

Societies living in harsh environments more likely to believe in moralizing gods, study finds

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The belief in moral, high gods may be advantageous because it fosters cooperative behavior, especially in harsh environments. Credit: Michael Höefner, Wikimedia Commons

Just as physical adaptations help populations prosper in inhospitable habitats, belief in moralizing, high gods might be similarly advantageous for human cultures in poorer environments. A new study from the National Evolutionary Synthesis Center (NESCent) suggests that societies with less access to food and water are more likely to believe in these types of deities.

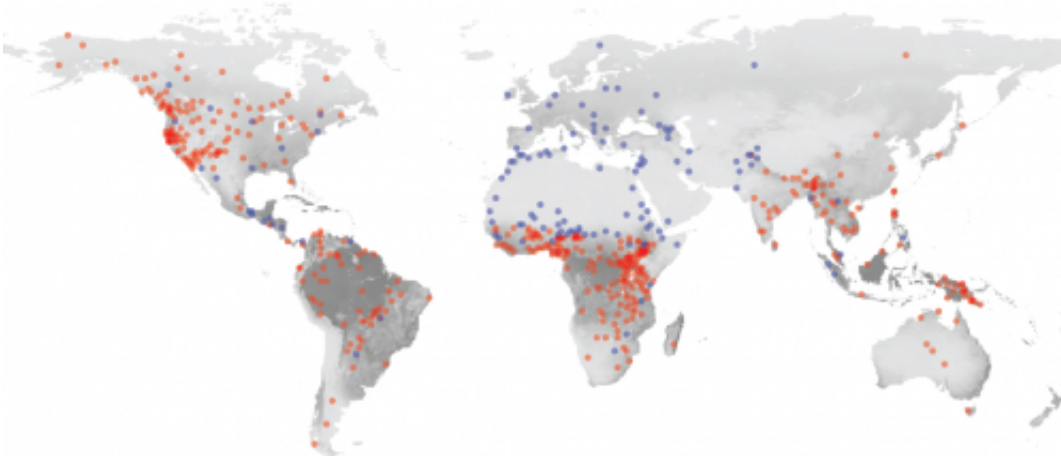
"When life is tough or when it's uncertain, people believe in big gods," says Russell Gray, a professor at the University of Auckland and a founding director of the Max Planck Institute for History and the Sciences in Jena, Germany. "Prosocial behavior maybe helps people do well in harsh or unpredictable environments."

Gray and his coauthors found a strong correlation between belief in high gods who enforce a moral code and other societal characteristics. Political complexity—namely a social hierarchy beyond the local community—and the practice of animal husbandry were both strongly associated with a belief in moralizing gods.

The emergence of religion has long been explained as a result of either culture or environmental factors but not both. The new findings imply that complex practices and characteristics thought to be exclusive to humans arise from a medley of ecological, historical, and cultural variables.

"When researchers discuss the forces that shaped human history, there is considerable disagreement as to whether our behavior is primarily determined by culture or by the environment," says primary author Carlos Botero, a researcher at the Initiative for Biological Complexity at North Carolina State University. "We wanted to throw away all preconceived notions regarding these processes and look at all the potential drivers together to see how different aspects of the human experience may have contributed to the behavioral patterns we see

today."



This figure illustrates the distribution of societies that believe in moralizing, high gods (blue) and those that do not (red). Light gray shading indicates lower potential for plant growth with the darker areas signifying high potential. Credit: Carlos Botero

The paper, which is now available online, will be published in an upcoming issue of the *Proceedings of the National Academies of Science*. To study variables associated with the environment, history, and culture, the research team included experts in biology, ecology, linguistics, anthropology, and even religious studies. The senior author, Gray, studies the intersection of psychology and linguistics, while Botero, an evolutionary ecologist, has examined coordinated behaviors in birds.

This study began with a NESCent working group that explored the evolution of human cultures. On a whim, Botero plotted ethnographic data of societies that believe in moralizing, high gods and found that their global distribution is quite similar to a map of cooperative breeding in birds. The parallels between the two suggested that [ecological factors](#)

must play a part. Furthermore, recent research has supported a connection between a belief in moralizing gods and group cooperation. However, prior to this study, evidence supporting a relationship between such beliefs and the environment was elusive.

"A lot of evolutionists have been busy trying to bang religion on the head. I think the challenge is to explain it," Gray says.

"Although some aspects of religion appear maladaptive, the near universal prevalence of religion suggests that there's got to be some adaptive value and by looking at how these things vary ecologically, we get some insight."

Botero, Gray, and their coauthors used historical, social, and ecological data for 583 societies to illustrate the multifaceted relationship between belief in moralizing, high gods and external variables. Whereas previous research relied on rough estimates of ecological conditions, this study used high-resolution global datasets for variables like plant growth, precipitation, and temperature. The team also mined the Ethnographic Atlas— an electronic database of more than a thousand societies from the 20th century— for geographic coordinates and sociological data including the presence of religious beliefs, agriculture, and [animal husbandry](#).

"The goal became not just to look at the ecological variables, but to look at the whole thing. Once we accounted for as many other factors as we could, we wanted to see if we could still detect an environmental effect," Botero says. "The overall picture is that these beliefs are ultimately shaped by a combination of historical, ecological, and social factors."

Botero believes that this study is just the tip of the iceberg in examining human behavior from a cross-disciplinary standpoint. The team plans to further this study by exploring the processes that have influenced the

evolution of other [human behaviors](#) including taboos, circumcision, and the modification of natural habitats.

"We are at an unprecedented time in history," Botero says. "Now we're able to harness both data and a combination of multidisciplinary expertise to explore these kinds of questions in an empirical way."

More information: The ecology of religious beliefs, *PNAS*,
www.pnas.org/cgi/doi/10.1073/pnas.1408701111

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