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Cognitive Styles and Religion

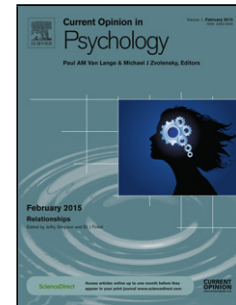
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Highlights

- Intuitive cognitive biases (e.g., anthropomorphism) give rise to supernatural beliefs.
- Those who hold supernatural beliefs tend to score lower on intelligence and reasoning tests.
- Believers are less open-minded and more likely to believe in fake news and conspiracy theories.
- Those who see religion as a search for truth tend to score higher on reasoning tests.
- To infer causality, more precise tests are needed.

Abstract

I discuss recent research suggesting that individual differences in cognitive style give rise to and explain religious and related supernatural and paranormal beliefs. To do so, I illustrate intuitive cognitive biases (e.g., anthropomorphism) underlying these beliefs and then review the accumulated evidence indicating that non-believers are more open-minded, reflective, and less susceptible to holding epistemically suspect beliefs (e.g., conspiracy theories) on average than those who believe in supernatural events or paranormal experiences such as astrology or magic. However, seeing religion as a search for truth positively predicts reasoning performance. Although these findings are robust across diverse measures, evidence for a causal relationship remains mixed. Stronger and more precise manipulations and cross-cultural investigations are needed.

Keywords: cognitive style, cognitive biases, religious belief, paranormal, reflection

“Trust in the Lord with all your heart, and do not rely on your own insight.”
The Book of Proverbs

“It is the heart which perceives God and not the reason. That is what faith is: God perceived by the heart, not by the reason.”
Blaise Pascal

“Intellect is good and desirable to the extent it brings you to the King’s door. Once you have reached His door, then divorce the intellect!”
Rumi

1. Introduction

Homo sapiens is a great storyteller. These stories often rely on supernatural explanations of events, involving non-physical phenomena that cannot be seen or touched. Although supernatural storytelling may seem like a universal human tendency, some see the supernatural components of these stories as literary ploys, while others literally believe them. Recent research suggests that individual differences in cognitive style give rise to, and in part explain, belief in religious and related supernatural and paranormal beliefs. Here, I review this literature, focusing both on correlational studies of individual differences, and experimental studies manipulating cognitive style. I then comment on the boundary conditions and future directions in understanding the relationship between cognitive style and these beliefs.

The relationship between cognitive style and religion is complex because both religion [1] and cognitive style [2] are multifaceted. In this review, I mainly focus on the belief dimension of religion. Since religious beliefs rely on intuitive cognitive biases (e.g., teleological thinking) and often include belief in supernatural agents (e.g., angels) and paranormal phenomena (e.g., witchcraft) that are not backed up by evidence, I will use these as the key defining attributes of religious belief and summarize the literature linking these beliefs with cognitive style.

There are different definitions of cognitive style as well. First, it is important to distinguish cognitive style from cognitive ability [3]. Although previous research revealed

that analytic cognitive style—traditionally measured by higher levels of need for cognition [4], rational-experiential inventory or lower levels of faith in intuition [5] and cognitive reflection test [6]—is correlated with cognitive ability [7], the two are different concepts. Analytic cognitive style is defined as a *willingness* to think deliberately, whereas cognitive ability is the *capacity* to efficiently use reflective thought processes [3], [5]. Analytic cognitive style is more about the tendency to reflect on and revise an appealing intuitive answer which is wrong. On the other hand, the two work interactively in the sense that cognitive style can moderate the effect of cognitive ability and are moderately related to each other [7]. I will hence review the literature relying on self-reported (i.e., need for cognition) and performance-based (i.e., cognitive reflection test) cognitive style measures as well as intelligence tests measuring general cognitive ability.

2. Cognitive biases underlying religious and related beliefs

Religious belief is traditionally seen as resulting from cultural forces that unite groups of people into moral communities around sacred values [8]. However, recent studies claim that religious belief is not only a product of cultural learning but also of certain cognitive traits, which can predispose people to acquire supernatural beliefs [9]–[15]. Whether they are evolutionary adaptations specialized for religious belief or not, it seems clear that cognitive biases such as mind-body dualism [16], teleological thinking [17], agency detection [10], and anthropomorphism [18] intuitively endorsed by children and adults, naturally lead to belief in supernatural agents.

Other research also revealed individual differences that give rise to the above-mentioned cognitive biases [19]–[21]. For example, ontological confusion of core knowledge (i.e., attributing mental phenomena to physical causes or vice versa), but not mentalizing abilities (i.e., ability to read the mental states of others), predicts religious and paranormal

beliefs [20]. This line of research not only sheds light on why religious faith in supernatural agents is widespread but also explains the role of individual differences therein.

3. Cognitive style, religious and related beliefs

Recent years also witnessed a growing interest on the link between religious beliefs and analytic cognitive style. One approach conceives of the mind as consisting of interactions between Type 1 (automatic, low-effort, and intuitive) and Type 2 (analytical, high-effort, and reflective) processes [22]–[24]. An increasing number of findings have emerged in recent years linking religious and related beliefs to Type 1 intuitions, as the opening quotes suggest, and focusing on the role of Type 2 processes in suppressing the latter. More specifically, since religious and related beliefs rely on heuristics acquired during socialization, the dual-process model expects that those who are more willing and able to use reflective thinking are also more likely to check and correct intuitive but erroneous initial reactions, which in turn leads them to suspect and question religious doctrines. This expectation is often referred to as *the intuitive belief hypothesis*.

Among self-reported dispositional cognitive style variables, there is evidence showing that, in line with the intuitive belief hypothesis, religious belief is positively correlated with the need for closure [25], and negatively with the need for cognition [26] and open-minded thinking [27*], [28]. More recently, in their large-scale survey, Bronstein et al. [29*] showed that religious fundamentalism is positively associated with delusional ideation, dogmatism, and negatively with open-minded thinking. The belief that morality is founded on a divine authority (i.e., divine command theory) is also widespread among religious believers [30]. Since this meta-ethical belief implies that people do not have the capacity to decide which actions are morally right, and God is the author of moral truths, it discourages self-questioning. Accordingly, much larger negative correlations were obtained between belief in divine command theory and analytic cognitive style, and open-minded thinking [28], [31].

Religion and binding moral foundations of loyalty, authority, and sanctity are also intertwined with each other in most religious traditions [32]; endorsement of those moral foundations have been found to be negatively correlated with analytic cognitive style [33]. Therefore, different lines of research consistently show that religious believers have a different cognitive style than non-believers.

Defining different types of beliefs (e.g., supernatural, superstitious, paranormal) is a challenge [34], and agreement is weak among scholars. Paranormal beliefs have also often been used interchangeably with religious beliefs [34], [35]. Evidence is mixed regarding this association: Religious and paranormal beliefs are sometimes correlated [36] and sometimes not [37], probably because many paranormal beliefs (e.g., UFOs, magic, astrology) are not part of institutionalized religion. The research line investigating analytic cognitive style and paranormal beliefs clearly showed that paranormal believers perform worse at school [38], report lower need for cognition [39], are less likely to use scientific explanations for the causes of physical phenomena [40], to suspect fake news and conspiracy theories [41], and are more likely to judge seemingly impressive but randomly generated vacuous (i.e., “bullshit”) statements as profound [42] and to endorse alternative medicine [43].

However, these individual difference measures may suffer from socially desirable responding (i.e., the tendency for people to answer surveys with the motivation to be perceived favorably). Furthermore, behavioral and self-report measures often diverge [44]–[46]. Therefore, it is important to show the same associations using performance-based measures [27*], [47**], [48].

There is indeed accumulated evidence supporting the intuitive belief hypothesis using performance-based measures [49]–[53] and this association holds independent of demographics and personality characteristics [50], [52]. A meta-analysis of all 31 studies conducted in Western countries concluded that there was a weak but significant negative

relationship ($r = -.18$) between analytic cognitive style and religious belief [54]. Self-identified atheists are also more likely ($d = .72$) to have a stronger analytic cognitive style than self-reported believers. This association holds in many non-Western cultures as well, including Turkey [53], [55], India [56], and Singapore, but not China [57*]. The most comprehensive performance-based evidence to date regarding cognitive ability using a meta-analysis of 83 studies clearly showed that there is an overall negative association (ranging from $-.20$ to $-.23$) between IQ and religious belief [47**].

4. Boundary conditions and causality

Although the relationship between religiosity and analytic cognitive style and IQ seems to be clearly borne out in correlational studies, some boundary conditions apply. The negative religiosity-IQ link is stronger for religious belief (vs. practice), and for adults (vs. younger people). However, since previous research predominantly relied on Western samples [47**], little-to-nothing is known about the cultural moderators of this link. For the religiosity-analytic cognitive style link, Gervais et al. [57*] conducted a cross-cultural test using 13 different cultures and found a weak but overall significant negative relationship, although this relationship was not found in each culture. Besides, Bahçekapili and Yilmaz [53] conducted a series of studies in Turkey and found that while analytic cognitive style is negatively associated with intrinsic and extrinsic religiosity (seeing religion as a personal guide and as a means for social ends, respectively), it is positively associated with quest religiosity (seeing religion as a search for truth [58]). These findings suggest that the links between religious belief and cognitive style are complex, and that they include boundary conditions such as cultural background and individual motivation.

Despite these boundary conditions, the intuitive belief hypothesis is generally supported in correlational findings. Experimental results, on the other hand, do not have the same clarity. Initial experiments by Gervais and Norenzayan [49] and Shenhav, Rand, and

Greene [51] found that activating intuitive thinking leads to an increase, and activating reflective thinking leads to a decrease in religious belief. Yilmaz, Karadoller, and Sofuoglu [59] replicated this relationship in a non-Western sample. The clear pattern revealed in initial experiments was nevertheless blurred by subsequent failures of replication ([45*], [60], and [61]).

More recently, in two high-powered experiments and using time-limits to manipulate analytic cognitive style, Yilmaz and Isler [62**] tested whether activating analytic cognitive style influences religious belief. The first experiment found that, in contrast to the intuitive belief hypothesis, analytic cognitive style *increased* religious belief, and this association was stronger in atheists and agnostics. In a preregistered follow-up experiment using a within-subjects design, the participants were asked to make their decisions first under time-pressure (i.e., intuitively), and were then given a chance to revise their decisions under time-delay (i.e., allowing reflection). Confirmatory tests were consistent with the idea that analytic cognitive style increases religious belief, especially among non-believers. Additional analyses have shown that the overall shift in mean religious belief tended toward the middle of the scale (i.e., towards “not sure”), and more so for non-believers. This finding supports the *reflective religious doubt hypothesis* (i.e., reflection increases self-questioning about one’s intuitively held belief about religion). Given these mixed findings, more research is needed to understand the causal effect of analytic cognitive style on religious belief.

5. Possible explanations

What lies beneath the negative religious belief-IQ association? Zuckerman et al. [47**] proposed three explanations. First, intelligent people are less likely to conform to societal norms; and therefore, they are more suspicious of religious orthodoxy and tradition. A second explanation proposes a compensatory control mechanism whereby intelligence compensates for several adaptive functions of religiosity (such as self-regulation), rendering

supernatural belief unnecessary. A third possible explanation is that, due to the analytic cognitive style-IQ correlation, intelligent people are more likely to become skeptical against epistemically suspect beliefs. In support of this argument, Zuckerman et al. [47**] showed that individual differences in analytic cognitive style partially explains the association between IQ and religious belief. Saribay and Yilmaz [52] also demonstrated that analytic cognitive style, but not IQ, uniquely predicts religious belief.

But then, why does the negative religious belief-analytic cognitive style association emerge? One explanation is that reflective thinkers are more likely to correct initial intuitive responses by spending more time on the question at hand and on their initial response [63], a process that includes questions about religion. A second explanation refers to individual differences in cognitive mechanisms of conflict detection: Reflective thinkers might be more sensitive to conflicts between belief in immaterial supernatural entities and realities of the material world, whereas religious believers are less likely to detect such conflicts [64].

6. Conclusion

Overall, considering the findings in the field as a whole, we see a negative relationship between having religious and related beliefs and the ability and willingness to reflect [27*]. That is, more intelligent and reflective people are more likely to reject religious doctrines and paranormal beliefs. Nevertheless, evidence from experimental findings is mixed. Recent high-powered tests revealed either a null effect [60], [61] or a self-questioning effect of analytic cognitive style [62**]. Overall, there is need for additional, high-powered, especially experimental and longitudinal studies to reach a clearer view on this issue.

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Conflict of interest statement

The author declares no conflict of interest on relation to contents of this article.

References and recommended reading

Papers of particular interest, published within the period of review, have been highlighted as:

* of special interest

** of outstanding interest

- [1] Saroglou V: **Believing, bonding, behaving, and belonging: The big four religious dimensions and cultural variation.** *Journal of Cross-Cultural Psychology* 2011, **42**:1320-1340.
- [2] Evans J, Stanovich KE: **Dual-process theories of higher cognition: Advancing the debate.** *Perspect Psychol Sci* 2013, **8**: 223–241.
- [3] Bialek M, Domurat A: **Cognitive abilities, analytic cognitive style and overconfidence: A commentary on Dutt (2016).** *Bull Econ Res* 2018, **70**: E119-E125.
- [4] Cacioppo JT, Petty RE: **The need for cognition.** *J Pers Soc Psychol* 1982, **42**: 116-131.
- [5] Pacini R, Epstein S: **The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon.** *J Pers Soc Psychol* 1999, **76**: 972-987.
- [6] Frederick S: **Cognitive reflection and decision making.** *J Econ Perspect* 2005, **19**: 25–42.
- [7] Trippas D, Pennycook G, Verde MF, Handley SJ: **Better but still biased: Analytic cognitive style and belief bias.** *Think Reason* 2015, **21**: 431-445.
- [8] Durkheim E: **The elementary forms of religious life.** In *Social Theory Re-Wired: New Connections to Classical and Contemporary Perspectives*. Edited by Longhofer W, Winchester D. Routledge; 2016: 52-67.
- [9] Atran S, Henrich J: **The evolution of religion: How cognitive by-products, adaptive**

- learning heuristics, ritual displays, and group competition generate deep commitments to prosocial religions.** *Biol Theory* 2010, **5**: 18–30.
- [10] Barrett JL: *Why would anyone believe in God?* AltaMira Press; 2004.
- [11] Boyer P, Bergstrom B: **Evolutionary perspectives on religion.** *Annu Rev Anthropol* 2008, **37**: 111–130.
- [12] Baumard N, Boyer P: **Explaining moral religions.** *Trends in Cognitive Sciences* 2013, **17**: 272-280.
- [13] Norenzayan A: *Big gods: How religion transformed cooperation and conflict.* Princeton University Press; 2013.
- [14] Johnson D: *God is watching you: How the fear of God makes us human.* Oxford University Press; 2016.
- [15] Bering JM, Bjorklund DF: **The natural emergence of reasoning about the afterlife as a developmental regularity.** *Dev Psychol* 2004, **40**: 217–233.
- [16] Forstmann M, Burgmer P: **Adults are intuitive mind-body dualists.** *J Exp Psychol Gen* 2015, **144**: 222–235.
- [17] Kelemen D: **Are children ‘intuitive theists’? Reasoning about purpose and design in nature.** *Psychol Sci* 2004, **15**: 295–301.
- [18] Epley N, Waytz A, Cacioppo JT: **On seeing human: A three-factor theory of anthropomorphism.** *Psychol Rev* 2007, **114**: 864–886.
- [19] Willard AK, Norenzayan A: **Cognitive biases explain religious belief, paranormal belief, and belief in life’s purpose.** *Cognition* 2013, **129**: 379-391.
- [20] Lindeman M, Svedholm-Häkkinen AM, Lipsanen J: **Ontological confusions but not mentalizing abilities predict religious belief, paranormal belief, and belief in supernatural purpose.** *Cognition* 2015, **134**: 63-76.
- [21] Willard AK, Cingl L: **Testing theories of secularization and religious belief in the**

Czech Republic and Slovakia. *Evol Hum Behav* 2017, **38**: 604-615.

[22] Evans JSBT, Stanovich KE: **Dual-process theories of higher cognition: Advancing the debate.** *Perspect Psychol Sci* 2013, **8**: 223–241.

[23] Kahneman D: *Thinking, fast and slow*. Macmillan; 2011.

[24] Evans JSBT: **Dual-processing accounts of reasoning, judgment, and social cognition.** *Annu Rev Psychol* 2008, **59**: 255–278.

[25] Saroglou V: **Beyond dogmatism: The need for closure as related to religion.** *Ment Heal Relig Cult* 2002, **5**: 183-194.

[26] Pennycook G, Ross RM, Koehler DJ, Fugelsang JA: **Dunning–Kruger effects in reasoning: Theoretical implications of the failure to recognize incompetence.** *Psychon Bull Rev* 2017, **24**: 1774-1784.

* [27] Baron J: **Religion, cognitive style, and rational thinking.** *Current Opinion in Behavioral Sciences* 2020, **34**: 64-68.

Reviews the empirical literature regarding the relationship among reflective thinking, morality, conservatism, and religious belief and suggests two alternative explanations (culture and cognitive style) in understanding these relationships.

[28] Baron J, Scott S, Fincher K, Emlen Metz S: **Why does the Cognitive Reflection Test (sometimes) predict utilitarian moral judgment (and other things)?**. *J Appl Res Mem Cogn* 2015, **4**: 265-284.

* [29] Bronstein MV, Pennycook G, Bear A, Rand DG, Cannon TD: **Belief in fake news is associated with delusionality, dogmatism, religious fundamentalism, and reduced analytic thinking.** *J Appl Res Mem Cogn* 2019, **8**: 108-117.

Attempts to understand individual difference variables in predicting false news and shows that dogmatic people and religious fundamentalists are more likely to believe

in false news, and reduced levels of analytic cognitive style explain these associations.

- [30] Shariff AF, Piazza J, Kramer SR: **Morality and the religious mind: Why theists and nontheists differ.** *Trends in Cognitive Sciences* 2014, **18**: 439-441.
- [31] Piazza J, Landy JF: **‘Lean not on your own understanding’: Belief that morality is founded on divine authority and non-utilitarian moral judgments.** *Judgm Decis Mak* 2013, **8**: 639-661.
- [32] Graham J, Haidt J: **Beyond beliefs: Religions bind individuals into moral communities.** *Personal Soc Psychol Rev* 2010, **14**: 140-150.
- [33] Pennycook G, Cheyne JA, Barr N, Koehler DJ, Fugelsang JA: **The role of analytic thinking in moral judgements and values.** *Think Reason* 2014, **20**: 188-214.
- [34] Lindeman M, Svedholm AM: **What’s in a term? Paranormal, superstitious, magical and supernatural beliefs by any other name would mean the same.** *Rev Gen Psychol* 2012, **16**: 241-255.
- [35] Tobacyk J, Milford G: **Belief in paranormal phenomena: Assessment instrument development and implications for personality functioning.** *J Pers Soc Psychol* 1983, **44**: 1029–1037.
- [36] Hergovich A, Schott R, Arendasy M: **Paranormal belief and religiosity.** *J Parapsychol* 2005, **69**: 293-304.
- [37] Rice TW: **Believe it or not: Religious and other paranormal beliefs in the United States.** *J Sci Study Relig* 2003, **42**: 95-106.
- [38] Musch J, Ehrenberg K: **Probability misjudgment, cognitive ability, and belief in the paranormal.** *Br J Psychol* 2002, **93**: 169-177.
- [39] Rogers P, Fisk JE, Lowrie E: **Paranormal belief, thinking style preference and**

- susceptibility to confirmatory conjunction errors.** *Conscious Cogn* 2018, **65**: 182-196.
- [40] Lobato E, Mendoza J, Sims V, Chin M: **Examining the relationship between conspiracy theories, paranormal beliefs, and pseudoscience acceptance among a university population.** *Appl Cogn Psychol* 2014, **28**: 617-625.
- [41] Barron D, Morgan K, Towell T, Altemeyer B, Swami V: **Associations between schizotypy and belief in conspiracist ideation.** *Pers Individ Dif* 2014, **70**: 156-159.
- [42] Pennycook G, Cheyne JA, Barr N, Koehler DJ, Fugelsang JA: **On the reception and detection of pseudo-profound bullshit.** *Judgm Decis Mak* 2015, **10**: 549-563.
- [43] Čavojová V, Secară EC, Jurkovič M, Šrol J: **Reception and willingness to share pseudo-profound bullshit and their relation to other epistemically suspect beliefs and cognitive ability in Slovakia and Romania.** *Appl Cogn Psychol* 2019, **33**: 299-311.
- [44] Bostyn DH, Sevenhant S, Roets A: **Of mice, men, and trolleys: hypothetical judgment versus real-life behavior in trolley-style moral dilemmas.** *Psychol Sci* 2018, **29**: 1084–1093.
- * [45] Camerer CF et al.: **Evaluating the replicability of social science experiments in Nature and Science between 2010 and 2015.** *Nat Hum Behav* 2018, **2**: 637–644.
- Attempts to replicate social science experiments published in Nature and Science between 2010 and 2015 including a failed replication attempt of the first experimental evidence (Gervais & Norenzayan, 2012) of the intuitive religious belief hypothesis.
- [46] Sheeran P, Webb TL: **The intention–behavior gap.** *Soc Personal Psychol Compass* 2016, **10**: 503–518.
- ** [47] Zuckerman M, Li C, Lin S, Hall JA: **The negative intelligence–religiosity**

relation: New and confirming evidence. *Personal Soc Psychol Bull* 2020, **46**: 856-868.

Provides the most comprehensive meta-analysis to date concerning the relationship between intelligence and religious belief and concludes that there is an overall negative correlation between the variables in interest in college and non-college samples, and analytic cognitive style explains some of the variance in this association.

- [48] Zuckerman M, Silberman J, Hall JA: **The relation between intelligence and religiosity: A meta-analysis and some proposed explanations.** *Personal Soc Psychol Rev* 2013, **17**: 325–54.
- [49] Gervais WM, Norenzayan A: **Analytic thinking promotes religious disbelief.** *Science* 2012, **336**: 493–496.
- [50] Pennycook G, Cheyne JA, Seli P, Koehler DJ, Fugelsang JA: **Analytic cognitive style predicts religious and paranormal belief.** *Cognition* 2012, **123**: 335–346.
- [51] Shenhav A, Rand DG, Greene JD: **Divine intuition: Cognitive style influences belief in God.** *J Exp Psychol Gen* 2012, **141**: 423-428.
- [52] Saribay SA, Yilmaz O: **Analytic cognitive style and cognitive ability differentially predict religiosity and social conservatism.** *Pers Individ Dif* 2017, **114**: 24-29.
- [53] Bahçekapili HG, Yilmaz O: **The relation between different types of religiosity and analytic cognitive style.** *Pers Individ Dif* 2017, **117**: 267-272.
- [54] Pennycook G, Ross RM, Koehler DJ, Fugelsang JA: **Atheists and agnostics are more reflective than religious believers: Four empirical studies and a meta-analysis.** *PLoS One* 2016, **11**: e0153039.
- [55] Yilmaz O, Saribay SA: **An attempt to clarify the link between cognitive style and political ideology: A non-western replication and extension.** *Judgm Decis Mak* 2016, **11**: 287–300.

[56] Stagnaro MN, Ross RM, Pennycook G, Rand DG: **Cross-cultural support for a link between analytic thinking and disbelief in God: Evidence from India and the United Kingdom.** *Judgm Decis Mak* 2019, **14**: 179-186.

* [57] Gervais WM et al.: **Analytic atheism: A cross-culturally weak and fickle phenomenon?** *Judgm Decis Mak* 2018, **13**: 268-274.

Provides the first study testing the cross-cultural stability of the negative relationship between reflection and religious belief. Argues that analytic cognitive style cannot be a global predictor of religious belief.

[58] Batson CD, Schoenrade P: **Measuring religion as quest: 2) Reliability concerns.** *J Sci Study Relig* 1991, **30**: 430-447.

[59] Yilmaz O, Karadöller DZ, Sofuoglu G: **Analytic thinking, religion, and prejudice: An experimental test of the dual-process model of mind.** *Int J Psychol Relig* 2016, **26**: 360-369.

[60] Sanchez C, Sundermeier B, Gray K, Calin-Jageman RJ: **Direct replication of Gervais & Norenzayan (2012): No evidence that analytic thinking decreases religious belief.** *PLoS One* 2017, **12**: e0172636.

[61] Saribay SA, Yilmaz O, Körpe GG: **Does intuitive mindset influence belief in god? A registered replication of shenhav, rand and greene (2012).** *Judgm Decis Mak* 2020, **15**: 193-202.

** [62] Yilmaz O, Isler O: **Reflection increases belief in God through self-questioning among non-believers.** *Judgm Decis Mak* 2019, **14**: 649-657.

Reports two preregistered, high-powered experiments concerning the causal effect of reflective thinking on religious belief and also explores the moderating role of the endorsement of alternative God notions (e.g., monotheism, agnosticism, pantheism). Supports the reflective religious doubt hypothesis.

- [63] Pennycook G, Cheyne JA, Koehler DJ, Fugelsang JA: **Belief bias during reasoning among religious believers and skeptics.** *Psychon Bull Rev* 2013, **20**: 806-811.
- [64] Pennycook G, Cheyne JA, Barr N, Koehler DJ, Fugelsang JA: **Cognitive style and religiosity: The role of conflict detection.** *Mem Cogn* 2014, **42**: 1-10.