When Thinking About Themselves and God, People Believe Truth Matters More than Control

Emily Nakkawita, Larisa Heiphetz Solomon, and E. Tory Higgins

Columbia University

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Author Note

Emily Nakkawita https://orcid.org/0000-0002-5400-1311
E. Tory Higgins https://orcid.org/0000-0003-4157-8207

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Correspondence concerning this article should be addressed to Emily Nakkawita, Department of Psychology, Columbia University, 406 Schermerhorn Hall, 1190 Amsterdam Ave., New York, NY 10027. Email: emily.nakkawita@gmail.com

Abstract

People are motivated to feel effective in the domains of control (managing what happens in life) and truth (establishing what is real and right). However, previous research has not established whether individuals typically possess lay theories that either of these motives predominates over the other. Although major psychological theories have emphasized the primacy of control, converging evidence across five studies reveals that individuals tend to believe that truth predominates. Participants reported believing that truth- (versus control-) oriented motives and activities are more important. Furthermore, this prioritization of truth extended to participants' conceptualizations of God, whose omniscience (versus omnipotence) they saw as more central. These truth-dominant tendencies persisted even when assessed using implicit measures. Finally, a preregistered replication study found a consistent pattern of truth (versus control) motive predominance among U.S. and Indian adults. These findings provide new insight into lay theories about the relative importance of these two fundamental motives.

Keywords: social cognition, motivation, lay theories

When Thinking About Themselves and God, People Believe Truth Matters More than Control

Which of the following is predominant in your life: truth or control? To put it another way, when making decisions and pursuing your goals, do you consider it more important to (a) make sense of things and establish what is right or (b) take action and effect change? Popular culture provides some insight into lay theories on this topic. In a recent episode of the BBC television series *Killing Eve*, the assassin Villanelle seeks out Konstantin, her former boss, because he possesses information on her long-lost family. When Konstantin inquires why Villanelle would want to delve into her painful past, she indicates that coming to terms with her background is critical to her maintenance of a sense of power and control in her life. However, Villanelle provides a caveat, describing that in order "to keep power, you need knowledge." Villanelle's insight captures a belief that effective control is not possible without the acquisition of truth. One might argue that this belief implies that truth is the more important and fundamental of the two because it is a precondition for effective control. However, others might posit the reverse—that control is more important and fundamental—because control effectivness represents the desired end, and truth only the means to this end. The current work investigated which of these perspectives lay people found more compelling.

It is well-established that both truth and control are critical to processes of decision making and goal pursuit (e.g., Carver & Scheier, 1998; Gollwitzer, 1990; Higgins, 2012; Kruglanski et al., 2000), but a key question remains unanswered: Do people generally believe that one of these fundamental motives matters *more*? There are many possible implications of such a preference, as individuals' implicit theories impact psychological variables ranging from mental accessibility to social cognition to self-regulatory behavior (e.g., Burnette et al., 2013; Plaks, 2017). However, before examining these potential downstream consequences, it is

necessary to first confirm if people do possess such a preference. The present research aims to take this initial step.

Truth Versus Control in Motivation and Self-Regulation

To answer this question, one might begin by reviewing the psychological literature examining control and truth motives. A number of psychologists have theorized that the process of self-regulation involves components related to both control and truth. For instance, these two functions are fundamental to theories positing that goal-directed behavior occurs through a series of recurrent feedback loops, often described as control process (Miller et al., 1960) or cybernetic (Wiener, 1948/1961) models. In these models, a truth-oriented function monitors incoming feedback on the individual's present state, compares it to a reference state (e.g., a goal), and determines the extent of mismatch or match between the two. For the case of moving toward a desired reference state, a control-oriented function operates to reduce the discrepancy between the current state and the desired state. Scholars (e.g., Magen & Gross, 2010; Wiener, 1948/1961) have likened these models to a thermostat. After setting a desired temperature (i.e., the reference state), the system compares the current temperature to the desired temperature (i.e., a truth process) and then takes action by turning the heating or cooling system on or off recursively until reaching the desired temperature (i.e., a control process). Although Miller and colleagues (1960) were some of the first to apply such a model to human behavior, Carver and Scheier (1998) extended these ideas in their control process model of self-regulation, highlighting how control- and truth-oriented functions work together to facilitate processing and acting upon self-evaluative feedback.

Control and truth are also fundamental to other models of self-regulation. For instance, the Rubicon model posits that goal selection and pursuit arise through sequential action phases (Gollwitzer, 1990; Heckhausen & Gollwitzer, 1987). In this model, a predecisional phase

involves a deliberative mind-set and truth-oriented activities, such as reflecting and deciding on a goal to pursue. Next, decisional and actional phases involve control-oriented activities, such as transforming a goal into a specific, actionable intention (with an implemental mind-set) and actually taking this action (with an actional mind-set). Finally, truth predominates once more in the postactional phase, within which individuals use an evaluative mind-set to consider whether the action they took was successful. As another example, regulatory mode theory (Higgins et al., 2003; Kruglanski et al., 2000) proposes that independent functions related to a specific type of control (i.e., locomotion: the motivation to engage in movement and change) and a specific type of truth (i.e., assessment: the motivation to engage in critical evaluation) work together in an integrated fashion throughout the process of goal pursuit. Each of these self-regulation theories proposes that successful goal pursuit necessitates the combined, compatible functioning of control- and truth-oriented processes and/or motives. (For a broader review of control and truth motivation in the process of goal selection and pursuit, see Higgins & Nakkawita, 2021.)

Additionally, a growing body of work on metamotivation posits that the regulation of motivation itself involves two reciprocal processes related to both truth and control (Miele et al., 2024; Miele & Scholer, 2018; Scholer & Miele, 2016). According to this model, metamotivational monitoring functions as a truth-oriented process that involves evaluating the quality and quantity of one's motivation to engage in the pursuit of a particular task goal. By contrast, metamotivational control functions as a control-oriented process that involves choosing and executing strategies that affect motivation for the same task. Through the integrated functioning of these two processes, people regulate the amount and type of motivation they summon based upon their beliefs about the nature of the motivation that would best fit with the task at hand.

Whereas the models described above focus on the interrelations between control and truth, other lines of work have proposed that distinct human motives might fall in each domain. For instance, Higgins (2012) argues that control is a fundamental human motive aimed at the successful management of what happens in one's life. This desire for effective control also appears in theorizing about self-control (Baumeister et al., 2007), action control (Kuhl, 1985), self-efficacy (Bandura, 1997), competence (Deci & Ryan, 2000; Elliot et al., 2002; White, 1959), autonomy (Deci, 1975; Deci & Ryan, 2000), and agency (Karsh et al., 2016; Metcalfe & Greene, 2007). Apart from the motive for control, Higgins (2012) argues that people are also motivated to feel effective in the domain of truth by successfully establishing what is real and right. Although this domain has received relatively less emphasis in the psychological literature, truth motivation appears in several motivational theories, including those related to desires for cognition (Cacioppo & Petty, 1982; A. R. Cohen et al., 1955), cognitive consistency (Festinger, 1957; Kruglanski et al., 2018), simple structure (Neuberg & Newsom, 1993), cognitive closure (Kruglanski, 1989), accuracy (Biesanz & Human, 2010; Neuberg & Fiske, 1987), certainty (Sorrentino & Roney, 2000), motivated reasoning (Kunda, 1990), and effective prediction (Clark, 2013).

While these scholars appear to agree that control and truth are important motivating forces, far less work has examined the *relative* predominance of these motives. One framework that allows for such an examination is the theory of motivational effectiveness (Higgins, 2012). According to this theory, while people are fundamentally motivated to feel effective in different aspects of their lives, including the domains of control and truth, individual differences may exist in the prioritization of each of these domains. In practical terms, this means that one individual could be more strongly motivated by control (versus truth), as in the case of a control-dominant colleague known for the tendency to "micromanage" ongoing projects while neglecting to

evaluate how well things are going. Conversely, another person could be more strongly motivated by truth (versus control), such as a truth-dominant researcher who spends years learning more and more about the nature of a problem without any focus on how to do something to reduce the problem. However, it is unclear if one motive tends to predominate in the aggregate, above and beyond these individual differences.

Important psychological traditions have suggested that the motive for control is supreme, with truth motivation simply functioning in its service. Historically, William James (1890/1950, p. 333) advised readers that "[m]y thinking is first and last and always for the sake of my doing." Psychodynamic theorists like Freud (1923/1962) framed personality as a struggle for control, positing that the primary function of the ego was to manage effectively the competing demands of the pleasure-focused id and the norm-focused superego. More recently, the cybernetic and control process models reviewed above (Carver & Scheier, 1998; Miller et al., 1960; Wiener, 1948/1961) have posited that truth-oriented feedback systems exist primarily to support effective control. Similarly, a classic review of the social cognition literature highlighted that social understanding is pragmatic, acting in the service of social behavior (Fiske, 1992). Despite the distinct differences between such important psychological traditions, they align in suggesting that control reigns supreme over truth. In contrast, few psychologists have argued that truth is the more predominant motive (but see Higgins, 2019; Moskowitz, 2005).

However, beyond scholarly theorizing about which motive predominates in actuality, it is unclear whether control (versus truth) motives reign supreme *within individuals' own lay theories about motivation*. Prior research on lay theories has examined people's implicit beliefs about a range of motivational and self-regulatory constructs (see Burnette et al., 2013; Plaks, 2017), from broad views about personal attributes like intelligence (Dweck et al., 1995; Dweck & Leggett, 1988), willpower (Francis & Job, 2018; Job et al., 2010), and meaning in life (Heintzelman et al.,

2020), to more specific lay theories about the degree to which tasks are fun versus important (Bianco et al., 2003). Despite this growing literature on lay and implicit theories, no prior work, to the best of our knowledge, has examined individuals' beliefs about the relative predominance of motives for control versus truth.

Furthermore, even if people do tend to believe that one of these motives predominates, it is unknown if such a finding would generalize across different cultures. In fact, past research examining participants from different cultural contexts (including Australia, China, India, Israel, Italy, Japan, and the United States) indicates that people from these countries vary significantly on various motivational dimensions, including their tendency to focus on gains versus non-gains as opposed to non-losses versus losses (i.e., regulatory focus; Higgins, 1997) and their regulatory mode (Higgins et al., 2008). As a result, the present research examined whether lay theories among people from the United States and India, two motivationally distinct cultures, concur with significant psychological theories in believing that control predominates over truth.

Truth Versus Control in the Cognitive Science of Religion

Although our investigation primarily centered on reports of people's own motivational priorities, we were also interested in understanding their beliefs about the relative predominance of control versus truth beyond the self. Ostensibly, a supernatural entity like God could be conceptualized as possessing a mind that is radically different from human minds. Interestingly, though, two of the characteristics that people frequently attribute to God are superhuman capabilities that appear to align with our two motives of interest: omniscience (i.e., all-knowing; possessing all truth) and omnipotence (i.e., all-powerful; possessing all control; Trimèche et al., 2006). Although God concepts tend to involve both of these traits, suggesting that people believe both truth and control matter to God to some extent, it is unclear what people think about their relative prioritization for God.

Research on anthropomorphism indicates that despite explicitly characterizing God as superhuman, people frequently conceptualize God in a human-like manner (Guthrie, 1993; Heiphetz et al., 2018), particularly when God concepts are probed implicitly (Barrett & Keil, 1996; Heiphetz et al., 2016; Shtulman & Lindeman, 2016). Furthermore, individuals do not necessarily see the contents of God's mind as reflective of *any* human mind. Instead, they perceive God's beliefs as more closely reflecting *their own* beliefs than other people's beliefs (Epley et al., 2009). Additionally, some prior work has indicated that individuals' conceptions of God are associated with self-related variables; for instance, beliefs in a loving God are correlated with both self-esteem (Benson & Spilka, 1973) and positive mental models of the self (Kirkpatrick, 1998). Thus, people's perceptions of God's prioritization of control versus truth may align with their prioritization of control versus truth in their own lives. To investigate this question the present research, in addition to studying personal motivational priorities, also examined people's beliefs about the relative predominance of control versus truth when conceptualizing the mind and capabilities of God. By testing participants' God concepts in addition to their own personal motives, we were able to explore whether individuals' beliefs about their personal motivational preferences are related to their beliefs about control versus truth in other domains as well (for research previously published in this journal that explicitly tested for this association and examined its causal nature, see Nakkawita & Heiphetz, 2023; two of the present studies further probe data from this project).

Overview of Present Studies

To investigate individuals' lay beliefs about the relative importance of control versus truth, the present research examined the within-person predominance of each motive among adults by conducting secondary analyses of existing data from four prior studies originally conducted for different purposes (Studies 1A, 1B, 2, and 3), followed by a final preregistered

cross-cultural replication study (Study 4). We originally collected the data for the prior studies in order to investigate the associations between regulatory focus, a motivational variable, and the mental accessibility of distinct types of control- and truth-oriented activities (Studies 1A and 1B), as well as to investigate the associations between the relative predominance of personal control versus truth motives and beliefs in the relative centrality of omnipotence versus omniscience when thinking about God in religious cognition research (Studies 2 and 3). However, we noticed that all of these prior studies had also asked questions that probed whether people generally believe control or truth is more important. Therefore, we used a subset of the existing data from these studies to answer this new question. This secondary analytic approach is beneficial as it creates time efficiencies for both participants and researchers, and it allows for novel investigations into existing data from multiple sources that are relevant to new questions (for more detail on replicated secondary data analysis, see Church, 2002; George & Landerman, 1984). Furthermore, because that these pre-existing data were not collected to answer the present research question, we followed up with a new preregistered study explicitly designed to replicate and extend the secondary analyses.

More specifically, Studies 1A and 1B probed participants' ratings of the importance of control- (versus truth-) oriented goal pursuit activities. Next, Study 2 tested motive predominance using a broader set of self-report measures and also investigated the control (versus truth) predominance of participants' God concepts. Study 3 examined participants' motives and God concepts using both explicit (i.e., self-report) and implicit (i.e., response latency) measures. Finally, Study 4 examined motive predominance among adults from both the U.S. and India using all explicit and implicit measures included in the prior studies.

Studies 1A and 1B

Studies 1A and 1B examined the relative importance of control- versus truth-oriented goal pursuit activities. The original purpose of these studies was to investigate how participants' regulatory focus, both measured (Study 1A) and manipulated (Study 1B), related to the accessibility of different kinds of control and truth activities that comprise the process of goal pursuit (for more detail on the original research within which these data were collected, see Studies 2A and 2B in Nakkawita & Higgins, 2021). In the initial presentation of the activities, participants explicitly rated each activity's importance to them. Here we examined these explicit *activity importance* ratings.

Study 1A

Method

Transparency and Openness. Across all studies, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures. All data, research materials, and analysis code for the study's original purpose are available at https://osf.io/g6f7p/. All analysis code for the present research is available at https://osf.io/9kjt3/. Data were analyzed using R, version 4.0.2 (R Core Team, 2020). This study was not preregistered.

Participants. We recruited 75 native English-speaking U.S.-based Amazon Mechanical Turk ("M-Turk") workers who were at least 18 years old. All participants received $1.75 for their time. We then examined our dataset for fraudulent responses based on participant IP addresses using the R-package *rIP* (Kennedy & Waggoner, 2019). This review revealed that four responses, which we subsequently excluded, originated from IP addresses flagged as fraudulent. Additionally, given that our hypotheses for the study's original purpose related to the subtle connotations of English words, we planned to conduct this research with only native English speakers. As a result, we instituted an exclusion criterion stating that if less than 10% of any

given dataset comprised participants who reported not being native English speakers, then we would exclude all non-native English-speaking participants. If 10% or more of a given dataset comprised participants who reported not being native English speakers, then we would conduct all analyses both including and excluding the non-native English speaker participants and would report any differences that emerged. In Study 1A, only one of the remaining participants disregarded our recruitment criteria and participated despite not being a native English speaker, and because the percentage of non-native English-speaking participants (1.4%) fell below the 10% threshold, we excluded this participant from our primary analysis. Finally, among the remaining 70 participants, four participants failed to properly complete a key measure (Regulatory Focus Strength; Higgins et al., 1997), indicating a lack of attention. After excluding these inattentive participants, a sample of 66 participants remained (M_{age} = 36 years; 44% female; 56% male; 68% White; 12% Black; 8% Asian; 8% Hispanic; 5% multiracial; see Supplementary Material for more detailed participant demographics).[1] A post-hoc sensitivity analysis (G*Power; Faul et al., 2009; two-tailed; $\alpha = 0.05$; power = 0.8) indicated that a sample of this size would be sufficient to detect an effect of $d = 0.35$ or larger.

Activity Importance Rating Task. In this task, participants rated the importance of various goal pursuit activities. Instructions indicated that the research team was interested in how important participants considered it to be that they engaged in each activity in their own lives. Each activity was presented and rated on a separate page of the questionnaire, which facilitated the collection of activity-specific response latency data for exploratory purposes. Participants responded to the question "How important is it that you engage in this activity?" on a 101-point

[1] For all studies presented here, we also conducted all analyses using the full datasets *without* any participant exclusions (see Supplementary Material). The results of these analyses were consistent with the pattern of results presented within this manuscript with two exceptions: one analysis that dropped to non-significance when these excluded participants were included (see Study 3) and another that dropped to marginal significance (see Study 4).

sliding scale (0 = *not at all important* to 100 = *extremely important*). Activities were presented in a random order.

The activity list included 36 activities in total, including 24 regulatory focus-specific control- and truth-oriented goal pursuit activities of interest (Nakkawita & Higgins, 2021) and 12 more general activities included for comparative purposes in some studies (three general control-oriented activities, e.g., *manage*; three general truth-oriented activities, e.g., *consider*; and six general everyday activities, e.g., *shower*; see Table 1). We developed the list of activity words by examining past empirical work on the unique associations between regulatory focus and variables related to truth and control as well as reviews of several motivational dictionaries that were created for linguistic analysis purposes, including a regulatory mode dictionary that distinguishes between the control-oriented self-regulatory function of locomotion and the truth-oriented self-regulatory function of assessment (Kanze et al., 2021). We then extended these stimulus lists using a thesaurus and refined them through conceptual discussions. Within this process, we selected verbs that involve positive, approach-oriented activity (as opposed to negative, avoidance-oriented activity) to ensure that the stimuli did not vary as a function of valence. (For more detail on the process involved in generating the activity list, see Nakkawita & Higgins, 2021.) Most relevant to the present investigation were 12 activities reflecting regulatory focus-specific control-oriented goal pursuit activities ($\alpha = 0.88$) and 12 activities reflecting regulatory focus-specific truth-oriented goal pursuit activities ($\alpha = 0.83$). Importantly, a prior study in the original line of research confirmed that these 12 control-oriented goal pursuit activities were more likely to be categorized as reflecting control (vs. truth) than the 12 truth-oriented activities. Furthermore, these lists of 12 control-oriented and 12 truth-oriented activities did not differ in terms of word length ($p = .698$), frequency of use in the English language (Davies, 2008; $p = .984$), age of acquisition (Kuperman et al., 2012; $p = .787$), valence (Mohammad & Turney,

2013; $p = .807$), arousal (Mohammad & Turney, 2013; $p = .313$), or dominance (Mohammad & Turney, 2013; $p = .607$). Furthermore, while only 13 of these activities were included in the most extensive list of concreteness norms we were able to find (Scott et al., 2019; control: *accelerate*, *guard*, *launch*, *lead*, *progress*, *protect*; truth: *discover*, *explore*, *imagine*, *judge*, *review*, *seek*, *wonder*), these subsets of control-oriented and truth-oriented stimuli did not differ in terms of concreteness ($p = .154$).

Procedure. After consenting to participate in the study, participants completed three motivational measures in the following order: the Regulatory Focus Strength measure (Higgins et al., 1997), the Regulatory Mode Questionnaire (Kruglanski et al., 2000), and the Regulatory Focus Questionnaire (Higgins et al., 2001). Next, participants proceeded to the activity importance rating task, thus encountering all activities for the first time. Then, participants completed a brief distractor task (ten visual pattern-completion items from Raven's Progressive Matrices; Raven & Raven, 2003). After this distractor, participants completed an unaided recall task in which they listed as many of the activities that they had rated earlier as they were able to remember. (This unaided recall task was intended to probe the accessibility of the activities presented earlier in the study.) Finally, after completing these tasks, participants optionally provided brief demographic information; we then debriefed, thanked, and compensated them.

Results

A paired-sample *t*-test revealed that participants rated truth-oriented activities ($M = 68.65$, $SD = 12.37$) as more important than control-oriented activities ($M = 63.30$, $SD = 15.67$) in their own lives, $t(65) = 3.38$, $p = .001$, Cohen's $d = 0.38$ [95% CI: 0.04, 0.73].[2]

[2] A similar pattern of results emerged when we also included the truth-oriented activities (*consider*, *inquire*, *investigate*) and control-oriented activities (*control*, *manage*, *operate*) that were *not* regulatory focus-specific in these analyses: participants rated truth-oriented activities ($M = 70.37$, $SD = 11.92$) as more important than control-oriented activities ($M = 63.46$, $SD = 15.20$) in their own lives, $t(65) = 4.55$, $p < .001$, Cohen's $d = 0.50$ [95% CI: 0.16, 0.86]. Additionally, this difference persisted when analyses also included general goal pursuit activities (e.g., *achieve*,

Discussion

The results of this study indicated that people believe truth-oriented activities are more important than control-oriented activities, thus providing initial evidence that lay perceptions of the predominance of truth versus control may differ from most psychological theories. However, it remained unclear if these results were specific to this moderately sized sample of M-Turk workers. Study 1B allowed us to test if these results would replicate for a larger sample drawn from a different population within a lab study.

Study 1B

Like Study 1A, Study 1B examined the relative importance to participants of engaging in control- versus truth-oriented goal pursuit activities. The original purpose of Study 1B was to replicate Study 1A among members of a university community using an experimental manipulation of regulatory focus (rather than a measure of chronic focus strength). Beyond this between-subjects regulatory focus manipulation, the procedure of Study 1B was identical to Study 1A, except for several slight differences described below.

Method

Transparency and Openness. All data, research materials, and analysis code for the study's original purpose are available at https://osf.io/nce9x/. All analysis code for the present research is available at https://osf.io/9kjt3/. Data were analyzed using R, version 4.0.2 (R Core Team, 2020). Although this study's design, hypotheses, and analysis plan were preregistered for its original purpose (see https://osf.io/efj9q), they were not preregistered for the purpose of the present research.

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shower). A repeated measures ANOVA with three levels of the activity type variable (control, truth, general) revealed significant differences among the importance ratings of the three activity types, and the difference between control and truth remained significant, $p < .001$.

Participants. Participants were members of a university community in the northeastern U.S. who had opted in to receive recruitment materials from a behavioral research lab on campus. All participants received $5 for their time. Although this study's preregistration for its original purpose included a stopping rule of 150 participants, data collection ended with a hiatus on human subjects research mandated by the university in March 2020 in response to the Covid-19 pandemic. As a result, Study 1B includes data from the 125 participants who completed testing prior to this date. We excluded three of these participants for failing to properly complete the regulatory focus induction manipulation, our primary independent variable, thus indicating a lack of attention. Additionally, as in Study 1A, given that our hypotheses for the study's original purpose related to the subtle connotations of English words, we planned to conduct this research with only native English speakers. If 10% or more of a given dataset comprised participants who reported not being native English speakers, then we would conduct all analyses both including and excluding the non-native English speaker participants and would report any differences that emerged. Because 44 of the remaining 122 participants (36.1%) reported a native language other than English, we did not exclude these participants from our analyses.[3] The final sample thus included 122 participants (M_{age} = 24 years; 60% female; 37% male; 3% gender unspecified; 48% Asian; 24% White; 16% multiracial; 7% Hispanic; 4% Black; see Supplementary Material for more detailed participant demographics). A post-hoc sensitivity analysis (G*Power; Faul et al., 2009; two-tailed; $\alpha = 0.05$; power = 0.8) indicated that a sample of this size would be sufficient to detect an effect of $d = 0.26$ or larger.

Procedure. After consenting to participate in the study, participants initially completed a randomly-assigned motivational induction intended to manipulate their current regulatory focus.

[3] No differences emerged in the pattern of findings when examined among native English speakers only. (For the complete results of this analysis, see the Supplementary Material.)

Although this manipulation was included for the study's original purpose, it was unrelated to the present investigation; for the full motivational induction text, please see the Supplementary Material.[4]

Following this between-subjects manipulation, the experiment proceeded similarly to Study 1A. Participants first rated the importance of 39 activities, including the 12 control activities ($\alpha = 0.86$) and the 12 truth activities ($\alpha = 0.81$) from Study 1A.[5] As in Study 1A, participants explicitly rated the importance of these activities. The only difference in this importance rating task was the scale participants used when responding to the question, "How important is it that you engage in this activity?" Rather than responding using a 101-point sliding scale as in Study 1A, participants in Study 1B responded using a 9-point scale (1 = *not at all important* to 9 = *extremely important*). Next, participants completed the same distractor and unaided recall tasks administered in Study 1A. Then, participants optionally provided brief demographic information. Finally, we debriefed, thanked, and compensated participants.

Results

A paired-sample *t*-test revealed that participants rated truth-oriented activities ($M = 6.40$, $SD = 0.94$) as more important than control-oriented activities ($M = 5.98$, $SD = 1.07$) in their own lives, $t(121) = 4.96$, $p < .001$, Cohen's $d = 0.42$ [95% CI: 0.17, 0.68].[6]

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[4] A 2x2 repeated measures ANOVA did not reveal any interaction between this manipulation and activity domain (truth versus control) when predicting activity importance ratings ($p = .235$).

[5] This activity list differed from the activity list in Study 1A in two ways. First, it included only three (versus six) general everyday activities (e.g., *shower*). Second, it also included general activities related to the attainment of regulatory focus-specific *outcomes* (e.g., *gain*, *secure*). See Table 1 for the complete activity list.

[6] A similar pattern of results emerged when we also included the truth-oriented activities (*consider*, *inquire*, *investigate*) and control-oriented activities (*control*, *manage*, *operate*) that were *not* regulatory focus-specific in these analyses: participants rated truth-oriented activities ($M = 6.50$, $SD = 0.92$) as more important than control-oriented activities ($M = 6.03$, $SD = 1.02$) in their own lives, $t(121) = 5.58$, $p < .001$, Cohen's $d = 0.48$ [95% CI: 0.23, 0.74]. Additionally, this difference persisted when analyses also included general goal pursuit activities (e.g., *achieve*, *shower*). A repeated measures ANOVA with three levels of the activity type variable (control, truth, general) revealed significant differences among the importance ratings of the three activity types, and the difference between control and truth remained significant, $p < .001$.

Discussion

The results of Study 1B replicated the results of Study 1A in a larger lab-based sample. Across both studies, participants consistently reported lay beliefs that truth-oriented goal pursuit activities are more important than control-oriented goal pursuit activities. Collectively, these findings provided converging initial evidence that U.S. adults, on average, possess lay theories indicating that truth is more important than control.

Despite the similarity of results across Studies 1A and 1B, a key limitation of these studies is that the datasets only allowed for examination of participants' beliefs about the relative importance of control versus truth *goal pursuit activities*. They did not specifically probe beliefs about control versus truth motives more broadly. As a next step, we examined the extent to which individuals' broader motive priorities also reflected a difference in beliefs about the importance of control versus beliefs in the importance of truth. Additionally, we investigated whether these priorities extend to beliefs about different agents' minds—in particular, participants' conceptualizations of God.

Study 2

Study 2 included the same activity importance measure as Studies 1A and 1B, which allowed us to investigate once more whether U.S. adults do, in fact, believe that truth-oriented motivated activities are more important than control-oriented activities. Furthermore, in Study 2, we examined participants' lay beliefs about the relative importance of control versus truth motives in general, beyond their activity-specific preferences. Finally, this dataset also allowed us to examine a potential boundary condition: Does this prioritization of truth (versus control) extend to individuals' representations of God? We were interested in examining God concepts as they may help reveal whether people's beliefs about the relative predominance of their own motives are specific to the self or, instead, can be generalized to other agents, perhaps even

extending to supernatural agents. In particular, we chose to test participants' God concepts as this special case allowed us to directly compare competing hypotheses. Because many religions teach that God is very different from a person (Barrett, 1999), it is possible that participants would hold disparate beliefs about the centrality of truth versus control for God as opposed to for humans. Nevertheless, because past work indicates that people frequently anthropomorphize God (e.g., Epley et al., 2009; Heiphetz et al., 2016), it is also possible that participants' beliefs about motive predominance would be applied consistently to both God and the self. As such, this study offered insight into whether individuals extend beliefs about their own motivational priorities. Such an examination was possible as the original purpose of Study 2 was to test for associations between participants' God concepts and their personal motive priorities (for more detail on the original research in which these data were collected, see Study 2 in Nakkawita & Heiphetz, 2023; indeed, these studies did detect the hypothesized association).

Method

Transparency and Openness

All data, research materials, and analysis code for the study's original purpose are available at https://osf.io/tw8b9/. All analysis code for the present research is available at https://osf.io/9kjt3/. Data were analyzed using R, version 4.0.2 (R Core Team, 2020). Although this study's design, hypotheses, and analysis plan were preregistered for its original purpose (see https://aspredicted.org/MQK_SUT), it was not preregistered for the purpose of the present research.

Participants

We recruited 302 U.S.-based adults 18+ years of age using M-Turk. We promised all participants a $0.67 reward in M-Turk if they finished the study and properly completed a task in which they wrote an essay in their own words; if they did not properly complete the essay-writing

task, they would earn only $0.05. Participants agreed to this payment structure during the consenting process. We excluded eight participants who failed attention checks as well as one participant who did not complete our key measures of interest. After excluding these participants, a sample of 293 participants remained (M_{age} = 43 years; 66% female; 34% male; 81% White; 6% Asian; 5% multiracial; 4% Black; 3% Hispanic; <1% Native American; <1% other race/ethnicity; 60% Christian; 31% non-religious/atheist/agnostic; see Supplementary Material for more detailed participant demographics).[7] A post-hoc sensitivity analysis (G*Power; Faul et al., 2009; two-tailed; $\alpha = 0.05$; power = 0.8) indicated that a sample of this size would be sufficient to detect an effect of $d = 0.16$ or larger.

Procedure

After consenting to participate in the study, each participant was randomly assigned to one of two between-subjects conditions intended to temporarily induce a control- or truth-dominant God concept by asking participants to summarize an essay about God's omnipotence or omniscience, respectively. Although this manipulation was included for the study's original purpose, it was unrelated to the present investigation; for the full God concept induction text, please see the Supplementary Material.

After this experimental induction, participants completed a contrast differential measure probing the control- (versus truth-) dominance of their God concepts as a manipulation check (1 = *All-knowing is much more important than all-powerful*; 6 = *All-powerful is much more important than all-knowing*). Next, participants completed a second contrast differential measure probing the control- (versus truth-) dominance of their personal motives (1 = *Truth is much more*

[7] Given that Studies 2 and 3 examined God concepts in addition to motive predominance, for exploratory purposes, we compared the responses of Christian versus non-Christian participants as well as participants who did versus did not affiliate with any religion. For the results of these analyses, see the Supplementary Material (including Figures S1 and S2). Because we did not observe reliable differences across religious groups, did not predict such differences, and did not design these studies to look for such differences, the main text reports results across religious groups.

important than control; 6 = *Control is much more important than truth*). In both contrast differential measures, we randomly varied the placement of control- (versus truth-) dominance within the scales. For example, with respect to God concepts, half of participants responded using a scale in which *All-powerful is much more important than all-knowing* was located on the far right, and the other half responded to a scale in which *All-knowing is much more important than all-powerful* was placed on the far right.

Then, participants responded to two additional motive measures in a randomized order. They completed an activity importance measure similar to the measures administered in Studies 1A and 1B probing the importance of engaging in a more limited subset of goal pursuit activities related to control (8 items; e.g., propel, defend; $\alpha = 0.81$) and truth (8 items; e.g., discover, verify; $\alpha = 0.85$; see Table 1 for the complete activity list). Like Study 1B, participants responded to these items on nine-point scales (1 = *Not important at all*; 9 = *Absolutely essential*). Participants also completed a motive importance measure with separate subscales for control (5 items; e.g., "It is important that I have the opportunity to control what happens"; $\alpha = 0.81$) and truth (4 items; e.g., "It is important that I have the chance to figure things out"; $\alpha = 0.81$; Cornwell et al., 2018). (For more detail on this measure, see the Supplementary Material.) Participants responded to these items on seven-point scales (1 = *Not at all important*; 7 = *Extremely important*). Finally, after participants optionally provided brief demographic information, we thanked and compensated them.

Results

Motive Dominance. A paired-sample *t*-test revealed that, when rated using control versus truth activity importance subscales, participants perceived truth-oriented activities ($M = 6.55$, $SD = 1.16$) as more important than control-oriented activities ($M = 5.48$, $SD = 1.14$) in their own lives, $t(292) = 14.66$, $p < .001$, Cohen's $d = 0.92$ [95% CI: 0.76, 1.10].

We then examined participants' beliefs in the importance of control versus beliefs in the importance of truth using the control versus truth subscale-based measures. A paired-sample *t*-test revealed that participants rated truth motives ($M = 5.71$, $SD = 0.90$) as more personally important than control motives ($M = 5.31$, $SD = 0.88$), $t(292) = 7.78$, $p < .001$, Cohen's $d = 0.46$ [95% CI: 0.30, 0.62].

Next, we examined the relative importance of control versus truth motives using the contrast differential measure. A one-sample *t*-test comparing the sample mean to the scale midpoint of 3.5 revealed that participants reported personal motives more dominant in truth versus control ($M = 2.04$, $SD = 1.26$), $t(292) = –19.80$, $p < .001$, Cohen's $d = 1.16$.[8]

God Concept Dominance. Despite including a God concept manipulation within the study, we were also interested in testing for differences in the control versus truth dominance of participants' God concepts across both experimental conditions to investigate whether truth dominance would emerge when collapsing across all participants' responses.[9] In particular, given

[8] To test for associations among the various motive dominance measures included in this study, we also calculated predominance scores for the subscale-based activity importance and motive importance measures by subtracting each participant's truth importance score from his or her control importance score. We then conducted correlational analyses examining the relations among participants' three motive predominance scores: control (vs. truth) activity importance and subscale-based control (vs. truth) motive importance ($r(291) = .40$, $p < .001$); control (vs. truth) activity importance and contrast differential-based control (vs. truth) motive importance ($r(291) = .25$, $p < .001$); subscale-based control (vs. truth) motive importance and contrast differential-based control (vs. truth) motive importance ($r(291) = .18$, $p = .002$).

[9] Although not the focus of the present study, it is worth noting that participants who completed the Control (Omnipotent) God concept induction reported God concepts that were more control-dominant ($M = 3.45$, $SD = 1.54$) than participants who completed the Truth (Omniscient) God concept induction ($M = 2.79$, $SD = 1.34$; $t(269.66) = 3.83$, $p < .001$, Cohen's $d = 0.45$ [95% CI: 0.22, 0.69]). These results indicated that the experimental inductions

that our present examination investigated a fairly broad claim—that people believe that truth matters more than control in general—we were interested to test whether this tendency toward truth-dominance would emerge even when looking across varying conditions in which control versus truth were presented as especially important. A one-sample *t*-test comparing the sample mean to the scale midpoint of 3.5 revealed that participants reported God concepts more dominant in truth versus control ($M = 3.10$, $SD = 1.47$), $t(291) = -4.65$, $p < .001$, Cohen's $d = 0.27$.

Discussion

Study 2 provided additional evidence indicating that individuals commonly hold lay beliefs that truth is more important than control. This study replicated the activity importance findings from Studies 1A and 1B, providing additional evidence that, on average, U.S. adult participants believe that truth-oriented goal pursuit activities are more personally important than control-oriented activities. Furthermore, Study 2 afforded the opportunity to conceptually replicate these findings by probing motive importance beyond specific goal pursuit activity ratings. Both when responding to control versus truth motive importance subscales and when using a contrast differential measure that directly pitted control against truth, participants reported believing that truth motives are more important than control motives.

Finally, this study allowed for the examination of a potential boundary condition of this preference for truth: Do people view control or truth as more central in their God concepts? On the one hand, many religions teach that God is very different from a person (Barrett, 1999). On the other hand, people tend to hold anthropomorphic God concepts (e.g., Epley et al., 2009; Heiphetz et al., 2016). As a result, this study provided new insight into whether individuals'

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successfully manipulated the extent to which participants attributed truth- and control-related attributes to God. However, as noted above, the overall pattern of truth- (versus control-) dominant God concepts emerged when collapsing across this manipulation.

beliefs about their motivational priorities are unique to the self, or instead if people apply such beliefs to an agent very different from themselves. Results revealed that, similarly to their personal motive priorities, participants reported believing that God's truth-oriented omniscience is more important than God's control-oriented omnipotence, even after completing an induction that successfully manipulated the control versus truth orientation of their God concepts. In line with research on anthropomorphic God concepts, these findings indicate that people may tend to see God as similar to themselves on this motivational dimension.

Despite the consistency of the evidence across Studies 1A, 1B, and 2, what remained unclear was whether the results depended on the use of explicit self-report measures. This reliance on explicit measures was limiting for several reasons. First, participants may have believed that it is more socially desirable to indicate that they are motivated by truth rather than control, given common pejorative terms related with the latter (e.g., "control freak"). Additionally, even if the findings did not result from a socially desirable response bias, self-report and behavioral measures often are only associated weakly (if at all; see, for example, Dang et al., 2020), so it is possible that the pattern of truth-dominance detected thus far would differ when measured using an implicit measure. An additional limitation of Studies 1A, 1B, and 2 is that participants could have construed the explicit measures administered in these studies as truth-oriented tasks given that the measures asked about what these participants really *believe*. To address these concerns, Study 3 examined participants' motive predominance using both implicit and explicit measures. Finally, a potential limitation of Study 2 was that participants were randomly assigned to complete a God concept induction at the beginning of the study that was relevant to the study's original purpose but unrelated to our present investigation. In Study 3, we wanted to test participants' motive and God concept predominance with a design that did not involve an experimental manipulation.

Study 3

As in Study 2, the original purpose of Study 3 was to test for associations between participants' God concepts and their personal motive priorities (for more detail on the original research within which these data were collected, see Study 1 in Nakkawita & Heiphetz, 2023). As such, Study 3 examined the control- (versus truth-) dominance of individuals' personal motives as well as their God concepts using both explicit (i.e., self-report) and implicit (i.e., response latency-based) measures. Notably, the implicit measures selected for Study 3 went beyond the explicit importance ratings administered in Studies 1A, 1B, and 2 to measure the relative strength of the associations between the paired categories of *control* and *me* as well as *truth* and *not me* as compared to the paired categories of *truth* and *me* as well as *control* and *not me*. By measuring the relative strength of these different sets of associations using a speeded reaction-time task, Study 3 probed the extent to which participants associated words related to themselves (e.g., me, my) with control versus truth, automatically and outside of awareness. We also examined the relative strength of a similar set of associations when the categories of *control* and *truth* were paired with *God*.

Method

Transparency and Openness

All data, research materials, and analysis code for the study's original purpose are available at https://osf.io/vf4xy/. All analysis code for the present research is available at https://osf.io/9kjt3/. Data were analyzed using R, version 4.0.2 (R Core Team, 2020). Although this study's design, hypotheses, and analysis plan were preregistered for its original purpose (see https://aspredicted.org/JIT_YNY), it was not preregistered for the purpose of the present research.

Participants

A power analysis for an unrelated investigation within this study had indicated a required sample size of 388; to account for potential participant exclusions, we enrolled 468 U.S.-based M-Turk workers 18+ years old. All participants received $1 after completing the study. We excluded 50 participants who failed an attention check that had prompted them to briefly describe the gist of any question they had answered earlier in the study. We also excluded 22 participants who did not complete all measures of interest, thus indicating a lack of attention. After excluding these inattentive participants, a sample of 396 participants remained (M_{age} = 37 years; 48% female; 51% male; <1% other gender; 74% White; 15% Black; 7% Asian; 6% Hispanic; 1% Native American; <1% other race/ethnicity; 55% Christian; 38% non-religious/atheist/agnostic; see Supplementary Material for more detailed participant demographics). A post-hoc sensitivity analysis (G*Power; Faul et al., 2009; two-tailed; $\alpha = 0.05$; power = 0.8) indicated that a sample of this size would be sufficient to detect an effect of $d = 0.14$ or larger.

Procedure

This research involved a correlational design containing a series of implicit measures followed by contrast differential measures. Participants completed implicit measures first as these measures assessed the accessibility of associations between constructs; as a result, they could be especially susceptible to priming effects were another task to be administered beforehand. Within each set of measures, one measure examined personal motive predominance and a second measure examined participants' God concepts.

First, to probe the control- (versus truth-) dominance of participants' implicit motives and God concepts, they completed two measures in a random order. To assess the implicit control- (versus truth-) dominance of participants' personal motives, they completed an Implicit Association Test (IAT; Greenwald et al., 1998), a categorization task that assesses the extent to which target object (in this case, either *me* or *not me*) is associated in memory with target

concepts (in this case, *control* versus *truth*). Importantly, research indicates that the Javascript-based software we used to administer the IAT within the Qualtrics survey platform provides a reliable and valid assessment of individuals' implicit associations (Carpenter et al., 2019). Additionally, a growing body of work has involved the successful administration of online IAT tasks (e.g., Charlesworth & Banaji, 2022; Heiphetz et al., 2015; Nosek et al., 2002; Ofosu et al., 2019).

In this task, 36 English words served as stimuli: 6 *me* words (I, me, mine, my, myself, self); 6 *not me* words (not me, other, their, theirs, them, they); and the same 12 *control*-oriented and 12 *truth*-oriented regulatory focus-specific activities examined within Studies 1A and 1B (see Table 1 for reference). After introducing participants to these four categories, an introductory screen explicitly specified which words fell in each category so that participants would *not* construe the task as a truth-seeking exercise. After reviewing these category details, the task appeared within the Qualtrics survey. Upon encountering the task, participants placed their left and right index fingers on their E and I keys, respectively. Category labels appeared at each of the upper corners of the screen. Instructions noted that words would appear in the middle of the screen and that participants should indicate the category to which each word belongs by pressing the associated key. Participants also learned that mistakes would be flagged with a red "X" and that they should correct mistakes by pressing the other key. To balance concerns with speed (i.e., control) and accuracy (i.e., truth), instructions directed participants to proceed as quickly as they could while making as few mistakes as possible. In all blocks of trials, the software selected the activities randomly and without replacement until the block's activity list was exhausted. Activities appeared one at a time with an inter-trial interval of 250 ms. Each activity remained on-screen until the participant's correct categorization response. For each trial, the software recorded the stimulus word, whether the participant's initial categorization decision was correct

or incorrect, and the participant's response latency in correctly categorizing the word. As per common practice when working with response latency data (e.g., Carpenter et al., 2019), we excluded activity categorization decisions for which the response latency was too short (under 250 ms), thus indicating overly fast responding (i.e., "button mashing"), and too long (over 10,000 ms), indicating a lack of attention.

As is typical in IAT tasks (Greenwald et al., 1998), the implicit motive IAT in this study included seven trial blocks: (a) initial *me* versus *not me* discrimination using the 12 stimuli associated with these categories; (b) initial *control* versus *truth* discrimination using the 24 stimuli associated with these categories; (c) initial combined task that included both the *me* versus *not me* category labels as well as the *control* versus *truth* category labels using all 36 stimuli associated with both sets of categories; (d) follow-up combined task using all 36 stimuli; (e) initial reversed *truth* versus *control* discrimination using the 24 stimuli associated with these categories; (f) initial reversed, combined task using both sets of category labels and all 36 stimuli; and (g) follow-up reversed, combined task using all 36 stimuli. Trial blocks (a), (b), (c), and (f) consisted of 20 trials; trial blocks (d), (e), and (g), consisted of 40 trials. Each trial block began with instructions that listed the category discrimination(s) to be made in the block and the response key assignments (E versus I) for each category. Category labels appropriately positioned at the upper left and right corners of the screen remained on-screen during each block. Furthermore, we randomized the placement of these category labels across participants.

We calculated the implicit measure of control (versus truth) motive dominance by comparing participants' performance in steps (c) and (d) (i.e., the first set of trials combining both the *me* versus *not me* and *control* versus *truth* category labels) to their performance in steps (f) and (g) (i.e., the second set of trials combining both the *me* versus *not me* and *control* versus *truth* category labels, in which the placement of the *control* and *truth* labels was reversed). To

assess the relative strength of the associations between (a) *me* and *control* as well as *not me* and *truth* as compared to (b) *me* and *truth* as well as *not me* and *control*, we calculated the IAT *d* score (Greenwald et al., 1998), which represents the difference in mean latency between the two sets of associations. A *d* score greater than zero indicated stronger associations between *me* and *control* as well as *not me* and *truth*, as compared to *me* and *truth* as well as *not me* and *control* (i.e., control-dominant motives), and a *d* score less than zero indicated the reverse (i.e., truth-dominant motives).

Separately, to probe participants' implicit control- (versus truth-) God concept dominance, they completed a Single-Category Implicit Association Test (SCIAT; Karpinski & Steinman, 2006), a categorization task that assesses the extent to which target object (in this case, *God*) is associated in memory with target concepts (in this case, *control* versus *truth*). We selected the SCIAT because it allowed us to assess the relative strength of participants' implicit associations between *God* and *control* versus *God* and *truth* without needing to determine and specify a complement to *God* as the target (e.g., *humanity*; *Satan*), as would have been necessary within the standard IAT paradigm. In particular, we adapted this task from a SCIAT administered to examine the associations between God and abstraction in previous research (Testoni et al., 2016). In this task, 34 English words served as stimuli: 10 *God* words taken directly from this prior research (almighty, deity, divinity, faith, heaven, holiness, lord, prayer, religion, spirituality) and the 12 *control* and 12 *truth* activities of interest from the prior studies (see Table 1).

The SCIAT examining God concept proceeded very similarly to the IAT used to assess motives, with a few exceptions. Consistent with an SCIAT task used to examine God concepts in prior research (Testoni et al., 2016), the SCIAT task in this study included five trial blocks: (a) initial *control* versus *truth* discrimination using the 24 stimuli associated with these categories; (b) initial combined task that included both the *control* versus *truth* category labels as well as the

God category label using all 34 stimuli associated with all categories; (c) follow-up combined task using all 34 stimuli; (d) initial reversed, combined task using all category labels and all 34 stimuli; and (e) follow-up reversed, combined task using all 34 stimuli. Trial blocks (a), (b), and (d) consisted of 24 trials, while trial blocks (c) and (e) consisted of 72 trials. We calculated the implicit measure of control (versus truth) God concept dominance by comparing participants' performance in steps (b) and (c) (i.e., the first set of trials combining the *God* label with the *control* versus *truth* category labels) to their performance in steps (d) and (e) (i.e., the second set of trials combining the *God* label with the *control* versus *truth* labels, in which the placement of the *control* and *truth* labels was reversed). To assess the relative strength of the associations between *God* and *control* versus *God* and *truth*, we calculated the SCIAT *d* score (Karpinski & Steinman, 2006), which represents the difference in mean latency between the two sets of associations. A *d* score greater than zero indicated stronger associations between *God* and *control* than *God* and *truth* (i.e., control-dominant motives), and a *d* score less than zero indicated the reverse (i.e., truth-dominant motives).

Finally, to probe the control- (versus truth-) dominance of participants' explicit motives and God concepts, participants responded to the same two contrast differential measures administered in Study 2 in a random order. After completing these contrast differential measures, participants optionally provided brief demographic information; we then thanked and compensated them.

Results

Motive Dominance. First, we examined the relative importance of explicit control versus truth motives using the contrast differential measure. A one-sample *t*-test comparing the sample mean to the scale midpoint of 3.5 revealed that participants reported explicit personal motives

more dominant in truth versus control (M = 2.53, SD = 1.47), $t(395) = -13.12$, $p < .001$, Cohen's $d = 0.66$.

Then, we examined the implicit predominance of control versus truth motives using the response latency-based IAT measure. A one-sample *t*-test comparing the sample's mean *d* score to a *d* score of 0 (i.e., a score reflecting no predominance) revealed that participants' implicit motives were truth- (versus control-) dominant and significantly differed from the midpoint (M = -0.22, SD = 0.39), $t(395) = -11.20$, $p < .001$, Cohen's $d = 0.56$.

Finally, we conducted a correlational analysis to test for associations between the explicit and implicit predominance of participants' control versus truth motives. This analysis revealed a significant positive relation between these variables, $r(394) = 0.15$ [95% CI: 0.05, 0.24], $p = .003$. This finding contributes to work on the relation between implicit and explicit attitudes (Greenwald & Banaji, 2017; Heiphetz, Spelke, & Young, 2015; Nosek, 2007) by showing that participants' implicit and explicit self-concepts are aligned, at least to some extent, when testing motives for control versus truth.

God Concept Dominance. Next, we examined the explicit dominance of control (i.e., omnipotent) versus truth (i.e., omniscient) God concepts using the contrast differential measure. A one-sample *t*-test comparing the sample mean to the scale midpoint of 3.5 revealed that participants reported explicit God concepts more dominant in truth than control (M = 3.24, SD = 1.65), $t(395) = -3.11$, $p = .002$, Cohen's $d = 0.16$.[10]

We also examined the implicit predominance of control versus truth God concepts using the response latency-based SCIAT measure. A one-sample *t*-test comparing the sample's mean *d* score to a *d* score of 0 (i.e., a score reflecting no predominance) revealed that participants'

[10] When this analysis was conducted with a dataset that included all recruited participants, including those who were excluded for inattentiveness, this correlation fell to non-significance. For the complete results of this analysis, please see the Supplementary Material.

implicit God concepts were truth- (versus control-) dominant and significantly differed from the midpoint (M = -0.05, SD = 0.29), $t(395)$ = -3.14, p = .002, Cohen's d = 0.16.

Finally, we conducted a correlational analysis to test for associations between the explicit and implicit predominance of participants' God concepts. This analysis indicated no relation between these variables, $r(394)$ = -0.03 [95% CI: -0.13, 0.06], p = .449. Furthermore, a z-test comparing the size of this (non-significant) relation between explicit and implicit God concepts to the size of the relation between explicit and implicit motives revealed a significant difference between these correlations, z = 2.61, p = .009.

Discussion

Study 3 provided further evidence for the proposal that individuals commonly believe that truth takes priority over control. As in Study 2, participants reported being truth- (versus control-) dominant with regard to their personal motives and God concepts within contrast differential measures. Furthermore, Study 3 revealed a consistent pattern of findings when examining participants' motives and God concepts using implicit response latency-based measures. These results indicated that the truth- (versus control-) dominant lay theories detected within prior studies did not simply result from the truth-oriented nature of the explicit measures probing motive and God concept predominance, as a similar pattern emerged when these beliefs were assessed using behaviorally based implicit measures (i.e., control-oriented).

Additionally, Study 3 suggests that the broad pattern of truth predominance detected in the prior studies did not simply result from a socially desirable response bias, as past research has indicated that implicit measures such as the IAT can successfully detect socially undesirable implicit beliefs (e.g., racial preferences for White versus Black individuals) even when participants explicitly deny such beliefs (Nosek et al., 2002). However, the results of our investigations into the correlations between explicit and implicit measures revealed a notable

divergence among motives versus God concepts. Whereas we detected a significant positive association between participants' own explicit and implicit truth versus control self beliefs, we did not detect any association between their explicit and implicit truth versus control God concepts. We return to this point in the General Discussion.

Although Studies 1A, 1B, 2, and 3 provided consistent evidence for U.S. adults' beliefs in the truth (versus control) dominance, it remained unclear whether these results would generalize to other populations—particularly, those already known to differ from U.S. populations with respect to other motivational variables. Additionally, given that the data from these studies were originally collected for other purposes, we were interested in conducting a new study for the express purpose of testing the truth (versus control) dominance of participants' motivational lay beliefs. To address these limitations, we conducted Study 4.

Study 4

We preregistered and conducted Study 4 for the sole purpose of examining the truth (versus control) dominance of participants' personal motives using all explicit and implicit motivation measures administered in Studies 1A, 1B, 2, and 3. Additionally, in Study 4, we tested the generalizability of the findings from the prior studies by sampling from two distinct populations of English-speaking adults already established to vary on other motivational dimensions: participants currently based in the United States and participants currently based in India. These two cultures are particularly relevant given that past work demonstrated that the United States and India differ significantly with respect to the predominance of locomotion (a type of control motivation) versus assessment (a type of truth motivation; Higgins et al., 2008). For this reason, examining lay beliefs about the general predominance of truth versus control motives in these cultures provided a relatively conservative test of our hypothesis regarding the broad tendency toward truth-dominance. Finally, because nearly 80% of the population in India

reports adherence to Hinduism (Kramer, 2021), a polytheistic religious tradition, the notion of a single God concept is not generally applicable; thus, we did not proceed with any measures related to God concepts in this study.

Method

Transparency and Openness

All data, research materials, and analysis code are available at https://osf.io/9kjt3/. Data were analyzed using R, version 4.0.2 (R Core Team, 2020). This study's design, hypotheses, and analysis plan were preregistered (see https://aspredicted.org/W8C_TZX).

Participants

We determined the study's sample size by conducting a power analysis. Although the smallest effect size detected in the prior studies was $d = 0.27$ (Study 2), we proceeded with a conservative approach and decided to power Study 4 to detect an even smaller effect of $d = 0.20$ (a benchmark for a small effect size; J. Cohen, 1988). This analysis (G*Power; Faul et al., 2009; two-tailed; $\alpha = 0.05$; power = 0.8) indicated that 199 participants would be required. To account for potential exclusions, we set the target sample size from each population (U.S. and India) at 250 participants, for a total of 500 participants.

Given that our study materials were developed for the English language only and required the use of a computer with a keyboard, before allowing participants to complete the full study, we first recruited individuals categorized in M-Turk as being located in the U.S. or India to complete a brief screening survey using separate country-specific recruitment posts. This screening survey confirmed prospective participants' device type and asked them questions about their age and current location. It also included four multiple-choice English proficiency questions in which participants indicated synonyms for words taken from the questionnaires that would appear in the actual study. Among all participants whose screening results indicated that they were (a) 18 years

of age or older, (b) based in the country of interest (U.S. or India), (c) proficient in English, and (d) using a computer with a keyboard (i.e., not a tablet or mobile device), we provided the ability to view recruitment materials for their country's version of the actual study. Regardless of whether prospective participants who completed this screening survey met all four criteria, all received nominal compensation ($0.10) for their time. These screening recruitment posts were accessible on the M-Turk website until we reached our desired sample size for each population for the actual study, at which point we removed them. In total, we successfully screened 387 prospective U.S. participants and 290 prospective Indian participants.

Then, using country-specific M-Turk recruitment posts only accessible to those who successfully completed the screening survey, we recruited 250 U.S.-based adults and 250 India-based adults for the actual study. We promised all participants a $1.33 reward in M-Turk if they finished the study. Participants agreed to this payment structure during the consenting process. Among U.S. participants, we excluded one participant who misled us about their age in the screening survey and was not 18+ years old, one participant who indicated in response to a seriousness check question that they did not take the study seriously, six participants who failed a simple attention check in which we asked them to describe the general gist of any question from the study, and 15 participants who failed to complete one or more of our measures of interest, thus indicating a lack of attention. Among Indian participants, we excluded one participant who misled us about their study participation by providing the completion code without actually completing the study, one participant who indicated in response to a seriousness check question that they did not take the study seriously, 38 participants who failed a simple attention check in which we asked them to describe the general gist of any question from the study, and nine participants who failed to complete our key measures of interest. After excluding these participants, 227 participants remained in the U.S. sample (M_{age} = 40 years; 44% female; 54%

male; 1% other gender; 74% White; 11% Asian; 7% multiracial; 4% Black; 3% Hispanic; 1% Native American; <1% other race/ethnicity) and 201 participants remained in the Indian sample (M_{age} = 35 years; 26% female; 74% male; 90% Asian; <1% Hispanic; <1% multiracial; <1% White; 8% other race/ethnicity; see Supplementary Material for more detailed participant demographics for each sample).

Procedure

This research involved a correlational design containing an implicit motive measure followed by a series of explicit motive measures. As in Study 3, participants completed the implicit measure first as these measures would be more susceptible to priming effects were another task to be administered beforehand. After consenting to participate in the study, participants completed the same Implicit Association Test of motive predominance administered in Study 3 to assess the implicit control- (versus truth-) dominance of their personal motives. Next, participants responded to three explicit, self-report motive measures in a randomized order. As in Studies 1A, 1B, and 2, participants responded to an activity importance measure probing the importance of engaging in a subset of goal pursuit activities related to control (8 items; e.g., propel, defend; $\alpha_{U.S.}$ = 0.89; α_{India} = 0.87) and truth (8 items; e.g., discover, verify; $\alpha_{U.S.}$ = 0.87; α_{India} = 0.83) on nine-point scales (1 = *Not important at all*; 9 = *Absolutely essential*). As in Study 2, participants responded to a motive importance measure with separate subscales for control (5 items; e.g., "It is important that I have the opportunity to control what happens"; $\alpha_{U.S.}$ = 0.89; α_{India} = 0.78) and truth (4 items; e.g., "It is important that I have the chance to figure things out"; $\alpha_{U.S.}$ = 0.85; α_{India} = 0.73; Cornwell et al., 2018) on seven-point scales (1 = *Not at all important*; 7 = *Extremely important*). As in Studies 2 and 3, participants completed a contrast differential measure probing the control- (versus truth-) dominance of participants' personal motives (1 = *Truth is much more important than control*; 6 = *Control is much more important than truth*).

Finally, after participants optionally provided brief demographic information, we thanked and compensated them.

Results

U.S. Sample

A paired-sample *t*-test revealed that, when rated using control versus truth activity importance subscales, U.S. participants perceived truth-oriented activities ($M = 6.60$, $SD = 1.28$) as more important than control-oriented activities ($M = 5.38$, $SD = 1.51$) in their own lives, $t(226) = 14.38$, $p < .001$, Cohen's $d = 0.87$ [95% CI: 0.68, 1.06].

We then examined participants' beliefs about the relative importance of control versus truth motives using the control versus truth subscale-based measures. A paired-sample *t*-test revealed that U.S. participants rated truth motives ($M = 5.79$, $SD = 0.90$) as more personally important than control motives ($M = 5.39$, $SD = 0.98$), $t(226) = 7.05$, $p < .001$, Cohen's $d = 0.43$ [95% CI: 0.24, 0.61].

Next, we examined the relative importance of control versus truth motives to U.S. participants using the contrast differential measure. A one-sample *t*-test comparing the sample mean to the scale midpoint of 3.5 revealed that U.S. participants reported personal motives more dominant in truth versus control ($M = 2.47$, $SD = 1.21$), $t(226) = –12.85$, $p < .001$, Cohen's $d = 0.85$.[11]

Then, we examined the implicit predominance of control versus truth motives among U.S. participants using the response latency-based IAT measure. A one-sample *t*-test comparing the sample's mean *d* score to a *d* score of 0 (i.e., a score reflecting no predominance) revealed that

[11] As in Study 2, we conducted correlational analyses examining the relations among participants' three explicit motive predominance scores: control (vs. truth) activity importance and subscale-based control (vs. truth) motive importance ($r(225) = .48$, $p < .001$); control (vs. truth) activity importance and contrast differential-based control (vs. truth) motive importance ($r(225) = .27$, $p < .001$); subscale-based control (vs. truth) motive importance and contrast differential-based control (vs. truth) motive importance ($r(225) = .35$, $p < .001$).

U.S. participants' implicit motives were truth- (versus control-) dominant and significantly differed from the midpoint (M = -0.26, SD = 0.36), $t(226)$ = -0.86, $p < .001$, Cohen's d = 0.72.

Finally, as in Study 3, we conducted an exploratory correlational analysis to test for associations between participants' implicit and explicit motive predominance using the IAT-based and contrast-differential-based measures, respectively. This analysis revealed no significant relation between these variables, $r(225) = 0.09$ [95% CI: –0.04, 0.21], $p = .193$.

Indian Sample

A paired-sample t-test revealed that, when rated using control versus truth activity importance subscales, Indian participants perceived truth-oriented activities (M = 7.03, SD = 1.04) as more important than control-oriented activities (M = 6.71, SD = 1.19) in their own lives, $t(200) = 4.33$, $p < .001$, Cohen's d = 0.28 [95% CI: 0.09, 0.48].

We then examined Indian participants' beliefs about the relative importance of control versus truth motives using the control versus truth subscale-based measures. A paired-sample t-test revealed that Indian participants rated truth motives (M = 5.97, SD = 0.73) as more personally important than control motives (M = 5.89, SD = 0.72), $t(200) = 2.06$, $p = .040$, Cohen's d = 0.11 [95% CI: -0.08, 0.31].[12]

Next, we examined the relative importance of control versus truth motives to Indian participants using the contrast differential measure. A one-sample t-test comparing the sample mean to the scale midpoint of 3.5 revealed that Indian participants reported personal motives more dominant in truth versus control (M = 2.85, SD = 1.63), $t(200) = –5.71$, $p < .001$, Cohen's d = 0.40.[13]

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[12] When this analysis was conducted with a dataset that included all recruited participants, including those who were excluded for inattentiveness, this correlation fell to marginal significance. For the complete results of this analysis, please see the Supplementary Material.

[13] As above, we conducted correlational analyses examining the relations among participants' three explicit motive predominance scores: control (vs. truth) activity importance and subscale-based control (vs. truth) motive importance

Then, we examined the implicit predominance of control versus truth motives among Indian participants using the response latency-based IAT measure. A one-sample *t*-test comparing the sample's mean *d* score to a *d* score of 0 (i.e., a score reflecting no predominance) revealed that Indian participants' implicit motives were truth- (versus control-) dominant and significantly differed from the midpoint (M = -0.23, SD = 0.40), $t(200) = -7.97$, $p < .001$, Cohen's $d = 0.56$.

Finally, as in Study 3 and as among U.S. participants in Study 4, we conducted an exploratory correlational analysis to test for associations between participants' implicit and explicit motive predominance using the IAT-based and contrast-differential-based measures, respectively. This analysis revealed a significant positive relation between these variables, $r(199) = 0.21$ [95% CI: 0.07, 0.34], $p = .003$.

Discussion

Study 4 provided additional evidence from a preregistered cross-cultural investigation indicating that people tend to hold lay beliefs that truth is more important than control. Among the U.S.-based portion of the sample, we replicated findings from prior studies testing this same population, providing even more support for the proposal that adults living in the United States tend to be predominant in truth (vs. control) motives as measured based on activity importance ratings, subscale- and contrast-differential-based motive importance ratings, and implicit responses to an IAT-based sorting task. Furthermore, Study 4 afforded the opportunity to test the generalizability of these findings among individuals based in India, a population that might have been expected to differ based on past research on country-specific motivational profiles (Higgins et al., 2008). Similar to U.S. participants, among the Indian portion of the sample, individuals

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($r(199) = .14$, $p = .053$); control (vs. truth) activity importance and contrast differential-based control (vs. truth) motive importance ($r(199) = .11$, $p = .127$); subscale-based control (vs. truth) motive importance and contrast differential-based control (vs. truth) motive importance ($r(199) = .10$, $p = .158$).

tended to show predominance in truth (vs. control) motives across all explicit and implicit measures. These results suggest that beliefs in the predominance of truth (vs. control) are not specific to any given culture and may reflect a general trend.

Additionally, our exploratory analyses in Study 4 built on Study 3 to provide additional insight into the relations between participants' explicit and implicit motives. Although we did not find a significant correlation between these measures among U.S. participants, as we had in Study 3, we did find evidence for such an association among Indian participants.

General Discussion

To return to our initial question, which motive do you believe predominates in your own life: truth or control? Five studies with adult samples spanning the United States and India revealed converging evidence that people tend to hold lay theories positing that truth is predominant over control. This truth-dominant tendency emerged when measuring (a) participants' beliefs about the importance of truth- versus control-oriented goal pursuit activities, (b) their broad motivational preferences for truth versus control, and (c) their conceptualizations of God as omniscient (i.e., possessing complete truth) versus omnipotent (i.e., possessing complete control). Furthermore, this pattern of truth predominance persisted even when assessing participants' motives and God concepts using implicit measures, including measures of which motive is more associated with *me* and *God*.

To the best of our knowledge, the present research is the first to examine lay beliefs about the relative predominance of control versus truth motives. The current studies reveal that individuals' lay theories about the primacy of truth motives stand in contrast to a range of psychological theories which historically have emphasized control motives (e.g., Carver & Scheier, 1998; Deci & Ryan, 2000; Freud, 1923/1962; Miller et al., 1960). As such, the present research makes an important contribution to the literature on individuals' lay theories of

motivation. Furthermore, despite the fact that motivational orientations like regulatory focus and regulatory mode vary by cultural context (Higgins et al., 2008), the present research suggests that people's lay theories about the prioritization of truth (vs. control) exist in cultures that are quite different from each other (i.e., the U.S. and India).

With this said, while this research identified a robust difference in individuals' tendency to prioritize truth versus control, an open question asks why this is the case. One possibility is grounded in the proposition that morality is a fundamental psychological need (Prentice et al., 2019). Given that truth-oriented activities aim to establish what is real and *right* (Higgins, 2012), and because the feeling of "rightness" can be experienced both in terms of appropriateness and in terms of morality (Camacho et al., 2003), it is possible that truth-oriented activities may be conceptualized as fundamentally more morally good than control-oriented activities. Alternatively, the explanation might be more pragmatic. As noted in the introduction, because effective truth is a necessary precondition for effective control, people may infer that truth is more important. Future work is needed to investigate whether either of these hypothesized explanations for truth-predominance are supported.

Additionally, the present research offers new insight into the relations between implicit and explicit measures of personal motives and God concepts. Previous work has indicated that implicit and explicit measures may not always be associated, as only the latter reflects reasoned judgment; additionally, the extent of such association can differ widely across different attitude domains (Nosek, 2007). The present research reveals such variation: participants' implicit and explicit motives showed some correspondence in Study 3 and among Indian adults in Study 4, whereas implicit and explicit God concepts were unrelated. These results align with past work (e.g., Nosek, 2007) in suggesting that the degree of alignment between implicit and explicit cognition may vary across domains. In addition, they raise interesting questions about why such a

difference emerged. One possibility is that there could be a meaningful difference between the concepts of "all-powerful" and "all-knowing" that the explicit measure examined versus the control and truth activities that the implicit measure in Study 3 used. As an alternative explanation, it is possible that the various aspects of one's own self-concept (e.g., preferences, attitudes, capabilities) may be more knowable than concepts of other beings' selves. Thus, explicit beliefs about one's own motives may be more likely to correspond with implicit responses about the same. In contrast, God would seem to be quite unknowable from a practical perspective. Future work could examine directly whether such a dimension of "knowability" might help to explain differences implicit-explicit relations in different domains.

Additionally, the present studies contribute to a growing body of work on anthropomorphism within the cognitive science of religion literature. This body of work indicates that although people tend to explicitly attribute superhuman abilities to God, they also anthropomorphize God by imposing humanlike constraints, particularly when their God concepts are assessed implicitly (Barrett & Keil, 1996; Heiphetz et al., 2016; Shtulman & Lindeman, 2016). Additionally, individuals see God's mind and beliefs as more closely reflecting their own personal beliefs than other people's beliefs, and such a correspondence emerges on a neural level as well (Epley et al., 2009). In line with this past work, the present research reveals that both individuals' motives and their God concepts tend to be truth- (versus control-) dominant, thus suggesting some degree of correspondence between people's self-concepts and their conceptualizations of God. Furthermore, additional research that leveraged some of the same datasets used within the present research directly examined the nature of such a relation between motives and God concepts, revealing that manipulating individuals' God concepts leads people to personally prioritize the motive that is most central to their conception of God (Nakkawita & Heiphetz, 2023).

The current research also contributes to the field of social cognition, and cognitive psychology more broadly, by featuring a relatively uncommon approach to hypothesis generation and testing. More specifically, upon noticing that existing data from several unrelated studies provided insight into our question of interest, we analyzed these secondary data for initial insight. Upon detecting converging evidence for individuals' truth- (versus control-) dominance across prior data, we then proceeded with a preregistered, confirmatory analysis that replicated our initial findings and extended them by testing the hypothesis among cross-cultural populations. Although scholars in related fields have already highlighted the benefits of conducting secondary data analyses (e.g., Church, 2002; George & Landerman, 1984), the work presented here indicates how this approach can be successfully applied to investigations of human cognition.

In addition to these theoretical contributions, the present research has notable translational implications, as people's naïve theories affect their motivation, judgment, and behavior (e.g., Heider, 1958; Plaks, 2017; see also Wegener & Petty, 1998), including their self-regulatory processes (Burnette et al., 2013). For instance, people who believe that willpower is a limited and depletable resource show diminished self-control after an effortful experience, whereas people without this belief do not show such a diminishment (Job et al., 2010). Based on this literature, it follows that the pattern of truth- (versus control-) predominant lay theories uncovered within the present research may have important consequences within individuals' actual decision-making and goal pursuit processes. These consequences may be most important when truth and control motives prompt distinct and conflicting action tendencies. For instance, in tasks involving divergent thinking (e.g., brainstorming activities), lay theories regarding truth- versus control-predominance may influence the quantity and quality of ideas that people generate—particularly after they have initially run through the list of the ideas they find the most obvious. In such a case, people with lay theories that are particularly truth-predominant might generate higher-

quality responses at the end of their brainstorming process because they would suspend their efforts when they sense that these latest ideas aren't *really* right (i.e., appropriate given the task).[14]

As an applied example, consider the process of deciding upon which offer to accept at the end of a job search. People strongly motivated by truth may tend to find themselves stuck in "analysis paralysis" and struggling to make a final decision, whereas people strongly motivated by control may quickly take action without considering their options sufficiently. The consistent tendency toward truth predominance revealed within the present research suggests that the individuals in our samples might be more likely to fall within the former camp. For this reason, when considering the job seeking example, individuals might spend time each Friday prioritizing actions to take the following week, such as emailing three recruiters or submitting one application per day (i.e., control-oriented processes), rather than committing additional time to reflecting on what the perfect position might look like (i.e., a truth-oriented process).

Future research should directly investigate such potential consequences of lay beliefs about truth (versus control) predominance. Of course, despite the consistent pattern of truth predominance *on average*, there is notable variability within the distributions of responses to each measure. As a result, follow-up studies should examine the associations between individuals' lay beliefs about motive predominance and their self-regulatory processes. Furthermore, given that past research indicates that individuals' lay theories about another motivational construct (i.e., willpower) are manipulable using carefully crafted interventions

[14] We recently conducted an exploratory study that supported this hypothesis. Results indicated that the extent to which participants indicated that truth activities matter to them predicted the quality of the final idea they generated in each round of a divergent thinking task in which they generated alternate uses for everyday items, and this association persisted while controlling for the total quantity of ideas generated in each round ($p = .004$). Additional research is needed to provide confirmatory evidence for this association between truth- (vs. control-) predominant lay theories and the prioritization of quality (vs. quantity).

(Francis & Job, 2018; Job et al., 2010), participants' beliefs about motive predominance may be similarly manipulable. With the development of such interventions, future research could investigate the causal relations between lay theories about the relative predominance of control versus truth and choices within the process of goal pursuit.

Finally, we were able to examine lay beliefs about control versus truth predominance across samples that varied on a number of dimensions, including M-Turk samples with notable variation in participants' age, education, household income, and country of origin, and university-based samples with notable variation in racial/ethnic identification. However, it is not possible for any line of research to fully capture all aspects of human diversity. Future research should investigate aspects of diversity not captured here in order to determine whether this broad preference for truth (versus control) would generalize even more broadly. For instance, the present research found a consistent pattern of truth-dominance among English-speaking adults from the U.S. and India, but we did not translate the measures to administer them to speakers of other languages from India, let alone participants from other global cultures. Such future work would provide new and valuable insight into the variability of lay beliefs about these fundamental human motives.

Conclusions

A range of psychological theories posit that people are motivated to feel effective in the domains of both control (managing what happens in their lives) and truth (establishing what is real and right), and many of these theories have argued for the primacy of control (e.g., Carver & Scheier, 1998; Fiske, 1992; Freud, 1923/1962; James, 1890/1950; Miller et al., 1960; Wiener, 1948/1961). However, previous research had not investigated individuals' lay beliefs about whether either control or truth reigns supreme. Across five studies, including one preregistered cross-cultural investigation, we found converging evidence indicating that people perceive truth

as predominant over control with regard to goal pursuit activities and broad motivational preferences. Additionally, participants appeared to apply a similar set of beliefs when thinking about God, which may be grounded in the tendency to anthropomorphize when conceptualizing God's mind. These findings help advance scientific understanding of both motivation and the cognitive science of religion by providing novel insight into lay beliefs about these two fundamental motives.

References

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and Company.

Barrett, J. L. (1999). Theological correctness: Cognitive constraint and the study of religion. *Method & Theory in the Study of Religion*, *11*(4), 325–339. https://doi.org/10.1163/157006899X00078

Barrett, J. L., & Keil, F. C. (1996). Conceptualizing a nonnatural entity: Anthropomorphism in God concepts. *Cognitive Psychology*, *31*(3), 219–247. https://doi.org/10.1006/cogp.1996.0017

Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, *16*(6), 351–355. https://doi.org/10.1111/j.1467-8721.2007.00534.x

Benson, P., & Spilka, B. (1973). God image as a function of self-esteem and locus of control. *Journal for the Scientific Study of Religion*, *12*(3), 297–310. https://doi.org/10.2307/1384430

Bianco, A. T., Higgins, E. T., & Klem, A. (2003). How "fun/importance" fit affects performance: Relating implicit theories to instructions. *Personality and Social Psychology Bulletin*, *29*(9), 1091–1103. https://doi.org/10.1177/0146167203253481

Biesanz, J. C., & Human, L. J. (2010). The cost of forming more accurate impressions: Accuracy-motivated perceivers see the personality of others more distinctively but less normatively than perceivers without an explicit goal. *Psychological Science*, *21*(4), 589–594. https://doi.org/10.1177/0956797610364121

Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, *139*(3), 655–701. https://doi.org/10.1037/a0029531

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, *42*(1), 116–131. https://doi.org/10.1037/0022-3514.42.1.116

Camacho, C. J., Higgins, E. T., & Luger, L. (2003). Moral value transfer from regulatory fit: What feels right is right and what feels wrong is wrong. *Journal of Personality and Social Psychology*, *84*(3), 498–510. https://doi.org/10.1037/0022-3514.84.3.498

Carpenter, T. P., Pogacar, R., Pullig, C., Kouril, M., Aguilar, S., LaBouff, J., Isenberg, N., & Chakroff, A. (2019). Survey-software implicit association tests: A methodological and empirical analysis. *Behavior Research Methods*, *51*(5), 2194–2208. https://doi.org/10.3758/s13428-019-01293-3

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge University Press.

Charlesworth, T. E. S., & Banaji, M. R. (2022). Patterns of implicit and explicit attitudes: IV. Change and stability from 2007 to 2020. *Psychological Science*, *33*(9), 1347–1371. https://doi.org/10.1177/09567976221084257

Church, R. M. (2002). The effective use of secondary data. *Learning and Motivation*, *33*(1), 32–45. https://doi.org/10.1006/lmot.2001.1098

Clark, A. (2013). Whatever next? Predictive brains, situated agents, and the future of cognitive science. *Behavioral and Brain Sciences*, *36*(3), 181–204. https://doi.org/10.1017/S0140525X12000477

Cohen, A. R., Stotland, E., & Wolfe, D. M. (1955). An experimental investigation of need for cognition. *The Journal of Abnormal and Social Psychology*, *51*(2), 291–294. https://doi.org/10.1037/h0042761

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Cornwell, J. F. M., Franks, B., Higgins, E. T., & Nakkawita, E. (2018). *[Value, truth, and control importance]. Unpublished raw data.*

Dang, J., King, K. M., & Inzlicht, M. (2020). Why are self-report and behavioral measures weakly correlated? *Trends in Cognitive Sciences*, Advance online publication. https://doi.org/10.1016/j.tics.2020.01.007

Davies, M. (2008). *The Corpus of Contemporary American English (COCA): One billion million words, 1990-2019*. https://www.english-corpora.org/coca/

Deci, E. L. (1975). Cognitive evaluation theory: Effects of extrinsic rewards on intrinsic motivation. In *Intrinsic motivation* (pp. 129–159). Springer. https://doi.org/10.1007/978-1-4613-4446-9_5

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A word from two perspectives. *Psychological Inquiry*, *6*(4), 267–285. https://doi.org/10.1207/s15327965pli0604_1

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *95*(2), 256–273. https://doi.org/10.1037/0033-295X.95.2.256

Elliot, A. J., McGregor, H. A., & Thrash, T. M. (2002). The need for competence. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 361–387). University of Rochester Press. https://www.google.com/books/edition/Handbook_of_Self_determination_Research/DcAe2b7L-RgC?hl=en&gbpv=1&printsec=frontcover

Epley, N., Converse, B. A., Delbosc, A., Monteleone, G. A., & Cacioppo, J. T. (2009). Believers' estimates of God's beliefs are more egocentric than estimates of other people's beliefs. *Proceedings of the National Academy of Sciences*, *106*(51), 21533–21538. https://doi.org/10.1073/pnas.0908374106

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*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.

Fiske, S. T. (1992). Thinking is for doing: Portraits of social cognition from Daguerreotype to laserphoto. *Journal of Personality and Social Psychology*, *63*, 877–889. https://doi.org/10.1037/0022-3514.63.6.877

Francis, Z., & Job, V. (2018). Lay theories of willpower. *Social and Personality Psychology Compass*, *12*(4), e12381. https://doi.org/10.1111/spc3.12381

Freud, S. (1962). *The ego and the id* (J. Strachey, Trans.). Norton. (Original work published 1923)

George, L. K., & Landerman, R. (1984). Health and subjective well-being: A replicated secondary data analysis. *International Journal of Aging & Human Development*, *19*(2), 133–156. https://doi.org/10.2190/FHHT-25R8-F8KT-MAJD

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 53–92). Guilford Press.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, *74*(6), 1464–1480. https://doi.org/10.1037//0022-3514.74.6.1464

Guthrie, S. E. (1993). *Faces in the clouds: A new theory of religion*. Oxford University Press.

Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion*, *11*(2), 101–120. https://doi.org/10.1007/BF00992338

Heider, F. (1958). *The psychology of interpersonal relations*. Lawrence Erlbaum Associates.

Heintzelman, S. J., Mohideen, F., Oishi, S., & King, L. A. (2020). Lay beliefs about meaning in life: Examinations across targets, time, and countries. *Journal of Research in Personality*, *88*, Advance online publication. https://doi.org/10.1016/j.jrp.2020.104003

Heiphetz, L., Lane, J. D., Waytz, A., & Young, L. L. (2016). How children and adults represent God's mind. *Cognitive Science*, *40*(1), 121–144. https://doi.org/10.1111/cogs.12232

Heiphetz, L., Lane, J. D., Waytz, A., & Young, L. L. (2018). My mind, your mind, and God's mind: How children and adults conceive of different agents' moral beliefs. *British Journal of Developmental Psychology*, *36*(3), 467–481. https://doi.org/10.1111/bjdp.12231

Heiphetz, L., Spelke, E. S., & Young, L. L. (2015). In the name of God: How children and adults judge agents who act for religious versus secular reasons. *Cognition*, *144*, 134–149. https://doi.org/10.1016/j.cognition.2015.07.017

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, *52*(12), 1280–1300. https://doi.org/10.1037/0003-066X.52.12.1280

Higgins, E. T. (2012). *Beyond pleasure and pain: How motivation works*. Oxford University Press.

Higgins, E. T. (2019). What reigns supreme: Value, control, or truth? *Motivation Science*, *5*(3), 185–201. https://doi.org/10.1037/mot0000150

Higgins, E. T., Friedman, R., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: Promotion pride versus

prevention pride. *European Journal of Social Psychology*, *31*(1), 3–23. https://doi.org/10.1002/ejsp.27

Higgins, E. T., Kruglanski, A. W., & Pierro, A. (2003). Regulatory mode: Locomotion and assessment as distinct orientations. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 293–344). Academic Press. https://doi.org/10.1016/S0065-2601(03)01005-0

Higgins, E. T., & Nakkawita, E. (2021). Motives working together: Value, truth, and control in goal selection and pursuit. In P. A. M. Van Lange, E. T. Higgins, & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (3rd ed., pp. 85–105). Guilford Press.

Higgins, E. T., Pierro, A., & Kruglanski, A. W. (2008). Re-thinking culture and personality: How self-regulatory universals create cross-cultural differences. In R. M. Sorrentino & S. Yamaguchi (Eds.), *Handbook of motivation and cognition across cultures* (pp. 161–190). Academic Press. https://doi.org/10.1016/B978-0-12-373694-9.00008-8

Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional responses to goal attainment: Strength of regulatory focus as moderator. *Journal of Personality and Social Psychology*, *72*(3), 515–525. https://doi.org/10.1037/0022-3514.72.3.515

James, W. (1950). *The principles of psychology*. Dover. (Original work published 1890)

Job, V., Dweck, C. S., & Walton, G. M. (2010). Ego depletion—Is it all in your head? Implicit theories about willpower affect self-regulation. *Psychological Science*, *21*(11), 1686–1693. https://doi.org/10.1177/0956797610384745

Kanze, D., Conley, M. A., & Higgins, E. T. (2021). The motivation of mission statements: How regulatory mode influences workplace discrimination. *Organizational Behavior and Human Decision Processes*, *166*, 84–103. https://doi.org/10.1016/j.obhdp.2019.04.002

Karpinski, A., & Steinman, R. B. (2006). The Single Category Implicit Association Test as a measure of implicit social cognition. *Journal of Personality and Social Psychology*, *91*(1), 16–32. https://doi.org/10.1037/0022-3514.91.1.16

Karsh, N., Eitam, B., Mark, I., & Higgins, E. T. (2016). Bootstrapping agency: How control-relevant information affects motivation. *Journal of Experimental Psychology: General*, *145*(10), 1333–1350. https://doi.org/10.1037/xge0000212

Kennedy, R., & Waggoner, P. (2019). *rIP: Detects fraud in online surveys by tracing, scoring, and visualizing IP addresses*. https://CRAN.R-project.org/package=rIP

Kirkpatrick, L. A. (1998). God as a substitute attachment figure: A longitudinal study of adult attachment style and religious change in college students. *Personality & Social Psychology Bulletin*, *24*(9), 961–973. https://doi.org/10.1177/0146167298249004

Kramer, S. (2021). *Key findings about the religious composition of India*. Pew Research Center. https://www.pewresearch.org/fact-tank/2021/09/21/key-findings-about-the-religious-composition-of-india/

Kruglanski, A. W. (1989). *Lay epistemics and human knowledge: Cognitive and motivational bases*. Springer. //www.springer.com/us/book/9780306430787

Kruglanski, A. W., Jasko, K., Milyavsky, M., Chernikova, M., Webber, D., Pierro, A., & di Santo, D. (2018). Cognitive consistency theory in social psychology: A paradigm reconsidered. *Psychological Inquiry*, *29*(2), 45–59. https://doi.org/10.1080/1047840X.2018.1480619

Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M. N., Pierro, A., Shah, J. Y., & Spiegel, S. (2000). To “do the right thing” or to “just do it”: Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology*, *79*(5), 793–815. https://doi.org/10.1037/0022-3514.79.5.793

Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action Control: From Cognition to Behavior* (pp. 101–128). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_6

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*(3), 480–498. https://doi.org/10.1037/0033-2909.108.3.480

Kuperman, V., Stadthagen-Gonzalez, H., & Brysbaert, M. (2012). Age-of-acquisition ratings for 30,000 English words. *Behavior Research Methods*, *44*(4), 978–990. https://doi.org/10.3758/s13428-012-0210-4

Magen, E., & Gross, J. J. (2010). Getting our act together: Toward a general model of self-control. In R. Hassin, K. Ochsner, & Y. Trope (Eds.), *Self control in society, mind, and brain* (pp. 335–353). Oxford University Press. https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780195391381.001.0001/acprof-9780195391381-chapter-18

Metcalfe, J., & Greene, M. J. (2007). Metacognition of agency. *Journal of Experimental Psychology: General*, *136*(2), 184–199. https://doi.org/10.1037/0096-3445.136.2.184

Miele, D. B., Fujita, K., & Scholer, A. A. (2024). The role of metamotivational knowledge in the regulation of motivation. *Motivation Science*, *10*(3), 197–209. https://doi.org/10.1037/mot0000336

Miele, D. B., & Scholer, A. A. (2018). The role of metamotivational monitoring in motivation regulation. *Educational Psychologist*, *53*(1), 1–21. https://doi.org/10.1080/00461520.2017.1371601

Miller, G. A., Galanter, E., & Pribram, K. H. (1960). *Plans and the structure of behavior*. Henry Holt and Co. https://doi.org/10.1037/10039-000

Mohammad, S. M., & Turney, P. D. (2013). Crowdsourcing a word–emotion association Lexicon. *Computational Intelligence*, *29*(3), 436–465. https://doi.org/10.1111/j.1467-8640.2012.00460.x

Moskowitz, G. B. (2005). *Social cognition: Understanding self and others*. Guilford Press.

Nakkawita, E., & Heiphetz, L. (2023). Motivational priorities reflect beliefs about God's attributes. *Social Cognition*, *41*(3), 239–273. https://doi.org/10.1521/soco.2023.41.3.239

Nakkawita, E., & Higgins, E. T. (2021). Motivating the journey: An integrative framework of prevention versus promotion goal pursuit activities. *PsyArXiv*, preprint. https://doi.org/10.31234/osf.io/eut2k

Neuberg, S. L., & Fiske, S. T. (1987). Motivational influences on impression formation: Outcome dependency, accuracy-driven attention, and individuating processes. *Journal of Personality and Social Psychology*, *53*(3), 431–444. https://doi.org/10.1037/0022-3514.53.3.431

Neuberg, S. L., & Newsom, J. T. (1993). Personal need for structure: Individual differences in the desire for simpler structure. *Journal of Personality and Social Psychology*, *65*(1), 113–131. https://doi.org/10.1037/0022-3514.65.1.113

Nosek, B. A. (2007). Implicit–explicit relations. *Current Directions in Psychological Science*, *16*(2), 65–69. https://doi.org/10.1111/j.1467-8721.2007.00477.x

Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002). Harvesting implicit group attitudes and beliefs from a demonstration web site. *Group Dynamics: Theory, Research, and Practice*, *6*(1), 101–115. https://doi.org/10.1037/1089-2699.6.1.101

Ofosu, E. K., Chambers, M. K., Chen, J. M., & Hehman, E. (2019). Same-sex marriage legalization associated with reduced implicit and explicit antigay bias. *Proceedings of the*

National Academy of Sciences, *116*(18), 8846–8851. https://doi.org/10.1073/pnas.1806000116

Plaks, J. E. (2017). Implicit theories: Assumptions that shape social and moral cognition. In J. M. Olson (Ed.), *Advances in experimental social psychology* (Vol. 56, pp. 259–310). Academic Press. https://doi.org/10.1016/bs.aesp.2017.02.003

Prentice, M., Jayawickreme, E., Hawkins, A., Hartley, A., Furr, R. M., & Fleeson, W. (2019). Morality as a basic psychological need. *Social Psychological and Personality Science*, *10*(4), 449–460. https://doi.org/10.1177/1948550618772011

R Core Team. (2020). *R: A language and environment for statistical computing*. https://www.R-project.org/

Raven, J., & Raven, J. (2003). Raven Progressive Matrices. In R. S. McCallum (Ed.), *Handbook of nonverbal assessment* (pp. 223–237). Kluwer Academic / Plenum Publishers. https://doi.org/10.1007/978-1-4615-0153-4_11

Scholer, A. A., & Miele, D. B. (2016). The role of metamotivation in creating task-motivation fit. *Motivation Science*, *2*(3), 171–197. http://d10.1037/mot0000043

Scott, G. G., Keitel, A., Becirspahic, M., Yao, B., & Sereno, S. C. (2019). The Glasgow norms: Ratings of 5,500 words on nine scales. *Behavior Research Methods*, *51*(3), 1258–1270. https://doi.org/10.3758/s13428-018-1099-3

Shtulman, A., & Lindeman, M. (2016). Attributes of God: Conceptual foundations of a foundational belief. *Cognitive Science*, *40*(3), 635–670. https://doi.org/10.1111/cogs.12253

Sorrentino, R. M., & Roney, C. J. R. (2000). *The uncertain mind: Individual differences in facing the unknown*. Psychology Press.

Testoni, I., Visintin, E. P., Capozza, D., Carlucci, M. C., & Shams, M. (2016). The implicit image of God: God as reality and psychological well-being. *Journal for the Scientific Study of Religion*, *55*(1), 174–184. https://doi.org/10.1111/jssr.12252

Trimèche, S., Vinsonneau, G., & Mullet, E. (2006). Individual differences in the theological concept of God. *The International Journal for the Psychology of Religion*, *16*(2), 83–100. https://doi.org/10.1207/s15327582ijpr1602_1

Wegener, D. T., & Petty, R. E. (Eds.). (1998). Naive theories and social judgment [Special issue]. *Social Cognition*, *16*(1).

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, *66*(5), 297–333. https://doi.org/10.1037/h0040934

Wiener, N. (1961). *Cybernetics: Or control and communication in the animal and the machine* (2nd ed.). MIT Press. (Original work published 1948)

Table 1

Activity Lists by Study

Activity Type	Activity	Study 1A	Study 1B	Study 2	Study 3	Study 4
Regulatory Focus-Specific Control-Oriented Activities	Accelerate	✓	✓	✓	✓	✓
	Defend	✓	✓	✓	✓	✓
	Elevate	✓	✓	✓	✓	✓
	Guard	✓	✓	✓	✓	✓
	Launch	✓	✓	✓	✓	✓
	Lead	✓	✓		✓	✓
	Maintain	✓	✓		✓	✓
	Preserve	✓	✓	✓	✓	✓
	Progress	✓	✓		✓	✓
	Propel	✓	✓	✓	✓	✓
	Protect	✓	✓	✓	✓	✓
	Resist	✓	✓		✓	✓
Regulatory Focus-Specific Truth-Oriented Activities	Assess	✓	✓	✓	✓	✓
	Discover	✓	✓	✓	✓	✓
	Examine	✓	✓	✓	✓	✓
	Explore	✓	✓	✓	✓	✓
	Imagine	✓	✓	✓	✓	✓
	Invent	✓	✓		✓	✓
	Judge	✓	✓		✓	✓
	Review	✓	✓	✓	✓	✓
	Scrutinize	✓	✓		✓	✓
	Seek	✓	✓		✓	✓
	Verify	✓	✓	✓	✓	✓
	Wonder	✓	✓	✓	✓	✓
General Control-Oriented Activities	Control	✓	✓			
	Manage	✓	✓			
	Operate	✓	✓			
	Consider	✓	✓			
	Inquire	✓	✓			

General Truth-Oriented Activities	Investigate	✓	✓			
General Activities	Achieve		✓			
	Communicate	✓	✓			
	Evade		✓			
	Exercise	✓				
	Gain		✓			
	Grow		✓			
	Pray	✓				
	Prevent		✓			
	Read	✓				
	Secure		✓			
	Shower	✓	✓			✓
	Sleep	✓	✓	✓		✓

Note: This table contains the complete activity lists for all studies. Activities included in each study are noted with a checkmark. Activities of primary interest within the present research are listed in the first two groups (i.e., Regulatory Focus-Specific Control-Oriented Activities and Regulatory Focus-Specific Truth-Oriented Activities).