



15th Anniversary Issue May 2023

Activation Of Religious Concepts In The Brain Lead To Greater Risk Taking

Supratik G. Nandi

ACKNOWLEDGEMENTS

Department of Cognitive Science, University of California Merced
COGS 179: The Cognitive Science of Religion
Dr. Colin Holbrook

Imagine yourself getting ready to embark on a skydiving session. As you strap on your parachute and open the airplane door, a grin breaks across your face as you realize that in just mere seconds, you'll experience the adrenaline rush and sense of freedom that comes with falling through the sky at terminal velocity. However, as the pilot tells you the plane has reached 14,000 feet above ground level, doubts slowly begin to trickle into your mind. Is the risk you're taking truly worth it? The ground is so far below you, and if your parachute fails, there will be nothing to stop your inevitable gruesome death. You also have a wife and two beautiful children at home who love you. What would happen to them if you were to die today? With these thoughts running through your mind, you reluctantly tell the pilot to turn back, and decide that the risk just isn't worth it. Now imagine yourself on the plane again, but this time, things are different. Right before getting onto the airplane, you had just attended church, where you spent hours praying to God. After confessing your sins and thanking God for what he has given you, you asked him to protect you while you embark on your skydiving journey. Would you be more likely to jump out of the plane now? According to research conducted in the field of religious cognition, reminders of God can lead to increased risky behavior. The associations between God and psychological control and between control and risk taking are one possible explanation for this phenomena. However, as the next few articles will show, the link between supernatural reminders and risk taking is a highly complex effect which needs further studying.

In the paper "Taking a Leap of Faith: Reminders of God Lead to Greater Risk Taking", authors Chan et al. (2014) propose that God primes should elicit higher risk taking in a morally neutral task. They conducted three studies in order to understand the relationship between God primes and risky behavior, but only the first study will be discussed. Study #1 was a between-subjects design that provided the first test of the primary hypothesis. 172 participants

were subliminally primed with the words God (n = 62), Dad (n = 56), or Water (n = 54). Water served as the neutral prime, and Dad was added as a prime because some religions conceptualize God as a fatherly figure, so priming God could coactivate a fatherlike concept, thus affecting risk taking. After the priming phase was complete, the participants engaged in thirty trials of a risk-taking task known as the Balloon Analogue Risk Task (BART). Essentially, the BART consists of a balloon in the center of the screen, a button to pump the balloon, and a total “\$\$\$” text box. The more times a participant clicked on the button to pump the balloon, they generated more money, which could be seen in the text box. This money could be collected at any time, but if the participant pumped the balloon too much, it would pop and all of the money in the text box would be lost. Therefore, it was in the best interest of all participants to take the risk of clicking as much as possible without popping the balloon. Risk taking was found by averaging the number of pumps on trials in which the balloons did not explode, and higher BART scores were reflective of higher levels of risk taking. Once the main trials of the BART were complete, researchers collected data pertaining to demographics and information about the religiosity of the participants.

After the data collection phase, statistical analyses such as ANOVAs and regression analyses were performed in order to obtain a better understanding of what trends their data were showing. Once these analyses were complete, the authors discovered two significant findings. First, those who were assigned to the God prime condition had higher BART scores than those who were assigned to the Water and Dad prime conditions. This result was important because it indicated that those who are reminded of God’s presence had a higher likelihood of exhibiting risky behavior, which in this case was pumping the balloon closer to its popping threshold. Second, the data collected also indicated that the observed effects were unlikely due to activation

of father or attachment related concepts. This could be seen in Figure #1 of their paper, where it was shown that the average BART scores between the Water and Dad prime conditions were relatively close to each other. In summary, Study #1 of Chan et al. (2014) showed that those who are primed with God tend to exhibit riskier behaviors compared to individuals who are primed with neutral primes, and that this effect is not because of activation of father/attachment related concepts.

Chan et al. (2014) was an important research study because it was the first study that established a link between risk-taking and reminders of God. However, there were some important areas that were not fully explored by the authors. For example, Chan and colleagues (2014) only utilized a nonmoral risk task for their study. Analyzing other risk domains such as immoral and amoral risks could have shown interesting results, such as varying strengths in the risk taking effect. Another point of interest was how their results differed from other papers in religious cognition literature. Previous findings from studies such as Abar, Carter, & Winsler (2009) and Sinha, Cnaan, & Gelles (2007) have demonstrated negative correlations between trait religiosity and risk-taking behaviors such as criminal involvement and substance use. Chan and colleagues (2014), however, showed that reminders of God can actually lead to an increased likelihood of risk-taking behaviors, thus directly contradicting the aforementioned papers. How could this be possible? Chan et al. (2014) hypothesized that if a risky act was associated with moral implications, individuals primed with God could be less likely to take a risk compared to a risky act not associated with morality. They did carry out a relatively simple experiment to investigate this phenomena, but Kupor and colleagues conducted a more in-depth study in 2015 that significantly highlighted the importance of moral implications.

In the paper “Anticipating Divine Protection? Reminders of God Can Increase Nonmoral Risk Taking”, authors Kupor et al. (2015) predicted that “the association between the concept of God and feelings of security would cause God-primed individuals to view risky behavior as less dangerous than they otherwise would, which in turn would increase their willingness to take risks” (p.375). In addition to answering their own questions, the authors wanted to observe whether the effect found in Chan et al. (2014) was conceptually replicable with greater risk domains and a broader variety of risky behaviors. A total of five studies were conducted, but Study #2 was where the importance of morality was truly shown. After the authors perfectly replicated the results of Chan and colleagues (2014) in Study #1, Study #2 was carried out to test whether reminders of God increased nonmoral risk taking, but inhibited immoral risk taking. It was a two (God prime vs. No God) x three (immoral risk vs. nonmoral risk vs. no risk) between-subjects field study in which six advertisements were posted to a social-networking website for one day. The researchers predicted that priming individuals with God would increase interest in nonmoral risks and decrease interest in immoral risks. Furthermore, in order to manipulate the salience of God for priming purposes, the authors said “God knows what you’re missing” for the God primed participants and “You don’t know what you’re missing” for the control primed subjects. The ads ran 452,051 times on accounts registered to users over 18 years of age residing in the United States. Clickthrough rates were then recorded, which was an indicator of how often users would choose the particular behavior being tested.

After the data collection and data analysis phases of the study was complete, the researchers showed important findings between the participant groups. All groups equally selected the ad associated with no risk regardless of God’s presence, thus confirming the validity of their control variable. Those who were reminded of God’s presence clicked more often on the

ad associated with a nonmoral risk compared to those who were not primed with God. However, God-primed individuals were significantly less likely to click on the ad associated with an immoral risk compared to those who were not reminded of God's saliency. This effect was significant as it supported the hypothesis of Kupor and colleagues (2015), who had theorized that reminders of God would inhibit immoral risk taking and increase nonmoral risk taking.

In summary, previous findings from research studies have provided substantial evidence that religiosity is associated with decreased levels of risk taking. However, Chan et al. (2014) and Kupor et al. (2015) conclusively show that reminders of God can actually increase risk taking in nonmoral domains, but decrease risk taking in immoral domains. In addition to showing proof of their hypotheses, both papers also offer theoretical explanations for this effect. According to Chan and colleagues (2014), reminders of God make people feel greater personal control over their own fates, and in turn, leads to increased risky behavior. Kupor and his fellow researchers (2015), however, claimed that their research offered a different perspective. They found that reminders of God make participants feel safe and protected in the hands of an external agent, thus increasing their likelihood of performing risky behaviors. Despite the supposed differences between their theoretical explanations, the common mediators of safety and personal control are both involved in their claims, meaning that their claims may not be so different from each other.

Both of the aforementioned papers show evidence of God primes leading to higher levels of risk taking, especially in nonmoral domains. However, for future research studies that wish to study this effect, efforts should be made to improve upon the study designs of both papers. For example, both Chan et al. (2014) and Kupor et al. (2015) used sample sets which contained a majority of Christians. Since different cultures perceive the concept of God in different ways,

with some cultures like Christianity and Islam believing God is one entity and other cultures like Hinduism believing in a pantheon, an investigation into how the discovered effects change or replicate with believers of other faiths may yield interesting results. Furthermore, both studies only examined how God primes affected risk taking. Most religions, however, usually have other supernatural concepts integrated into their beliefs. Examples include the Christian concepts of angels and demons and the Islamic concept of djinns. Therefore, a research study could be conducted that examines whether the discovered effects replicate if individuals are primed with supernatural concepts other than God. If future research studies are to be conducted on this topic, it would also be fascinating to see field studies similar to Holbrook et al. 2018, where a positive correlation between personal pre-battle confidence and supernatural visualization was shown. Would individuals primed with God engage in nonmoral risky behavior more frequently on the battlefield compared to individuals primed with a control visualization? Video cameras strapped to the players may allow researchers to observe whether risky behavior, such as stabbing more often or rushing enemy players instead of defending themselves, is more prominent amongst those who were primed with a God visualization. Another potential question that researchers can investigate further is the effects of differing levels of religiosity on risk-taking behaviors. In other words, do devout individuals who follow their religious beliefs closely exhibit higher levels of risk-taking behaviors compared to those who are not “as religious”? Recent studies such as Kahsay et al. 2022 have started laying the groundwork for answering this question, with their results stating that Ethiopian farmers who display higher levels of religiosity tend to exhibit greater risk-taking behaviors with their farming specifically. Based on surveys and focus-group discussions with their participants, the authors of this study claimed that “the belief in God as the omniscient and just power in determining outcomes induces farmers to take up risky options”

(Kahsay et al. 2022). Despite the fact that their figures and data analyses strongly support their findings, the researchers cautioned their readers “to take care when interpreting our results” (Kahsay et al. 2022), as the effects of confounding variables such as socioeconomic status (SES) and distance between places of worship and residential homes were not fully explored. As a result, a significant amount of research will need to be conducted in this field before the literature is able to provide a definitive answer to the relationship between religiosity and risk-taking.

In conclusion, reminders of God can lead to greater nonmoral risk taking. This link is not yet fully understood, but future research studies may help to uncover how and why this effect occurs from a proximate and ultimate standpoint. Potential avenues these studies can take include studying the effects of differing levels of religiosity on risk-taking behaviors and investigating diverse participant groups affiliated with different religions.

References

- Abar, B., Carter, K. L., & Winsler, A. (2009). The effects of maternal parenting style and religious commitment on self-regulation, academic achievement, and risk behavior among African-American parochial college students. *Journal of Adolescence*, *32*(2), 259-273. <https://doi.org/10.1016/j.adolescence.2008.03.008>
- Chan, K. Q., Tong, E. M. W., & Tan, Y. L. (2014). Taking a leap of faith: Reminders of God lead to greater risk taking. *Social Psychological and Personality Science*, *5*(8), 901-909. <https://doi.org/10.1177%2F1948550614537309>
- Holbrook, C., Pollack, J., Zerbe, J. G., & Hahn-Holbrook, J. (2020). Perceived supernatural support heightens battle confidence: a knife combat field study. *Religion, Brain & Behavior*, *10*(1), 6-17. <https://doi.org/10.1080/2153599X.2018.1464502>
- Kahsay, Goytom Abraha, et al. "Are Religious Farmers More Risk Taking? Empirical Evidence from Ethiopia." *Agricultural Economics*, vol. 53, no. 4, 2022, pp. 617–632., <https://doi.org/10.1111/agec.12697>.
- Kupor, D. M., Laurin, K., & Levav, J. (2015). Anticipating divine protection? Reminders of God can increase nonmoral risk taking. *Psychological Science*, *26*(4), 374-384. <https://doi.org/10.1177%2F0956797614563108>

Sinha, J. W., Cnaan, R. A., & Gelles, R. J. (2007). Adolescent risk behaviors and religion: Findings from a national study. *Journal of Adolescence*, 30(2), 231-249.
<https://doi.org/10.1016/j.adolescence.2006.02.005>