 1977; Stang, 1973; Zajonc, 1968). In Study 2, I tested this hypothesis in two ways. First, I measured individual differences in security needs and familiarity bias, and second I experimentally manipulated the salience of dangerous threats prior to assessing familiarity bias. A weak positive relationship was found between susceptibility to the mere-exposure effect and belief in a dangerous world, and no relationships emerged with disease avoidance and fear of death. Manipulating threat provided mixed results with high-threat producing stronger familiarity bias prior to the Brussels terror attack but not afterwards. In fact, the manipulation check indicated that participation before/after the Brussels attack completely overshadowed the threat salience manipulation.

One potential strategy for examining the effect of threat on familiarity bias is to combine and recode data from Studies 1 and 2 to reflect participation under circumstances of low- vs. high-threat. The control/low-threat level (n = 254) includes all participants in Study 1 since they received no threat-manipulation and those within the control condition in Study 2 that also participated prior to the Brussels terror attack. The high-threat level (n = 266) includes those in Study 2 within the high-threat condition and/or participating after the Brussels terror attack. I

then computed an ANCOVA to examine the effect of threat (low vs. high) on participants' familiarity bias scores with study participation (Study 1 or 2) as a covariate; this revealed a significant main effect of threat, $F(1, 517) = 4.48$, $p = .035$, $\eta^2_p = .01$, 95% CI for difference [0.02, 0.53], and no effect for study participation, $F(1, 517) = 0.15$, $p > .70$. Those completing the familiarity bias task under circumstances of high-threat ($M = 0.35$, $SD = 0.81$) demonstrated greater familiarity bias than those participating under circumstances of control/low-threat ($M = 0.03$, $SD = 0.61$).

Although no casual inferences may be drawn, these data lend partial support for my hypothesis that existential threat fosters greater susceptibility to the mere-exposure effect. Correlational evidence for this relationship was weak and inconsistent, however. This seems odd, but perhaps only particular forms of threat elicit familiarity bias. Subsequent, cleaner tests will be necessary to confirm or refute these tentative conclusions.

B. The Role of Uncertainty Avoidance in Familiarity Preference

Uncertainty avoidance is another psychological motivation relevant to understanding the mere-exposure effect. Opting in favor of what is familiar over what is novel should reduce or prevent feelings of uncertainty (e.g., Crandall, 1968; Lee, 1994, 2001; Kruglanski et al., 1996). However, I found little to mixed evidence in support of this hypothesis. In Study 1 familiarity bias scores increased as NfCC increased, but no such relationship was found in Study 2. Other measures tapping need for epistemic certainty were uncorrelated to familiarity bias; neither Openness to Experience nor Experience Seeking predicted susceptibility to the mere-exposure effect in Study 2. However, participants' self-reported general preferences for familiarity over novelty were correlated positively with NfCC and negatively with Openness to Experience and Experience Seeking as would be expected. Because this self-report measure was uncorrelated

with familiarity bias scores, it's possible that these questions actually measure a desire for certainty. As with connections to threat management, these data—at best—lend inconsistent support to the claim that motivation to avoid uncertainty underlies the mere-exposure effect.

C. Ideological and Epistemic Shifts Following the Brussels Attack

Collecting data on participants' ideological views and motivational needs during periods of time before and after the Brussels terror attack affords an interesting and unique opportunity to examine psychological shifts. Leaning on past research connecting existential threats to ideological and epistemic responses (e.g, Thorisdottir & Jost, 2011), I tested for a theoretical pattern in which right-wing ideology, epistemic needs for certainty, and existential needs for security rise following to the Brussels terror attack and then gradually return to a natural "homeostasis" level for individual persons. Endorsement of RWA and measures tapping need for epistemic certainty largely conformed to this expected pattern (see Tables 5 - 6). In the days and week immediately following the attack, participants overall responded with greater RWA and NfCC and with less Openness to Experience and Experience Seeking relative to those participating before the attack. Responses on these variables then gradually returned to pre-attack levels. This is quite impressive considering that individual difference constructs like RWA, NfCC, Openness to Experience, and Experience Seeking are fairly stable. The uptick in RWA appears to have been partially driven by changes in epistemic motivation. Depicted in Figure 10 and consistent with the findings of Thorisdottir and Jost (2011), epistemic motivation partially mediated the relationship between international terrorism concerns and RWA while controlling for the experimental condition, total indirect effect: $b = 0.08$, $SE = .027$, 95% CI [0.03, 0.14]. These data suggest that people experienced temporary shifts in their epistemic needs, and consequently their ideological views, in response to fear from an international terrorist attack.

D. Concluding Remarks

People like and prefer familiarity over novelty. This familiarity bias is robust and reliable and quantifiable as an individual difference variable. Although theory argues for links between familiarity bias and needs to manage threats and uncertainty, the present research offers mixed support for these ideas as well as my hypothesis that familiarity bias may underlies ideological support for the status quo. Further tests are necessary to determine if and how susceptibility to the mere-exposure effect is related to and right-wing ideology and motivations to manage threats and uncertainty.

V. References

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York, NY: Harper.

Aitken, P. P. (1972). Aversive stimulation and rats' preference for familiarity. *Psychonomic Science, 28,* 281-282.

Aitken, P. P., & Sheldon, M. H. (1970). Electric shock and rats' preference for the familiar arm of a maze. *British Journal of Psychology, 61,* 95-97.

Altemeyer, B. (1981). *Right-wing authoritarianism*. Winnipeg: The University of Manitoba Press.

Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. San Francisco, CA: Jossey Bass.

Altemeyer, B. (1996). *The authoritarian specter*. Cambridge, MA: Harvard University Press.

Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the tribes of fluency to form a meta-cognitive nation. *Personality and Social Psychology Review, 13,* 219-235.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117,* 497-529.

Blanchar, J. C., & Eidelman, S. (2013). Perceived system longevity increases system justification and the legitimization of inequality. *European Journal of Social Psychology*, *43*, 238-245.

Bobbio, N. (1997). *Left and right: The significance of a political distinction*. Chicago, IL: The University of Chicago Press.

Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research, 1968-1987. *Psychological Bulletin*, *106,* 265-289.

Bornstein, R. F., & D'Agostino, P. R. (1992). Stimulus recognition and the mere exposure effect. *Journal of Personality and Social Psychology*, *63,* 545-552.

Bornstein, R. F., & D'Agostino, P. R. (1994). The attribution and discounting of perceptual fluency: Preliminary tests of a perceptual fluency/attributional model of the mere exposure effect. *Social Cognition*, *12,* 103-128.

Bornstein, R. F., Leone, D. R., & Galley, D. J. (1987). The generalizability of subliminal mere exposure effects: Influence of stimuli perceived without awareness on social behavior. *Journal of Personality and Social Behavior*, *53*, 1070-1079.

Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment, 48,* 306-307.

Carney, D. R., Jost, J. T., Gosling, S. D., & Potter, J. (2008). The secret lives of liberals and conservatives: Personality profiles, interaction styles, and the things they leave behind. *Political Psychology, 29,* 807-840.

Cimpian, A., & Salomon, E. (2014). The inherence heuristic: An intuitive means of making sense of the world, and a potential precursor to psychological essentialism. *Behavioral and Brain Sciences, 37,* 461-480.

Conover, P. J., & Feldman, S. (1981). The origins and meaning of liberal/conservative self-identifications. *American Journal of Political Science, 25,* 617-645.

Crandall, J. E. (1968). Effects of need for approval and intolerance of ambiguity upon stimulus preference. *Journal of Personality, 36,* 67-83.

de Vries, M., Holland, R. W., Chenier, T., Starr, M. J., & Winkielman, P. (2010). Happiness cools the warm glow of familiarity: Psychophysiological evidence that mood modulates the familiarity- affect link. *Psychological Science*, *21,* 321-328.

Dechêne, A., Stahl, C., Hansen, J., & Wänke, M. (2010). The truth about the truth: A meta-analytic review of the truth effect. *Personality and Social Psychology Review, 14,* 238-257.

Deppe, K. D., Gonzalez, F. J., Neiman, J. L., Jacobs, C., Pahlke, J., Smith, K. B., et al… (2015). Reflective liberals and intuitive conservatives: A look at the Cognitive Reflection Test and ideology. *Judgment and Decision Making, 10,* 314-331.

Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. *Advances in Experimental Social Psychology, 33,* 41-113.

Duckitt, J., & Sibley, C. G. (2009). A dual-process motivational model of ideology, politics, and prejudice. *Psychological Inquiry, 20,* 98-109.

Duckitt, J., Wagner, C., du Plessis, I., & Birum, I. (2002). The psychological bases of ideology and prejudice: Testing a dual-process model. *Journal of Personality and Social Psychology, 83,* 75-93.

Eidelman, S., & Crandall, C. S. (2009). On the psychological advantage of the status quo. In J. T. Jost, A. C. Kay, & H. Thórisdóttir (Eds.), *Social and psychological bases of ideology and system justification*. New York, NY: Oxford University Press.

Eidelman, S., & Crandall, C. S. (2014). The intuitive traditionalist: How biases for existence and longevity promote the status quo. *Advances in Experimental Social Psychology*, *50,* 53-104.

Eidelman, S., Crandall, C. S., Goodman, J. A., & Blanchar, J. C. (2012). Low-effort thought promotes political conservatism. *Personality and Social Psychology Bulletin, 38,* 808-820.

Eidelman, S., Crandall, C. S., & Pattershall, J. (2009). The existence bias. *Journal of Personality and Social Psychology, 97,* 765-775.

Eidelman, S., Crandall, C. S., & Pattershall, J. (2009). The existence bias. *Journal of Personality and Social Psychology*, 97, 765-775.

Eidelman, S., Pattershall, J., & Crandall, C. S. (2010). Longer is better. *Journal of Experimental Social Psychology*, *46*, 993-998.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41,* 1149-1160.

Faulkner, J., Schaller, M., Park, J. H., & Duncan, L. A. (2004). Evolved disease-avoidance mechanisms and contemporary xenophobic attitudes. *Group Processes and Intergroup Behavior, 7*, 333-353.

Festinger, L., Schachter, S., & Back, K. (1950). *Social pressures in informational groups. A study of human factors in housing*. New York: Harper.

Green, D. M., & Swets, J. A. (1966). *Signal detection theory and psychophysics*. New York: Wiley.

Grush, J. E., McKeough, K. L., & Ahlering, R. F. (1978). Extrapolating laboratory exposure experiments to actual political elections. *Journal of Personality and Social Psychology, 36,* 257-270.

Hansson, R. O., Keating, J. P., & Terry, C. (1974). The effects of mandatory time limits in the voting booth on liberal-conservative voting patterns. *Journal of Applied Social Psychology, 4,* 336-342.

Harrison, A. A. (1977). Mere exposure. In L. Berkowitz (Ed.), *Advances in experimental social psychology: Vol. 10*. New York: Academic Press.

Ho, A. K., Sidanius, J., Kteily, N., Sheehy-Skeffington, J., Pratto, F., Henkel, K. E., Foels, R., & Stewart, A. L. (2015). The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO7 scale. *Journal of Personality and Social Psychology*, *109*(6), 1003-1028.

Hussak, L. J., & Cimpian, A. (in press). An early-emerging explanatory heuristic promotes support for the status quo. *Journal of Personality and Social Psychology*.

Janiszewski, C. (1993). Preattentive mere exposure effects. *Journal of Consumer Research, 20*, 376-392.

Jost, J. T., Glaser, J., Sulloway, F., & Kruglanski, A. W. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin, 129,* 339-375.

Jost, J. T., Napier, J. L., Thórisdóttir, H., Gosling, S. D., Palfai, T. P., & Ostafin, B. (2007). Are needs to manage uncertainty and threat associated with political conservatism or ideological extremity? *Personality and Social Psychology Bulletin, 33,* 989-1007.

Kawakami, N., & Miura, E. (2014). Effects of self-control resources on the interplay between implicit and explicit attitude processes in the subliminal mere exposure paradigm. *International Journal of Psychological Studies, 6,* 98-106.

Kay, A. C., & Friesen, J. (2011). On social stability and social change: Understanding when system justification does and does not occur. *Current Directions in Psychological Science, 20,* 360-364.

Kay, A. C., Gaucher, D., Peach, J. M., Laurin, K., Friesen, J., et al. (2009). Inequality, discrimination, and the power of the status quo: Direct evidence for a motivation to see the way things are as the way they should be. *Journal of Personality and Social Psychology, 97,* 421-434.

Kay, A. C., & Jost, J. T. (2003). Complementary justice: Effects of "poor but happy" and "poor but honest" stereotype exemplars on system justification and implicit activation of the justice motive. *Journal of Personality and Social Psychology, 85,* 823-837.

Kruglanski, A. W., Freund, T., & Bar-Tal, D. (1996). Motivational effects in the mere-exposure paradigm. *European Journal of Social Psychology, 26,* 479-499.

Kunst-Wilson, W. R., & Zajonc, R. B. (1980). Affective discrimination of stimuli that can- not be recognized. *Science, 207,* 557-558.

Lee, A. Y. (2001). The mere exposure effect: An uncertainty reduction explanation revisited. *Personality and Social Psychology Bulletin, 27,* 1255-1266.

Lee, A. Y. (1994). The mere exposure effect: Is it a mere case of misattribution? In C. T. Allen & D. R. John (Eds.), *Advances in consumer research* (Vol. 21, pp. 270-275). Provo, UT: Association for Consumer Research.

Lerner, M. J. (1980). *Belief in a just world: A fundamental delusion*. New York: Plenum.

Macmillan, N. A., & Creelman, C. D. (2005). *Detection theory: A user's guide* (2nd Ed.). Mahwah, NJ: Erlbaum.

McCrae, R. R., & Costa, P. T., Jr. (1997). Conceptions and correlates of Openness to Experience. In R. Hogan, J. A. Johnson & S. R. Briggs (Eds.), *Handbook of personality psychology* (pp. 825-847). Orlando, FL: Academic Press.

Monahan, J. L., Murphy, S. T., & Zajonc, R. B. (2000). Subliminal mere exposure: Specific, general, and diffuse effects. *Psychological Science*, *11*, 462-466.

Moreland, R. L., & Zajonc, R. B. (1977). Is stimulus recognition a necessary condition for the occurrence of exposure effects? *Journal of Personality and Social Psychology, 35,* 191-199.

Moshinsky, A., & Bar-Hillel, M. (2010). Loss aversion and status quo label bias. *Social Cognition, 28,* 191-204.

Navarrete, C. D., Fessler, D. M. T., & Eng, S. J. (2007). Elevated ethnocentrism in the first trimester of pregnancy. *Evolution and Human Behavior, 28,* 60-65.

Navarrete, C. D., & Fessler, D. M. T. (2006). Disease avoidance and ethnocentrism: The effects of disease vulnerability and disgust sensitivity on intergroup attitudes. *Evolution and Human Behavior, 27,* 270-282.

Neel, R., Kenrick, D. T., & Neuberg, S. L. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology, 110*, 887-907.

Perry, R., & Sibley, C. G. (2012). Big Five personality prospectively predicts social dominance orientation and right-wing authoritarianism. *Personality and Individual Differences, 52,* 3-8.

Rattazzi, A. M., Bobbio, A., & Canova, L. (2007). A short version of the Right-Wing Authoritarianism (RWA) scale. *Personality and Individual Differences, 43,* 1223-1234.

Roets, A,. & Van Hiel, A. (2011). Item selection and validation of a brief, 15-item version of the need for closure scale. *Personality and Individual Differences, 50,* 90-94.

Sales, S. M. (1972). Economic threat as a determinant of conversion rates in authoritarian and nonauthoritarian churches. *Journal of Personality and Social Psychology, 23*, 420-428.

Sales, S. M. (1973). Threat as a factor in authoritarianism: An analysis of archival data. *Journal of Personality and Social Psychology, 28*, 44-57.

Salomon, E., & Cimpian, A. (2014). The inherence heuristic as a source of essentialist thought. *Personality and Social Psychology Bulletin, 40,* 1297-1315.

Schaffner, P., & Wandersman, A. (1974). Familiarity breeds success: A field study of exposure and voting behavior. *Personality and Social Psychology Bulletin, 1*, 88-90.

Schaller, M., & Murray, D. R. (2008). Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in socio- sexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology, 95,* 212-221.

Schaller, M., & Park, J. H. (2011). The behavioral immune system (and why it matters). *Current Directions in Psychological Science, 20,* 99-103.

Schick, C., McGlynn, R. P., & Woolam, D. (1972). Perception of cartoon humor as a function of familiarity and anxiety level. *Journal of Personality and Social Psychology, 24,* 22-25.

Shook, N. J., & Fazio, R. H. (2009). Political ideology, exploration of novel stimuli, and attitude formation. *Journal of Experimental Social Psychology, 45,* 995-998.

Sibley, C. G., & Duckitt, J. (2008). Personality and prejudice: A meta-analysis and theoretical review. *Personality and Social Psychology Review*, *12,* 248-279.

Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York: Cambridge University Press.

Titchener, E. B. (1915). *A beginner's psychology*. New York: Macmillan.

Thorisdottir, H., & Jost, J. T. (2011). Motivated closed-mindedness mediates the effect of threat on political conservatism. *Political Psychology,* 32, 785-811.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*, 1124-1131.

Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference dependent model. *Quarterly Journal of Economics 106*, 1039-1061.

Ullrich, J, & Cohrs, J. C. (2007). Terrorism salience increases system justification: Experimental evidence. *Social Justice Research*, *20,* 117-139.

Van Berkel, L., Crandall, C. S., Eidelman, S., & Blanchar, J. C. (2015). Hierarchy, dominance and deliberation: Egalitarian values require mental effort. *Personality and Social Psychology Bulletin, 41,* 1207-1222.

Van Hiel, A., Onraet, E., & De Pauw, S. (2010). The relationship between social-cultural attitudes and behavioral measures of cognitive style: A meta-analytic integration of studies. *Journal of Personality, 78,* 1765-1800.

Vanbeselaere, N. (1980). Mere repeated exposure and experimental stress as determiners of stimulus evaluations. *Motivation and Emotion*, *4,* 61-69.

Wansink, B., Cheney, M. M., & Chan, N. (2003). Exploring comfort food preferences across age and gender. *Physiology & Behavior*, *79,* 739-747.

Wood, S. (2010). The comfort food fallacy: Avoiding old favorites in times of change. *Journal of Consumer Research*, *36,* 950-963.

Wilson, G. D. (1973). *The psychology of conservatism*. Oxford, England: Academic Press.

Wilson, W. R. (1979). Feeling more than we can know: Exposure effects without learning. *Journal of Personality and Social Psychology, 37,* 811-821.

Wong, P. T. P., Reker, G. T., & Gesser, G. (1994). Death Attitude Profile-Revised: A multidimensional measure of attitudes toward death. In R.A. Neimeyer (Ed.), *Death*

anxiety handbook: Research, instrumentation, and application. (pp. 121-148). Washington, DC: Taylor & Francis.

Wu, B., & Chang, L. (2012). The social impact of pathogen threat: How disease salience influences conformity. *Personality and Individuals Differences*, *55,* 50-54.

Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology Monograph*, 9, (2, Pt. 2), 1-27.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35*, 151-175.

Zajonc, R. B. (1984). On the primacy of affect. *American Psychologist, 39*, 117-123.

Zajonc, R. B. (2001). Mere exposure: A gateway to the subliminal. *Current Directions in Psychological Science, 10*, 224-228.

Zuckerman, M., Eyesnck, S., & Eyesnck, H.J. (1978). Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46,* 139-149.

VI. Footnote

[1] Although two participants indicated that they knew some Chinese, none reported being fluent.

VII. Figures and Tables

A. Figure Captions

Figure 1. Stimulus presentation within the familiarity bias task.

Figure 2. Schematic description of the familiarity bias task used in Study 1.

Figure 3. Evaluation of Chinese ideographs as a function of subliminal exposure repetitions and novelty. Error bars indicate 95% CIs.

Figure 4. Endorsement of Right-Wing Authoritarianism as a function of susceptibility to familiarity bias. Dashed lines indicate 95% CIs for the linear regression line.

Figure 5. Schematic description of the familiarity bias task used in Study 2.

Figure 6. Evaluation of Chinese ideograph sets as a function of subliminal familiarity and threat condition. Error bars indicate 95% CIs.

Figure 7. Familiarity bias as a function of threat condition and participation before/after Brussels terror attack. Error bars indicate 95% CIs.

Figure 8. Familiarity bias as a function of threat condition and number of days before/after Brussels terror attack (LOESS curve).

Figure 9. Familiarity bias as a function of threat condition and number of weeks before/after Brussels terror attack.

Figure 10. Three mediation models testing for epistemic motivation as an explanation for the relationship between international terrorism concern and RWA.

Figure 1

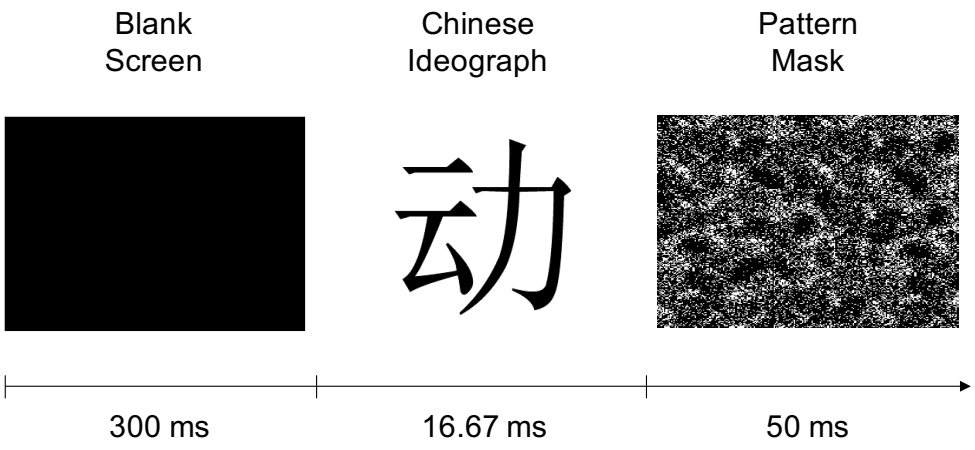


Figure 2

Phase	**Block**	**Description**	**Presentations**	**Time**
Phase I: Study	Study Phase	Study 20 ("old") ideographs for later memory test	1 x 20 ideographs	10 sec
Phase II: Subliminal Exposure	Block 1	20 "familiar" (10 new, 10 old) / 4 "unfamiliar" (2 new, 2 old)	7 x 20 / 1 x 4	16.67 ms
	Block 2	20 "familiar" (10 new, 10 old) / 4 "unfamiliar" (2 new, 2 old)	7 x 20 / 1 x 4	16.67 ms
	Block 3	20 "familiar" (10 new, 10 old) / 4 "unfamiliar" (2 new, 2 old)	7 x 20 / 1 x 4	16.67 ms
	Block 4	20 "familiar" (10 new, 10 old) / 4 "unfamiliar" (2 new, 2 old)	7 x 20 / 1 x 4	16.67 ms
	Block 5	20 "familiar" (10 new, 10 old) / 4 "unfamiliar" (2 new, 2 old)	7 x 20 / 1 x 4	16.67 ms
Phase III: Test	Test Phase	(1) New or Old? / (2) Confidence (7-pt) / (3) "Liking" ratings (7-pt)	1 x 40 ideographs	N/A

Figure 3

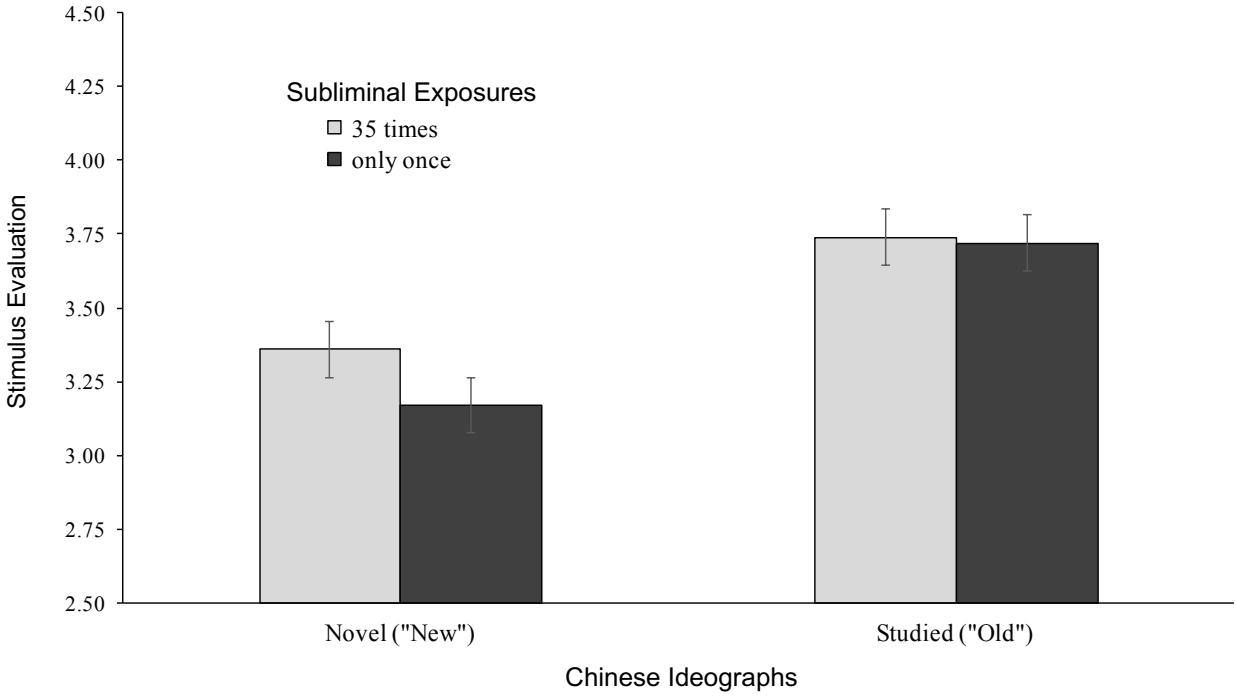


Figure 4

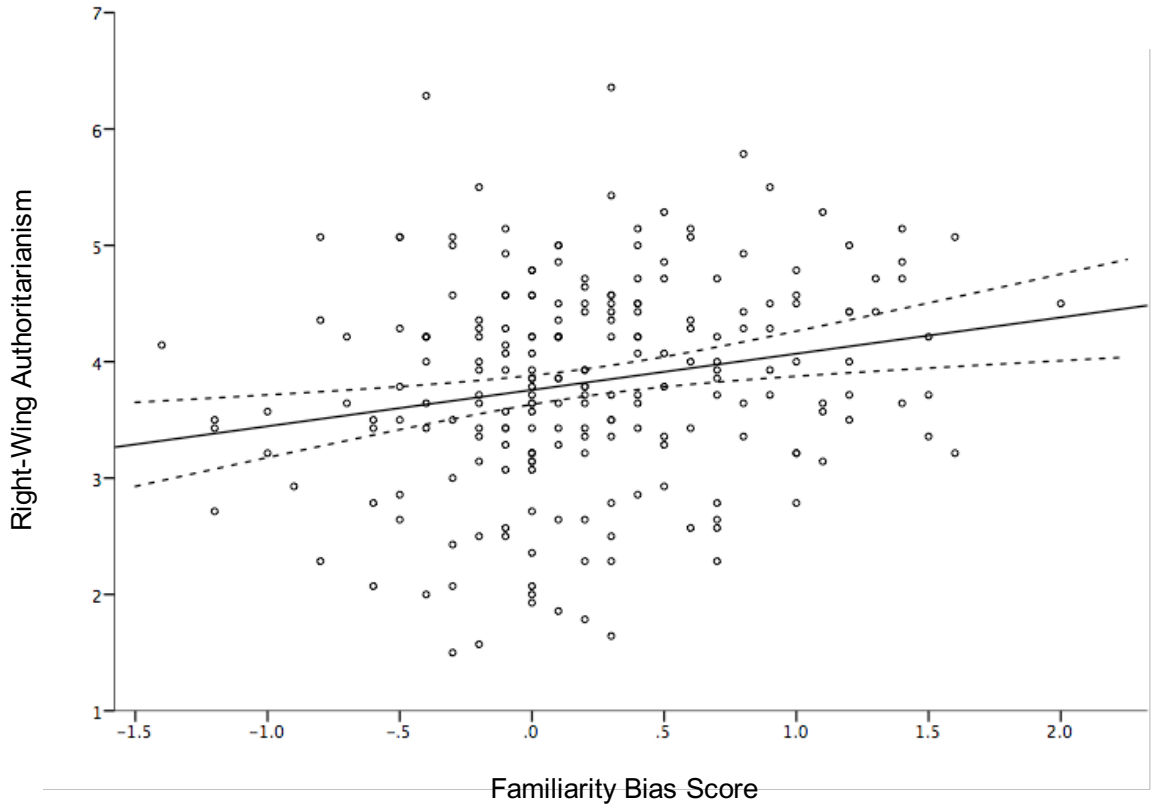


Figure 5

Phase	**Block**	**Description**	**Presentations**	**Time**
Phase I: Subliminal Exposure	Block 1	8 of 8 "familiar" / 2 of 8 "unfamiliar"	10 x 8 / 1 x 2	6.94 ms
	Block 2	8 of 8 "familiar" / 2 of 8 "unfamiliar"	10 x 8 / 1 x 2	6.94 ms
	Block 3	8 of 8 "familiar" / 2 of 8 "unfamiliar"	10 x 8 / 1 x 2	6.94 ms
	Block 4	8 of 8 "familiar" / 2 of 8 "unfamiliar"	10 x 8 / 1 x 2	6.94 ms
Phase II: Test	Evaluation	"Liking" ratings (-3 *Don't Like It At All*, +3 *Like It Very Much*)	1 x 16 ideographs	N/A

Figure 6

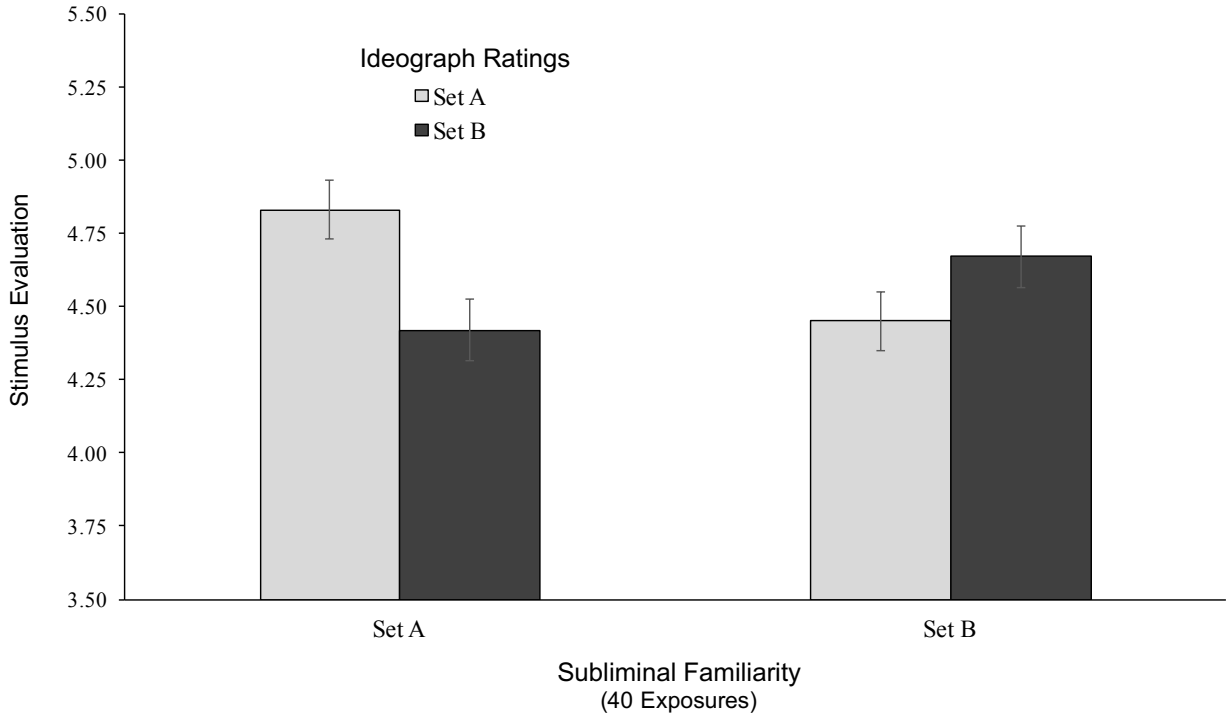


Figure 7

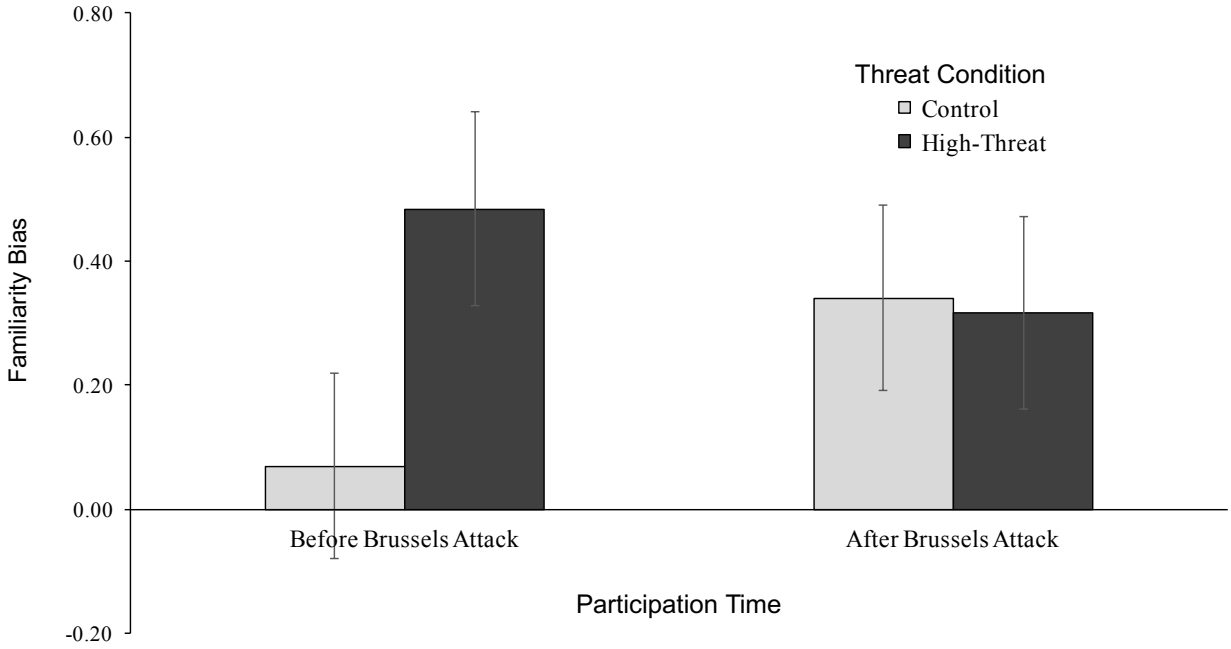


Figure 8

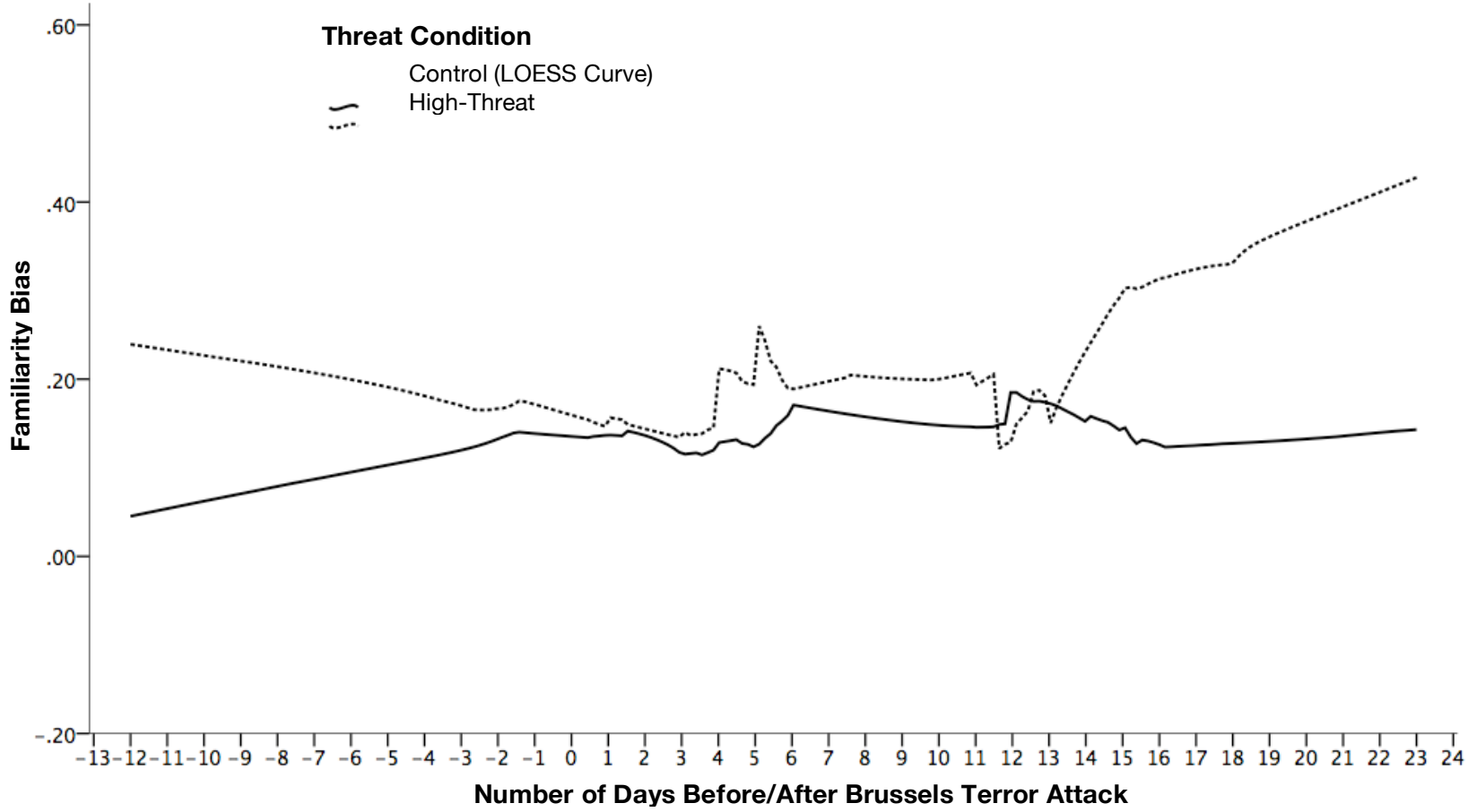


Figure 9

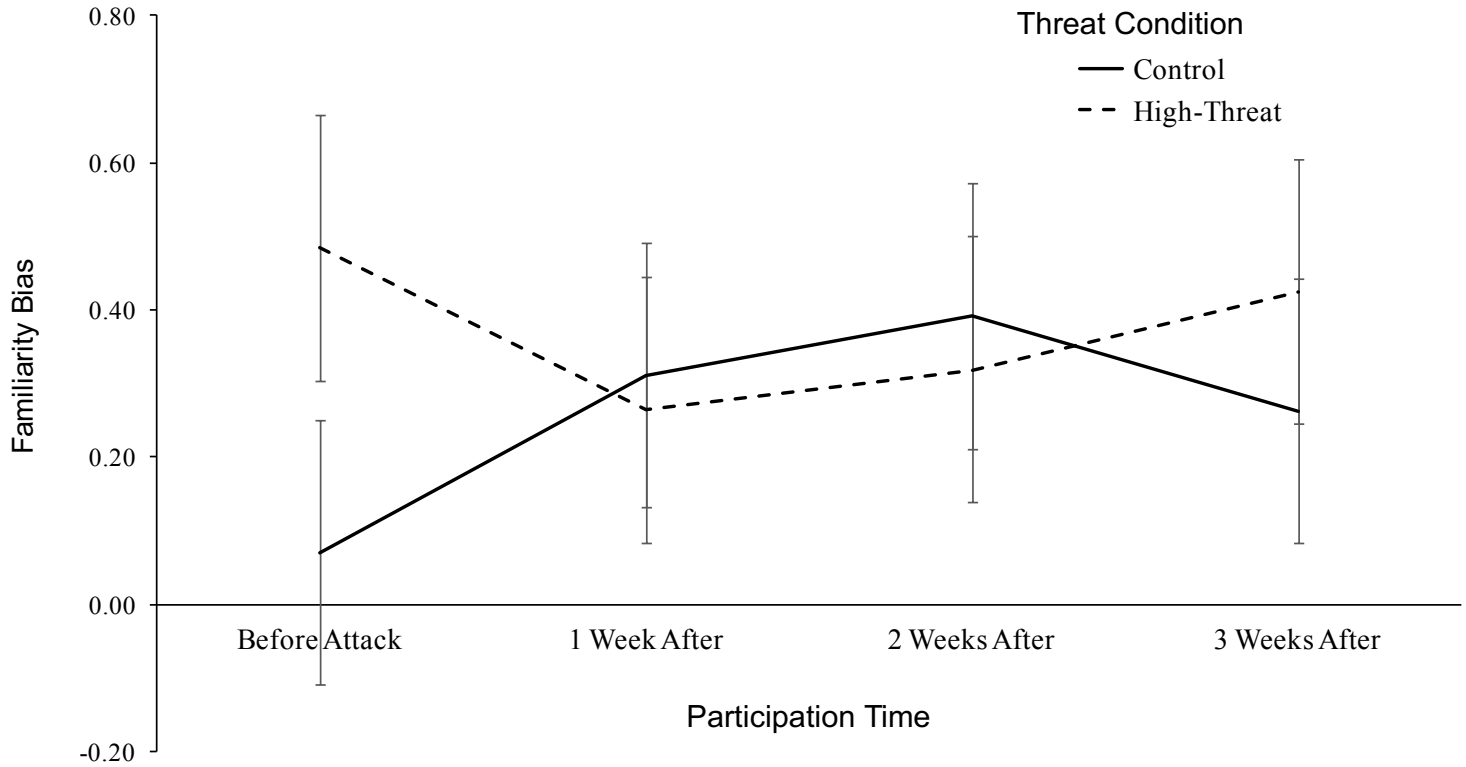
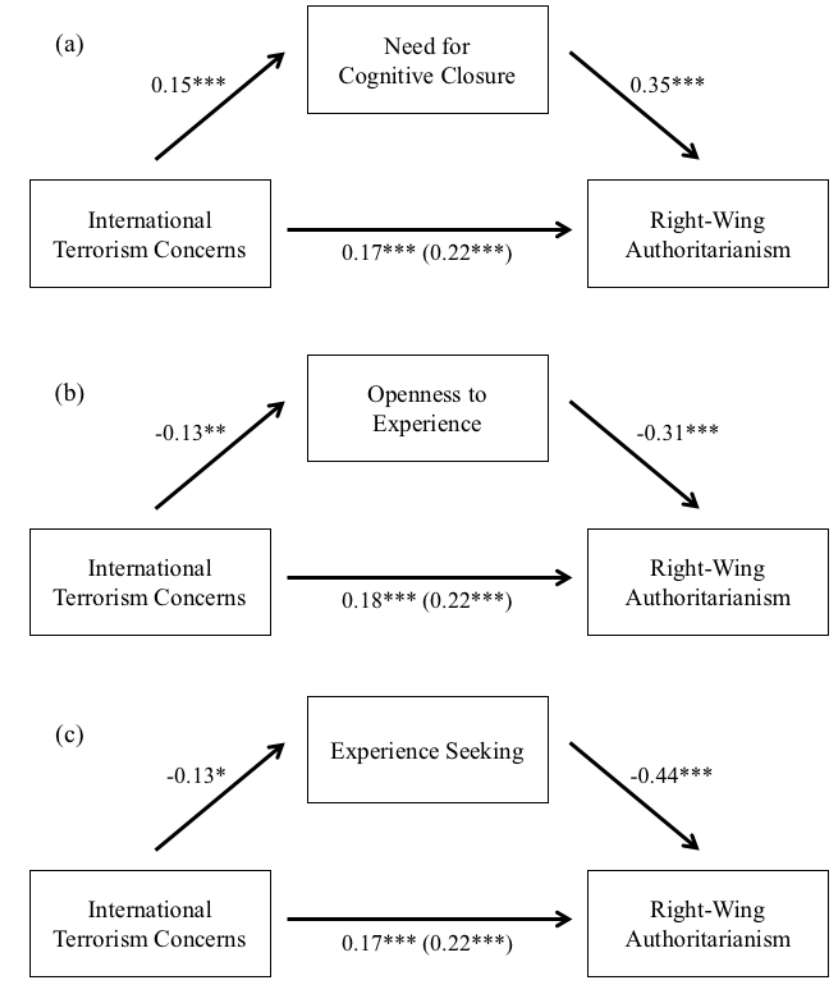


Figure 10



***$p < .001$ **$p < .01$ *$p < .05$

B. Tables

Table 1
Descriptive statistics and zero-order correlations among variables (Study 1).

Variable	*M* (*SD*)	1	2	3	4	5	6	7	8	9
1. Familiarity bias	0.22 (0.59)	---								
2. $d'_{\text{familiarity bias}}$	0.26 (0.56)	.23***	---							
3. $d'_{\text{composite memory}}$	1.13 (0.75)	-.10	-.12†	---						
4. Right-Wing Authoritarianism	3.83 (0.90)	.21**	.03	-.09	---					
5. Social Dominance Orientation	2.72 (1.08)	-.01	-.01	-.06	.37***	---				
6. Self-reported ideology	4.23 (1.52)	.06	-.04	.02	.63***	.49***	---			
7. Political partisanship	4.39 (1.65)	.07	-.04	-.02	.52***	.46***	.81***	---		
8. Need for cognition	4.25 (0.84)	-.06	.14*	-.03	-.33***	-.13†	-.21**	-.26***	---	
9. Need for cognitive closure	4.54 (0.85)	.15*	-.01	-.12†	.32***	.05	.17*	.13†	-.24***	---
10. ACT score[a]	25.5 (3.58)	-.03	.08	.21**	-.16*	-.07	-.02	.03	.13†	-.01

Note: Familiarity bias scores refer to evaluations of novel (i.e., non-studied) Chinese ideographs. Self-reported ideology (1 = *very liberal*, 7 = *very conservative*); Political partisanship (1 = *more Democrat*, 7 = *more Republican*).

$N = 220$; [a] $N = 205$

***$p \leq .001$ **$p \leq .01$ *$p \leq .05$ $^{\dagger}p \leq .10$

Table 2

Descriptive statistics and zero-order correlations among study variables collapsed across threat condition and participation time (Study 2).

Variable	*M* (*SD*)	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Familiarity bias	0.31 (0.79)	---												
2. Familiarity (self-report)	4.26 (0.67)	-.05	---											
3. RWA	3.69 (0.94)	.01	.19***	---										
4. System justification	3.80 (0.89)	.05	.00	.24***	---									
5. SDO	3.26 (1.00)	.10†	-.01	.41***	.25***	---								
6. Need for cognitive closure	4.29 (0.77)	-.03	.25***	.34***	.06	.10†	---							
7. Openness to experience	4.81 (0.80)	.02	-.12*	-.31***	-.20***	-.22***	-.32***	---						
8. Experience seeking	4.27 (1.04)	-.06	-.28***	-.51***	-.17**	-.22***	-.34***	.44***	---					
9. Dangerous world	4.07 (0.73)	.11*	.01	.35***	-.16**	.05	.14*	-.08	-.12*	---				
10. Disease avoidance	4.04 (1.16)	.01	.03	.14*	.03	.00	.14*	-.08	-.23***	.17**	---			
11. Fear of death	3.48 (1.43)	.03	.10†	-.04	.01	-.00	.15**	-.03	.05	.02	.02	---		
12. Terrorism concerns	5.01 (1.20)	-.03	-.06	.27***	.13*	.14*	.22***	-.18**	-.14*	.32***	.11†	.01	---	
13. Self-reported ideology	4.09 (1.52)	.03	.12*	.61***	.30***	.43***	.17**	-.22***	-.39***	.20***	.12*	-.17**	.30***	---
14. ACT score[a]	25.29 (3.55)	-.02	-.05	-.27***	.05	-.04	-.07	.12*	.05	-.25***	-.05	-.10†	-.02	-.09

Note: RWA = Right-Wing Authoritarianism; SDO = Social Dominance Orientation; Self-reported ideology (1 = *very liberal*, 7 = *very conservative*).

$N = 300$; [a] $N = 290$

***$p \leq .001$ **$p \leq .01$ *$p \leq .05$ $^{\dagger}p \leq .10$

Table 3

Descriptive statistics and zero-order correlations among study variables as a function of threat condition (Study 2).

Variable	*M* (*SD*)	1	2	3	4	5	6	7	8	9	10	11	12	13
		THREAT CONDITION												
1. Familiarity bias	0.35 (0.82) 0.28 (0.76)	---	-.12	.01	.08	.04	-.04	.02	-.02	.08	-.07	-.04	-.04	.06
2. Familiarity (self-report)	4.25 (0.70) 4.27 (0.65)	.03	---	.22**	-.12	-.10	.17*	-.15†	-.26**	.13	.06	.06	.05	.11
3. RWA	3.64 (0.95) 3.73 (0.93)	.01	.16*	---	.13†	.39***	.37***	-.27***	-.49***	.37***	.20*	-.13	.31***	.57***
4. System justification	3.83 (0.90) 3.76 (0.89)	.02	.13	.35***	---	.22**	.07	-.17*	-.06	-.22**	.07	.03	.04	.24**
5. SDO	3.22 (1.02) 3.29 (0.98)	.16*	.08	.42***	.25***	---	.14†	-.21**	-.23**	.03	.03	-.01	.18*	.46***
6. Need for cognitive closure	4.24 (0.76) 4.34 (0.78)	-.02	.32***	.30***	.06	.06	---	-.36***	-.44***	.21**	.08	.14†	.31***	.23**
7. Openness to experience	4.78 (0.76) 4.83 (0.83)	.03	-.08	-.35***	-.24**	-.23**	-.27***	---	.46***	-.06	.01	-.03	-.15†	-.16*
8. Experience seeking	4.31 (1.05) 4.24 (1.02)	-.10	-.31***	-.54***	-.29***	-.20*	-.25***	.41***	---	-.17*	-.26***	.05	-.17*	-.33***
9. Dangerous world	4.12 (0.71) 4.02 (0.75)	.14†	-.11	.35***	-.11	.08	.09	-.09	-.07	---	.24**	.03	.34***	.23**
10. Disease avoidance	4.02 (1.15) 4.05 (1.18)	.09	-.00	.09	-.00	-.02	.19*	.16†	-.21*	.11	---	-.05	.07	.16*
11. Fear of death	3.54 (1.30) 3.42 (1.55)	.09	.14†	.04	-.02	.01	.17*	-.04	.04	.02	.08	---	.04	-.20*
12. Terrorism concerns	5.16 (1.12) 4.87 (1.25)	-.03	-.16*	.26**	.21**	.12	.16*	-.22**	-.13	.30***	.15†	-.03	---	.33***
13. Self-reported ideology	4.07 (1.59) 4.11 (1.46)	.00	.13*	.65***	.37***	.39***	.11	-.28***	-.46***	.18*	.09	-.15†	.38***	---
14. ACT score[a b]	25.39 (3.47) 25.19 (3.63)	-.02	-.08	-.20*	.07	-.01	-.10	.10	-.01	-.20*	-.03	-.18	-.01	.03
		CONTROL CONDITION												

Note: Means, standard deviations, and correlation coefficients reported above and below the table diagonal correspond to the threat and control conditions, respectively. RWA = Right-Wing Authoritarianism; SDO = Social Dominance Orientation; Self-reported ideology (1 = *very liberal*, 7 = *very conservative*).

Control Condition: $N = 151$ ($^{a}N = 145$); Threat Condition: $N = 149$ ($^{b}N = 145$)

***$p \leq .001$ **$p \leq .01$ *$p \leq .05$ $^{\dagger}p \leq .10$

Table 4

Descriptive statistics and correlations among study variables as a function of participation before/after the Brussels terror attack (Study 2).

Variable	*M* (*SD*)	1	2	3	4	5	6	7	8	9	10	11	12	13
		BEFORE TERROR ATTACK												
1. Familiarity bias	0.27 (0.82) 0.32 (0.78)	---	-.12	.04	.21†	.09	.11	.06	-.24†	.06	.23†	.04	.02	.06
2. Familiarity (self-report)	4.42 (0.65) 4.22 (0.68)	-.03	---	.18	-.08	-.21†	.26*	-.21†	-.34**	.08	.11	-.03	.20	.16
3. RWA	3.56 (0.97) 3.72 (0.93)	-.00	.21*	---	.19	.34**	.34**	-.38**	-.66***	.41***	.20*	-.07	.38**	.57***
4. System justification	3.88 (0.96) 3.78 (0.88)	.00	.02	.26***	---	.38**	.20	-.06	-.18	-.15	.18	.17	.29*	.24†
5. SDO	3.09 (0.99) 3.30 (1.00)	.09	.05	.42***	.22***	---	-.09	-.18	-.22†	-.06	-.05	.05	.23†	.43***
6. Need for cognitive closure	4.26 (0.72) 4.30 (0.79)	-.07	.25***	.34***	.02	.15*	---	-.29*	-.36**	.35**	-.16	.02	.35**	.26*
7. Openness to experience	4.97 (0.74) 4.76 (0.81)	.02	-.11†	-.29***	-.25***	-.22***	-.32***	---	.50***	-.22†	.33**	.10	-.41***	-.33**
8. Experience seeking	4.16 (1.02) 4.30 (1.04)	-.01	-.26***	-.48***	-.16*	-.23***	-.34***	.43***	---	-.33**	-.05	.15	-.32**	-.54***
9. Dangerous world	4.02 (0.73) 4.08 (0.73)	.13*	-.00	.34***	-.16*	.08	.09	-.03	-.07	---	-.23†	-.11	.44***	.25*
10. Disease avoidance	4.03 (1.07) 4.04 (1.19)	-.05	.01	.13*	.06	.04	.09	-.08	-.23***	.14*	---	-.22	.02	.14
11. Fear of death	3.29 (1.39) 3.54 (1.44)	.02	.15*	-.04	-.04	-.03	.19**	-.06	.01	.06	.08	---	.01	-.21†
12. Terrorism concerns	4.56 (1.24) 5.13 (1.16)	-.05	-.11	.23***	.10	.10	.19**	-.10	-.11†	.29***	.14*	-.01	---	.33**
13. Self-reported ideology	4.09 (1.49) 4.09 (1.54)	.03	.11†	.62***	.32***	.43***	.15*	-.19**	-.35***	.19**	.12†	-.16*	.30***	---
14. ACT score[a b]	25.56 (3.54) 25.22 (3.55)	-.05	-.08	-.25***	.09	-.06	-.07	.12†	.04	-.28***	-.06	-.08	-.01	-.11†
		AFTER TERROR ATTACK												

Note: Means, standard deviations, and correlation coefficients reported above and below the table diagonal correspond to participation before and after the Brussels terror attack, respectively. RWA = Right-Wing Authoritarianism; SDO = Social Dominance Orientation; Self-reported ideology (1 = *very liberal*, 7 = *very conservative*).

Participation Before: $N = 65$ ($^{a}N = 61$); Participation after: $N = 235$ ($^{b}N = 229$)

$^{***}p \leq .001$ $^{**}p \leq .01$ $^{*}p \leq .05$ $^{\dagger}p \leq .10$

Table 5

Zero-order correlations with participation time before/after Brussels terror attack and descriptive statistics (Study 2).

Variable	Days Before Attack (-12 to -4)	Days After Attack (6 to 23)	Before Attack *M* (*SD*)	1 Week After *M* (*SD*)	2 Weeks After *M* (*SD*)	3 Weeks After *M* (*SD*)
1. Familiarity bias	.05	.04	0.27 (0.82)	0.29 (0.79)	0.36 (0.81)	0.34 (0.72)
2. Familiarity preference (self-report)	-.10	-.04	4.42 (0.65)	4.27 (0.69)	4.16 (0.66)	4.28 (0.70)
3. Right-Wing Authoritarianism	-.08	-.11†	3.56 (0.97)	3.81 (0.90)	3.70 (0.94)	3.60 (0.96)
4. System justification	.03	-.10	3.88 (0.96)	3.86 (0.97)	3.74 (0.84)	3.71 (0.76)
5. Social Dominance Orientation	-.01	.08	3.09 (0.99)	3.22 (1.05)	3.30 (0.99)	3.49 (0.92)
6. Need for cognitive closure	.12	-.16*	4.26 (0.72)	4.53 (0.84)	4.10 (0.74)	4.35 (0.67)
7. Openness to experience	-.07	.15*	4.97 (0.74)	4.59 (0.85)	4.85 (0.78)	4.85 (0.75)
8. Experience seeking	.02	.16*	4.16 (1.02)	4.11 (1.07)	4.40 (1.07)	4.44 (0.86)
9. Belief in a dangerous world	-.09	-.01	4.02 (0.73)	4.11 (0.85)	4.02 (0.72)	4.16 (0.45)
10. Disease avoidance	.14	-.12†	4.03 (1.07)	4.18 (1.13)	3.98 (1.24)	3.92 (1.17)
11. Fear of death	-.05	.03	3.29 (1.39)	3.50 (1.41)	3.51 (1.46)	3.68 (1.45)
12. International terrorism concerns	-.04	-.06	4.56 (1.24)	5.21 (1.14)	5.10 (1.26)	5.07 (0.90)
13. Self-reported ideology	-.22†	-.04	4.09 (1.49)	4.15 (1.48)	4.05 (1.55)	4.03 (1.64)

Note: RWA = Right-Wing Authoritarianism; SDO = Social Dominance Orientation; Self-reported ideology (1 = *very liberal*, 7 = *very conservative*).

Participation Before Attack: $N = 65$; Participation After Attack: $N = 235$ (1 week = 85, 2 weeks = 110, 3 weeks = 40)

$^{***}p \leq .001$ $^{**}p \leq .01$ $^{*}p \leq .05$ $^{\dagger}p \leq .10$

Table 6

Right-wing ideology, needs for certainty, and needs for security as a function of time before/after Brussels terror attack (Study 2).

MANCOVA[1] / MANOVA[2] Dependent Variables	Days Before[1] Attack (-12 to -4)	Days After[1] Attack (6 to 23)	Before Attack / Weeks After Attack[2] (Before, 1 Week, 2 Weeks, 3 Weeks)
Right-Wing Ideology	Wilk's Λ = 0.99, $F(3, 61) = 0.16$, $p > .92$	Wilk's Λ = 0.96, $F(3, 231) = 3.33$, $p = .02$	Wilk's Λ = 0.96, $F(3, 231) = 3.33$, $p = .02$
RWA	$b = -0.03$, $SE = .04$, $t(61) = 0.62$, $p > .52$	$b = -0.02$, $SE = .01$, $t(231) = 1.73$, $p = .085$	[a] linear contrast = 0.24, $t(296) = 1.69$, $p = .092$
System justification	$b = 0.01$, $SE = .04$, $t(61) = 0.20$, $p > .84$	$b = 0.01$, $SE = .01$, $t(231) = 1.52$, $p = .131$	[a] linear contrast = 0.07, $t(296) = 0.51$, $p > .60$
Social Dominance Orientation	$b = -0.01$, $SE = .04$, $t(61) = 0.11$, $p > .91$	$b = -0.01$, $SE = .01$, $t(231) = 1.27$, $p = .201$	[a] linear contrast = -0.07, $t(296) = 0.48$, $p = .63$
Epistemic Needs for Certainty	Wilk's Λ = 0.97, $F(3, 61) = 0.54$, $p > .65$	Wilk's Λ = 0.96, $F(3, 231) = 3.50$, $p < .02$	Wilk's Λ = 0.92, $F(9, 716) = 2.88$, $p = .002$
Need for cognitive closure	$b = 0.03$, $SE = .03$, $t(61) = 0.98$, $p > .32$	$b = -0.03$, $SE = .01$, $t(231) = 2.49$, $p = .014$	[a] linear contrast = 0.23, $t(296) = 2.03$, $p = .044$
Openness to experience	$b = -0.02$, $SE = .03$, $t(61) = 0.56$, $p > .57$	$b = 0.02$, $SE = .01$, $t(231) = 2.33$, $p = .021$	[b] linear contrast = 0.32, $t(296) = 2.73$, $p = .007$
Experience seeking	$b = 0.01$, $SE = .04$, $t(61) = 0.16$, $p = .87$	$b = 0.03$, $SE = .01$, $t(231) = 2.50$, $p = .013$	[b] linear contrast = 0.19, $t(296) = 1.25$, $p = .213$
Existential Needs for Security	Wilk's Λ = 0.96, $F(3, 61) = 0.81$, $p > .49$	Wilk's Λ = 0.99, $F(3, 231) = 1.20$, $p = .31$	Wilk's Λ = 0.99, $F(3, 231) = 1.20$, $p = .31$
Dangerous world	$b = -0.02$, $SE = .03$, $t(61) = 0.70$, $p > .48$	$b = -0.001$, $SE = .01$, $t(231) = 0.07$, $p > .94$	[a] linear contrast = 0.02, $t(296) = 0.19$, $p > .85$
Disease avoidance	$b = 0.05$, $SE = .05$, $t(61) = 1.13$, $p > .26$	$b = -0.03$, $SE = .02$, $t(231) = 1.80$, $p = .074$	[a] linear contrast = 0.21, $t(296) = 1.19$, $p > .23$
Fear of death	$b = -0.03$, $SE = .06$, $t(61) = 0.43$, $p > .67$	$b = 0.01$, $SE = .02$, $t(231) = 0.47$, $p > .64$	[a] linear contrast = 0.01, $t(296) = 0.05$, $p > .95$

[a] linear contrast weights: -.5, 1, 0, -.5

[b] linear contrast weights: .5, -1, 0, .5

Participation Before Attack: $N = 65$; Participation After Attack: $N = 235$ (1 week = 85, 2 weeks = 110, 3 weeks = 40)

VIII. Appendices

A. Study 1 Measures

Right-Wing Authoritarianism scale (Rattazzi et al., 2007):

Our country desperately needs a mighty leader who will do what has to be done to destroy the radical new ways and sinfulness that are ruining us.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Atheists and others who have rebelled against the established religions are no doubt every bit as good and virtuous as those who attend church regularly.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

A lot of our rules regarding sexual behavior are just customs which are not necessarily any better or holier than those which other people follow.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The majority of those who criticize proper authorities in government and religion only create useless doubts in people's mind.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

There is absolutely nothing wrong with nudist camps.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Homosexuals and feminists should be praised for being brave enough to defy "traditional family values."*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The situation in our country is getting so serious, the strongest method would be justified if they eliminated the troublemakers and got us back to our true path.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

People should pay less attention to the Church and the Pope, and instead develop their own personal standards of what is moral and immoral.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

It is good that nowadays young people have greater freedom "to make their own rules" and to protest against things they don't like.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

What our country really needs instead of more "civil rights" is a good stiff dose of law and order.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Obedience and respect for authority are the most important values children should learn.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The fact on crime, sexual immorality and the recent public disorders all show we have to crackdown harder on deviant groups and troublemakers, if we are going to save our moral standards and preserve law and order.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

What our country needs most is disciplined citizens, following national leaders in unity.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Social Dominance Orientation scale (Pratto et al., 1994):

Some groups of people are simply inferior to other groups.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

In getting what you want, it is sometimes necessary to use force against other groups.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

It's OK if some groups have more of a chance in life than others.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

To get ahead in life, it is sometimes necessary to step on other groups.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

If certain groups stayed in their place, we would have fewer problems.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

It's probably a good thing that certain groups are at the top and other groups are at the bottom.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Inferior groups should stay in their place.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Sometimes other groups must be kept in their place.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

It would be good if groups could be equal.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Group equality should be our ideal.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

All groups should be given an equal chance in life.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

We should do what we can to equalize conditions for different groups.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Increased social equality is beneficial to society.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

We would have fewer problems if we treated people more equally.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

We should strive to make incomes as equal as possible.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

No group should dominate in society.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Short-form version of Need for Cognitive Closure scale (Roets & Van Hiel, 2011):

I don't like situations that are uncertain.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I dislike questions which could be answered in many different ways.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I find that a well ordered life with regular hours suits my temperament.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I feel uncomfortable when I don't understand the reason why an event occurred in my life.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I feel irritated when one person disagrees with what everyone else in a group believes.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I don't like to go into a situation without knowing what I can expect from it.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

When I have made a decision, I feel relieved.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

When I am confronted with a problem, I'm dying to reach a solution very quickly.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would quickly become impatient and irritated if I would not find a solution to a problem immediately.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I don't like to be with people who are capable of unexpected actions.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I dislike it when a person's statement could mean many different things.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I find that establishing a consistent routine enables me to enjoy life more.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I enjoy having a clear and structured mode of life.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I do not usually consult many different opinions before forming my own view.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I dislike unpredictable situations.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

<u>Short-form version of Need for Cognition scale (Caccioppo et al., 1984):</u>

I would prefer complex to simple problems.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I like to have the responsibility of handling a situation that requires a lot of thinking.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Thinking is not my idea of fun.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I try to anticipate and avoid situations where there is a likely chance I will have to think in-depth about something.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I find satisfaction in deliberating hard and for long hours.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I only think as hard as I have to.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I prefer to think about small, daily projects to long-term ones.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I like tasks that require little thought once I've learned them.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The idea of relying on thought to make my way to the top appeals to me.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I really enjoy a task that involves coming up with new solutions to problems.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Learning new ways to think doesn't excite me very much.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I prefer my life to be filled with puzzles that I must solve.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The notion of thinking abstractly is appealing to me.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I feel relief rather than satisfaction after completing a task that required a lot of mental effort.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

It's enough for me that something gets the job done; I don't care how or why it works.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I usually end up deliberating about issues even when they do not affect me personally.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

* Indicates reverse-scored item.

B. Study 2 Measures

Perception of a Dangerous World scale (Duckitt, 2001):

Although it may *appear* that things are constantly getting more dangerous and chaotic, it really isn't so. Every era has its problems, and a person's chances of living a safe, untroubled life are better today then ever before.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Any day now chaos and anarchy could erupt around us. All signs are pointing to it.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

There are many dangerous people in our society who will attack someone out of pure meanness, for no reason at all.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Despite what one hears about "crime on the street", there probably isn't any more now than there ever has been.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

If a person takes a few sensible precautions, nothing bad is likely to happen to him or her; we do not live in a dangerous world.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Every day as society becomes more lawless and bestial, a person's chances of being robbed, assaulted, and even murdered go up and up.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

My knowledge and experiences tell me that the social world we live is basically a safe, stable, and secure place in which most people are fundamentally good.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

It seems every year there are fewer and fewer truly respectable people, and more and more persons with no morals at all who threaten everyone else.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The “end” is *not* near. People who think that earthquakes, wars, and famines mean God might be about to destroy the world are being foolish.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

My knowledge and experience tell me that the social world we live in is basically a dangerous and unpredictable place, in which good, decent, and moral people’s values and way of life are threatened and disrupted by bad people.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Fear of Death subscale of Death Attitude Profile-Revised (Wong et al., 1994):

Death is no doubt a grim experience.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The prospects of my own death arouses anxiety in me.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I am disturbed by the finality of death.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I have an intense fear of death.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The subject of life after death troubles me greatly.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The fact that death will mean the end of everything as I know it frightens me.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The uncertainty of not knowing what happens after death worries me.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Disease Avoidance subscale of Fundamental Social Motives Inventory (Neel et al., 2016):

I avoid places and people that might carry diseases.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I avoid people who might have a contagious illness.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I worry about catching colds and flu from too much contact with other people.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I do not worry very much about getting germs from others.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

When someone near me is sick, it doesn't bother me very much.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I don't mind being around people who are sick.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Short-form version of Need for Cognitive Closure scale (Roets & Van Hiel, 2011):

I don't like situations that are uncertain.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I dislike questions which could be answered in many different ways.

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I do not usually consult many different opinions before forming my own view.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I dislike unpredictable situations.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Openness to Experience subscale of Big Five Inventory (John et al., 2008):

I am someone who…

Is original, comes up with new ideas.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Is curious about many different things.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Is ingenious, a deep thinker.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Has an active imagination.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Is inventive.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Values artistic, aesthetic experiences.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Prefers work that is routine.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Likes to reflect, play with ideas.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Has few artistic interests.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Is sophisticated in art, music, or literature.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Experience-Seeking subscale of Sensation Seeking scale (Zuckerman et al., 1978):

I like some of the earthy body smells.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I like to explore a strange city or section of town myself, even if it means getting lost.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I have tried marijuana or would like to.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would like to try some of the new drugs that produce hallucinations.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I like to try new foods that I have never tasted before.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would like to take off on a trip with no preplanned or definite routes or timetables.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would like to make friends in sonic of the "far-out" groups like artists or "hippies."

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I would like to meet some persons who are homosexual (men or women).

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

I often find beauty in the "clashing" colors and irregular form of modern painting.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

People should dress in individual ways even if the effects are sometimes strange.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Right-Wing Authoritarianism scale (Rattazzi et al., 2007):

Our country desperately needs a mighty leader who will do what has to be done to destroy the radical new ways and sinfulness that are ruining us.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Atheists and others who have rebelled against the established religions are no doubt every bit as good and virtuous as those who attend church regularly.*

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A lot of our rules regarding sexual behavior are just customs which are not necessarily any better or holier than those which other people follow.*

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The majority of those who criticize proper authorities in government and religion only create useless doubts in people's mind.

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There is absolutely nothing wrong with nudist camps.*

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Homosexuals and feminists should be praised for being brave enough to defy "traditional family values."*

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The situation in our country is getting so serious, the strongest method would be justified if they eliminated the troublemakers and got us back to our true path.

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Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.*

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People should pay less attention to the Church and the Pope, and instead develop their own personal standards of what is moral and immoral.*

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It is good that nowadays young people have greater freedom "to make their own rules" and to protest against things they don't like.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

What our country really needs instead of more "civil rights" is a good stiff dose of law and order.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Obedience and respect for authority are the most important values children should learn.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The fact on crime, sexual immorality and the recent public disorders all show we have to crackdown harder on deviant groups and troublemakers, if we are going to save our moral standards and preserve law and order.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

What our country needs most is disciplined citizens, following national leaders in unity.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

<u>Social Dominance Orientation scale (Ho et al., 2015):</u>

An ideal society requires some groups to be on top and others to be on the bottom.

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

Some groups of people are simply inferior to other groups.

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

No one group should dominate in society.*

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

Groups at the bottom are just as deserving as groups at the top.*

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

Group equality should not be our primary goal.

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

It is unjust to try to make groups equal.

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

We should do what we can to equalize conditions for different groups.*

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

We should work to give all groups an equal chance to succeed.*

Strongly Oppose 1 2 3 4 5 6 7 *Strongly Favor*

System Justification scale (Kay & Jost, 2003):

In general, you find society to be fair.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

In general, the American political system operates as it should.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

American society needs to be radically restructured.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The United States is the best country in the world to live in.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Most policies serve the greater good.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Everyone has a fair shot at wealth and happiness.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Our society is getting worse every year.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Society is set up so that people usually get what they deserve.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Perceived Threat of International Terrorism (adapted from Ullrich & Cohrs, 2007):

International terrorism a real threat facing the American people.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

International terrorism will soon hit the United States.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The risk of terror attacks in the United States is low.*

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

C. Low vs. High Threat Salience

Given a rise in trade throughout the world, we are interested in people's opinions on the issue of international tourism. Please read the following information carefully. You'll be asked some follow-up questions later.

There is growing interest in international tourism among American citizens. Tourism companies from all over the world have been rapidly expanding, particularly those companies in South Asia, the Middle East, and along the coasts of South America. These expanding operations include the development of personalized vacation packages and study abroad programs for college and high school students. Much of the success of the international tourism industry has been spurred by advances in communication technologies and efficient mass transportation. Compared to the average cost a decade ago, Americans today enjoy significantly cheaper access to several means of international transport—jumbo jets, cruise liners, and even trains in some areas. With the steady increase in Americans' access to affordable international travel, *Forbes* magazine projects further economic opportunities to sprout within the tourism industry.

Given a rise in terror attacks throughout the Western world, we are interested in people's opinions on the issue of international terrorism. Please read the following information carefully. You'll be asked some follow-up questions later.

There is growing concern about another major terrorist attack on American soil. The Middle East has become especially unstable in recent years, giving way to terrorist organizations such as al-Qaeda, ISIS, and Kata'ib Hezbollah. Since the Word Trade Center attack on September 11, 2001 in New York, the Western world has seen a steady increase in international terror attacks—Madrid train bombings in 2004, London bus and tube bombings in 2005, Charlie Hebdo arson in 2011 and shootings in 2015, Boston Marathon bombing in 2013, and most recently the terror attacks on Paris in November of 2015. With the continued release of videos depicting beheadings of American journalists, and direct threats aimed at the United States, the National Terrorism Advisory System is expected to to issue an *Elevated Terror Threat Alert*.

D. Demographics Survey

Age ____

Gender: *M* or *F*

Race/Ethnicity _____

Are you more liberal or more conservative?

Very Liberal 1 2 3 4 5 6 7 *Very Conservative*

Are you more of a Democrat or more of a Republican?

More Democrat 1 2 3 4 5 6 7 *More Republican*

What political party do you identify with? (*Study 2 only*)

Democratic Party

Republican Party

Libertarian Party

Green Party

Constitution Party

Other

None / Independent

I don't follow politics

What is religion do you identify with? (*Study 2 only*)

ACT/SAT score _____

Is English your second language?

No, English is my first/primary language

Yes, English is my second language

Do you speak Chinese?

No

Yes, I speak some Chinese

Yes, I speak Chinese fluently

E. IRB Protocol Approval

UNIVERSITY OF ARKANSAS

Office of Research Compliance
Institutional Review Board

October 6, 2015

MEMORANDUM

TO:	John Blanchar Scott Eidelman
FROM:	Ro Windwalker IRB Coordinator
RE:	New Protocol Approval
IRB Protocol #:	15-09-141
Protocol Title:	*Bias from Familiarity*
Review Type:	☒ EXEMPT ☐ EXPEDITED ☐ FULL IRB
Approved Project Period:	Start Date: 10/05/2015 Expiration Date: 10/04/2016

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (https://vpred.uark.edu/units/rscp/index.php). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 1,500 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu.

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UNIVERSITY OF ARKANSAS

Office of Research Compliance
Institutional Review Board

March 7, 2016

MEMORANDUM

TO:	John Blanchar Scott Eidelman
FROM:	Ro Windwalker IRB Coordinator
RE:	PROJECT MODIFICATION
IRB Protocol #:	15-09-1441
Protocol Title:	*Bias from Familiarity*
Review Type:	☒ EXEMPT ☐ EXPEDITED ☐ FULL IRB
Approved Project Period:	Start Date: 03/04/2016 Expiration Date: 10/04/2016

Your request to modify the referenced protocol has been approved by the IRB. **This protocol is currently approved for 1,900 total participants.** If you wish to make any further modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

Please note that this approval does not extend the Approved Project Period. Should you wish to extend your project beyond the current expiration date, you must submit a request for continuation using the UAF IRB form "Continuing Review for IRB Approved Projects." The request should be sent to the IRB Coordinator, 109 MLKG Building.

For protocols requiring FULL IRB review, please submit your request at least one month prior to the current expiration date. (High-risk protocols may require even more time for approval.) For protocols requiring an EXPEDITED or EXEMPT review, submit your request at least two weeks prior to the current expiration date. Failure to obtain approval for a continuation *on or prior to* the currently approved expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu.