

MOTIVATIONAL PRIORITIES REFLECT BELIEFS ABOUT GOD'S ATTRIBUTES

Emily Nakkawita and Larisa Heiphetz
Columbia University

The motive domains of control and truth align with conceptions of God's omnipotence and omniscience, but the link between control- versus truth-dominant motives and God concepts remains unclear. A *convergence* account predicts a positive association between these variables; a *divergence* account predicts an inverse association. Furthermore, the causal direction of an association under either account is unknown. To test between these competing accounts, Study 1 investigated whether people with God concepts dominant in control versus truth report motives that are also control- (vs. truth-) dominant. To investigate causality, Study 2 manipulated God concepts and measured motive dominance; Study 3 manipulated motives and measured God concepts. Study 4 replicated Study 1 with methodological enhancements. Collectively, results supported the *convergence* account, indicating that God concepts influence motive predominance. By integrating motivation and religious cognition research, this work elucidates the relations between beliefs about God's attributes and personal motives.

Keywords: social cognition, religion, motivation

Cognition and motivation are inextricably intertwined (Hughes & Zaki, 2015; Molden & Higgins, 2005; Waytz et al., 2010). An extensive body of literature examining motivated cognition has established that people's motives influence a range

Supplemental materials are available online at <https://osf.io/cyt9z>

The authors wish to thank Tory Higgins and members of the Social and Moral Cognition Lab at Columbia University for their helpful comments on this work.

This publication was made possible through the support of grants #61080 and #61808 from the John Templeton Foundation to Larisa Heiphetz. The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the John Templeton Foundation. This work has also been supported (in part) by a visiting scholar award from the Russell Sage Foundation to Larisa Heiphetz. Any opinions expressed are those of the authors alone and should not be construed as representing the opinions of the Foundation.

This article was accepted under the editorship of Jeffrey W. Sherman.

Address correspondence to: Emily Nakkawita, Columbia University, Psychology Department, 406 Schermerhorn Hall, 1190 Amsterdam Ave. MC 5501, New York, NY 10027. E-mail: ebn2111@columbia.edu

of cognitive and social cognitive processes, including perception (e.g., Bruner & Goodman, 1947; Dunning & Baltes, 2013; Scholer et al., 2017), reasoning (e.g., Kunda, 1990; Liberman et al., 2001; Roese et al., 1999), decision-making (e.g., Chen et al., 2018; Higgins, 2000; Zou et al., 2020), and social behavior (e.g., Bargh, 1990; Cesario et al., 2006). Additional work has examined how cognition, in turn, affects motivation. For instance, general cognitive principles of knowledge accessibility and activation (e.g., Bruner, 1957; Higgins, 1996) influence the accessibility and activation of goals (Kruglanski, 1996), which by definition are motivating. Further, people appear to use the same basic social cognitive processes posited in classic attribution theories (e.g., Bem, 1965; Jones & Davis, 1965) to make inferences about which activities they find interesting and motivating (Higgins et al., 1995; Higgins & Trope, 1990). These deep relations between motivation and cognition also emerge at a neural level (Hughes & Zaki, 2015).

Given that the associations between motivation and cognition are pervasive and impactful, a growing body of research has begun to study *religious* cognition from the perspective of motivation science. One key area of investigation is people's beliefs about supernatural agents (Heiphetz et al., 2018; Smither & Walker, 2015; Waytz et al., 2010). If the associations between motivation and cognition extend to beliefs about God, two related questions follow. First, what is the association between people's motives and their God concepts? Do people attribute to God the same motives they themselves hold, or different motives? Second, what is the *causal* link between these two factors? Does holding a particular motive change people's God concepts, or does the relation go in the reverse direction (i.e., people's God concepts alter their motives)? The present research investigated these questions with a focus on the basic motives that drive human cognition and behavior.

WHAT MOTIVATES PEOPLE?

People have a wide range of needs and motives, including biological drives (e.g., Hall & Fong, 2007; Hull, 1943), achievement (e.g., Atkinson, 1964; Elliot et al., 2011), belonging (e.g., Baumeister & Leary, 1995; Gaither et al., 2016), autonomy and competence (e.g., Deci & Ryan, 2000; Legault & Inzlicht, 2013), self-efficacy (e.g., Bandura, 1997; Bruning et al., 2013), closure (e.g., Kruglanski et al., 1993; Otto et al., 2016), cognition (e.g., Cacioppo & Petty, 1982; Grass et al., 2019), morality (e.g., Prentice et al., 2019, 2020), novelty and variety (e.g., Bagheri & Milyavskaya, 2020), and many more. One influential framework argues that this diverse set of motives arises from the desire to feel effective in three broad domains: value, control, and truth (Higgins, 2012). People experience value effectiveness when they attain desired outcomes, control effectiveness when they manage what happens in their lives, and truth effectiveness when they establish what is real or right. These three motives can be further subdivided into two distinct groupings. Effectiveness in the domain of value depends on the *outcomes* of goal pursuit, regardless of the process through which these outcomes came to be: Did the person reach their desired "destination" by attaining a certain set of results? In contrast, effectiveness in the domains of truth and control relate to the goal pursuit *process*: Did the

person successfully determine what is right and exercise effective control on their goal pursuit “journey” (i.e., on the way to the outcome)?

While all three domains motivate human behavior, individual differences exist in the prioritization of each domain (Higgins, 2012). Such differences emerge more often in goal pursuit processes than in outcomes, as people are better able to influence *how* they engage in goal pursuit than the results of such a pursuit. In practical terms, this means that some people might be more strongly motivated by control (vs. truth), as in the case of hard-driving, control-dominant supervisors who are willing to sacrifice their team’s ability to “get it right” in order to “get it done.” In contrast, other people might find truth more motivating than control, as in the case of passionate graduate students sacrificing a more stable career for the chance to study the topic that most interests them. Although people can be highly motivated by both domains, the dominant responses driven by control versus truth motivation often conflict (e.g., the control-oriented preference to take immediate, decisive action vs. the truth-oriented preference to take all the time needed to carefully evaluate one’s options; Kruglanski et al., 2000). Given these competing response tendencies, small differences in individuals’ motive priorities can have significant implications for their goal pursuit processes, such as the kinds of activities in which they engage to meet their goals.

HOW MIGHT BELIEFS ABOUT GOD’S ATTRIBUTES RELATE TO HUMAN MOTIVES?

The relations between cognition and the fundamental motives of truth and control are particularly relevant to the context of religion in two ways. First, people conceptualize God’s mind and human minds as similar in some ways. For instance, children attribute to God similar moral beliefs as they themselves hold (Heiphetz et al., 2018) and expect God to respond to transgressions in a similar way as they themselves would (Payir & Heiphetz, 2022). Relatedly, adults attribute similar ideological beliefs to themselves and to God (Epley et al., 2009; Ross et al., 2012) and conceptualize both human minds and God’s mind as highly agentic (Gray et al., 2007). Furthermore, anthropological research indicates that people from distinct Guatemalan cultures align their own values with their beliefs about the values of God (among both native Itza’ adults and Ladino adults of mixed European descent) and forest spirits (among male Itza’ adults; Atran et al., 2002). Given this tendency to view one’s own mind and God’s mind as analogous to each other, people might use fundamental human motives like control and truth when conceptualizing God’s motives and attributes.

Second, the motives of control and truth appear especially relevant in the context of religion when considering common explicit characterizations of God. Given that people tend to conceptualize human minds and God’s mind similarly, and because people ultimately aspire to be effective in the domains of control and truth themselves, they might also attribute superhuman effectiveness in these domains to God. Research examining the attributes people use to describe God provides initial evidence for this point, as individuals often endow God with four

key extraordinary characteristics: omnipotence, omniscience, omnipresence, and eternalness (Trimèche et al., 2006). Notably, two of these characteristics parallel the two human motives of interest: An omnipotent (i.e., all-powerful) God possesses full control, whereas an omniscient (i.e., all-knowing) God possesses full truth. The present research focuses on this set of motive-attribute pairings (i.e., control-omnipotence; truth-omniscience), which may function as a bridge between human minds and motives and conceptualizations of God's mind and motives. Two possibilities exist for how these representations of human versus supernatural minds and motives might be associated.

According to a *convergence* account, beliefs about God's mind, capabilities, and motives directly align with people's own motivations. In line with this proposal, people infer that God's beliefs are more strongly correlated with their own beliefs than with their inferences regarding others' beliefs (Epley et al., 2009). One potential explanation for this close connection between people's inferences regarding God's beliefs and their own motives is accessibility (Bruner, 1957; Higgins, 1996). People often use highly accessible knowledge to help them process information. For instance, one classic study on impression formation found that participants for whom the concept "conceited" was (versus was not) highly accessible were more likely to judge people as conceited based on vague written descriptions (Higgins & Brendl, 1995). A variety of sources—both momentary (e.g., recent priming) and chronic (e.g., long-term goals; Higgins, 1996)—can contribute to the accessibility of a given construct. Further, culture itself may reflect a collection of chronically available constructs (Heiphetz & Oishi, 2022; Oyserman, 2011), and religion is one important dimension of culture (Cohen, 2009; Cohen & Hill, 2007). Some research has even shown that the attributes that different cultures attribute to God concepts mediate national differences in personality (Oishi et al., 2011).

How might this notion of accessibility relate to control and truth motivation? Some researchers have proposed that the accessibility of a mental representation reflects the degree to which knowledge is motivationally relevant—that is, relevant with respect to value, control, or truth (Eitam & Higgins, 2010; Eitam et al., 2013). According to this account, representations relating to control (vs. truth) should be more accessible to people for whom control (vs. truth) is more motivationally relevant, and thus more likely to guide cognitive processing and behavior. As a result, this *convergence* account would predict that people with more dominant control (vs. truth) motives would consider omnipotence, a control-related attribute (vs. omniscience, a truth-related attribute) as more central to their God concept.

In contrast, according to a *divergence* account, people perceive God's mind and capabilities as complementary to their own mind because God can make up for areas that a person does not personally prioritize. This perspective is similar to theorizing on compensatory control (e.g., Kay, Shepherd, et al., 2010; Laurin et al., 2008), which argues that when people struggle to effectively maintain personal control, they seek external sources of order to compensate for their failure in this domain. Although some sources of control are secular (e.g., governments; Kay, Shepherd, et al., 2010), others are religious (e.g., authoritarian churches; Sales, 1972), and one important religious source is an almighty, powerful God. In line with this account, people who

lack personal control are more likely to report beliefs in a controlling God (Laurin et al., 2008). This work indicates that people may view God in ways that compensate for what they themselves lack. Similarly, this research suggests that when people are successful in a given domain, they will tend not to need God to compensate for them in that domain. While research testing compensatory control has focused on situations in which individuals are unsuccessful in maintaining personal control, there are presumably many reasons why a person may experience such ineffectiveness, including deprioritizing control to focus on other motivational priorities. As a result, this *divergence* account would predict that people with more dominant control (vs. truth) motives would consider omnipotence, a control-related attribute, as less central to their God concept than omniscience, a truth-related attribute.

Notably, most of the compensatory control literature is silent with respect to the domain of truth. However, recent work notes that a loss of personal control leads to compensatory efforts to both bolster one's sense of agency *and* affirm one's sense of epistemic structure (i.e., a simple, clear, and consistent understanding of the surrounding world; Landau et al., 2015). Whereas the notion of agency relates clearly to control motives, certain dimensions of epistemic structure (and the related construct of cognitive closure; Kruglanski et al., 1993) are more closely related to control versus truth motives (see, for example, Kruglanski et al., 2000). This research suggests that truth motivation may also operate in a compensatory fashion (see also Kay, Moscovitch, et al., 2010; Ma & Kay, 2017).

Beyond testing between the *convergence* and *divergence* accounts, the present research also uses experimental manipulations to determine the causal direction of the hypothesized association between these variables. Specifically, we sought to understand whether beliefs about God's mind and motives influence individuals' own motives, as well as whether one's own motives influence beliefs about God. This investigation of causality is important because, while a growing body of work has revealed that representations of human minds and God's mind are related (for a review, see Gervais, 2013), much of this research has been correlational in nature, thus limiting the implications about directionality that can be drawn.

Finally, the present research takes a unique approach by acknowledging that each individual motive does not operate in a vacuum. Indeed, control and truth are distinct motivational forces that work together to influence cognition and behavior (Higgins & Scholer, 2015). For this reason, the present research differs from existing work that examined individual motives in isolation when studying the associations between religious cognition and motivation (e.g., Gasiorska & Zaleskiewicz, 2021; Kay, Gaucher, et al., 2010; Waytz et al., 2010). In contrast to this prior work, the present research contributes to the field's knowledge of how the *relative* prioritization of different fundamental motives relates to social and religious cognition, including God concepts.

OVERVIEW OF PRESENT STUDIES

The present research examined how people's motivational priorities relate to their conceptualization of God. More specifically, this work had two main goals. First,

these studies tested two competing accounts of the relation between God concepts and motives. The *convergence* account predicts a positive association between people's beliefs about God's attributes and their personal motives, such that individuals who consider omnipotence (vs. omniscience) to be more central to their God concept would personally prioritize control (vs. truth) motives. In contrast, the *divergence* account predicts a negative association, such that people who consider omnipotence (vs. omniscience) to be more central to their God concept would personally prioritize truth (vs. control) motives. Second, in addition to testing these competing hypotheses, two of the present studies used experimental methods to determine the causal direction of this association between God concepts and personal motives. In doing so, the current research integrated and extended the motivation and religious cognition literatures, contributing to knowledge regarding the existence and directionality of these associations. Further, the present studies adopted a new approach to studying the relations between motivation and religious cognition by examining the relative prioritization of multiple motives rather than investigating a single motive in isolation.

In order to achieve these goals, Study 1 examined whether the control (i.e., omnipotence) versus truth (i.e., omniscience) predominance of people's God concepts related to their personal prioritization of control versus truth motives and found a positive association between these variables. Study 2 investigated whether priming God's omnipotence (vs. omniscience) caused differences in participants' own control (vs. truth) motive dominance and found differences in the predominance of participants' motives that reflected the primed God concept. Study 3 probed the reverse causal path, testing whether control (vs. truth) motive dominance produced differences in the control- (vs. truth-) dominance of participants' God concepts, and did not find supporting evidence for this causal relationship. Finally, Study 4 sought to replicate the results of Study 1 with an enhanced set of motive and God concept dominance measures. Taken together, these results provide novel insight into the dynamic relations between religious cognition and motivation. They highlight that individuals' own motive priorities directly reflect their present beliefs about the relative importance of God's attributes.

TRANSPARENCY AND OPENNESS

We report how we determined our sample sizes, all data exclusions, all manipulations, and all dependent measures that were analyzed for this article's target research in the Method sections. All de-identified data, analytic code, and research materials associated with the present research are publicly available; see <https://osf.io/pvgcs/> (Nakkawita & Heiphetz, 2023). Data were analyzed using R, version 4.0.2 (R Core Team, 2020).

STUDY 1

Study 1 investigated the association between the control- (vs. truth-) dominance of people's God concepts and the control- (vs. truth-) dominance of their personal

motives. We included the measures of interest for exploratory purposes in a larger study intended to examine a broader set of variables.

METHOD

Participants. This study received Institutional Review Board approval prior to participant recruitment. We recruited participants using Amazon's Mechanical Turk (M-Turk) platform, as M-Turk workers tend to be more diverse than undergraduate student samples with respect to variables like age and socioeconomic status (Mason & Suri, 2012). A power analysis for an unrelated investigation within the larger study had suggested a sample size of 388 people; to account for attrition, we enrolled 468 U.S.-based M-Turk workers 18+ years old. All participants received \$1 upon completion of the study. We excluded 50 participants who failed an attention check that had asked them to briefly describe the gist of any question they had answered earlier in the study.¹ We also excluded one participant who did not complete one of our primary predictor variables. The exclusions left a sample of 417 participants (see Supplemental Materials for a detailed demographic breakdown of all studies).² Although we conducted no a priori power analysis for the present analysis, a sensitivity analysis performed after data collection indicated that this sample size provided more than 80% power to detect an effect of $r = .14$ or larger. Participants fell between the ages of 18 and 70 years old, with a mean age of 37.2 years. They self-identified as female (48%), male (51%), and other (1%); as White (74%), Black (15%), Asian (7%), Hispanic (6%), and Native American (1%); as currently Christian (54%), nonreligious (39%), Jewish (1%), Buddhist (1%), Hindu (<1%), Muslim (<1%), and other (3%); as having been raised Christian (78%), nonreligious (16%), Jewish (2%), Buddhist (2%), Hindu (1%), Muslim (<1%), and other (1%); and as attending religious services never (40%), less than once a year (15%), once a year (5%), a few times a year (12%), once or twice a month (11%), and every week or more (18%).

Procedure. After completing measures unrelated to the present analysis, participants responded to contrast differential measures examining the extent of their control (vs. truth) dominance in each domain (God concepts and personal

1. The pattern of results for the primary analysis does not change when these excluded participants are included in the dataset.

2. Across all studies, we examined the results for all participants collectively based on a recent meta-analysis indicating that religious primes are generally effective across a range of different outcome measures (Shariff et al., 2016). However, given that this meta-analysis also suggested that the effectiveness of such primes may vary between high-religiosity/religious versus low-religiosity/nonreligious participants, we also conducted all primary analyses among participants who did versus did not indicate a present religious affiliation. Additionally, because majority-group members may respond differently than minority-group members, we conducted all primary analyses among participants who did versus did not indicate that they are currently Christian. In both sets of analyses, we did not find any significant interactions between participants' experimental condition and their religion. Furthermore, when testing for differences between these groups in all correlational analyses, only a single significant difference emerged (see Study 4 for additional detail). For the results of all analyses focused on the potential moderating effect of religious affiliation, see Supplemental Materials.

motives). These two measures appeared in counterbalanced order, such that half of participants responded about God first and the other half responded about themselves first.

The first contrast differential measure probed the control- (vs. truth-) dominance of participants' God concepts. Participants reported the degree to which they believe that a control-related attribute (all-powerful) versus a truth-related attribute (all-knowing) was more important in defining God. Participants read the prompt "When I think about the attributes that define God . . ." and responded on a 6-point scale (1 = *All-knowing is much more important than all-powerful*; 6 = *All-powerful is much more important than all-knowing*). The second contrast differential measure probed the control- (vs. truth-) dominance of participants' personal motives. Participants indicated the degree to which they prioritized control versus truth by responding to the prompt "When I think about my own priorities . . ." on a 6-point scale (1 = *Truth is much more important than control*; 6 = *Control is much more important than truth*). After completing these contrast differential measures, participants optionally provided brief demographic information. We then thanked and compensated them.

RESULTS AND DISCUSSION

We calculated the Pearson's correlation between the control- (vs. truth-) dominance of participants' motives ($M = 2.56$; $SD = 1.48$) and the control- (vs. truth-) dominance of their God concepts ($M = 3.26$; $SD = 1.66$). Our analysis revealed a significant positive correlation between these measures, $r(415) = 0.32$ [95% CI: 0.23, 0.41], $p < .001$. That is, the more that participants tended to report that "all-powerful" was more important than "all-knowing" in defining God, the more they also tended to report more control- (vs. truth-) dominant personal priorities; conversely, the more that participants tended to report that "all-knowing" was more important than "all-powerful," the more they also tended to report more truth- (vs. control-) dominant priorities (see Figure 1).

This finding provides initial evidence for the *convergence* account, suggesting that the relative importance of the attributes that people assign to God is consistent with their own prioritization of associated motives. However, because this study was correlational, it is impossible to conclude if God concepts causally influence motives or, instead, motives causally influence God-concepts (or whether some third factor drives them both). Studies 2 and 3 addressed this question while also making some methodological improvements.

STUDY 2

Study 1 established that the control- (vs. truth-) dominance of God concepts is positively related to the control- (vs. truth-) dominance of personal motives, but the correlational nature of the study did not allow for causal inferences. In Study 2, we sought to establish the causal direction of this association by manipulating participants' God concepts and measuring the effects of this manipulation on

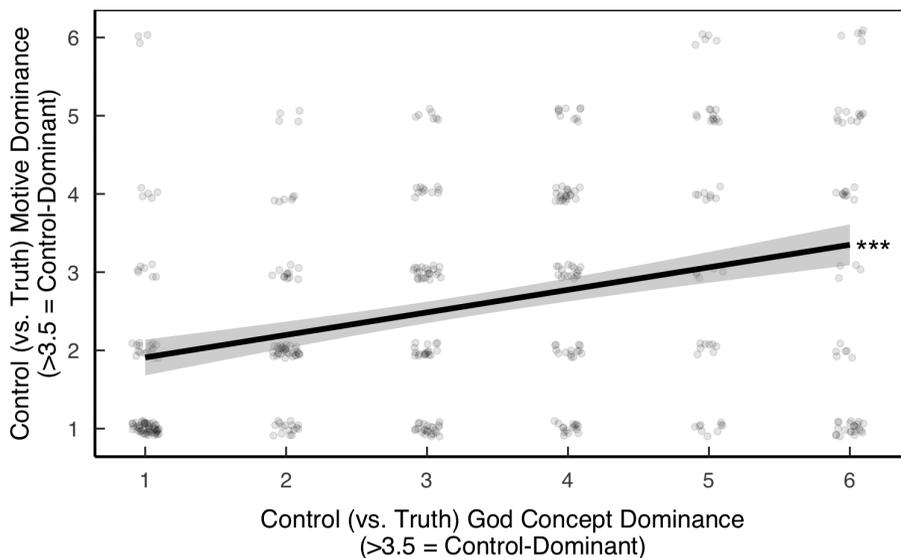


FIGURE 1. Association between control (vs. truth) God concept dominance and control (vs. truth) motive dominance. Shaded region represents 95% confidence interval.

participants' motives. The preregistration for this study is available at <https://aspredicted.org/52s3z.pdf>.

METHOD

Participants. Similar to Study 1, we recruited participants using M-Turk after receiving Institutional Review Board approval. Before running this study, we converted the effect size from Study 1 from a correlation ($r = 0.32$) to a Cohen's d ($d = 0.68$). A power analysis based on this effect size indicated that, in order to detect a significant between-group effect with an α of 0.05 and 95% power, 116 participants would be required (58 per experimental group). Because we were interested in recruiting enough participants to conduct follow-up analyses among a Christian sample, as well as to account for participants requiring exclusion, we enrolled 302 U.S.-based M-Turk workers 18+ years old. All participants received \$0.67 if they finished the study and properly completed a task in which they summarized essays in their own words and \$0.05 if they did not properly complete the summarizing task. Participants agreed to this payment setup during the consenting process.

We excluded eight participants who failed a simple attention check or did not properly complete the manipulation.³ The exclusions left a sample of 294 partici-

3. Among these excluded participants, six were assigned to the Control (Omnipotent) God concept induction condition and two were assigned to the Truth (Omniscient) God concept induction condition. The pattern of results for the primary analysis did not change when we included these excluded participants in the dataset.

pants between 19 and 84 years old with a mean age of 42.6 years. They self-identified as female (66%) and male (34%); as White (81%), Asian (6%), multiracial (5%), Black (4%), Hispanic (3%), Native American (<1%), and other (<1%); as currently Christian (60%), nonreligious (31%), Buddhist (2%), Jewish (1%), Hindu (1%), Muslim (1%), and other (4%); as having been raised Christian (85%), nonreligious (10%), Buddhist (<1%), Jewish (2%), Hindu (<1%), Muslim (<1%), and other (3%); and as attending religious services never (30%), less than once a year (20%), once a year (5%), a few times a year (18%), once or twice a month (10%), and every week or more (18%).

Procedure. After consenting to participate in the study, participants learned that we were seeking M-Turk workers' assistance in developing short summaries of existing essays about religion. Each participant was randomly assigned to one of two between-subjects conditions intended to temporarily manipulate the control- (vs. truth-) dominance of their God concepts. In the Control (Omnipotent) God concept induction condition, participants read an essay that presented Biblical evidence for God's omnipotence (i.e., possession of full control). In the Truth (Omniscient) God concept induction condition, participants read an essay that presented Biblical evidence for God's omniscience (i.e., possession of full truth). (For the full text of these induction prompts, see Appendix A.) Each of these essays was split into two halves. After reading each essay half, to firmly establish its arguments in participants' minds, we directed participants to summarize the essay half in their own words in a paragraph of at least 200 characters.

After this experimental induction, participants responded to the contrast differential measure used in Study 1 probing the control- (vs. truth-) dominance of participants' God concepts (1 = *All-knowing is much more important than all-powerful*; 6 = *All-powerful is much more important than all-knowing*). Although this measure served as a main measure of interest in Study 1, in Study 2 it appeared immediately after the essay prompt and therefore served as a manipulation check. We also addressed one potential limitation of Study 1: the scaling of the two contrast differential measures. In both measures in Study 1, control-dominance fell on the left end of the scale and truth-dominance fell on the right end. Because of this consistent scaling, the association between God concepts and motives may have appeared artificially strong if participants had responded carelessly to these items (for example, if they had always chosen the response option furthest to the right). To eliminate this potential issue, in Studies 2 and 3, we randomly varied the placement of control- (vs. truth-) dominance within all contrast-differential scales. For example, with respect to God concepts, half of participants responded with a scale in which *All-powerful is much more important than all-knowing* was located on the far-right end of the scale, 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 end.

Next, participants encountered our primary dependent measure, a contrast differential measure also drawn from Study 1 probing the control- (vs. truth-) dominance of participants' personal motives (1 = *Truth is much more important than control*; 6 = *Control is much more important than truth*). Like the first contrast differential measure, the order of the scale anchors appeared in random order.

Then, participants responded to two additional motive measures for exploratory purposes, which appeared in random order. Participants completed a measure of motive importance with separate subscales for control (five items; e.g., "It is important that I have the opportunity to control what happens") and truth (four items; e.g., "It is important that I have the chance to figure things out"; Nakkawita et al., 2019). Participants responded to these items on 7-point scales (1 = *Not at all important*; 7 = *Extremely important*). To calculate control (vs. truth) motive dominance scores, we subtracted participants' scores on the truth importance subscale from their scores on the control importance subscale. Participants also completed a measure probing the importance of engaging in different activities related to control (eight items; e.g., launch, protect) and truth (eight items; e.g., discover, verify; Nakkawita & Higgins, 2021). Participants responded to these items on 9-point scales (1 = *Not important at all*; 9 = *Absolutely essential*). To calculate control (vs. truth) motive dominance scores, we subtracted participants' mean importance scores on the Truth (Omniscient) activities from their mean importance scores on the Control (Omnipotent) activities. Finally, participants optionally provided brief demographic information. We then thanked and compensated them.

RESULTS AND DISCUSSION

Manipulation Check. Participants who completed the Control (Omnipotent) God concept induction ($M = 3.45$; $SD = 1.54$) reported God concepts that were more control-dominant than participants who completed the Truth (Omniscient) God concept induction ($M = 2.79$; $SD = 1.34$; $t(272.02) = 3.83$, $p < .001$, Cohen's $d = 0.45$ [95% CI: 0.22, 0.69]). These results indicated that we successfully manipulated the extent to which participants attributed truth- and control-related attributes to God.

Primary Analysis. Participants who completed the Control (Omnipotent) God concept induction ($M = 2.21$; $SD = 1.30$) reported personal motives that were more control-dominant than participants who completed the Truth (Omniscient) God concept induction ($M = 1.90$; $SD = 1.21$; $t(279.93) = -2.09$, $p = .037$, Cohen's $d = 0.25$ [95% CI: 0.02, 0.48]; see Figure 2). These results indicated that manipulating the control- (vs. truth-) dominance of participants' God concepts produced a consistent change in the control- (vs. truth-) dominance of participants' own motive priorities in the same direction as the God concept induction.⁴

Secondary Analyses. We conducted a similar set of secondary t -test analyses examining the effect of God concept induction on the control- (vs. truth-) dominance of participants' motive importance and activity importance ratings. Participants in the Control (Omnipotent) God concept induction condition ($M = -0.32$; $SD = 0.95$) reported motive importance ratings that were directionally more

4. For exploratory purposes, in Studies 2 and 3, we also calculated the correlation between participants' measured control (vs. truth) motive dominance and their measured control (vs. truth) God concept dominance (i.e., the same correlational analysis conducted in Study 1). Please see Supplemental Materials for the results of these analyses.

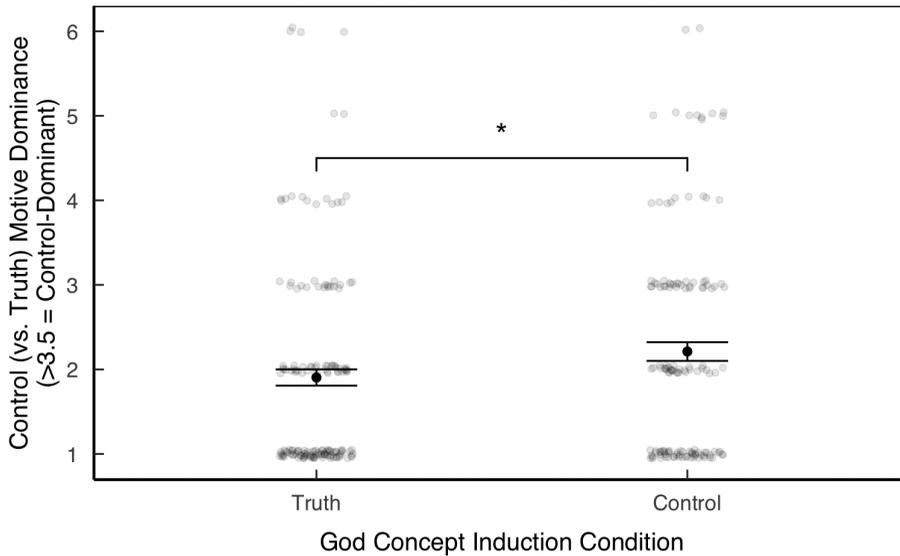


FIGURE 2. Control (vs. truth) motive dominance in the truth (omniscient) versus control (omnipotent) God concept induction conditions. Error bars represent standard errors of the mean.

control-dominant than participants in the Truth (Omniscient) God concept induction condition ($M = -0.48$; $SD = 0.84$). However, this difference did not reach significance, $t(274.14) = -1.56$, $p = .119$, Cohen's $d = 0.18$ [95% CI: $-0.05, 0.42$]. Similarly, participants in the Control (Omnipotent) God concept induction condition ($M = -1.01$; $SD = 1.34$) reported activity importance ratings that were directionally more control-dominant than participants in the Truth (Omniscient) God concept induction condition ($M = -1.11$; $SD = 1.16$). Again, this difference did not reach significance, $t(268.88) = -0.73$, $p = .467$, Cohen's $d = 0.09$ [95% CI: $-0.14, 0.32$]. The results of this final analysis suggest that although the induction of a particular God concept may cause parallel changes in broad motivational priorities (as measured by the primary contrast differential measure), these motivational changes do not cascade immediately to preferences for motive-specific goal pursuit activities.⁵ Despite the fact that these patterns were in the same direction as our primary

5. For exploratory purposes, we also examined responses to the control and truth motive and activity importance subscales separately using mixed-effect ANOVAs. Results were broadly consistent with the null findings of the secondary analysis described above. When examining motive importance ratings, we found only a single main effect of motive domain ($p < .001$), with importance ratings for truth motives ($M = 5.71$; $SD = 0.90$) exceeding those for control motives ($M = 5.31$; $SD = 0.88$). Similarly, when examining activity importance ratings, we found only a single main effect of activity domain ($p < .001$), with importance ratings for truth activities ($M = 6.55$; $SD = 1.16$) exceeding those for control activities ($M = 5.48$; $SD = 1.14$). In neither analysis did we detect a significant main effect of God concept induction (for motive importance as dependent measure: $p = .941$; for activity importance as dependent measure: $p = .431$) or an interaction between this induction and the control versus truth focus of the importance ratings (for motive importance as dependent measure: $p = .116$; for activity importance as dependent measure: $p = .462$).

analyses, these analyses were exploratory, did not reach statistical significance, and should therefore be interpreted with caution.

DISCUSSION

The main contribution of Study 2 was to provide causal evidence suggesting that manipulating the centrality of control versus truth with respect to participants' God concepts produced consistent changes in their personal motivational priorities, such that participants who completed a Truth (Omniscience) God concept induction reported motives that were more truth- (vs. control-) dominant than participants who completed a Control (Omnipotence) God concept induction. Further, this study provided additional evidence for the *convergence* account, as participants' motives directly reflected the God concept inductions they completed.

STUDY 3

While Study 2 provided evidence for one potential causal direction, we were curious whether the opposite pattern might also occur. In the world outside the lab, phenomena sometimes influence each other. For instance, attending religious services more frequently might cause people to believe more strongly in God, and the strength of their belief in God might lead them to attend religious services more frequently. Study 2 showed that God concepts influence participants' reported motives but did not rule out that participants' motives may also influence their God concepts. To address this possibility, Study 3 tested whether manipulating participants' motives affected their God concepts. The preregistration for this study is available at <https://aspredicted.org/vs99c.pdf>.

METHOD

Participants. Similar to Studies 1 and 2, we recruited participants using M-Turk after receiving Institutional Review Board approval. As in Study 2, we conducted a power analysis using the same Cohen's d ($d = 0.68$) effect size, of 0.05, and 95% power, which indicated that 116 participants would be required (58 per experimental group). To allow us to conduct follow-up analyses among a Christian sample, as well as to account for participants requiring exclusion, we enrolled 302 U.S.-based M-Turk workers 18+ years old. All participants received \$1.00 if they finished the study and properly completed a task in which they wrote an essay in their own words and \$0.10 if they did not properly complete the essay-writing task. Participants agreed to this payment setup during the consenting process.

We excluded 33 participants who failed a simple attention check or did not properly complete the manipulation.⁶ We also excluded one participant who did not complete our primary dependent measure. The exclusions left a sample of 268

6. Among these excluded participants, 17 were assigned to the Control Motive induction condition and 16 were assigned to the Truth Motive induction condition. The pattern of results for the primary analysis did not change when we included these excluded participants in the dataset.

participants between 18 and 82 years old, with a mean age of 38.5 years. They self-identified as female (56%), male (43%), and other (1%); as White (74%), Asian (9%), multiracial (6%), Hispanic (6%), Black (4%), and Native American (1%); as currently Christian (52%), nonreligious (40%), Buddhist (3%), Jewish (1%), Hindu (1%), Muslim (1%), and other (3%); as having been raised Christian (80%), nonreligious (12%), Buddhist (1%), Jewish (2%), Hindu (1%), Muslim (1%), and other (3%); and as attending religious services never (39%), less than once a year (17%), once a year (4%), a few times a year (17%), once or twice a month (7%), and every week or more (16%).

Procedure. After consenting to participate in the study, participants learned that they would first complete an essay-writing task. Each participant was randomly assigned to one of two between-subjects experimental conditions intended to temporarily manipulate the control- (vs. truth-) dominance of participants' personal motives. (For the full text of the induction prompts, see Appendix B.) In the Control Motive induction condition, participants wrote an essay describing a recent experience in managing what happened in their lives. Participants typically shared personal experiences of control motivation; see Appendix B for several examples. For instance, one participant responded as follows:

I remember when my wife told me that she was pregnant. I felt a sudden sense of responsibility. I knew that I couldn't raise my child in the small apartment in the city. Also, there was less than 2 months left on my current lease so I knew that I had to manage my time and home buying very efficiently. . . . Knowing that we had a strict deadline to complete all these tasks before our lease was expired made managing everything very important. I remember not being able to sleep most nights during the process but we ultimately bought the house and are currently living in the house that we loved.

In the Truth Motive induction condition, participants wrote an essay describing a recent experience in establishing what is real or right. Here, participants typically shared personal experiences of truth motivation; see Appendix B for several examples. For instance, one participant responded as follows:

When I was getting closer to completing my master's in electrical engineering, I had to begin to figure out what I wanted to do after school. . . . I had to think about whether I wanted to go to school for 4 to 6 more years and not have a lot of money but have a greater passion for what I do, or get a job and have a steady income and become more independent. . . . In the end, I decided to pick the route that I thought would make me happiest in the long run and that was to pursue a PhD in a field I was more passionate about.

Following this experimental induction, as a manipulation check, participants viewed the contrast differential measure used in Studies 1 and 2 probing the control- (vs. truth-) dominance of participants' personal motives (1 = *Truth is much*

more important than control; 6 = Control is much more important than truth). Like in Study 2, we counterbalanced the order of the scale's anchors; half of participants responded with a scale in which *Control is much more important than truth* was located on the far-right end of the scale, and the other half responded to a scale in which *Truth is much more important than control* was placed on the far-right end of the scale.

Next, participants responded to our primary dependent measure, the contrast differential measure used in Studies 1 and 2 probing the control- (vs. truth-) dominance of participants' God concepts. Like the first contrast differential measure, the order of the scale anchors was randomized (1 = *All-powerful is much more important than all-knowing*; 6 = *All-knowing is much more important than all-powerful*).

Then, participants completed an implicit measure that was not relevant to the current hypotheses and will not be discussed further here. For exploratory purposes, participants responded to one final contrast-differential measure examining the degree to which they would prefer an all-powerful versus all-knowing God. Participants read the prompt "If God could only be all-knowing or all-powerful (but not both), which would you prefer?" and responded on a 6-point scale (1 = *Prefer an all-knowing God much more than an all-powerful God*; 6 = *Prefer an all-powerful God much more than an all-knowing God*). Finally, participants optionally provided brief demographic information. We then thanked and compensated them.

RESULTS AND DISCUSSION

Manipulation Check. Participants in the Control Motive induction condition ($M = 2.51$; $SD = 1.20$) reported personal motives that were more control-dominant than participants in the Truth Motive induction condition ($M = 2.14$; $SD = 1.16$; $t(265.66) = -2.54$, $p = .012$, Cohen's $d = 0.31$ [95% CI: 0.07, 0.55]). These results indicate that our manipulation was successful.

Primary Analysis. Participants in the Control Motive induction condition ($M = 2.66$; $SD = 1.45$) reported God concepts that were directionally more truth-dominant than participants in the Truth Motive induction condition ($M = 2.72$; $SD = 1.54$). However, participants' control (vs. truth) motive dominance did not vary significantly by motive induction condition, $t(264.97) = 0.33$, $p = .744$, Cohen's $d = 0.04$ [95% CI: -0.20, 0.28] (see Figure 3). This result indicates that manipulating the control- (vs. truth-) dominance of participants' motives did not produce a significant change in the control- (vs. truth-) dominance of participants' God concepts.⁷

7. We initially conducted Study 3 prior to conducting Study 2, using a similar power analysis with a lower power criterion ($d = 0.68$; $\alpha = 0.05$; power = 80%) that resulted in a smaller sample size ($N = 142$). This original version of Study 3 did not demonstrate a significant effect of a control (vs. truth) motive induction on the control (vs. truth) dominance of participants' God concepts, $t(133.55) = -1.18$, $p = .240$, Cohen's $d = 0.20$ [95% CI: -0.13, 0.54]. However, it was difficult to compare these results with the results of Study 2 because of the smaller sample size. We then ran the higher-powered version of Study 3 reported in the main text, which also failed to reveal a significant effect of the same control (vs. truth) motive induction on the control (vs. truth) dominance of participants'

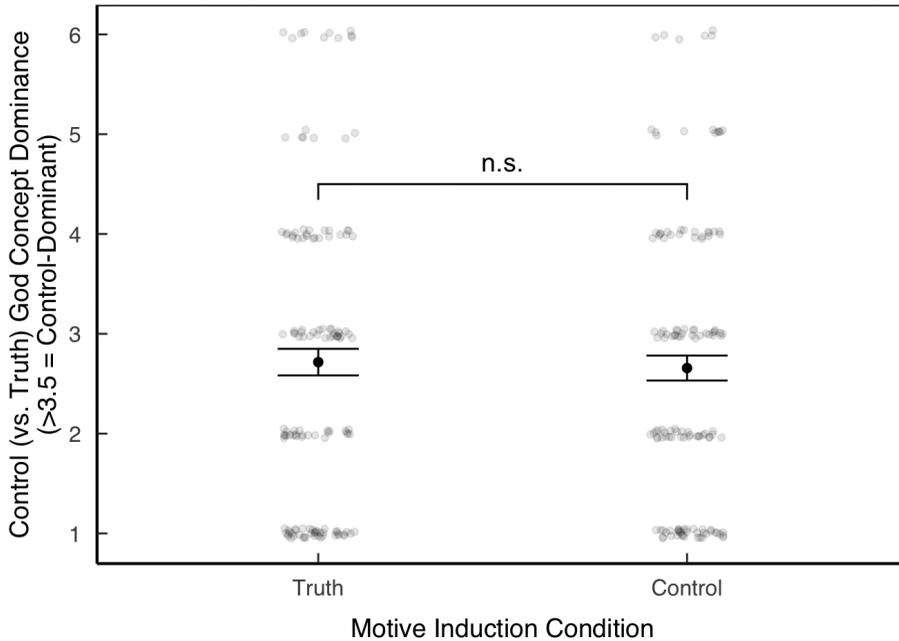


FIGURE 3. Control (vs. truth) God concept dominance in the truth versus control motive induction conditions. Error bars represent standard errors of the mean.

Secondary Analysis. Participants in the Control Motive induction condition ($M = 2.80$; $SD = 1.61$) reported God preferences that were directionally more control-dominant than participants in the Truth Motive induction condition ($M = 2.67$; $SD = 1.68$). However, this difference did not reach significance, $t(265.47) = -0.63$, $p = .528$, Cohen's $d = 0.08$ [95% CI: $-0.16, 0.32$].

DISCUSSION

Study 3 built on Study 2 to investigate whether the relation between God concepts and motives is bidirectional. Although Study 2 both provided additional support for the *convergence* account and revealed that changes in God concepts can produce parallel changes in motive priorities, Study 3 did not show that manipulating motive priorities significantly affected participants' God concepts. Although people's own motives reflect changes in the momentary accessibility of God concepts (Study 2), these concepts do not appear to reflect changes in the momentary accessibility of people's own motives (Study 3). These data provide new insight

God concepts. When we collapse across the two studies, we still do not detect an effect, despite the larger sample size, $t(403.32) = -0.53$, $p = .600$, Cohen's $d = 0.05$ [95% CI: $-0.14, 0.25$]. For this reason, we are more confident in the causal direction of the relation between God concepts and personal motives.

into the causal direction of the *convergence* effect found in prior studies: While the relative predominance of a given characteristic in participants' God concepts increases the degree to which they report parallel personal motives (Study 2), evidence did not emerge that increasing the extent to which participants prioritize particular motives for themselves altered the relative predominance of the characteristics they attributed to God (Study 3). In other words, people's motivational priorities appear to stem in part from their God concepts, but God concepts may not depend on people's motives.

STUDY 4

While the prior studies provided consistent evidence for the *convergence* account, as well as insight into the causal path between these variables, one methodological limitation of Studies 1–3 was their reliance on single-item contrast differential measures. Furthermore, the contrast differential measures used in the previous studies did not include a scale midpoint, so it was not possible for participants to indicate if they believed that control and truth are equal in importance. To address these limitations, Study 4 sought to provide confirmatory evidence for the *convergence* account using a broader set of measures. The preregistration for this study is available at https://aspredicted.org/blind.php?x=GN6_9L6.

METHOD

Participants. As in the prior studies, we recruited participants using M-Turk after receiving Institutional Review Board approval. Given that this study was intended to serve as a replication of Study 1, for which we recruited 417 participants and which a sensitivity analysis indicated provided more than 80% power to detect an effect of $r = .14$ or larger, we planned to enroll 500 U.S.-based M-Turk workers 18+ years old to account for participants requiring exclusion. All participants received \$2.00 if they finished the study and correctly answered a simple attention check question and \$0.20 if they failed the attention check. Participants agreed to this payment setup during the consenting process.

One individual was able to provide a valid completion code without actually participating in the study, leaving an initial sample of 499 participants. We then excluded 158 participants who failed a simple attention check or participated more than once (as indicated by duplicate responses to open-ended questions).⁸ We also excluded two participants who did not complete our key measures. The exclusions left a sample of 339 participants between 22 and 70 years old, with a mean age of 38.7 years. They self-identified as male (54%), female (45%), and other (1%); as White (74%), Asian (7%), Native American (5%), Black (4%), Hispanic (4%), and other (1%); as currently Christian (65%), nonreligious (28%), Buddhist (2%), Jewish (2%), Muslim (1%), Hindu (<1%), and other (2%); as having been raised Christian (83%), nonreligious (12%), Buddhist (1%), Jewish (1%), Muslim (1%), Hindu

8. The pattern of results for the key analyses did not change when we included these excluded participants in the dataset.

(<1%), and other (1%); and as attending religious services never (33%), less than once a year (10%), once a year (9%), a few times a year (12%), once or twice a month (18%), and every week or more (17%).

Procedure. After consenting to participate in the study, participants viewed two blocks of survey questions: one block probing God concepts and another probing personal motives. These two blocks appeared in counterbalanced order such that half of participants responded about God first and the other half responded about themselves first.

In the block of questions examining the control- (vs. truth-) dominance of participants' God concepts, participants first completed a contrast differential measure adapted from the previous studies with two key improvements.⁹ First, it is possible that participants misunderstood the contrast differential item probing God concepts that was used in Studies 1–3. The intention of this question was to measure the relative centrality of “all-powerful” versus “all-knowing” within participants' conceptions of God; however, participants may have interpreted the question as asking how important participants themselves think it is that God is all-powerful versus all-knowing. Thus, to resolve any potential participant ambiguity regarding the *importance* of omnipotence and omniscience as attributes that define God, we revised the anchor labels to more clearly indicate that the questions related to how *central* participants believe omnipotence and omniscience are to their God concepts (from *All-knowing is much more central to who God is than all-powerful* to *All-powerful is much more central to who God is than all-knowing*). As in Studies 2–3, the order of these scale anchors was randomized. Second, we extended the range of the scale from 6 to 7 points to allow for a scale midpoint indicating that all-powerful and all-knowing are equally central to who God is.

After answering this contrast differential question, participants completed subscale-based questionnaires probing their God concepts.¹⁰ Two of these three subscales originated in research by Kay et al. (2008) and measured participants' endorsement of God as a controller (“To what extent do you think it is feasible that God, or some type of nonhuman entity, is in control, at least in part, of the events within our universe?”; “To what extent do you think that the events that occur in this world unfold according to God's, or some type of nonhuman entity's, plan?”) and as a creator (“To what extent do you think it is feasible that God, or some type of nonhuman entity, created the universe?”; “To what extent do you think that it is feasible that God, or some type of nonhuman entity, created all life on the planet?”). Because we were interested in contrasting participants' representations of a controlling God with their representations of a knowing God, we adapted these existing items to create a third subscale to assess truth-oriented God concepts (“To what extent do you think it is feasible that God, or some type of nonhuman entity, possesses knowledge, at least in part, of the events within

9. We are grateful to reviewers who suggested these methodological enhancements.

10. In a pilot study, we observed a significant difference between participants' scores on the control versus truth subscales ($p = .004$). We took this difference as evidence that the scales did *not* force participants into a choice between God concepts that they would not have made on their own.

our universe?"; "To what extent do you think it is feasible that God, or some type of nonhuman entity, knows the contents of every human mind?"). Participants responded to all three subscales in a random order using response options ranging from 1 = *Tremendously doubtful* to 7 = *Very likely*. To calculate control- (i.e., omnipotence) versus truth- (i.e., omniscience) dominance, we subtracted the mean score for a knowing God from the mean score for a controlling God.

In the block of questions examining the control- (vs. truth-) dominance of participants' motives, as in the God concept block, participants first completed a contrast differential measure. Although the item's wording was identical to the motive-oriented contrast differential measure used in prior studies, like the contrast differential measure assessing God concepts in this study, we extended the range of the scale from 6 to 7 points to allow for a scale midpoint indicating that control and truth are equally important when thinking about one's own priorities. After responding to this contrast differential item, participants completed the same two subscale-based measures from Study 2 that assessed the importance of control versus truth motives and activities in a random order.

After completing these God concept and motive measures, participants optionally provided demographic information and answered a brief attention check in which they described one question that they answered in the study. Finally, participants received thanks and compensation.

RESULTS AND DISCUSSION

Subscale-Based Measures. We calculated the Pearson's correlation between the control- (vs. truth-) dominance of their subscale-based God concept ratings ($M = -0.17$; $SD = 0.94$; subscale means: $M_{\text{control}} = 4.35$; $M_{\text{truth}} = 4.52$) and the control- (vs. truth-) dominance of participants' subscale-based motive importance ratings ($M = -0.29$; $SD = 0.76$; subscale means: $M_{\text{control}} = 5.56$; $M_{\text{truth}} = 5.85$). Our analysis revealed a significant positive correlation between these measures, $r(337) = 0.16$ [95% CI: 0.06, 0.27], $p = .002$. These results are consistent with the findings of previous studies and align with the *convergence* account, as the more participants reported belief in a controlling (vs. knowing) God, the more they also reported that control (vs. truth) motives were more important to them (see Figure 4).

We performed a similar analysis testing for a correlation between the control- (vs. truth-) dominance of the same subscale-based God concept ratings and the control- (vs. truth-) dominance of participants' subscale-based activity importance ratings ($M = -0.70$; $SD = 1.17$; subscale means: $M_{\text{control}} = 6.05$; $M_{\text{truth}} = 6.74$). This analysis revealed a significant positive association between these measures, $r(337) = 0.15$ [95% CI: 0.05, 0.26], $p = .004$, providing additional converging evidence for this positive association between the control- (vs. truth-) dominance of God concepts and motives (see Figure 5).¹¹

11. This association differed significantly ($p = .016$) between participants who did presently identify as Christian ($r = 0.25$; $p < .001$) versus participants who did not ($r = -.02$; $p = .808$). Please see Supplemental Materials for more detail.

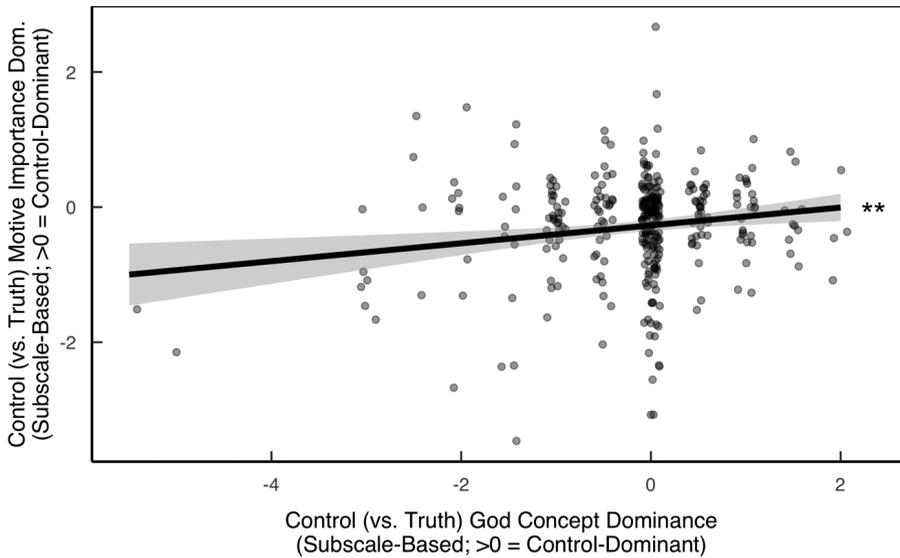


FIGURE 4. Association between control (vs. truth) God concept dominance and control (vs. truth) motive importance dominance (subscale-based). Shaded region represents 95% confidence interval.

Contrast Differential Measures. We conducted a similar correlational analysis testing for an association between the control- (vs. truth-) dominance of participants' God concepts ($M = 3.85$; $SD = 1.74$) and the control- (vs. truth-) dominance of their motives ($M = 3.11$; $SD = 1.83$) as measured using contrast differential measures. While this analysis revealed a consistent directional trend with the subscale-based results, this correlation only reached marginal significance, $r(337) = 0.10$ [95% CI: $-0.01, 0.20$], $p = .075$ (see Figure 6). Although such a result must be interpreted with caution, it may suggest that some participants treated the contrast differential measures' midpoints as "easy" response options that allowed them to refrain from thinking deeply about these potentially difficult questions. (For reference, 41% of participants in Study 4 chose the midpoint when responding to the contrast differential item probing God concepts and 20% chose the midpoint when responding to the contrast differential item probing motives.) As evidence for this proposal, we found significant evidence for the hypothesized association when measuring control versus truth predominance indirectly using subscales that examined endorsement of control and truth separately for both God concepts and motives; it is only when participants were asked explicitly to make a decision about the relative predominance of control and truth that the effect dropped to marginal significance. If some participants did in fact treat the midpoint as a quick and easy response option, it would follow that the prior studies that did not include a midpoint within the contrast differential measures more accurately captured the true size of this effect. On the other hand, it is also possible that the contrast differential

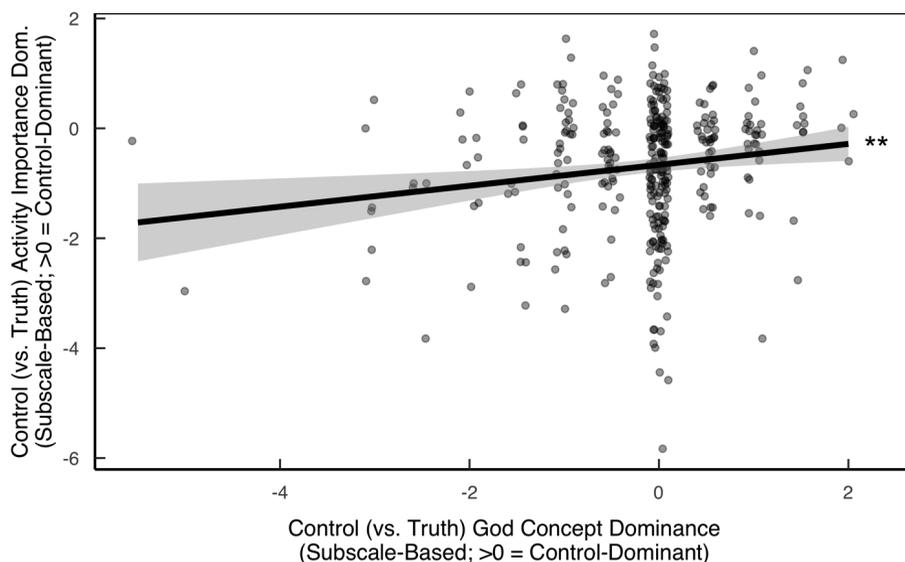


FIGURE 5. Association between control (vs. truth) God concept dominance and control (vs. truth) activity importance dominance (subscale-based). Shaded region represents 95% confidence interval.

measures without a midpoint that we used in prior studies may have inflated the size of the association between God concepts and motives by forcing participants to make a choice between control and truth when some participants may have truly been ambivalent.

Collectively, these findings provide additional evidence consistent with the *convergence* account. They indicate that the relative centrality of omnipotence (vs. omniscience) when conceptualizing God aligns with their own prioritization of control (vs. truth) motives, although future research may be needed to quantify the precise size of this effect.

GENERAL DISCUSSION

The purpose of the present research was twofold. The first goal was to test two competing accounts of the association between God concepts and personal motives. A *convergence* account predicts a positive relation between people's beliefs about God's attributes and their personal motives, whereas a *divergence* account predicts an inverse relation. After disentangling these accounts, the second goal was to determine the causal direction of this association between God concepts and personal motives. Although motivation and cognition are deeply connected (Hughes & Zaki, 2015; Molden & Higgins, 2005), much remains to be known about the precise nature of these relations. Our results offer new insight into the associations between individuals' perceptions regarding the relative importance of God's

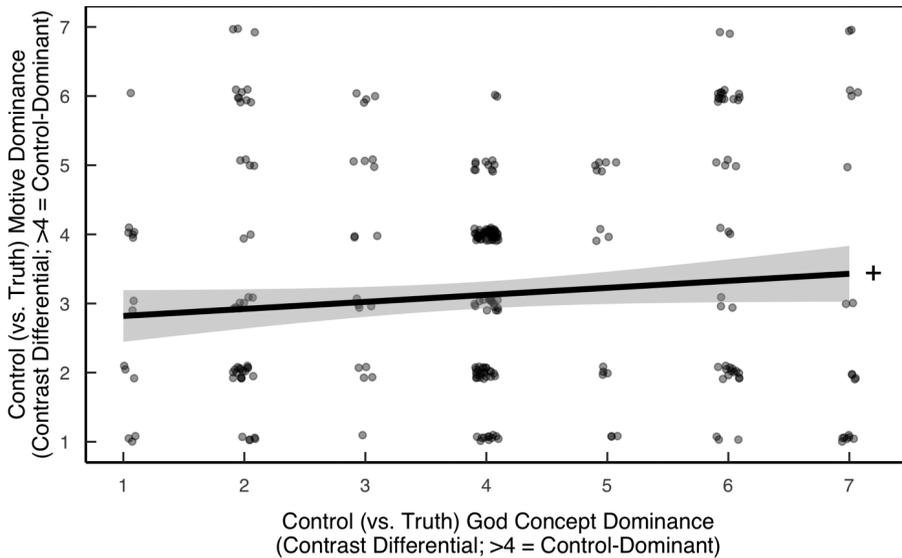


FIGURE 6. Association between control (vs. truth) God concept dominance and control (vs. truth) motive dominance (contrast differential based). Shaded region represents 95% confidence interval.

attributes and their relative prioritization of parallel motives by showing that people personally prioritize the motive domain most central to their conceptualization of God.

Collectively, the present studies provide evidence for the *convergence* account: People who consider omnipotence (i.e., an attribute related to control) to be more central than omniscience (i.e., an attribute related to truth) to their concept of God also tend to personally prioritize control (vs. truth) motivation. Further, through the use of experimental methods, Studies 2 and 3 revealed the causal nature of these associations. Manipulating participants' immediate conceptualizations of God caused parallel changes in the predominance of their personal motives. More specifically, participants who summarized an essay about God's omnipotence reported more control (vs. truth) dominance in their personal motives than participants who summarized an essay about God's omniscience. Notably, we did not find reliable evidence for the reverse causal direction, indicating that manipulating participants' motives may not influence their God concepts.

These findings align with research suggesting that the perceived contents of God's mind are similar to the contents of one's *own* mind (Epley et al., 2009; Payir & Heiphetz, 2022; Ross et al., 2012). In line with this work, we found that participants' motivational preferences were positively associated with the qualities they attributed to God. Additionally, changes in God concepts produced changes in participants' motives. More specifically, people appeared to adjust their personal motives so as to be consistent with the primed God concept.

Accessibility (Bruner, 1957; Higgins, 1996) may serve as a mechanism explaining these findings. According to theorizing on this topic, when processing information, people are more likely to use concepts that they encounter frequently or that they have encountered recently—especially when these concepts are highly relevant to fundamental motives including control and truth (Eitam & Higgins, 2010, 2014). While we manipulated accessibility in the present research through the use of writing prompts, individuals are also likely to encounter representations of God's omniscience (i.e., truth-predominance) and omnipotence (i.e., control-predominance) in their everyday experiences. For example, a trusted religious leader may deliver a sermon on God's omnipotent, all-powerful nature. The present work would suggest that individuals in such a congregation would tend to leave this service with a stronger personal prioritization of control (vs. truth) motives.

The current research makes an important contribution to the motivation literature by elucidating the nature of the relations between fundamental human motives and people's God concepts. While a large body of prior work had established how motivation affects cognition, the current studies offer new evidence for the reverse causal direction, providing support for the notion that cognition influences motivation. Furthermore, the present studies suggest that basic principles of knowledge activation, such as accessibility, may facilitate this causal relation between cognition and motivation. Finally, prior work examining the associations between motivation and cognition has tended to consider a single motive at a time (e.g., control, Kay et al., 2009; effectance, Waytz et al., 2010). In contrast with these prior approaches, the present work investigated these relations through a more complex, multimotive lens that considered the relative dominance of truth versus control.

In addition to its contributions to the motivation literature, the present research also extends the literature on religious cognition by testing the *convergence* versus *divergence* accounts for how representations of God's mind and one's own mind might be associated. A *convergence* account predicts that people's beliefs about God's mind, capabilities, and motives would directly align with their own motive priorities, in line with work suggesting that people reason egocentrically when thinking about God's mind (e.g., Epley et al., 2009), judging that the contents of God's mind directly align with their own. In contrast, a *divergence* account predicts that people would perceive God's mind and capabilities as complementary to their own mind because God can make up for areas that a person does not personally prioritize (e.g., Khenfer et al., 2017). Testing between these accounts helps to clarify whether the relations between representations of human and supernatural minds are directly reflective or compensatory in nature. In doing so, this research also integrates two fields that have largely remained separate to date: the social psychology of motivation and the cognitive science of religion (for an exception that has examined motivation in light of religious cognition, see Laurin & Kay, 2017).

In addition to these theoretical contributions, the present research also has translational implications. For instance, prior work has found that reminding people about God (vs. other neutral or positive everyday concepts, such as flowers,

parties, or the sun) enhances some kinds of self-regulation (e.g., active goal pursuit) and diminishes others (e.g., temptation resistance; Laurin et al., 2012). The present research suggests that these effects may vary based upon the nature of the God concept—that is, whether the particular description of God relates to control (i.e., omnipotence; for instance, a friend’s reminder during a difficult time that God has everything under control) or truth (i.e., omniscience; for instance, a comment from the same friend about God’s all-knowing nature). Although both control and truth are fundamental to how people engage in the world, shifting from one motivational priority to another necessarily involves trade-offs in costs and benefits (Higgins, 2012). As a result, the present research suggests that individuals might benefit from remaining mindful of precisely how they tend to conceptualize God before beginning a task with a particular motivational focus. For example, before making a difficult ethical decision that will involve truth-oriented activities like exploring different choice options and assessing their consequences, individuals might read an article from a trusted spiritual leader about God’s omniscience. The usefulness of such interventions should be investigated directly. In doing so, researchers should pay special attention to how they influence other known findings about the associations between beliefs about God and individuals’ own pursuit of control- versus truth-oriented goals. For instance, it is possible that such an intervention might have the ability to counteract negative stereotypes about religious adherents and the pursuit of truth through scientific means, which past research indicates may lead Christians to disidentify with science (Rios et al., 2015).

Despite these theoretical and translational strengths, one limitation of the present research is that it involved a brief manipulation administered only once, which may have contributed to the null effect in Study 3. We observed this null effect in two separate studies and in a combined data set with greater power (see Footnote 6), which increased our confidence that these studies revealed a true null effect. However, null effects must always be interpreted with caution and could indicate that the present research failed to detect an effect that actually exists outside the lab. A different manipulation of participants’ own motives—such as asking them to ponder their own motives multiple times rather than at a single point—could reveal a stronger effect on God concepts. Future work can test this possibility.

Another limitation of the present work is its short-term nature. Because we assessed participants’ motives in the moments directly following brief manipulations of their God concepts in Study 2, it is unclear to what extent the effects of such manipulations on motive priorities would persist. Although we expect that the manipulations used within the present research only produce temporary effects, additional research would be needed to determine if more powerful and ecologically valid God concept inductions (e.g., attending a series of lectures from a trusted theologian) are able to affect individuals’ motive priorities over the long term.

The present research is also silent on whether the results of Study 2 are specific to God concepts or would emerge if another control (vs. truth) predominant target were primed. For example, it is unclear if asking participants to summarize an article about a truth-dominant scholar or a control-dominant business executive

would prompt a similar convergent shift in participants' own motives. If the present effect is in fact driven by the relative accessibility of control and truth, we expect that similar priming effects may emerge for alternate targets. However, it is possible that an alternate mechanism underlies this effect, which could produce different results if another target were primed. For instance, if the effect is motivated by the participant's desire to emulate the primed target, it is possible that a weaker effect might emerge for a target that the participant likes but does not conceptualize as an ideal being like God (e.g., the participant's best friend). Similarly, it is possible that a reversal of the effect might occur if a disliked target is primed. Additional research is needed to test among these competing possibilities and determine the specific mechanism underlying the effect.

Future research can also examine the effects observed here among other populations and in other contexts. All participants in the present research were U.S. residents, and adults in this country tend to be more religious (e.g., more likely to pray daily and attend weekly religious services) than adults in nations with similar levels of per capita GDP (Fahmy, 2018). Although 31%–40% of the participants in the present research were not currently religiously affiliated, only 10%–16% of them reported not having a religious background at all, and our samples were not adequately powered to conduct analyses only among this smaller group. In countries with less religious cultures than that found in the United States, people's own personal motives may be less intertwined with God concepts. This could be the case even among religiously affiliated people, as the cultural messages that they receive about the extent to which their religion should influence other parts of their lives may differ from messages predominant in the United States (e.g., Luhrmann, 2012). Further, the present research took place prior to the COVID-19 pandemic, and it is possible that such a disruptive and control-threatening societal event could overwhelm the associations reported here. As a result, future work should investigate the generalizability of this effect across cultures and contexts.

CONCLUSIONS

The constructs of control and truth are fundamental both to human motivation and to common conceptions of God, but previous work has suggested conflicting accounts of the associations between motives and God concepts. Furthermore, the directionality of this association was unknown. To address these gaps in the literature, we conducted a series of correlational and experimental studies examining how the control (vs. truth) dominance of people's God concepts related to the control (vs. truth) dominance of their personal motives. Collectively, findings supported a *convergence* account: The control- (vs. truth-) dominance of people's God concepts influenced the control- (vs. truth-) dominance of their personal motives. Furthermore, the present work provided evidence for a single causal direction, in which individuals directly reflected manipulated beliefs about God's attributes in their motivational priorities. This research contributes to understanding of motivated cognition by elucidating the directionality of the relations between God concepts and motives. Additionally, in testing the *convergence* versus *divergence*

accounts, the present work contributes to the religious cognition literature by providing insight into why human minds and God's mind are conceptualized so similarly. In sum, the present research increases scientific understanding of how God concepts influence individuals' own motive priorities.

APPENDIX A: GOD CONCEPT INDUCTIONS (STUDY 2)

Instructions

We are looking for M-Turk workers' assistance in developing short summaries of existing essays. In this task, you will be presented with a single essay in two halves. After reading each half, we will ask you to write a brief paragraph of at least 200 characters that summarizes the portion of the essay that you have just read.

Control (Omnipotence) God Concept Induction

WHAT IS OMNIPOTENCE AND WHAT DOES IT MEAN FOR US?

What does omnipotence really mean? God's omnipotent nature simply means that God holds all power. God's power is showcased in God's creation of the world, calling everything into existence. God's power is present in the life of all of the ancient patriarchs and prophets. God's power is on display through Jesus's life, death, and resurrection. And, we get a glimpse of God's power in what's foretold in the book of Revelation.

"And I heard as it were the voice of a great multitude, and as the voice of many waters, and as the voice of mighty thunderings, saying, Alleluia: for the Lord God omnipotent reigns" (Revelation 19:6).

God has power over all things, and it has practical value for us today. How often have we felt out of control and powerless? What a relief to know that God is always able to take charge!

Let's look at some of what God's omnipotence means for us personally.

Because God is omnipotent, we can live an abundant life.

God's omnipotence means that we don't have to act on our own. We don't have to summon the courage to face all of life's challenges alone. God has the power to accomplish anything.

This power is so great that God was able to raise Jesus from the dead. Three days after Jesus died, an earthquake shook the ground and rolled away the stone covering the door to the tomb. Jesus then stepped out and greeted his disciples. If God can raise people from the dead, of course God can also help with any problems we may encounter!

The Apostle Paul wrote in his letter to the Ephesians that God is *"able to do far more abundantly than all that we ask or think, according to the power at work within us"* (Ephesians 3:20).

In this letter, Paul reveals that we aren't acting on our own. On the contrary, Paul lets us know that God's unlimited power is working within us. Because God is omnipotent, we can rely on God's strength and power when we feel ours is lacking. We simply ask God for help. God can do just what we need.

[PARTICIPANTS SUMMARIZED FIRST HALF]

Because God is omnipotent, we can be content.

It's a part of our human nature to not be satisfied. It's a particular part of modern life to always want more. Many of us have to fight jealousy, envy, and want. It's not a battle we are likely to win on our own.

God's omnipotence means that God can always provide us with enough. When a huge crowd of people came to see Jesus speak, His disciples worried because only five loaves of bread and two fish were available. Thankfully, they had nothing to fear, as God ensured that everyone had plenty to eat. There were even leftovers!

"They all ate and were satisfied, and the disciples picked up twelve basketfuls of broken pieces that were left over. The number of those who ate was about five thousand men, besides women and children" (Matthew 14:20-21).

With God, contentment in life is possible, because God provides us with everything we need. Remember what the Apostle Peter described in one of his letters to early Christians.

"By his divine power, God has given us everything we need for living a godly life. We have received all of this by coming to know God, the one who called us to God's self by means of God's marvelous glory and excellence" (2 Peter 1:3).

When we struggle, God's omnipotence gives us hope and confidence. In fact, it's what gives us the ability to be who God intends us to be.

What does God's omnipotence mean for us?

God has *"incomparably great power for us who believe. That power is the same as the mighty strength God exerted when God raised Christ from the dead"* (Ephesians 1:19-20).

Because God can do anything, we can approach God with any problem and find the help we need. When we struggle, God's omnipotence can give us hope and confidence.

[PARTICIPANTS SUMMARIZED SECOND HALF]

Truth (Omniscience) God Concept Induction

WHAT IS OMNISCIENCE AND WHAT DOES IT MEAN FOR US?

What does omniscience really mean? God's omniscient nature simply means that God knows everything. God knows the future, the past, and everything that is going on in this moment. God knows calculus, microbiology, and English. God understands physics and engineering. God knows the pressures of providing for a family and running a business. But more personally, God knows everything about us.

“O Lord, you have examined my heart and know everything about me” (Psalm 139:1).

That includes every thought, and it has practical value for us today. How often have our thoughts baffled us? What a relief to know God knows and understands them!

Let’s look at some of what God’s omniscience means for us personally.

Because God is omniscient, we can be genuine.

God’s omniscience means we don’t have to pretend with God. We don’t have to clean up our thoughts and emotions before we approach God. God already knows everything.

God understands why we’re upset. God knows the root of our insecurities, disappointments, and our needs. God can handle our doubts, fears, and critical thoughts. God is the perfect One to guide us to peace, health, and healing.

David demonstrated the practical value of God’s omniscience in Psalm 139. After describing his hatred for his enemies, he prayed, *“Search me, O God, and know my heart; test me and know my anxious thoughts. Point out anything in me that offends you, and lead me along the path of everlasting life”* (Psalm 139:23-24).

David knew the hate he had spoken needed God’s attention. Instead of hiding behind pious platitudes or saying, *“Just kidding! I didn’t mean it,”* David invited God into his spiteful thoughts and emotions.

Because God is omniscient, we don’t have to explain our situation or confusion to God. We simply ask God for help. God knows just what we need.

[PARTICIPANTS SUMMARIZED FIRST HALF]

Because God is omniscient, we are secure.

It’s a part of our human nature to make mistakes. It’s a particular part of modern life to question everything. Many of us have to fight insecurity, uncertainty, and doubt. It’s not a battle we are likely to win on our own.

God’s omniscience means that God knew everything about us before we were born. God knew all the ways we would mess up before God chose us to be a part of God’s forever family.

“Even before he made the world, God loved us and chose us in Christ to be holy and without fault in his eyes” (Ephesians 1:4).

The next time we fail, we can remember Simon Peter. The night of Jesus’ betrayal, Jesus told Peter he’d deny Him three times that very night. Instead of washing His hands of Peter, Jesus commissioned him!

“But I have prayed for you, Simon, that your faith may not fail. And when you have turned back, strengthen your brothers” (Luke 22:32).

God’s omniscience means that God already knows we’re going to fail and loves us anyway. Therefore, we can tell God we’re sorry, thank God for forgiveness, and then commit to doing better next time.

What does God’s omniscience mean for us?

“Trust in the Lord with all your heart; do not depend on your own understanding” (Proverbs 3:5).

Because God knows everything, we can approach God with any problem and find the help we need. When God's ways don't make sense to our limited understanding, we know that we can trust in God's perfect wisdom.

[PARTICIPANTS SUMMARIZED SECOND HALF]

APPENDIX B: MOTIVE INDUCTIONS AND SAMPLE RESPONSES (STUDY 3)

Control Motive Induction

In life, people spend a good deal of time trying to manage what happens in their world (for example, taking control of a given situation or putting a chosen plan into action).

In the space below, please write a brief essay describing the most recent time when you found it important to manage what happened in your life. For example, you might recall a recent time when there was a plan you were trying to enact or an aspect of your life that you were working to control more effectively.

Sample Control Responses

[Please note: The following are participant responses in their original form. They are unedited and, as a result, may contain participants' original typographical errors.]

"I remember when my wife told me that she was pregnant. I felt a sudden sense of responsibility. I knew that I couldn't raise my child in the small apartment in the city. Also, there was less than 2 months left on my current lease so I knew that I had to manage my time and home buying very efficiently. I first had to obtain a mortgage very quickly. I had to gather all of my financial records and any other supporting documents overall for the application process. Meanwhile, I had to go find a new house that my wife would enjoy living in while she was going to pregnant. It was very stressful but we finally found a house that we truly loved. Then we had to manage working with our real estate agent to help negotiate down on the price that could agree on. Knowing that we had a strict deadline to complete all these tasks before our lease was expired made managing everything very important. I remember not being able to sleep most nights during the process but we ultimately bought the house and are currently living in the house that we loved."

"There was a time in which I felt like I needed to control my health better. Had always been a very active person but between all the busyness in my life I started to be less active and involved in activities that I enjoyed doing. Therefore I knew I needed to make some changes and do things different in order to take more control of my health and happiness. The first thing I did in try and come up with a solid plan that I could implement in order to take control back. I decided to implement

2 parts to this plan, exercise and eating better. I cut out most of any junk food that I had been eating and also quit buying fast food for long on my lunch break from work. I immediately started to feel better after doing this. I added more whole grains and fruits and vegetables. I also stopped drinking most sugar drinks. Will still have an occasional Gatorade but hardly any soda drinks anymore. The next thing I did is come up with an exercise plan that consisted of cardio and strength training. Those 2 together helped me in a short period of time get back into really good shape and feel better about my health.”

Truth Motive Induction

In life, people spend a good deal of time trying to establish what is real and right in their world (for example, figuring out what is really happening in a given situation or choosing which plan is the right one).

In the space below, please write a brief essay describing the most recent time when you found it important to establish what is real or right. For example, you might recall a recent time when there was a question you were trying to answer or an aspect of your life that you were working to understand more deeply.

Sample Truth Responses

[Please note: The following are participant responses in their original form. They are unedited and, as a result, may contain participants' original typographical errors.]

“A few years ago, i suspected my S.O. if they had been unfaithful to me early on in our relationship. I wanted to figure out really bad, as i had always been suspicious when we first started dating and things were a bit ambiguous label and rule wise between the two of us. However, there was a time when we were clearly exclusive, in which they slept over at a friends house, and i was sure that they had a fling in the past, and that this was a chance for a relapse and one more fling. I confronted them and expressed my concerns, it had been bothering me and sitting in the back of my mind for some time. I always brushed it off as me being overly worry some and making up things just to be dramatic, but at this point i would rather just know the truth instead of worrying and letting it continue to bother me. I explained that i wanted to know what happened with them that night, so that i could finally know what happened, so that i could have some closure or conclusions on it. turned out nothing happened and i was worried for such a long time for no reason.”

“My nursing classmates created a google document for an upcoming exam. The students copy and pasted a study guide provided by our instructor and wrote pertinent information below each bullet point. It was tempting to just study the google document as most of my classmates had already filled it out but I knew it was important to double check their work. I did not want to rely solely on their work so I did my own studying. I created my own study guide and cross referenced the information with our course notes, reading and supplemental learning materials. Whenever I came across a disparity, I would look through my notes to try to find the correct answer. This way, my study guide was the most accurate

it could be. It is very important to find multiple resources to answer a question because you can't always trust one source to have all the correct answers. Making my own study guide allowed me to understand the pathophysiology of diseases and related pharmacology in much greater detail and more deeply."

REFERENCES

- Atkinson, J. W. (1964). *An introduction to motivation*. D. Van Nostrand Company.
- Atran, S., Medin, D., Ross, N., Lynch, E., Vapnarsky, V., Ek, E., Coley, J., Timura, C., & Baran, M. (2002). Folk ecology, cultural epidemiology, and the spirit of the commons: A garden experiment in the Maya lowlands, 1991–2001. *Current Anthropology*, 43(3), 421–450. <https://doi.org/10.1086/339528>
- Bagheri, L., & Milyavskaya, M. (2020). Novelty–variety as a candidate basic psychological need: New evidence across three studies. *Motivation and Emotion*, 44, 32–53. <https://doi.org/10.1007/s11031-019-09807-4>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman and Company.
- Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 93–130). Guilford Press.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Bem, D. J. (1965). An experimental analysis of self-persuasion. *Journal of Experimental Social Psychology*, 1(3), 199–218. [https://doi.org/10.1016/0022-1031\(65\)90026-0](https://doi.org/10.1016/0022-1031(65)90026-0)
- Bruner, J. S. (1957). On perceptual readiness. *Psychological Review*, 64(2), 123–152. <https://doi.org/10.1037/h0043805>
- Bruner, J. S., & Goodman, C. C. (1947). Value and need as organizing factors in perception. *Journal of Abnormal and Social Psychology*, 42(1), 33–44. <https://doi.org/10.1037/h0058484>
- Bruning, R., Dempsey, M., Kauffman, D. F., McKim, C., & Zumbunn, S. (2013). Examining dimensions of self-efficacy for writing. *Journal of Educational Psychology*, 105(1), 25–38. <https://doi.org/10.1037/a0029692>
- 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>
- Cesario, J., Plaks, J. E., & Higgins, E. T. (2006). Automatic social behavior as motivated preparation to interact. *Journal of Personality and Social Psychology*, 90(6), 893–910. <https://doi.org/10.1037/0022-3514.90.6.893>
- Chen, C. Y., Rossignac-Milon, M., & Higgins, E. T. (2018). Feeling distressed from making decisions: Assessors' need to be right. *Journal of Personality and Social Psychology*, 115(4), 743–761. <https://doi.org/10.1037/pspp0000181>
- Cohen, A. B. (2009). Many forms of culture. *American Psychologist*, 64(3), 194–204. <https://doi.org/10.1037/a0015308>
- Cohen, A. B., & Hill, P. C. (2007). Religion as culture: Religious individualism and collectivism among American Catholics, Jews, and Protestants. *Journal of Personality*, 75(4), 709–742. <https://doi.org/10.1111/j.1467-6494.2007.00454.x>
- 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
- Dunning, D., & Balcetis, E. (2013). Wishful seeing: How preferences shape visual perception. *Current Directions in Psychological Science*, 22(1), 33–37. <https://doi.org/10.1177/0963721412463693>
- Eitam, B., & Higgins, E. T. (2010). Motivation in mental accessibility: Relevance of a representation (ROAR) as a new framework. *Social and Personality Psychology Compass*, 4(10), 951–967. <https://doi.org/10.1111/j.1751-9004.2010.00309.x>

- Eitam, B., & Higgins, E. T. (2014). What's in a goal? The role of motivational relevance in cognition and action. *Behavioral and Brain Sciences*, 37(2), 141–142. <https://doi.org/10.1017/S0140525X13002008>
- Eitam, B., Miele, D. B., & Higgins, E. T. (2013). Motivated remembering: Remembering as accessibility and accessibility as motivational relevance. In D. Carlston (Ed.), *The Oxford handbook of social cognition* (pp. 463–475). Oxford University Press.
- Elliot, A. J., Murayama, K., & Pekrun, R. (2011). A 3 × 2 achievement goal model. *Journal of Educational Psychology*, 103(3), 632–648. <https://doi.org/10.1037/a0023952>
- 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>
- Fahmy, D. (2018, July 31). *Americans are far more religious than adults in other wealthy nations*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2018/07/31/americans-are-far-more-religious-than-adults-in-other-wealthy-nations/>
- Gaither, S. E., Pauker, K., Slepian, M. L., & Sommers, S. R. (2016). Social belonging motivates categorization of racially ambiguous faces. *Social Cognition*, 34(2), 97–118. <https://doi.org/10.1521/soco.2016.34.2.97>
- Gasiorowska, A., & Zaleskiewicz, T. (2021). Trading in search of structure: Market relationships as a compensatory control tool. *Journal of Personality and Social Psychology*, 120(2), 300–334. <https://doi.org/10.1037/pspi0000246>
- Gervais, W. M. (2013). Perceiving minds and gods: How mind perception enables, constrains, and is triggered by belief in gods. *Perspectives on Psychological Science*, 8(4), 380–394. <https://doi.org/10.1177/1745691613489836>
- Grass, J., Krieger, F., Paulus, P., Greiff, S., Strobel, A., & Strobel, A. (2019). Thinking in action: Need for cognition predicts self-control together with action orientation. *PLoS One*, 14(8), e0220282. <https://doi.org/10.1371/journal.pone.0220282>
- Gray, H. M., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, 315(5812), 619–619. <https://doi.org/10.1126/science.1134475>
- Hall, P. A., & Fong, G. T. (2007). Temporal self-regulation theory: A model for individual health behavior. *Health Psychology Review*, 1(1), 6–52. <https://doi.org/10.1080/17437190701492437>
- 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., & Oishi, S. (2022). Viewing development through the lens of culture: Integrating developmental and cultural psychology to better understand cognition and behavior. *Perspectives on Psychological Science*, 17, 62–77. <https://doi.org/10.1177/1745691620980725>
- Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 133–168). Guilford Press.
- Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist*, 55(11), 1217–1230. <https://doi.org/10.1037/0003-066X.55.11.1217>
- Higgins, E. T. (2012). *Beyond pleasure and pain: How motivation works*. Oxford University Press.
- Higgins, E. T., & Brendl, C. M. (1995). Accessibility and applicability: Some "activation rules" influencing judgment. *Journal of Experimental Social Psychology*, 31(3), 218–243. <https://doi.org/10.1006/jesp.1995.1011>
- Higgins, E. T., Lee, J., Kwon, J., & Trope, Y. (1995). When combining intrinsic motivations undermines interest: A test of activity engagement theory. *Journal of Personality and Social Psychology*, 68(5), 749–767. <https://doi.org/10.1037/0022-3514.68.5.749>
- Higgins, E. T., & Scholer, A. A. (2015). Goal pursuit functions: Working together. In *APA handbook of personality and social psychology: Attitudes and social cognition* (Vol. 1, pp. 843–889). American Psychological Association. <https://doi.org/10.1037/14341-027>

- Higgins, E. T., & Trope, Y. (1990). Activity engagement theory: Implications of multiply identifiable input for intrinsic motivation. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 229–264). Guilford Press.
- Hughes, B. L., & Zaki, J. (2015). The neuroscience of motivated cognition. *Trends in Cognitive Sciences*, 19(2), 62–64. <https://doi.org/10.1016/j.tics.2014.12.006>
- Hull, C. L. (1943). *Principles of behavior: An introduction to behavior theory*. Appleton-Century-Crofts.
- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. *Advances in Experimental Social Psychology*, 2, 219–266. [https://doi.org/10.1016/S0065-2601\(08\)60107-0](https://doi.org/10.1016/S0065-2601(08)60107-0)
- Kay, A. C., Gaucher, D., McGregor, I., & Nash, K. (2010). Religious belief as compensatory control. *Personality and Social Psychology Review*, 14(1), 37–48. <https://doi.org/10.1177/1088868309353750>
- Kay, A. C., Gaucher, D., Napier, J. L., Callan, M. J., & Laurin, K. (2008). God and the government: Testing a compensatory control mechanism for the support of external systems. *Journal of Personality and Social Psychology*, 95(1), 18–35. <https://doi.org/10.1037/0022-3514.95.1.18>
- Kay, A. C., Moscovitch, D. A., & Laurin, K. (2010). Randomness, attributions of arousal, and belief in God. *Psychological Science*, 21(2), 216–218. <https://doi.org/10.1177/0956797609357750>
- Kay, A. C., Shepherd, S., Blatz, C. W., Chua, S. N., & Galinsky, A. D. (2010). For God (or) country: The hydraulic relation between government instability and belief in religious sources of control. *Journal of Personality and Social Psychology*, 99(5), 725–739. <https://doi.org/10.1037/a0021140>
- Kay, A. C., Whitson, J. A., Gaucher, D., & Galinsky, A. D. (2009). Compensatory control: Achieving order through the mind, our institutions, and the heavens. *Current Directions in Psychological Science*, 18(5), 264–268. <https://doi.org/10.1111/j.1467-8721.2009.01649.x>
- Khenfer, J., Roux, E., Tafani, E., & Laurin, K. (2017). When God's (not) needed: Spotlight on how belief in divine control influences goal commitment. *Journal of Experimental Social Psychology*, 70, 117–123. <https://doi.org/10.1016/j.jesp.2017.01.005>
- Kruglanski, A. W. (1996). Motivated social cognition: Principles of the interface. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 493–520). Guilford Press.
- 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>
- Kruglanski, A. W., Webster, D. M., & Klem, A. (1993). Motivated resistance and openness to persuasion in the presence or absence of prior information. *Journal of Personality and Social Psychology*, 65(5), 861–876. <https://doi.org/10.1037/0022-3514.65.5.861>
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108(3), 480–498. <https://doi.org/10.1037/0033-2909.108.3.480>
- Landau, M. J., Kay, A. C., & Whitson, J. A. (2015). Compensatory control and the appeal of a structured world. *Psychological Bulletin*, 141(3), 694–722. <https://doi.org/10.1037/a0038703>
- Laurin, K., & Kay, A. C. (2017). The motivational underpinnings of belief in God. *Advances in Experimental Social Psychology*, 56, 201–257. <https://doi.org/10.1016/bs.aesp.2017.02.004>
- Laurin, K., Kay, A. C., & Fitzsimons, G. M. (2012). Divergent effects of activating thoughts of God on self-regulation. *Journal of Personality and Social Psychology*, 102(1), 4–21. <https://doi.org/10.1037/a0025971>
- Laurin, K., Kay, A. C., & Moscovitch, D. A. (2008). On the belief in God: Towards an understanding of the emotional substrates of compensatory control. *Journal of Experimental Social Psychology*, 44(6), 1559–1562. <https://doi.org/10.1016/j.jesp.2008.07.007>
- Legault, L., & Inzlicht, M. (2013). Self-determination, self-regulation, and the brain: Autonomy improves performance by enhancing neuroaffective

- responsiveness to self-regulation failure. *Journal of Personality and Social Psychology*, 105(1), 123–138. <https://doi.org/10.1037/a0030426>
- Liberman, N., Molden, D. C., Idson, L. C., & Higgins, E. T. (2001). Promotion and prevention focus on alternative hypotheses: Implications for attributional functions. *Journal of Personality and Social Psychology*, 80(1), 5–18. <https://doi.org/10.1037/0022-3514.80.1.5>
- Luhrmann, T. M. (2012). *When God talks back: Understanding the American Evangelical relationship with God*. Random House.
- Ma, A., & Kay, A. C. (2017). Compensatory control and ambiguity intolerance. *Organizational Behavior and Human Decision Processes*, 140, 46–61. <https://doi.org/10.1016/j.obhdp.2017.04.001>
- Mason, W., & Suri, S. (2012). Conducting behavioral research on Amazon's Mechanical Turk. *Behavior Research Methods*, 44(1), 1–23. <https://doi.org/10.3758/s13428-011-0124-6>
- Molden, D. C., & Higgins, E. T. (2005). Motivated thinking. In K. J. Holyoak & R. G. Morrison (Eds.), *The Cambridge handbook of thinking and reasoning* (pp. 295–318). Cambridge University Press.
- Nakkawita, E., Cornwell, J. F. M., Franks, B., & Higgins, E. T. (2019, February). *It's about the journey: The unique role of process-related motives in predicting effectiveness* [Poster]. 20th Annual Meeting of the Society for Personality and Social Psychology, Portland, OR.
- Nakkawita, E., & Heiphetz, L. (2023, February 13). *Motivational priorities reflect beliefs about God's attributes [materials, analytic code, data]*. OSF. <https://doi.org/10.17605/OSF.IO/PVGCS>
- Nakkawita, E., & Higgins, E. T. (2021). *Motivating the journey: An integrative framework of prevention versus promotion goal pursuit activities*. PsyArXiv. <https://psyarxiv.com/eut2k/>
- Oishi, S., Seol, K. O., Koo, M., & Miao, F. F. (2011). Was he happy? Cultural difference in conceptions of Jesus. *Journal of Research in Personality*, 45(1), 84–91. <https://doi.org/10.1016/j.jrp.2010.11.018>
- Otto, A. S., Clarkson, J. J., & Kardes, F. R. (2016). Decision sidestepping: How the motivation for closure prompts individuals to bypass decision making. *Journal of Personality and Social Psychology*, 111(1), 1–16. <https://doi.org/10.1037/pspa0000057>
- Oyserman, D. (2011). Culture as situated cognition: Cultural mindsets, cultural fluency, and meaning making. *European Review of Social Psychology*, 22(1), 164–214. <https://doi.org/10.1080/10463283.2011.627187>
- Payir, A., & Heiphetz, L. (2022). Children's and adults' attribution of moral judgments to human and supernatural agents. *Journal of Cognition and Development*, 23(4), 524–544. <https://doi.org/10.1080/15248372.2022.2061975>
- Prentice, M., Jayawickreme, E., & Fleeson, W. (2020). An experience sampling study of the momentary dynamics of moral, autonomous, competent, and related need satisfactions, moral enactments, and psychological thriving. *Motivation and Emotion*, 44(2), 244–256. <https://doi.org/10.1007/s11031-020-09829-3>
- 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/>
- Rios, K., Cheng, Z. H., Totton, R. R., & Shariff, A. F. (2015). Negative stereotypes cause Christians to underperform in and disidentify with science. *Social Psychological and Personality Science*, 6(8), 959–967. <https://doi.org/10.1177/1948550615598378>
- Roese, N. J., Hur, T., & Pennington, G. L. (1999). Counterfactual thinking and regulatory focus: Implications for action versus inaction and sufficiency versus necessity. *Journal of Personality and Social Psychology*, 77(6), 1109–1120. <https://doi.org/10.1037/0022-3514.77.6.1109>
- Ross, L. D., Lelkes, Y., & Russell, A. G. (2012). How Christians reconcile their personal political views and the teachings of their faith: Projection as a means of dissonance reduction. *Proceedings of the National Academy of Sciences*, 109(10), 3616–3622. <https://doi.org/10.1073/pnas.1117557109>

- Sales, S. M. (1972). Economic threat as a determinant of conversion rates in authoritarian and nonauthoritarian churches. *Journal of Personality and Social Psychology, 23*(3), 420–428. <https://doi.org/10.1037/h0033157>
- Scholer, A. A., Eitam, B., Stadler, G., & Higgins, E. T. (2017). How locomotion concerns influence perceptual judgments. *Social Cognition, 35*(3), 227–244. <https://doi.org/10.1521/soco.2017.35.3.227>
- Shariff, A. F., Willard, A. K., Andersen, T., & Norenzayan, A. (2016). Religious priming: A meta-analysis with a focus on prosociality. *Personality and Social Psychology Review, 20*(1), 27–48. <https://doi.org/10.1177/1088868314568811>
- Smither, J. W., & Walker, A. G. (2015). The relationship between core self-evaluations, views of God, and intrinsic/extrinsic religious motivation. *Psychological Reports, 116*(2), 647–662. <https://doi.org/10.2466/17.07.PR0.116k24w2>
- Trimèche, S., Vinsonneau, G., & Mullet, E. (2006). Individual differences in the theological concept of God. *International Journal for the Psychology of Religion, 16*(2), 83–100. https://doi.org/10.1207/s15327582ijpr1602_1
- Waytz, A., Morewedge, C. K., Epley, N., Monteleone, G., Gao, J.-H., & Cacioppo, J. T. (2010). Making sense by making sentient: Effectance motivation increases anthropomorphism. *Journal of Personality and Social Psychology, 99*(3), 410–435. <https://doi.org/10.1037/a0020240>
- Zou, X., Scholer, A. A., & Higgins, E. T. (2020). Risk preference: How decision maker's goal, current value state, and choice set work together. *Psychological Review, 127*(1), 74–94. <https://doi.org/10.1037/rev0000162>