

The Dead May Kill You

Do Ancestor Spirit Beliefs Promote Cooperation in Traditional Small-scale Societies?

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Abstract

There is considerable evidence that beliefs in supernatural punishment decrease self-interested behavior and increase cooperation amongst group members. To date, research has largely focused on beliefs concerning omniscient moralistic gods in large-scale societies. While there is an abundance of ethnographic accounts documenting fear of supernatural punishment, there is a dearth of systematic cross-cultural comparative quantitative evidence as to whether belief in supernatural agents with limited powers in small-scale societies also exert these effects. Here, we examine information extracted from the Human Relations Area Files on cultural discourse about the recently deceased, local ancestor spirits, and mortuary practices across 57 representative cultures. We find evidence that in traditional small-scale societies ancestor spirits are commonly believed to be capable of inflicting harm, with many attendant practices aimed at mitigating this danger. However, such beliefs do not appear to promote cooperation, as ancestor spirits seem to be concerned with interactions between themselves and the living, and to prioritize their own welfare. Many attendant practices are inconsistent even with bipartite cooperation with ancestors that could be viewed as a model for other relationships. The broader implications of this research for the cultural evolution of religion are discussed.

Keywords: supernatural punishment, mortuary practices, corpses, cooperation, cultural evolution of religion, Human Relations Area Files.

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1. Introduction

1.1 Supernatural Punishment

Throughout our species' history, moral codes, norms, conventions, taboos, and etiquette promoted, among other things, cooperation. Yet groups are also vulnerable to cheaters and free riders (i.e., those who reap the rewards of group efforts but shoulder less than their fair share of the costs). Considerable research in the cognitive and evolutionary sciences supports the "Supernatural Punishment Hypothesis," which predicts that the perceived threat of punishment from supernatural agents—who are thought to have extraordinary abilities such as privileged knowledge of human affairs and control of natural and supernatural processes—inhibits self-interested behavior. If defection and deviation from the social order occur less frequently than would be the case absent the threat of supernatural punishment, beliefs in supernatural agents can be understood as steering individuals away from costly social transgressions resulting from self-interest, thus enabling efficient, low cost, stable alliances. In other words, beliefs in supernatural agents stabilize cooperation through the threat of punishment¹ (Johnson & Krüger, 2004; see Schloss & Murray, 2011 for further discussion).

¹ Disagreements in evolutionary accounts of the Supernatural Punishment Hypothesis continue, including the adaptive character of such beliefs, namely, whether belief in supernatural punishment increases cooperation or decreases the cost of inflicting punishment for norm violations. These discussions are beyond the scope of this paper (see Schloss & Murray, 2011 for further discussion).

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1.2 Moralizing, Punitive, Omniscient Gods

To date, most research on the Supernatural Punishment Hypothesis has focused on belief in deities, such as powerful supreme creator Gods, who monitor and enforce moral codes ("Moralizing High Gods," Watts et al., 2015), or moralistic, punitive, omniscient Gods ("Big Gods," Norenzayan, 2013) in religions like Judaism, Christianity, and Islam in large-scale societies. These moralizing, punitive, omniscient deities (hereafter "Gods" with a capital "G") are believed to reliably punish transgressors, and thus constitute a perfect system of punishment. Consequently, the expectation and fear of supernatural punishment decrease defection and enhance cooperation in large-scale populations with otherwise high anonymity and low accountability.

One account (the "Big Gods" hypothesis) proposes that moralistic, punitive, omniscient Gods have contributed to the expanded cooperation necessary for social complexity (Norenzayan et al., 2016). An alternative account (the "Broad Supernatural Punishment" hypothesis) contends that, in addition to Gods, a broad range of supernatural punishment found across cultures, including localized ancestral spirits with limited powers, and inanimate processes like karma, facilitates cooperation and also plays a functional role in the evolution of complex societies (Watts et al. 2015). Debates about the relationship between Gods and social complexity continue (Atkinson et al., 2015; Baumard et al., 2015; Beheim et al., 2019; Johnson & Krüger, 2004; Johnson, 2016; Johnson, 2011; Norenzayan et al., 2016; Norenzayan, 2015; Norenzayan, 2013; Peoples & Marlowe, 2012; Purzycki et al., 2016; Purzycki et al., 2020; Shariff et al., 2011; Watts et al. 2015; White & Norenzayan, 2019; White et al., 2019; Whitehouse et al. 2019).

1.3 Supernatural Entities

Two important and related questions concern the extent to which other supernatural entities, such as local deities, witches, souls of the dead, demons, spirits of ancestors, animals, and inanimate objects are regarded as effective punishers, and, correspondingly, the extent to which they enhance cooperation in small-scale societies where such beliefs are widespread. Building upon the insights of earlier ethnographers who documented rich accounts of such belief systems (e.g., Evans-Pritchard, 1956; Swanson, 1960; Wallace, 1966), evolutionary scientists have begun to empirically address these questions using mixed methods across diverse communities² around the globe (McNamara et al., 2016; Purzycki, 2013; Purzycki et al., 2016; Purzycki et al. 2020; Singh et al., 2020; Watts et al., 2015).

Results from these studies confirm longstanding ethnographic observations that supernatural entities are attributed different characteristics, and fewer capabilities, than Gods (see Boyer, 2001 for a review). For example, supernatural entities are commonly conceptualized as less knowledgeable than Gods, and as monitoring only those in the local vicinity. Thus, supernatural entities constitute an imperfect system of punishment because of the failure to detect all defection, which leads to the possibility of corruption (Purzycki, 2013; Purzycki et al., 2016; Purzycki et al. 2020; Singh et al., 2020; Watts et al., 2015). Further, although supernatural entities are assumed to be aware of moral behaviors, they tend to punish for non-moralistic reasons, such as a violation of conventions, taboos, and etiquette in domains such as ritual behavior, resource management, and sexual relations, all of which may be unrelated to a fundamental sense of the moral status of the individual.

² Including in Northwest Kenya, Southern Siberia, Indonesia, Vanuatu, Fiji, Brazil, Mauritius, Kanaga, Yasawa, Russia and Tanzania.

Scholars have concluded that while supernatural entities are represented as suboptimal punishers, such beliefs are nonetheless capable of enforcing cooperation within local small-scale communities because the expectation and fear of supernatural punishment is so great that it elicits an atmosphere of terror which inhibits selfish behavior (Purzycki et al. 2016; Purzycki et al., 2020; Singh et al.,2020; Watts et al., 2015; Johnson & Krüger, 2004).

1.4 Supernatural Agents

To date, most empirical research in the evolutionary and cognitive sciences on supernatural punishment compares common discourse about supernatural entities within or between cultures (e.g., local deities, animistic spirits, local ancestor spirits) to folk theories about Gods in the same contexts. Yet, ethnographic observations depict supernatural entities as imbued with varying characteristics and capabilities, such as the extent to which they are aware of violations and are willing and able to punish defectors. Crucially, to date, there has been little systematic comparison across smaller societies addressing the perceived character and capabilities of particular supernatural entities having less power than Gods.

Researchers have proposed that the extent to which supernatural entities are anthropomorphized—that is, the degree to which members of a community attribute human-like features to them (Guthrie, 1993)—may be an important determinant of the efficacy of such beliefs in maintaining conformity and cooperation (Johnson & Bering, 2006; Bering & Johnson, 2005; Watts et al., 2015). In particular, anthropomorphic agents imbued with mental states are likely represented as also interested in human affairs, and intentionally causing adverse life events through vengeance for disobedience (Johnson & Krüger, 2004; Johnson & Bering, 2006;

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Bering & Johnson, 2005). These types of supernatural entities are referred to here as supernatural "agents", and include gods, witches, sorcerers, and ancestor spirits.

1.5 Ancestor Spirits

Ancestor spirits are a particularly interesting class of supernatural agent punishers. First, such beliefs are widespread across cultures (Murdock, 1945). Second, ancestor spirits are regarded as once-living people, and they are often construed as inhabiting the social worlds of the living and the afterlife. Ethnographic and psychological research has showcased how, in contexts where ancestor spirits dominate folk discourse, people represent death as both an end to mental processes for living persons and the beginning of a new form of existence, which extends cognitive processes beyond the limits of human capabilities (Astuti & Harris, 2008; Bering, 2002; Boyer, 2001; Harris, 2011). These characteristics make ancestor spirits likely to be readily anthropomorphized and assumed to have an interest in human affairs.

In many traditional small-scale societies, death is thought to alter the individual's character over time, so that (often after a period of lingering in an intermediary state), once-living ancestors become wrathful supernatural agents with the power to punish the living through natural and supernatural processes, such as causing biological illness, psychological torment, and death (Bloch & Parry, 1982; Hertz, 1907/1960). In a classic work on the subject, Frazer summarizes these beliefs as follows:

"While it would be foolish and vain to deny that [the individual] often mourns sincerely the death of his relations and friends, he commonly thinks that their spirits undergo after death a great change, which affects their character and temper on the whole for the worse, rendering them touchy, irritable, irascible, prone to take offense on the slightest pretext

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and to visit their displeasure on the survivors by inflicting on them troubles of many sorts, including accidents of all kinds, drought, famine, sickness, pestilence, and death."

(Frazer, 1933/1966, Pp. 10–11)

Recently deceased relations appear to elicit a range of behaviors from those in the local vicinity due to both continued attachment to them and fear of supernatural punishment. For example, across cultures, people display spontaneous behaviors of affection toward recently deceased kin, such as kissing or holding the corpse, and often prepare the deceased for disposal by washing and dressing the body, cutting fingernails, combing hair, or rubbing the body with ointment, all of which fulfill social obligations towards the dead (see White & Fessler, 2018 for further discussion). Yet, at least in complex, large-scale societies, corpses also elicit disgust (Olatunji et al., 2009), an emotion thought to have evolved as a means of protection against biological contamination (Rozin et al., 2009; Boyer, 2001). In addition to disgust, biological contamination hazards are also thought to generate anxiety, which serves the evolutionary purpose of motivating hazard-avoidance behaviors, including ritualized actions (Boyer & Lienard, 2006a).

1.6 Mortuary Practices

The ethnographic record is replete with examples of how fear of the recently dead and localized ancestor spirits motivates people in small-scale traditional societies to modify their behavior towards recently deceased members of their community to manage or avoid supernatural punishment (see Bellah, 2011; Boyer, 2001; Bloch & Parry, 1982; Durkheim, 1912/1965; Frazer 1933/1966; Hertz, 1907/1960; Opler, 1936; van Gennep, 1909/1977). Behaviors surrounding the corpse provide further insight into ancestor spirits' perceived powers and the likelihood of being

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punished for defection. Notably, anthropologists have documented efforts to trick or manipulate ancestor spirits. For example, among mid-20th century Lozi people of western Zambia, the corpse was removed from the home not through the door of the dwelling, but via a special opening made in the wall for this purpose, the goal being to confuse the spirit and prevent it from returning (Turner, 1952). Likewise, early 20th-century Korean practices dictated placing a fatally ill person outdoors to avoid the danger of his spirit clinging to the home (Clark, 1932). Among the Santal people of India during the same period, to make it more difficult for a spirit to return, the deceased's dwelling was dismantled and placed beside the grave, and all of his or her possessions were burned (Clark, 1932).

Other beliefs mandate that people avoid certain behaviors that they believe will entice spirits to return. For example, practices have been historically documented among the Aranda (Basedow, 1925), the Ona (Cooper, 1917), the Kuna (De Smidt, 1948), the Chuuk (Mahoney, 1971), and the Tukano (Arhem, 1981) peoples, where individuals were forbidden to speak the names of the deceased or to keep their possessions. Similarly, some traditions dictate attempts to physically contain the spirit, as among the Central Thai and the Andamans, who were reported to bind the hands and feet of the corpse (Cipriani, 1966), or nail the coffin shut to protect the living (Sharp, 1978).

In other contexts, instances have been recorded of people engaging in practices to appease the ancestors, such as rituals designed to encourage the recently dead to leave (e.g., among Taramuhara people of northern Mexico [Bennett, 1935], the Tukano [Goldman, 1963], Mataco [Alvarsson & Beierle, 1997], Taiwan Hokkien [Gallin, 1966], and Saramaka [Price et al., 1999] peoples). Take, for example, the following ritualistic address, from son to deceased mother, during a traditional early-20th century Azande burial ceremony:

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"Oh, spirit of my mother...Why are you angry with me?...I have risen to salute the spirits as I have made new your grave with stones. You have rested indeed in a smooth place. It is thus: I have risen to take beer. I have come with it to salute your spirit at the head of the grave. Do not let rain come down near the dance." (Seligman, 1932)

Likewise, a traditional turn-of-the-century Khasis practice included verbally reminding the deceased that mourners have fulfilled their familial duty and thus should not be harmed: "the family throws on the ground some powdered rice from a leaf, at the same time adjuring the spirit of the deceased not to trouble the *kur*, or the family, as the funeral ceremonies have been duly performed" (Gurdon, 1907).

1.7 The Current Research

Attempts to characterize overarching patterns or themes in beliefs about ancestor spirits date back more than a century to the earliest days of anthropology. However, while lists of examples such as those presented above can be illustrative, they do not constitute evidence of the frequency or distribution of beliefs. Hence, three important unresolved questions remain regarding the representation of ancestor spirits across traditional small-scale societies: (1) Are they effective punishers? (2) Do they inhibit self-interested behavior? And (3) do they enhance cooperation? Here, we take an initial step toward addressing these questions by reporting the first systematic cross-cultural survey of the relationship between beliefs about the recently deceased, local ancestor spirits, and mortuary practices. We used information extracted from the Human Relations Area Files across 57 representative cultures, comparing descriptive information concerning mortuary practices and associated beliefs across geographically disparate cultures.

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To obtain information about whether, and how, fear of supernatural punishment accounts for features of beliefs about the recently deceased and ancestor spirits, we asked research assistants to make four judgments based on the ethnographic evidence: (1) whether the recently deceased and ancestor spirits are represented as capable of, and likely to cause, harm; (2) the reasons why they will harm, including information on their general character and the importance of correct performance of ritualized mortuary practices; and (3) how likely people are to reduce or eliminate harm by orthopraxy. We also explored (4) the types of adverse outcomes believed to occur if behaviors are not correctly performed (e.g., biological disease, psychological suffering) and the intended effects of such practices.

2. Method

2.1 Inclusion criteria and coding of ethnographic data

Our sample was drawn from the *Probability Sample Files* (PSF) in the electronic Human Relations Area Files (*eHRAF*: <http://www.yale.edu/hraf/index.html>), a corpus of material on 60 geographically disparate cultures selected to be representative of traditional world cultures. Inclusion criteria included data collected after 1901, and ethnographies that described mortuary rituals in sufficient detail as to allow coding. Following these criteria, three cultures—Bahia Brazilians, Bemba, and Serbs—were excluded because they contained insufficient information on mortuary rituals, resulting in a sample of 57 cultures.

To investigate common cultural discourse on the potential role of fear of punishment from ancestor spirits in mortuary practices, we pooled two data sets from relevant cultures. First, we sought information on beliefs regarding the deceased's character and perceived capabilities,

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and local ancestor spirits. Next, we examined whether and how representations of these particular supernatural agents were evoked to explain mortuary practices.

2.2 Ancestor spirits' character and capabilities

We sought to examine culturally shared beliefs about the recently deceased and local ancestor spirits. Concepts of recently dead people, corpses, ghosts, and ancestor spirits are often indistinguishable in ethnographic reports. This reflects the frequency with which people hold multiple representations of dead and living beings, with different representations being deployed in different contexts (see Astuti & Harris, 2008; Marin, 2012). Similarly, cultural discourse often supports the idea of the gradual transformation of recently deceased people into ancestor spirits. Given this frequent concatenation of related ideas, we cast a broad net in identifying potentially relevant ethnographic material. We operationalized the type of supernatural agent of interest in this study as an "ancestor spirit," defined as a person who lived on earth in human form, has undergone biological death, and is in the process of transformation or has transformed. Eventually, ancestor spirits are represented as continuing to exist in another form after bodily death, possessing capabilities beyond those of human beings, and able to communicate with the living (e.g., see Hertz, 1907/1960; Durkheim, 1912/1965; Opler, 1936; van Gennep, 1909/1977).

First, three research assistants, blind to the purpose of the research, performed index searches (e.g., "eschatology," "cult of the dead," "gods and spirits") and keyword searches (e.g., "corpse," "soul," "ghost," "supernatural," "spirit," "ancestor," "demon") to obtain relevant descriptive information for representations of ancestor spirits; researchers were randomly assigned cultures from the sample and compiled ethnographic excerpts for each culture. Next, three different assistants acted as coders, rating each culture's excerpted material according to a

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series of questions. First, we asked whether ancestor spirits (as we had defined them) were represented in the culture (yes, no, not enough information). If so, we assessed whether they were deemed capable of harming the living (yes, no, not enough information). Next, we assessed the domain(s) of harm. The potential domains were created by the three assistants who had originally gathered the descriptive information. They scanned the ethnographic descriptions and created five distinct categories that they judged encompassed the range of domains within which supernatural agents were deemed capable of affecting the living (biological [e.g., disease]; physical [e.g., injury]; psychological [e.g., mental illness, possession]; life events [e.g., personal misfortune]; and death [e.g., unspecified cause]). We further captured data about the predictability of supernatural agent harm across three areas: why these types of supernatural agents harm (e.g., when a moral transgression has been committed or a convention has been violated), when they harm (e.g., immediately following the action), and how they harm (e.g., cause the onset of biological illness); the believed certainty of each of these possibilities was coded using a 5-point scale, from 1 (very unpredictable) to 5 (very predictable), with a score of 3 indicating variable/no pattern observed. The coding scheme is presented in Table 1.

To obtain further information on why people think ancestor spirits will harm, we measured ancestor spirits' perceived level of interest in interactions between living people; the perceived level of interest in interactions between living people and ancestor spirits; and the perceived level of moral interest (interest in fair or unfair treatment between group members)—from 1 (not at all interested) to 5 (very interested). We further assessed the perceived moral character of ancestor spirits, using a 5-point scale to measure the extent of harm-based selfishness—the frequency with which they appear to negatively affect another's well-being for personal gain—from 1 (never) to 5 (almost always).

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As a check on rater reliability, two additional coders evaluated the excerpted material from a randomly selected subset of 20% of the cultures. We conducted a one-way intra-class correlation analysis and found inter-rater reliability to be good— $ICC = .729$. Evaluating inter-rater reliability for nominal data, a Cohen's Kappa analysis yielded a reliability score within the moderate range— $Cohen's\ kappa = .544$. We judged this reliability level to be adequate for our purposes, as ethnographic material is highly variable in style, specificity, and content, which likely degrades the reliability of ratings. The raters discussed any discrepancies among answers to reach agreement and arrive at a finalized dataset.

Table 1
Coding Schema for Ancestor Spirits

Variable	Coding schema
Are ancestor spirits present?	1 = no 2 = yes 99 = no information*
Deemed capable of harming living	1 = no 2 = yes 99 = no information* 88 = not applicable
Domains of harm:	<i>(for each domain)</i>
Biological (e.g., disease)	1 = absent
Physical (e.g., injury)	2 = present
Psychological (e.g., mental illness)	99 = no information*
Life events (e.g., personal misfortune)	88 = not applicable
Death (e.g., unspecified cause)	
Predictability of harm:	<i>(for each aspect)</i>
Why they will harm	1 = very unpredictable
When they will harm	2 = unpredictable
How they will harm	3 = variable 4 = predictable 5 = very predictable 99 = no information* 88 = not applicable
Level of interest in interactions between living people	1 = not at all interested 2 = generally uninterested 3 = neither uninterested or

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	interested 4 = interested 5 = very interested 99 = no information* 88 = not applicable
Level of interest in interactions between living people and them	1 = not at all interested 2 = generally uninterested 3 = neither uninterested or interested 4 = interested 5 = very interested 99 = no information* 88 = not applicable
Extent of inflicting harm for own gain	1= never 2= rarely 3= variable 4= usually 5= almost always 99 = no information* 88 = not applicable

*Not enough information to make a judgment

2.3 Mortuary Practices

Drawing on previous investigators' observations about the importance of the correct performance of rituals related to the recently deceased, we also investigated the perceived role of ancestor spirits in enforcing mortuary practices. Additionally, we investigated practices enacted to protect from harm because these behaviors and associated beliefs provide further insight into ancestor spirits' perceived powers and the likelihood of being punished for defection. We used data previously obtained by White et al. (2017) on family members' interactions with corpses as part of mortuary rituals for each of the 57 cultures. A mortuary practice was defined as an action following an individual's death, conducted before or during initial corpse disposal. White and colleagues had instructed ten trained research assistants, who were blind to any hypotheses and randomly assigned to cultures, to excerpt descriptions of mortuary practices present in 57 of the HRAF's Probability Sample Files cultures. These descriptions contained information on local

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explanations concerning both spontaneous and ritual behaviors with the corpse; we used this information in the present study. Three new coders recorded any actions involving corpse treatment that mentioned protection from supernatural harm (present/absent). If applicable, the coders also recorded how people protected themselves from such harm, using the following categories of action: avoidance (e.g., avoid areas where supernatural agents are thought to be); control/contain (command the agent not to harm, perform actions to repel or control them); appeasement (give them what they desire so as to stop them harming); and trickery/manipulation (e.g., fool supernatural agents into believing something untrue, make them think they were getting what they wanted). Finally, using a 5-point scale, coders rated people's apparent confidence in their ability to protect themselves from supernatural harm—from 1 (not at all confident) to 5 (very confident). Initial inter-rater reliability across all three questions was high (average Cronbach's alpha = 0.83). The coding scheme is presented in Table 2.

Table 2
Coding Schema for Mortuary Behaviors

Variable	Coding schema
Corpse treatment to protect from harm	1 = absent 2 = present 99 = no information* 88 = not applicable
How do people protect from harm?	<i>(for each type)</i>
Avoidance (e.g., of areas)	1 = absent
Control/contain (e.g., command agent)	2 = present
Appeasement (e.g., give what they want)	99 = no information*
Trickery/manipulation (e.g., deceive them)	88 = not applicable
Confidence to protect from harm	1 = not at all confident 2 = generally not confident 3 = neither confident or unconfident 4 = confident 5 = very confident 99 = no information* 88 = not applicable

*Not enough information to make a judgment

3. Results

3.1 Variation across societies

3.1.1 Ancestor spirits' capabilities and character

Substantive information regarding beliefs about spirits of the recently deceased or local ancestors was present in the ethnographic corpus for each of the 57 cultures examined. For 39 of the 57 cultures (68%), information was present in the ethnographic corpus indicating that ancestor spirits are believed to be capable of harming the living; for the remaining 18 cultures (32%), the ethnographic corpus did not contain information bearing on this issue.

Across 39 cultures, 88 instances were recorded wherein ancestor spirits were believed to exert harm in a particular domain (biological, physical, psychological, life event, or death); see Table 4. The most common domain of harm was biological, such as causing a disease ($n = 38$, 43%), followed by psychological harm, such as causing mental anguish ($n = 26$, 30%).

In all 39 cultures where ancestor spirits were believed capable of inflicting harm, harm was judged to be unpredictable (i.e., rated *very unpredictable* or *unpredictable*) in at least one aspect (e.g., *why*, *when*, or *how*); approximately half ($n = 21$, 54%) of these cultures had at least two elements of unpredictability, but none had all three; see Figure 1. However, unpredictability is not evenly distributed for the *why*, *when*, or *how* questions. In the majority of cultures, "the reasons *why* ancestor spirits harm" was judged as predictable to very predictable, together accounting for 77% of responses (predictable, $n = 17$; 44% very predictable, $n = 13$, 33%, see Table 5). In contrast, ethnographies report less certainty about "*when* ancestor spirits will harm."

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Coders judged half of the cultures examined as displaying uncertainty about this aspect (very unpredictable, $n = 14$, 36%; unpredictable, $n = 9$, 24%, see Table 6). Likewise, people appear to be less clear about "how ancestor spirits will harm," with the highest two unpredictability ratings accounting for 51% of the sample (very unpredictable, $n = 16$, 41%; unpredictable, $n = 4$, 10%, see Table 7). Hence, as displayed in Figure 2, the most predictable aspect of these supernatural agents across cultures is understanding why they will harm, but when and how they will harm is thought to be less predictable.

Reports of ancestor spirits' character revealed substantial patterning. First, as displayed in Tables 8 and 9 and Figure 3, there was a tendency to describe ancestor spirits as very interested in the living's behavior as it pertains to the treatment of the ancestor spirits ($n = 26$, 67%) but not at all interested in the living's behavior in regard to their treatment of one another ($n = 18$, 46%). Further, in those cultures where these types of supernatural agents were believed to be capable of causing harm, many cultures ($n = 18$, 46%) contained the belief that such agents were almost always willing to do so.

Table 3
Capable of Harming Living (Total Cultures $n = 57$, Cultures with Information $n = 39$)

	Frequency	Percent	Valid Percent
Yes	39	68	81
No Information	18	32	-
Total	57	100	100

Table 4
Domains of Harm (Total $n = 88$ Instances Across $n = 39$ Cultures)

	Frequency	Percent	Valid Percent
Biological	38	43	43
Physical	9	10	10
Psychological	26	30	30
Life event	9	10	10
Death	6	7	7
Total	88	100	100

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Table 5

Why Ancestor Spirits Harm (Total Cultures $n = 57$, Cultures with Information $n = 39$)

	Frequency	Percent	Valid Percent
Very unpredictable	5	9	12
Unpredictable	3	6	8
Variable	1	2	3
Predictable	17	30	44
Very predictable	13	23	33
No information	18	32	-
Total	57	100	100

Table 6

When Ancestor Spirits Harm (Total Cultures $n = 57$, Cultures with Information $n = 39$)

	Frequency	Percent	Valid Percent
Very unpredictable	14	25	36
Unpredictable	9	16	24
Variable	2	2	4
Predictable	9	16	24
Very predictable	5	9	12
No information	18	32	-
Total	57	100	100

Table 7

How Ancestor Spirits Harm ((Total Cultures $n = 57$, Cultures with Information $n = 39$)

	Frequency	Percent	Valid Percent
Very unpredictable	16	28	41
Unpredictable	4	7	10
Variable	9	16	24
Predictable	6	10	14
Very predictable	4	7	11
No information	18	32	-
Total	57	100	100

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Figure 1: Number of Aspects Rated Unpredictable

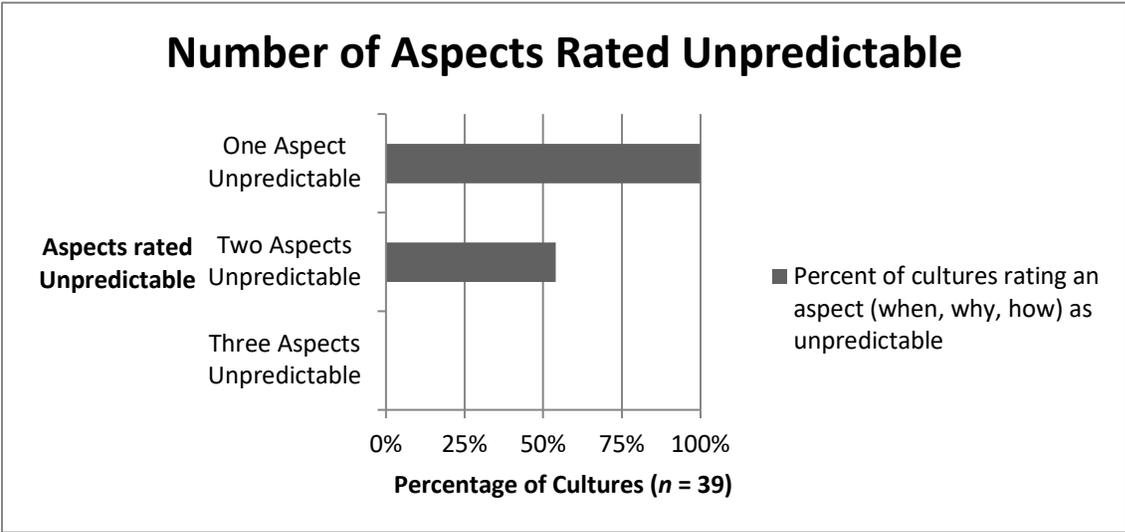


Figure 2: Predictable Features of Harm

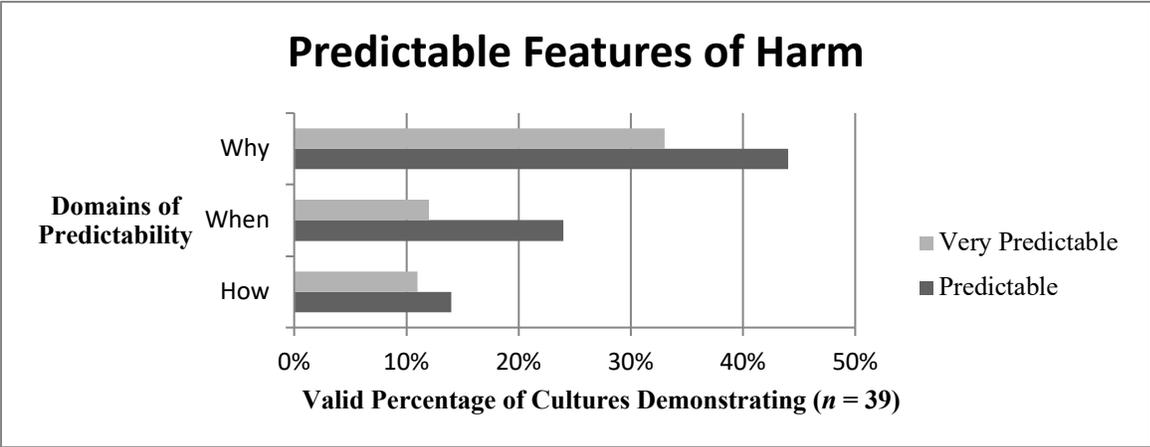


Table 8
Level of Interest in Interaction between Living People and Them ((Total Cultures n = 57, Cultures with Information n = 39)

	Frequency	Percent	Valid Percent
Not at all interested	0	0	0
Uninterested	3	6	8
Neither	6	10	14
Interested	4	7	10
Very interested	26	45	68
No information	18	32	-
Total	57	100	100

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Table 9

Level of Interest in Interaction between Living People (Total Cultures $n = 57$, Cultures with Information $n = 39$)

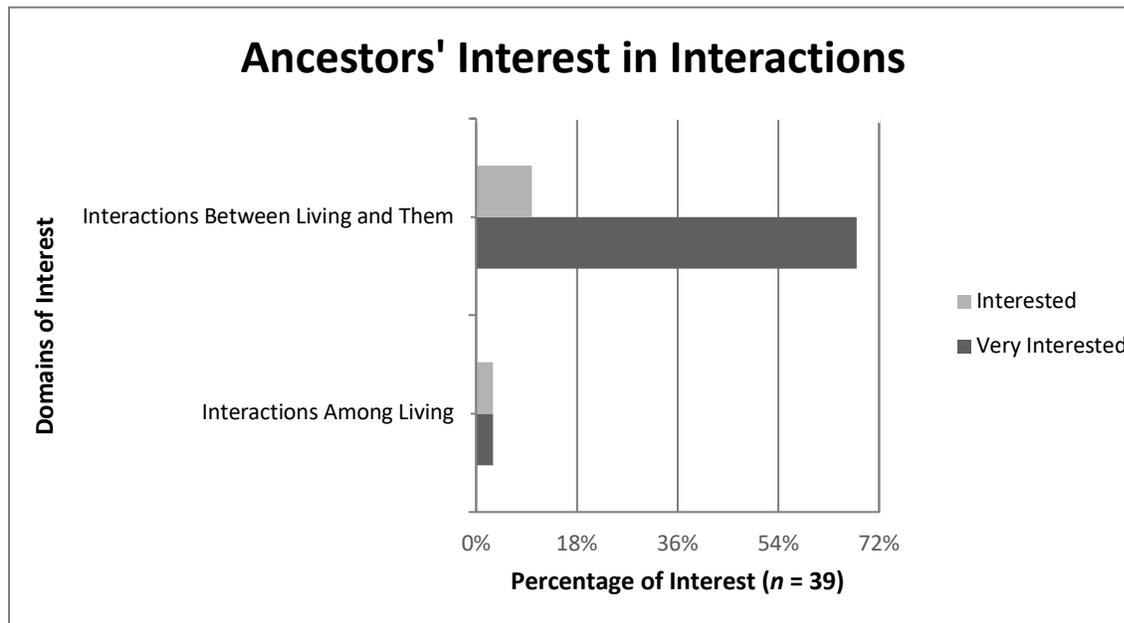
	Frequency	Percent	Valid Percent
Not at all interested	18	32	46
uninterested	11	19	28
Neither	8	13	20
Interested	1	2	3
Very interested	1	2	3
No information	18	32	-
Total	57	100	100

Table 10

Extent of Inflicting Harm for Own Gain (Total Cultures $n = 57$, Cultures with Information $n = 39$)

	Frequency	Percent	Valid Percent
Never	1	2	3
Rarely	4	7	10
Variable	3	6	8
Usually	13	21	33
Almost always	18	32	46
No information	18	32	-
Total	57	100	100

Figure 3: Ancestors' Interest in Interactions



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3.1.2 Mortuary practices

Thirty-three of the 39 cultures had sufficient information on behaviors intended to protect from supernatural harm shortly after the death of a community member. We documented 150 descriptions of such behaviors across these 33 cultures (see Table 11). The majority of interactions with the corpse were structured and ritualized as part of conventional practices, i.e., mortuary rituals ($n = 24$, 73%) rather than constituting spontaneous and idiosyncratic behaviors. As idiosyncratic behaviors tend to take the form of continued interaction with the deceased, such as hugging, kissing, or grooming the corpse, our findings suggest that fear of supernatural agent harm is likely to sustain the majority of conventional corpse-related behaviors.

The ethnographies studied depicted a range of actions which people take to protect themselves against supernatural agent harm following a family member's death. Out of the 150 descriptions, most accounts ($n = 57$, 38%) included behaviors explicitly designed to control the deceased's spirit to limit the danger that it poses, for example, burying the corpse immediately after death, nailing the coffin shut, or binding the corpse's limbs so that it cannot escape. Many accounts also included examples of behaviors intended to appease the deceased ($n = 40$, 27%) through correct ritualized actions towards the corpse, such as rubbing substances on the corpse, placing food items beside the corpse, or verbally reminding the deceased that the family have fulfilled their duties and should not be harmed.

There are also many recorded instances where people try to avoid any interaction with the spirit of the deceased altogether ($n = 36$, 24%), for example, by refusing to speak the name of the deceased and throwing away the deceased's possessions so that they would not be tempted to return. Fewer instances were recorded of trickery ($n = 17$, 11%), such as taking the corpse out through an opening other than the doorway to disorientate it or destroying the deceased person's

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house and placing the roof near the grave to lessen the likelihood that the dead will find their way back. As part of the corpse's treatment, all cultures ($n = 33$) included at least one behavior intended to protect the living from supernatural agent harm. The majority of cultures ($n = 24$, 72%) used more than one protective action, relying upon a range of tactics in mortuary practices intended to protect from supernatural agent harm, the most common of which are controlling and appeasing the agents through the correct performance of ritual actions (see Figure 4).

To investigate regional variation in protective behaviors, we conducted the Kruskal-Wallis analysis of variance for independent samples, with the type of protective behavior as our dependent variable and world regions as our grouping variable. The HRAF divides the 57 cultures into eight regions: Africa ($n = 16$), Asia ($n = 14$), South America ($n = 10$), North America, ($n = 8$), Oceania ($n = 5$), Central America and the Caribbean ($n = 3$), Europe ($n = 3$) and the Middle East ($n = 1$). We collapsed North America, South America, Central America, and the Caribbean into one category to assess regional effects. We removed societies from Europe and the Middle East because of their low representation in the data set³. We found no significant regional effects on the type of protective behavior. Together with the fact that, by design, the Probability Sample Files minimize the problem of shared cultural phylogeny, this result strongly suggests that the overarching pattern of behaviors towards ancestor spirits likely reflects convergent cultural evolution operating across a wide range of environments, rather than common cultural descent.

With regard to people's apparent confidence in their ability to take steps to protect themselves from the recently deceased and local ancestor spirit, of the 33 cultures for which

³We also conducted a Kruskal-Wallis test for independent variables with regions as grouping variable and type of protective behavior as the dependent variable without collapsing the eight geographical regions. No significant regional effects were found.

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sufficient information was available (see Table 12), raters assessed the majority ($n = 20$, 60%) as having members who were confident ($n = 8$, 23%) to very confident ($n = 12$, 34%) that, by engaging in the protective behavior, they would not be harmed.

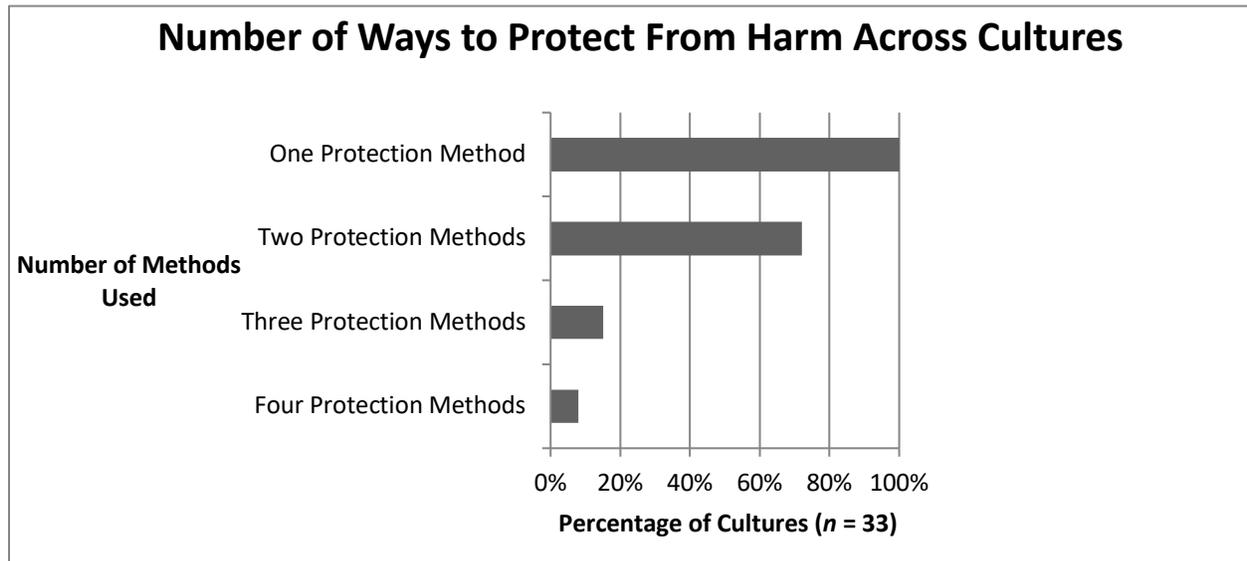
Table 11
How do People Protect from Harm? (Cases $n = 150$)

	Frequency	Percent	Valid Percent
Controlling	57	38	38
Appeasement	40	27	27
Avoid	36	24	24
Trickery	17	11	11

Table 12
Confidence to Protect from Harm (Total Cultures $n = 57$, Cultures with Information $n = 33$)

	Frequency	Percent	Valid Percent
Not at all confident	6	18	23
Generally not confident	3	9	9
Neither	4	13	11
Confident	8	24	23
Very confident	12	36	34
Missing	24	--	--
Total	57	100	100

Figure 4: Number of Ways to Protect from Harm



4. Discussion

Within the framework of contemporary studies of the role of supernatural beliefs in maintaining and promoting cooperation, using ethnographic depictions of a representative sample of the world's traditional small-scale societies, we have systematically examined beliefs and behaviors concerning ancestors' spirits and the recently deceased. Our results indicate that such beliefs are widespread; that the dead are typically depicted as potentially dangerous entities; and that ritualized mortuary practices and related behaviors aim to address this danger. Below, we consider our findings in the context of key questions regarding the relationships between the cultural evolution of supernatural beliefs and cooperation.

4.1 Are Ancestor Spirits Effective Punishers?

Consonant with generalizations made beginning more than a century ago, we find that ancestor spirits are represented as capable of harming the living through various natural and supernatural

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processes, including inflicting biological illness and psychologically tormenting those who do not comply with their wishes.

Our research also suggests that ancestor spirits do not inflict costs uniformly across individuals and situations. Specifically, while informants are confident that ancestor spirits can harm, and believe that they know why they will harm, they are less confident about when or how, precisely, such harm will be inflicted. These perceived characteristics make ancestor spirits suboptimal punishers. Further, this uncertainty heightens anxiety, which is mitigated by ritualistic practices, and many cultural mores explicate ritualized action as a means to avoid supernatural cost-infliction (e.g., Lang et al., 2020); Boyer & Liénard, 2006b; Malinowski, 1948; Sosis & Handwerker, 2011). Whether and how these ritualistic practices give rise to other forms of coordinated and cooperative actions is worthy of further attention. Given the limitations of conclusions about common representations based upon archival data, these questions are best addressed through either future ethnographic case study fieldwork or a cross-cultural database, such as the Database of Religious History (Slingerland & Sullivan, 2017), which more consistently contains in-depth accounts of beliefs and practices relevant to this topic.

4.2 Do Ancestor Spirits Inhibit Self-interested Behavior?

We found evidence that ancestor spirits are believed to be preoccupied with practices that benefit them, practices that are costly to those who must perform them immediately following a community member's death. These findings support previous ethnographic research indicating that spirits and local gods are not usually construed as justifications for moral prescriptions (see Baumard & Boyer, 2013, for further discussion). However, our findings do not exclude the possibility that ancestor spirits are also thought to be concerned with the larger moral character

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of local people, as the scope of our research was limited to discourse about events that occur – and rituals that are practiced – in the immediate aftermath of death, hence broader moral concerns may not be fully represented in our ethnographic materials (see Purzycki, 2013; Purzycki et al., 2016; Purzycki et al., 2020 for further discussion).

4.3 Do Ancestor Spirits Enhance Cooperation?

Given that ancestor spirits are typically believed to be capable of inflicting costs on the living, and given that ancestor spirits are thought to make demands of the living, we turn to our central question, namely whether these beliefs enhance cooperation. The most direct pathway for such beliefs to impact actual cooperation among living group members is through the enforcement of norms relevant to such cooperation. Yet, this is not a prominent feature in the ethnographic record, at least as it concerns those beliefs and practices pertinent to the period immediately following death upon which we focused here. Rather than addressing relationships among the living, many of these beliefs and practices instead concern interactions between the living and the dead (see Figure 3). If the honoring of rights or the fulfillment of duties is understood as a transaction between the living and the dead, we can then ask whether beliefs regarding ancestor spirits can be construed as situations in which bipartite cooperation is enforced through first-order punishment. In turn, such relationships could then conceivably influence cooperation among the living. Consonant with such a framing, in approximately one quarter of the beliefs and practices studied, people actively seek to appease the dead in order to avoid harm; in contrast, attempts to trick the deceased – which can be conceptualized as a form of cheating – occurs less than half as often. Importantly, however, the overall picture is quite mixed, precluding any broad conclusions concerning even simple dyadic cooperation enforcement: mere

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avoidance is as common as appeasement, yet such disengagement is inconsistent with bipartite cooperation; moreover, the most common tactic of all consists of attempts to control the spirit of the deceased, a coercive approach entirely at odds with cooperation.

Our findings suggest that beliefs about ancestors common in small-scale societies neither directly promote cooperation among the living nor consistently form a template for bipartite cooperation. Instead, fear of supernatural punishment results in scripted ritual practices towards the deceased by family members. Accordingly, as regards promoting cooperation, at best, these practices provide opportunities for signaling one's commitment to a valued relationship partner (i.e., the deceased), and the internalization of, and conformity to, prevailing norms – both of which may have indirect influence on the likelihood that the actor will be included in cooperative ventures.

Mortuary practices and rituals signal the willingness of individuals to engage in potentially hazardous behaviors surrounding the corpse based upon local belief systems concerning supernatural agents. Common emic explanations for these behaviors include ensuring that the deceased transitions from the human world, and preventing supernatural harm to the performer and their family. From an etic perspective, these behaviors are also likely a product of continued emotional attachment to the deceased, potentially accounting for their persistence across cultures even when the prevalence of disease is high (Murray et al., 2017). The costs of performance act as an honest indicator of commitment to both the dead person and family members, and they signal the bereaved's ability to form strong bonds with others. Indeed, in general, practices with the corpse constitute a form of costly signaling, an elaborate show of group commitment performed not despite their costs but because of them (Sosis, 2004). By dedicating time and energy to the proper treatment of the recently deceased to assist their

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transition to the spirit world and to prevent supernatural punishment, family members are thus effectively communicating a commitment to the deceased, kin; ultimately, such actions communicate their trustworthiness as social partners (see Nesse, 2005; Purzycki & Sosis, 2009; Reynolds et al., 2015; Winegard et al., 2014).

Given the archival nature of our data, we could not ascertain whether and how the types of rationale provided for mortuary behaviors impact judgments about the bereaved's character. Future research could investigate differences between a) those who justify ritual practices as a means to ensure the safe passage of their loved one to the other world, and b) those who justify such practices as a means to avoid supernatural punishment, in order to determine whether either group would be regarded as more trustworthy partners—and whether, correspondingly, community members would be more likely to cooperate with them.

4.4. The Implications of Our Findings for the Cultural Evolution of Religion

Conceptualizations of deceased group members may provide the raw material for the cultural evolution of cooperation-enhancing supernatural belief systems. Features of our evolved psychology are harnessed in culturally widespread supernatural-agent concepts, including tendencies towards perceiving agents as having minds and bodies (i.e., folk-dualism) and imbuing them with subjective states and mental processes (i.e., mentalizing, see White, 2021, for further discussion). Additional psychological predispositions towards recently deceased kin, and corresponding behaviors, constitute a strong attractor in cultural evolution for beliefs in local supernatural agents who modify behavior.

Fear of ancestor spirits converges with additional motivating factors that result in costly behaviors following a loved one's death. These include a continued emotional attachment to the

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deceased, including shared corporate identity and corresponding desires to fulfill social obligations towards the dead. The converging impact of these factors is evidenced by spontaneous behaviors such as embracing the deceased loved one, as well as more structured mortuary practices to prepare the dead for burial by washing and dressing the corpse, cutting fingernails, combing hair, rubbing the body with ointment, etc., all of which appear intended to ensure that the corpse is as presentable and human-like as possible (see White & Fessler, 2018 for further discussion).

Notably, recently deceased group members can be subsequently reconceptualized as judgmental actors who indirectly promote in-group cooperation by enforcing ritual behavior. Indeed, cultural evolution seems to frequently leverage such reconceptualization as the scale of a society increases. While ancestor veneration is mostly absent in simple hunter-gatherer societies (Peoples et al., 2016), as social complexity increases, the veneration of ancestors appears and becomes positively correlated with the size of economically corporate kin groups (Sheils, 1975); at larger scales still, the veneration of a superior ancestor—believed to be capable of influencing all members of the society—emerges, facilitating coordination and cooperation across large numbers of individuals (Dávid-Barrett & Carney, 2016; Sheils, 1975).

Critically, as the scale of the group believed to be subject to the influence of deceased agents increases, the temporal and social distance between individual believers and those agents also increases, and representations of moralizing ancestors are likely far less tied to believers' direct memories of the passions – and failings – of deceased individuals. In other words, as cultural evolution transforms representations of deceased family members into material for ancestor veneration, we expect representations to become more depersonalized and shallower.

These observations raise the question of whether and how it is possible to both love and

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fear the agent after death. This issue has been noted by earlier observers, who have claimed that the bereaved feel emotional ambivalence towards the recently deceased (e.g., Freud, 1919; Bloch & Parry, 1982; Hertz, 1960; Opler, 1936; van Gennep, 1909/1977). The topic is ripe for ethnographic case-study research and experiments based on contemporary models of human cognition, such as the tendency to see persons as composed of both material bodies and immaterial minds or substances (e.g., Bering & Bjorklund, 2004; Bloom, 2009; Richert & Harris, 2008; Roazzi et al., 2013); the complexity of person-recognition systems (Anzellotti & Caramazza, 2014; Haxby et al., 2002); and the coexistence of seemingly incompatible modes of thought (Legare et al., 2012). Moreover, a better understanding of the processes involved in people's thinking about the recently deceased may shed light on the prevalent belief that they can threaten the living due, for example, to the envy that they feel for the latter (Foster, 1972).

Possible investigations such as those sketched above may help illuminate how representations of the recently deceased present both positive affordances and limitations as grist for cultural evolution in producing beliefs that enhance cooperation. In particular, in addition to being a consequence of increasing temporal and social distance at larger social scales, the depersonalization that occurs as representations of deceased family members become transformed into representations of ancestors may be a necessary feature for the design of beliefs concerning moralizing agents for whom self-interest is not an overriding motive for attending to and regulating the actions of the living. In short, memories of the all-too-human features of deceased family members may need to be lost to time and distance before representations of them can effectively promote cooperation.

The above perspective presents an extension to existing theories of supernatural punishment and the cultural evolution of religion. One possibility is that, at larger group scales,

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cultural evolution expands upon recently deceased group members' scope, such that they are believed to (a) be interested in interpersonal and moral behaviors, not merely actions that benefit the dead, (b) motivate and sustain ritual behaviors in a variety of contexts, not only in the context of death, and (c) have the ability to monitor all local people, not only family members. Future research could investigate this possibility through historical and ethnographic analyses of political complexity and supernatural agents across cultures.

Future ethnographic case studies could examine the extent to which ancestor spirits are believed to automatically and unequivocally punish transgressions across different cultural contexts; notably including circumstances that do not directly involve the ancestor, i.e., situations in which spirits inflict second- or third-party forms of punishment, the forms thought to be most important in the maintenance of cooperation (see Schloss & Murray, 2011). Similarly, in-depth examinations should explore the extent to which such spirits are believed to punish individuals beyond the immediate family, as a broader scope would necessarily impact the behavior of a larger number of individuals. A comparison of how different types of supernatural agents are handled across cultures could also reveal important insights. For example, one prediction following from our research is that we would expect a negative correlation between trickery instances to protect from harm and the extent to which the agent is believed to be omnipresent, and a positive correlation between appeasement practices and the extent to which the agent is considered to be omnipresent.

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