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Supernatural Operating Rules:

How People Envision and Experience

God, the Devil, Ghosts/Spirits, Fate/Destiny, Karma, and Luck

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Abstract

How do people decide whether a supernatural entity (God, the devil, ghosts/spirits, fate/destiny, karma, or luck) has intervened in their lives? Their decisions may depend partly on how well the event fits with beliefs about the entity's *supernatural operating rules*, such as the entity's power, scope of communication, and intent. We examined these ideas among undergraduates from three U.S. universities ($N = 3840$). To assess beliefs about power, we asked questions like these: Do you believe that God has the power to violate natural laws and to work indirectly through nature? Can the devil affect many parts of people's lives, such as thoughts, relationships, and health? To assess beliefs about scope of communication, we asked about frequency (How often do ghosts/spirits try to communicate with people?), breadth (Does God try to communicate with many people, or just a few?), and modes (Does the devil communicate in multiple ways?). To assess intent, we asked about positive, negative, and justice-maintaining intentions ascribed to the entities. God was clearly seen as most powerful and intentional, with the broadest scope of communication. In most ways, ghosts/spirits were rated least influential. Impersonal forces and the devil were rated between God and ghosts/spirits in terms of influence. Correlations and regressions confirmed that beliefs about power, scope of communication, and intent all predicted more perceived experiences with entities. These findings, coupled with other research on supernatural beliefs and attributions, help to explain why some people perceive high levels of supernatural activity and communication while others do not. (250 words)

Keywords: supernatural attribution; supernatural beliefs; prayer; paranormal beliefs; religious beliefs

Supernatural Operating Rules: How People Envision and Experience

God, the Devil, Ghosts/Spirits, Fate/Destiny, Karma, and Luck

What if a friend told you that God—or a deceased loved one—had given them a personal message? Or what if they claimed that the devil was tempting them? Your response might depend not only on your beliefs about whether these entities exist; it could also depend, in part, on how you think these entities operate. If you believe that God speaks rarely, to only a few special people, you might respond with skepticism to claims of personal messages. You might also question whether the devil or spirits actually have the power to affect people's thoughts or life events. On the other hand, what if you believe that these supernatural entities are very active in people's everyday lives—that they try to speak to everyone, frequently, in many different ways? Our aim in this project was to examine people's beliefs about these *supernatural operating rules.*

Supernatural Attributions

Many people believe that supernatural entities intervene in the natural world. Some believe that God speaks to them (Dein & Cook, 2015; Harriott & Exline, 2017; Luhrmann, 2012) or frame problems as the devil's work (Exline et al., in press; Pargament et al., 2000; Pargament & Exline, in press; Ray et al., 2015). Others report seeing ghosts (Pew, 2009) or receiving messages from deceased loved ones (Exline, in press; Streit-Horn, 2011). Many also attribute events to the impersonal forces of fate/destiny (Au & Savani, 2019; Flórez et al., 2009; Green et al., 2004; Norenzayan & Lee, 2010), karma (White & Norenzayan, 2019; Willard et al., 2019), and luck (Lim & Rogers, 2017; Stauner et al., 2017; Woolley & Kelley, 2020).

Beliefs about supernatural intervention are not only common; they have psychological relevance. For instance, people who see God as very engaged in their lives may report secure

attachment to God (Hall & Edwards, 2002) but also anger toward God when things go wrong (Exline et al., 2011). Aggression can arise if people believe that God sanctions violence (Bushman et al., 2007) or if they see outgroup members as demonically influenced (Pargament et al., 2007). Although perceived ghost encounters usually bring fear (Hinton et al., 2020), believing that a deceased loved one is sending messages may provide great comfort (Exline, in press; Streit-Horn, 2011). And in terms of impersonal forces, fate beliefs have been linked with avoidance of medical exams (Green et al., 2004), karma beliefs with prosocial choices (White & Norenzayan, 2019), and luck beliefs with gambling behaviors (Lim & Rogers, 2017).

Given the prevalence and potential importance of supernatural attributions, it seems valuable to gain a deeper understanding of their underpinnings: What makes people believe that supernatural entities—whether personal or impersonal—are intervening in their lives? (See Spilka & McIntosh, 1995, for an early discussion.) Of course, in order to make such inferences, people would need to believe that the entity exists—a belief that can reflect socialization (family and religious upbringing; peer influences) as well as desires to believe (Wilt et al., 2020). Other cognitive factors linked to supernatural beliefs include intuitive thinking styles (Pennycook et al., 2012), developmental factors (Barrett, 2012; Legare et al., 2012), desires for control (Kay et al., 2010), cognitive errors (Lindeman et al., 2015), and schizotypal thinking (Dagnall et al., 2017), to name just a few. Contextual factors can also press people toward supernatural explanations, such as a lack of human control (Kay et al., 2010; Miner & McKnight, 1999), moral themes (Gray & Wegner, 2010), and desires to make meaning (Banerjee & Bloom, 2014).

Supernatural Operating Rules

Our interest here is in another, complementary set of cognitive variables, which we refer to as *supernatural operating rules:* In general, people should be more likely to attribute an event

to an entity (whether supernatural or not) if such an explanation fits well with their ideas about how the entity works. Specifically, we proposed that people would report more personal experiences with supernatural entities if they see these entities as powerful, broad in their scope of communication, and intentional in action. To the extent that these criteria are met, people should see the entities in question as plausible causes of events, including those in their own lives. Next, we will briefly explore each category of operating rules and offer some predictions.

Power. First, we expected people to attribute more events to supernatural entities if they see these entities as sufficiently powerful to cause or affect such events. For instance, people should see the devil as a plausible cause of temptation if they see the devil as having power to affect many parts of people's lives, including thoughts and emotions. The devil's power should also seem greater if a person believes that the devil can violate natural laws and can also act indirectly through natural events (Legare et al., 2012; Weeks & Lupfer, 2000). If people see the devil as having little or no power in any of these domains, it should restrict the range of events that they attribute to the devil. We expected that God would be seen, by far, as the most powerful of the entities we considered, with ghosts/spirits being the least powerful, and the devil and impersonal forces in between. Among the impersonal forces, we predicted that fate/destiny and karma would be seen as more powerful than luck.

Scope of communication. Attributions to supernatural entities should be more frequent among those who believe that these entities intervene in the world frequently, broadly (with many people), and in many ways. Communication could be one form of supernatural intervention. So, for example, we expected people to report more divine intervention in their lives to the extent that they believe that God: a) tries to communicate frequently, b) chooses many people for such messages, and c) sends such messages via many modes (e.g., spontaneous

thoughts, sacred texts, coincidences, nature; see Exline & Pait, in press; Harriott & Exline, 2017). We expected people to see God as having the broadest scope of communication by far, followed by the devil and impersonal forces, with ghosts/spirits in between.

Intention to act. Finally, people should report more supernatural experiences if they see the entities in question as having some clear reason or motivation to act—perhaps because the entity has positive or negative intentions toward them personally or has some other discernable reason for taking action. Intentions may be natural to consider when thinking about personal agents such as God, the devil, and human spirits. Among these, we expected people to endorse the strongest positive intentions for God and the strongest negative intentions for the devil, with ghosts and spirits in between, given their human aspects that might entail mixed motives.

On the surface, it makes sense to expect that people would ascribe intention only to personal, relational entities such as God, the devil, or human spirits, and that they would not ascribe intention to impersonal forces such as fate/destiny, karma and luck. However, this is an empirical question that has not been closely examined. Prior work does suggest that people can relate to impersonal forces in personal ways. For example, people can experience anger and forgiveness focused on impersonal circumstances or situations (Thompson et al., 2005), and they might also feel a cosmically-focused sense of gratitude that does not focus on a personal benefactor (Roberts, 2014). Regardless of whether people ascribe personal attributes to forces such as fate/destiny, karma, or luck, they might still see these forces as having some purpose or reason for acting. Of the three forces of interest here, perhaps the clearest case for purposeful action might be for karma, which might be seen as having an intention to maintain justice (White & Norenzayan, 2019). We expected justice-oriented motives to be stronger for karma than for

luck or fate/destiny; but we expected ratings for God's justice intentions to be higher than those for karma, since God is a more personal, intentional agent who some may see as perfectly just.

The Current Study

We had two primary aims for this initial project on supernatural operating rules: First, we wanted to assess and compare beliefs about different supernatural entities in terms of power, scope of communication, and intent. In a large undergraduate sample, we compared beliefs about operating rules (power, scope of communication, and intent) across four types of entities: God, the devil, ghosts/spirits, and (presumably) impersonal forces, among students who reported some belief in each entity. We expected that God would be seen as most powerful, broad in scope of communication, and intentional, and that ghosts/spirits would be rated lowest in these categories. We also examined differences between the three forces of fate/destiny, karma, and luck. Here we expected fate/destiny and karma to be seen as more powerful, broader in scope of communication, and more intentional than luck.

We also wanted to see whether each of the three domains of operating rules (power, scope of communication, and intent) actually mattered in relation to supernatural attribution: Would each domain of operating rules have some unique predictive value in terms of predicting people's perceived supernatural experiences with the entities? Within each entity type, we examined whether the various operating rules factors linked with perceived experiences with the entity, using correlation and regression. We expected all three categories of operating rules (power, scope of communication, and intent) to relate positively to the frequency of perceived experiences with the entities, and that each category would explain unique variance when considered simultaneously as predictors. Although we did not preregister these specific hypotheses in the form described here, we did preregister an earlier, closely related but more

general set of correlational predictions before data collection began (OPEN SCIENCE

FRAMEWORK LINK: OMITTED FOR BLIND REVIEW).

Method

Participants and Procedure

Data were drawn from a larger online survey of 3930 undergraduates at three U.S.

universities: two in the Great Lakes region and one in the Southeast. Participants completed an

online survey for partial course credit. Those who failed three attention checks ($n = 90$; 2% of

sample) were dropped, bringing the total to 3840. For analyses reported here, we erred on the

side of retaining participants who showed some inattentiveness because the full survey took

approximately two hours to complete, and the measures relevant here were near the front of the

survey. It is important to note, though, that the key results reported here—including conclusions

from the regressions— were similar if we deleted those who failed two attention checks ($n =$

428; 11% of sample or even just one attention check ($n = 1592$; 40% of sample).

Of these 3840 students, most identified as female (74%), not married (99%), heterosexual

(91%), and born in the U.S. (92%). Ethnicities included White/Caucasian/European American

(71%), African Asian/Pacific Islander (14%), Latino/Hispanic (11%), American/Black (10%),

Middle Eastern (1%), and other (1%). (These exceed 100% because participants could choose

multiple options.) Religious affiliations included Catholic (25%), unspecified Christian (16%),

conservative /evangelical Protestant (12%), mainline or liberal Protestant (7%), agnostic (10%),

no religion (9%), atheist (6%), Jewish (4%), Hindu (2%), spiritual (2%), unspecified Protestant

(1%), Muslim (1%), Buddhist (1%), unsure (1%), and other (2%).

Measures

Beliefs and experiences involving supernatural entities. Participants rated their extent of belief in a randomized list of entities including God, gods, the devil/Satan, ghosts/spirits of humans who have died, fate/destiny (which, here and in other items, were grouped together and separated by a slash), karma, and luck. Responses: 1 = *not at all*, 2 = *a little bit*, 3 = *moderately*, 4 = *strongly*, 5 = *totally*. They then read, "Have you ever had a personal experience in which ____ was involved?" followed by a randomized list of the same entities. Responses: 1 = *no, never*, 2 = *one time*, 3 = *a few times*, 4 = *quite a few times*, 5 = *many times*.

Supernatural operating rules for each entity. Participants then completed up to four randomly-ordered blocks of items, one focusing on each of these four entities: God (or gods), the devil, ghosts/spirits, and forces (in which participants selected the force they believed in most strongly to focus on: fate/destiny, karma, or luck). Participants only answered questions in each block if they reported some belief (a rating of 2 or more) in the entity in question, which led to unequal *n*s for each entity based on differences in belief (see Table 1). Many of our analyses considered the items listed below as separate variables, because we were interested in distinctions between them. For some analyses involving correlation and regression, we selected or consolidated certain variables, as we describe below and in the Results.

Power. For each of the four entity types, participants rated responses to these items: "Do you think that [entity] can do things that break the laws of nature?" and "If a certain event can be explained using natural laws, could [entity] still be involved in causing the event?" Options: *no, definitely not* (1), *probably not* (2), *maybe / not sure* (3), *probably* (4), *yes, definitely* (5). The third item was: "In your opinion, how much power does [entity] have in terms of being able to affect people's lives?" with these options: *no power at all* (1), *a little bit of power* (2), *moderate power* (3), *a lot of power* (4), and *total power* (5). Finally, participants completed eight items

assessing the entity's power in specific life domains, again rated from 1 = *no power at all* to 5 = *total power*. Domains: thoughts, feelings, actions, experience (if any) after s/he dies, life events, relationships, physical body/health, and possessions or finances. The eight items were averaged based on these alphas: God (.96), devil (.95), ghosts/spirits (.92), force (.92). Alphas for specific forces: fate/destiny (.92), karma (.91), luck (.91). To consolidate these variables for correlations and regressions, we averaged all four of these power variables (break natural laws, could be involved even if natural explanation, power over people's lives in general, and power over specific domains). For this general power variable, alphas: God (.89), devil (.80), ghosts/spirits (.74), forces (.72). Alphas for specific forces: fate/destiny (.71), karma (.72), luck (.68).

Scope of communication. For each of the four entity types, participants read, "In your opinion, how often does [entity] try to communicate with people?" with responses of *never* (1), *rarely* (2), *sometimes* (3), *often* (4), *almost all of the time* (5), and *all of the time* (6). Those who gave a response greater than 1 read two more items: "Do you think that [entity] communicates with people:" followed by: *in just one way* (1), *in a few different ways* (2), and *in many different ways* (3), and "What percentage of people do you think that [entity] tries to communicate with?" followed by a box to fill in a number from 0-100. We modified scoring of these two items so that those who responded *never* (1) to the frequency item received zeros on both variables, which allowed us to include these participants in regression analyses. Because the three communication items were measured on different response scales, they were standardized before being averaged as a general scope variable for our regressions. Alphas: God (.86), devil (.85), ghosts/spirits (.77), force (.92). Alphas for specific forces: fate/destiny (.91), karma (.91), luck (.92).

Intent. For each of the four entity types, participants read, "Do you think that [entity]:" followed by items rated from 1 (*no, definitely not*) to 5 (*yes, definitely*), including three on intent:

"is focused on maintaining justice/fairness in the world," "has positive intentions toward you," and "has negative intentions toward you." In regressions, we did not average these scores; instead, we created a variable that used the maximum score from these three variables, as our interest was in identifying the strongest form of intent that people associated with each entity.

Results

Comparing Belief and Perceived Experiences Across Supernatural Entities

Noting no major problems with skew or kurtosis on any study variables, we proceeded with analyses. Tables 1 and 2 report mean results of within-participants ANOVAs. Within each row, means that share the same subscripts do not differ at $p < .05$ using the Bonferroni correction. (For example, Table 1 shows that the belief, experience, and power variables differ across all entity types, given their different subscripts; in contrast, the modes variable does not differ between the devil and ghosts/spirits, given the shared "b" subscript.) To highlight key differences, we also put the highest mean in each row in boldface and the lowest mean in italics. The Bonferroni-corrected comparisons show that participants showed the most belief in God, followed by forces (karma, fate/destiny, and luck, in that order). Belief in the devil was lower, followed by ghosts/spirits. Although belief was important to report here because it served as a gateway into the operating rules items, our main interest was in perceived experiences. (Another article (AUTHOR, 2020), drawing from this same dataset, provides more detail on the close connection between beliefs in supernatural entities and perceived experiences with them.) In terms of perceived experiences, forces topped the list: Participants reported more experiences with karma and luck than fate/destiny, but all were reported more than experiences with personal entities. In terms of personal entities, experiences with God were reported most often, followed by ghosts/spirits, followed by the devil.

Table 1

God, the Devil, Ghosts/Spirits, & Forces: Bonferroni-Corrected Comparisons within Participants[1]

Measure	N	God M (SD)	Devil M (SD)	Ghosts/ Spirits M (SD)	Forces M (SD)	F	Part. Ω^2
Belief in existence	3840	**3.6a (1.5**)	2.8b (1.5)	*2.6c (1.3)*	3.5d (1.0)	661.95**	.15
Freq. pers. exp.	3654	3.3a (1.6)	*1.8b (1.2)*	2.0c (1.2)	**3.6d (1.1)**	2153.63**	.37
Power (index)[2]	2261	**4.0a (0.9)**	2.9b (0.8)	*2.7c (0.7)*	3.2d (0.7)	1692.84**	.43
Can break laws of nature	2260	**4.2a (1.1)**	3.2b (1.2)	3.1b (1.1)	*2.8c (1.2)*	762.57**	.25
Could be involved even if natural laws can explain	2257	**4.1a (1.0)**	3.1b (1.1)	*3.0c (0.9)*	3.5d (1.0)	829.21**	.27
Power to affect people's lives (gen.)	2261	**4.0a (0.9)**	2.9b (0.8)	*2.7c (0.7)*	3.2d (0.7)	1427.06**	.39
Power over 8 life domains (specific)	2257	**3.7a (1.1)**	2.6b (1.0)	*2.1c (0.8)*	3.0d (0.9)	1536.41**	.40
Scope[3]							
Communication attempts (freq.)	2261	**4.4a (1.4)**	3.3b (1.4)	*3.0c (1.0)*	3.1d (1.5)	716.14**	.24
Modes	2251	**2.6a (0.7)**	2.1b (0.9)	2.0b (0.8)	*1.7c (1.1)*	452.35**	.18
Percentage	2237	**78.9a**(33.0)	57.6b (40.9)	*39.5c (31.2)*	57.2b(41.8)	574.68**	.20
Maximum intent[4]	2260	**4.4a (0.8)**	4.0b (1.2)	*3.2c (0.8)*	3.6d (1.2)	791.70**	.26
Maintain justice	2260	**4.0a (1.1)**	*1.7b (0.9)*	2.6c (0.9)	3.0d (1.4)	2015.51**	.47
Pos. toward you	2255	**4.4a (0.9)**	*1.6b (0.8)*	3.0c (0.8)	3.3d (1.1)	3624.54**	.62
Neg. toward you	2256	*1.8a (1.0)*	**3.9b (1.2)**	2.8c (0.8)	2.6d (1.1)	1568.95**	.41

Note. The highest mean in each row is in boldface, and the lowest mean(s) is/are in italics.
[1] Within each row, means that share subscripts do not differ at $p < .05$ based on the Bonferroni correction. Also, the highest mean in each row is in boldface, and the lowest mean(s) is/are in italics.
[2]Average of the four power variables
[3]We do not report means for the scope index here because all variables were standardized ($M = 0$, $SD = 1$) before being combined; as such, comparisons across groups are not meaningful.
[4] Highest of the three intent variables
**$p < .01$.

Supernatural Operating Rules: Comparisons across Entity Types

Our next aim was to compare supernatural operating rules across the entity types. Table 1 reports these for God, the devil, ghosts/spirits, and forces. Because Table 1 does within-participant comparisons, we could only include students who believed in all four types of entities

(n = 2261). Table 2, which focuses on the impersonal forces, gives between-participants comparisons based on the force believed in most strongly: fate/destiny, karma, or luck.

Table 2

Forces of Fate/Destiny, Karma and Luck: Bonferroni-Corrected Comparisons between Participants[1]

Measure	Fate/Destiny (n = 1427) M (SD)	Karma (n = 1385) M (SD)	Luck (n = 842) M (SD)	F	Partial Ω^2
Belief in existence	3.5a (1.1)	3.6b (1.0)	3.1c (1.1)	61.62**	.03
Freq. of personal experiences	3.4a (1.2)	3.7b (1.1)	3.6b (1.1)	19.62**	.01
Power (index)[2]	3.2a (0.8)	3.1b (0.7)	2.8c (0.8)	30.38**	.04
Can break laws of nature	2.8a (1.2)	2.7b (1.2)	2.3c (1.2)	52.02**	.03
Could be involved even if natural laws can explain	3.6a (1.0)	3.4b (1.0)	3.3c (1.1)	21.19**	.01
Power to affect people's lives (general)	3.4a (1.0)	3.3a (0.9)	3.0b (1.0)	38.22**	.02
Power over life domains	3.0a (0.9)	2.9b (0.8)	2.5c (0.8)	76.67**	.04
Scope[3]					
Freq. of comm. attempts	3.0a (1.6)	3.2b (1.5)	2.2c (1.3)	110.50**	.06
Modes	1.6a (1.2)	1.7a (1.1)	1.2a (1.2)	63.61**	.03
Percentage	55.4a (42.8)	59.6b (41.4)	35.1c (41.0)	95.24**	.05
Maximum intent[4]	3.4a (1.2)	4.0b (1.1)	2.8c (1.3)	271.04**	.13
Maintain justice	2.7a (1.3)	3.7b (1.3)	1.9c (1.1)	597.69**	.25
Positive toward you	3.3a (1.1)	3.2b (1.1)	2.7c (1.3)	69.16**	.04
Negative toward you	2.4a (1.0)	2.8b (1.0)	2.1c (1.0)	172.42**	.09

[1] Within each row, means that share subscripts do not differ at $p < .05$ based on the Bonferroni correction.
[2] Average of the four power variables
[3] We do not report means for the scope index here because all variables were standardized ($M = 0$, $SD = 1$) before being combined; as such, comparisons across groups are not meaningful.
[4] Highest of the three intent variables
*$p < .05$; **$p < .01$.

Power. God was seen as much more powerful than other entities across all variables.

(See Tables 1 and 2.) Forces were next, with fate/destiny and karma seen as more powerful than luck. The devil was next, followed by ghosts/spirits. These results were in line with hypotheses.

Scope of communication. As predicted, God was seen as having a broader scope of communication than the other entities. God was seen as trying to communicate more often (almost all the time), through more (many different) modes, and with a greater percentage of people (almost 80%). Results were more nuanced for other entities, perhaps because our items did not focus on intervention broadly but on the specific domain of communication. As Table 1 shows, the devil was rated second to God in terms of frequency of communication attempts. On average, people saw the devil communicating through a few modes (similar to ghosts/spirits) and trying to communicate with over half of people. In terms of the forces, fate/destiny and karma were seen as having a broader scope of communication than luck (Table 2). Ghosts/spirits and luck were seen as the most limited in their scope of communication, as expected.

Intent. In comparison to all other entities, God's intentions were seen as more justice-oriented, more positive, and less negative. Ratings for the devil were the opposite, with forces and ghosts/spirits in between (Table 1). In terms of the maximum intent reported, God was seen as strongest in intent, then the devil, followed by forces and, finally, human spirits. A closer look at the forces (Table 2) showed important distinctions: Karma was rated as most intentional, as expected, followed by fate/destiny, with luck rated lowest.

Correlations with Perceived Experiences

In terms of basic bivariate associations (Tables 3 & 4), predictions about our three main sets of variables (power, scope, intent) were supported: Participants reported more perceived experiences with these entities to the extent that they saw the entities as powerful, broad in their scope of communication, and intentional. Broadly speaking, associations were strong for God and moderate for other entities. Given the many (expected) positive links, a next step was to consolidate findings to clarify the unique contributions of distinct variables and sets of variables.

Table 3

Correlations between Operating Rules and Perceived Experiences: God, Devil, Ghosts/Spirits, Forces[1]

Measure (Operating Rules)	Experiences: God (n = 3349)	Experiences: Devil (n = 2703)	Experiences: Ghosts/ Spirits (n = 2869)	Experiences: Forces (n = 3654)
Power (index)[2]	.64**	.38**	.36**	.37**
Can break laws of nature	.49**	.17**	.22**	.18**
Could be involved even if natural laws can explain	.56**	.34**	.28**	.29**
Power to affect people's lives (general)	.58**	.34**	.32**	.39**
Power over life domains (specific)	.58**	.38**	.30**	.35**
Scope (index)[2]	.62**	.47**	.41**	.24**
Frequency of communication attempts	.61**	.47**	.38**	.25**
Modes	.47**	.26**	.28**	.19**
Percentage	.55**	.42**	.35**	.22**
Maximum intent (highest)[2]	.54**	.31**	.26**	.24**
Maintain justice	.40**	-.09**	.18**	.19**
Positive toward you	.57**	-.12**	.29**	.21**
Negative toward you	-.33**	.31**	.07**	.09**

[1]Bivariate Pearson correlations between operating rules and perceived experiences re: the entity listed on the column; e.g., "power to affect people's lives" in God column = God's power to affect people's lives.

[2]Power index = average; Scope = standardized average of the three items; Max intent = highest intent variable.

*$p < .05$; **$p < .01$.

Table 4

Correlations between Operating Rules and Perceived Experiences for Forces: Fate/Destiny, Karma, Luck[1]

Measure	Experiences: Forces (n = 3654)	Experiences: Fate/Destiny (n = 1427)	Experiences: Karma (n = 1385)	Experiences: Luck (n = 842)
Power (index)[2]	.40**	.43**	.44**	.40**
Can break laws of nature	.18**	.21**	.21**	.13**
Could be involved even if natural laws can explain	.29**	.30**	.31**	.32**
Power to affect people's lives (general)	.39**	.40**	.42**	.40**
Power over life domains (specific)	.35**	.37**	.39**	.33**

Scope (index)[2]	.24**	.23**	.30**	.19**
Frequency of communication attempts	.25**	.24**	.31**	.21**
Modes	.19**	.19**	.23**	.16**
Percentage	.22**	.20**	.29**	.17**
Maximum intent (highest)[2]	.24**	.27**	.27**	.21**
Maintain justice	.19**	.18**	.25**	.12**
Positive toward you	.21**	.26**	.23**	.16**
Negative toward you	.09**	.03	.13**	.10**

[1]Bivariate Pearson correlations between operating rules and perceived experiences re: the entity listed on the column; e.g., "power to affect people's lives" in God column = God's power to affect people's lives.

[2]Power index = average; Scope = standardized average of the three items; Max intent = highest intent variable.

$+p < .10$; $*p < .05$; $**p < .01$.

Primary Regressions: Compare Broad Categories Assessing Power, Scope of Communication, and Intent

As seen in Table 5, a set of regressions showed that all three categories of operating rules (power, scope of communication, intent) predicted more perceived experiences across most entities. The power variable explained unique variance in all cases. The scope variable explained unique variance for all entities except fate/destiny and luck. The intent variable explained modest amounts of unique variance across all entities. Taken together, these results supported our prediction that power, scope of communication, and intent would all be meaningful predictors of perceived experiences with the entities.

Table 5

Regressions Predicting Frequency of Perceived Experiences with Supernatural Entities

Perceived Experiences with Each Entity	n	Power index (4 items) β	Scope index (3 items) β	Max. intent (1 item) β	R^2
God	3350	.36**	.31**	.07**	.46**
Devil	2701	.15**	.35**	.07**	.24**
Ghosts/Spirits	2869	.18**	.28**	.05*	.19**

Force (general)	3653	.34**	.05**	.09**	.17**
Fate/Destiny	1426	.37**	.02	.11**	.19**
Karma	1385	.35**	.13**	.09**	.21**
Luck	842	.36**	.03	.08*	.16**

*p < .05; **p < .01.

Supplemental Regressions: Examine Key Elements in Each Operating Rules Category

Next, we did regressions for each entity to see which factors in each operating rules category explained unique variance in perceived supernatural experiences. As Table 6 shows, we entered the three key variables for each major category (power, scope, intent). We expected each factor in each category to explain unique variance; beyond this, these analyses were exploratory.

Table 6

Regressions Predicting Frequency of Perceived Experiences with Supernatural Entities

POWER

Experiences with entity	n	Can break laws	Can coexist with natural explanation	Power to affect people's lives[1]	R^2
God	3346	.10*	.22**	.39**	.41**
Devil	2698	-.07*	.20**	.31**	.18**
Ghosts/Spirits	2864	.06**	.14**	.26**	.14**
Force (general)	3648	.02	.13**	.34**	.18**
Fate/Destiny	1425	.07**	.12**	.34**	.19**
Karma	1383	.03	.13**	.38**	.22**
Luck	838	-.01	.17**	.34**	.19**

SCOPE OF COMMUNICATION

Experiences with entity	n	Freq	Modes	Percent	R^2
God	3325	.44**	.05**	.20**	.40**
Devil	2687	.37**	-.05*	.20**	.24**
Ghosts/Spirits	2847	.25**	.06**	.18**	.18**
Force (general)	3634	.22**	-.06+	.09**	.06**
Fate/Destiny	1418	.20**	-.03	.07**	.06**
Karma	1376	.25**	-.08+	.16**	.10**
Luck	838	.24**	-.05	.02	.05**

INTENT

Experiences with entity	n	Justice	Pos. intent toward you	Neg. intent toward you	R^2

God	3344	.05**	.48**	-.16**	.35**
Devil	2701	-.01	-.02	.30**	.10**
Ghosts/Spirits	2865	.03	.28**	-.04*	.09**
Force (general)	3648	.12**	.16**	.00	.05**
Fate/Destiny	1423	.06+	.24**	-.03	.07**
Karma	1383	.18**	.14**	.02	.08**
Luck	840	.05	.13**	.02	.03**

[1]Average of power over people's lives (general) and power over eight specific domains
+$p < .10$; *$p < .05$; **$p < .01$.

Power. For analyses focused on the entity's power, we first averaged and combined the two variables assessing power over people's lives, as they were highly correlated (*r*s ranging from .65 for ghosts/spirits to .84 for God) and thus could provide a misleading picture if competing for variance. As Table 6 (last column) shows, the power variables alone explained 41% of the variance in perceived experiences with God, with more modest amounts (14-22%) explained for the other entities. The combined variable assessing power over people's lives consistently predicted greater perceived experiences with entities. (Note that this effect was not a mere byproduct of having a multi-item, reliable index for this construct; similar results emerged even when the equation included only the single item on power over people's lives.) Believing that an entity could exert indirect effects (i.e., still being involved even if there was a natural explanation) also explained unique variance for each entity. Seeing the entity as able to violate natural laws explained small but significant unique variance in perceived experiences with God, ghosts/spirits, and fate/destiny. Surprisingly, seeing the devil as more able to violate natural laws was linked with slightly fewer perceived experiences with the devil. We do not have an immediate explanation for this finding, which awaits replication. The direction of this link was opposite from the correlational results, suggesting the possibility of a suppression effect.

Scope of communication. Table 6 (middle) shows that the variable tapping frequency of communication attempts was the clearest predictor of perceived experiences. Communicating

with a greater percentage of people also explained unique variance in most cases, with modes of communication showing weak, inconsistent associations. Once again, these variables, when combined, explained more variance in perceived experience with God (40%) vs. other entities.

Intent. In terms of intent variables (Table 6, bottom), the most consistent predictor of perceived experiences was a belief that the entity held positive intentions toward the self. Here, significant associations emerged for all entities except the devil. For the devil, negative intentions toward the self were most predictive, whereas orientations toward restoring or maintaining justice were also significant for karma. These results made sense, given common views of the devil (as malevolent) and karma (as oriented toward justice).

Discussion

What beliefs do people hold about how supernatural entities operate? First, do these entities have the power to intervene in our world and in people's lives, perhaps even influencing their thoughts and feelings? Second, how broad is their scope of communication? If they try to communicate with people, do they do so rarely, with just a few select people, using perhaps one specific technique? Or are their communication attempts wide-ranging? Third, do these entities actually have a reason to intervene in people's lives? Do they want to help or harm people, or perhaps to maintain justice? These were some key questions behind our initial examination of *supernatural operating rules.* Our aim was to examine beliefs about operating rules related to power, scope of communication, and intent focused on six supernatural entities: God, the devil, ghosts/spirits, fate/destiny, karma, and luck. We also examined whether people's beliefs about operating rules were associated with their perceptions of experiences with the various entities.

Comparisons between Entities

First, we examined differences between the entities: Would people see distinctions between the entities in terms of their operating rules?

God. When comparing operating rules across entities, beliefs about God clearly stood out from the others, as expected: God was seen as much more powerful than any other entity in terms of direct effects (being able to break natural laws), indirect effects (being able to play a role even in the face of natural explanations), and the ability to affect people's lives (both generally and through specific domains such as thoughts, life events, and possessions). God was also seen as broadest in scope of communication: Relative to other entities, God was seen as communicating more often, with more people, in more different ways. God's intentions were also seen as strongest, reflecting an emphasis on justice and positive intent toward people.

Forces: Fate/destiny, karma, and luck. Given that God was seen as having such strong potential for influence and communication, it was interesting that participants reported slightly more experiences with the three impersonal forces (fate/destiny, karma, and luck) than with God. What might explain this disconnect? One possibility is that people might see forces such as karma, luck, and fate/destiny as being pervasive, perhaps universal in influence, functioning as general laws or principles that apply across many situations even if they do not directly "communicate" with people in the way tapped by our agentically-worded items. Some might believe that these forces (and perhaps other supernatural entities) operate frequently and powerfully in the world regardless of whether people are aware of these influences or believe in the entities in question. It is clear that participants believed in these forces (especially fate/destiny and karma) at similar levels to God, and they saw them as moderately powerful and intentional. Given the widespread influence, power, and even intention that people associate with these forces, along with widespread belief in their existence, we look forward to doing future

work to look more systematically at beliefs about fate/destiny, karma, luck, and perhaps other impersonal forces (e.g., supernatural evil, laws of attraction, "the universe,") using items designed to explore the nuances of these forces.

The devil. People reported the lowest level of experiences with the devil, even though they believed that the devil had moderate degrees of power and influence along with strong negative intentions toward them. Overall, though, belief in the devil was considerably lower than belief in God and impersonal forces; and as shown in earlier work (Wilt et al., 2020), many people simply do not want to believe in the devil. It is possible that low levels of belief in the devil, along with a lack of desire to see the devil as existing or being active in the world, could make people reluctant to think about the devil (or other evil forces, such as demons or evil spirits) as being personally active in their lives. (For a closer look at research and clinical implications surrounding demonic beliefs, see Exline et al., in press; Pargament & Exline, in press.)

Ghosts/spirits. Overall, people saw ghosts and spirits of deceased people as quite limited in power, scope of communication, and intent in comparison to the other entities we considered. Although it makes sense that people would see spirits of deceased people as being limited in power, our choice to lead off with the word "ghosts" and to mix ghosts and other human spirits may have influenced results as well. In future work, we intend to parse out different forms of human spirits more carefully to clarify how people think about different types of human spirits: ancestors, deceased loved ones, ghosts, and saints, for example.

Supernatural Operating Rules and Perceived Experiences with Entities

Our main premise here was that, across entities, people would report more experiences with an entity if they saw that entity as having: a) sufficient power to affect things in the world,

including people's lives, b) a broad scope of communication (assessed here in terms of the frequency, modes, and breadth of communication attempts), and c) some intention to intervene (whether positive or negative). As shown in Tables 4 through 6, these hypotheses were generally supported, albeit with some important caveats as noted below.

Power. In terms of predicting perceived experiences, assessments of power were consistently seen as important across all entities. Power to affect people's lives was the strongest and most consistent predictor, which makes sense given that our criterion variable was focused on personal experiences involving the entity. The entity's ability to intervene indirectly—to be involved even if a natural explanation existed—was also consistently predictive. The ability to violate natural laws was less central and consistent as a predictor, perhaps partly because our criterion variable focused on how often people had perceived experiences with the entity. When people consider supernatural involvement in their daily lives, they may not necessarily think of events that would require violation of natural laws, such as miracles or life-changing, dramatic encounters. Instead, they may think of deities, spirits, or forces operating indirectly through natural forces (Legare et al., 2012; Weeks & Lupfer, 2000). We expect that beliefs about ability to break natural laws would emerge as more important in certain dramatic situations: those that might suggest miraculous healings, spirit visitations, or demonic possession, for example.

Scope of communication. As expected, the variables assessing scope of communication predicted perceived experiences with all three personal entities: God, the devil, and ghosts/spirits (Tables 4-6). Frequency of communication attempts was most predictive, which makes sense given that this variable and the criterion variable were both framed in terms of frequency. But the breadth of communication attempts (that is, the percentage of people the entity tried to communicate with) also explained unique variance across almost all entities (with luck as the

exception). The variable assessing communication modes showed weak, inconsistent links with perceived experiences once frequency and breadth were taken into account.

The scope-of-communication variables were much less predictive of perceived experiences with impersonal forces compared to the more personal entities, which makes sense given that our items were framed in terms of communication attempts rather than influence more generally. As mentioned earlier, in future work we intend to introduce items that will tap into modes of intervention that do not focus so specifically on communication attempts. Nonetheless, the same basic patterns existed here as shown with the more personal agents: People reported more experiences with fate/destiny, karma, and luck if they saw these forces as making communication attempts frequently and broadly, with the number of modes being less important.

Intent. Beliefs that entities held certain intentions (positive or negative intentions toward the self; a goal of maintaining justice) were also associated with perceived experiences, as shown in the Table 4 correlations. When we examined the strongest form of intention expressed, this intent variable did explain small but significant amounts of unique variance in perceived experience with all six entities, even when controlling for the power and scope variables. We suspect that the role of intent would come across more strongly in studies that looked at intentions of an entity in a specific situation, as opposed to the broad, general types of intentions assessed here. In a specific situation it would also be easier to generate longer, more reliable lists of intentions, as has been done in prior work on attributions of divine intent (Exline et al., 2011).

Practical Implications

Beliefs about supernatural operating rules may have important practical implications. For instance, expectations about responses to prayer may differ based on whether a person thinks that God responds to most prayers versus only those of a select few people, such as prophets, priests,

or saints. When seeking answers to prayer, people might focus attention on specific modes that they associate with divine communication. Some might search for answers in just one source, such as a sacred text, if they see this as the only mode through which God speaks. Others seeking divine guidance might be attuned to a wide array of stimuli, ranging from sacred texts to interpersonal exchanges to bodily sensations (Harriott & Exline, 2017; Liebert, 2008).

Beliefs about operating rules could also feed into religious/spiritual struggles. For example, a belief that God speaks to people often and in many ways could also open the door to discernment-related struggles if people perceive conflicting messages from different sources. Also, people who believe that the devil can cause events and influence human thoughts should experience more demonic struggles than those who see the devil as a weak, abstract, or disinterested figure. Those who believe strongly in karmic justice might fear punishment for their transgressions. It would also be interesting to consider a distinction between good and bad luck, where concerns about bad luck could become a source of struggle.

Beliefs about operating rules could have other clinical implications as well. For example, some mental health professionals might be quick to frame reports of demonic temptation, divine messages, or spirit encounters as signs of serious psychopathology (Exline, in press; Exline et al., in press), especially if they fail to consider whether a client's culture or religious tradition might foster beliefs in frequent, consequential supernatural activity. People who believe that supernatural activity is very prevalent and influential might also engage in spiritual bypass (Fox et al., 2017), readily attributing problems to supernatural causes while overlooking cognitive and emotional causes of mental health challenges.

Limitations and Future Directions

We see this project as providing a modest starting point for research on supernatural operating rules. These data were part of an online survey of undergraduates from U.S. universities, suggesting the potential for bias due to the largely White, educated, young, largely Christian, Western sample (see Henrich et al., 2010). It is important not to generalize results beyond this group. In future work, it will be valuable to study these concepts in samples that are more diverse in terms of age, culture, socioeconomic status, and religious/spiritual beliefs. It would also be useful to do analyses focused on more specific religious or nonreligious groups. Most of the religious participants in this sample identified as Christian. How might beliefs about supernatural operating rules differ for secular individuals, or for those identifying as spiritual but not religious? Beliefs about operating rules might also look quite different in a culture or faith tradition that holds stronger beliefs in karma, reincarnation, ancestor worship, praying to saints, or spirit possession, to give just a few examples.

The data are limited by being based on self-report (although in this case the phenomena of interest are inherently subjective, making self-report an appropriate option). Although we excluded participants who were showing particularly inattentive responding, there is always the chance of fatigue, random responding, social desirability, and acquiescence effects common to self-report surveys. In addition, our data were cross-sectional. Although we framed supernatural operating rules as predictors of experiences, experiences could also shape beliefs about operating rules.

The framing of some items created limitations. As mentioned earlier, our scope variables focused on communication attempts. Although this logic worked well for personal entities (God, the devil, ghosts/spirits), people may not frame actions by impersonal forces as communication attempts. In future work, we intend to remedy this issue by including items that assess breadth of

influence in other ways not limited to communication. Also, for people who see impersonal forces such as karma or fate as serving as natural laws, our item about breaking natural laws might be hard to answer. Our grouping of ghosts with spirits—and leading off with "ghosts"— may also have had unintended effects. In new studies we aim to obtain a more fine-grained picture of how people think about ghosts vs. other human spirits. A similar point could be made about our "fate/destiny" items as well; it may be valuable to separate fate from destiny in future studies.

In our within-participants analyses, we could only include people who held some belief in all types of entities listed in the table: God, the devil, ghosts/spirits, and impersonal forces (Table 1) and fate/destiny, karma, and luck (Table 2). Because our aim was to compare experiences and operating rules beliefs involving the entities, it made sense conceptually to focus only on people who held some belief in the entities. Still, it is certainly possible that people who believe in all four types of entities could differ in important ways from people who believe in only one or several of the entities, which limits the generalizability of our conclusions. Note that this limitation was not present in the correlational analyses: Here, each correlation was based on all participants who reported some belief in the specific entity in question. (See the different ns for each column in Tables 3 and 4.)

In this study we focused specifically on a broad, general category of frequency of perceived experiences with these various entities. In future work, it will be valuable to assess how beliefs about these operating rules might play a role in more specific situations in which people may be considering supernatural attributions—cases in which they wonder if they are being tempted by the devil, for example, or perhaps receiving a message from God (Luhrmann, 2012) or a deceased loved one (Exline & Pait, in press; Streit-Horn, 2011).

Conclusions

If people claim to be receiving messages from God or spirits, or if they attribute a life event to the devil, karma, or destiny, what psychological factors might play into such judgments? Although prior literature has identified many possible predictors, our interest here was in how they think about the supernatural entity in question. We expected that people's readiness to attribute events to supernatural entities would depend, in part, on whether the events in question seem to fit with their ideas about these entities operate. Our aim here was to introduce the idea of *supernatural operating rules*, which focus on beliefs about an entity's power, scope of communication, and intent. We examined these beliefs across six different entities: God, the devil, ghosts/spirits, fate/destiny, karma, and luck. Results from this initial study suggest that beliefs about operating rules do differ between entities and are potentially important, distinct predictors of perceived supernatural experiences. Thus, these ideas about operating rules provide an additional cognitive element to consider when seeking to explain why some people perceive frequent supernatural activity in their lives while others do not.

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