

# Rates of Spiritual Experience

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## Abstract

In this paper, we carefully catalog the rates at which people report having spiritual experiences across five cultural contexts. By reporting these rates, organized by item and category, we learn something broader about spiritual experience and cognition itself. We find that there is structure, an architecture, of spiritual experience, where some experiences and some categories of experience are more common than others. We further find that culture shapes but does not determine this architecture of spiritual experience.

**Keywords:** cognitive science of religion; cognition; culture; perception; experience; cognitive penetration

## Introduction

People say that they have heard a god speak; that they have felt a demon in the corner of the room; that in the temple the presence of a spirit was so clear to them that they sobbed in joy. We call such experiences “spiritual presence events” (Luhrmann, Weisman, et al., 2021): sensory or quasisensory phenomenal experiences that are understood by the perceiver to imply the presence of a spiritual being. Such events have been documented in nearly every human society and religious tradition, and empirical studies suggest that they are far more common in the US population today than many scholars might imagine (Hood, Hill, & Spilka, 2009). What can cognitive scientists learn from these fascinating—yet perennially understudied—examples of human experience?

Following Luhrmann (2020a), we take spiritual presence events to be firmly rooted in the experience of human mental life: Spiritual presence events occur when a person has a thought, feeling, or sensation that they take to be not their own, and perhaps not located within themselves. For example, a thought that suddenly pops into the mind might stand out as being sent by God. Setting aside ontological questions about the ultimate source of these experiences, we take their proximal source to be the human mind and the human perceptual apparatus. In this sense, spiritual presence events fall squarely within the domain of cognitive science.

Although we take all spiritual presence events to share the fundamental feature of being rooted in phenomenal experiences of thoughts, feelings, and sensations, we also recognize that these events are varied and diverse. Thoughts of divine origin are not the same thing as spiritual smells.

Different spiritual presence events feel different to those who experience them, and some seem to be “easier” to experience than others, suggesting that different experiences may be generated via different combinations of cognitive, perceptual, and cultural mechanisms. In other words, there may be multiple pathways that lead from ordinary phenomenal experience to experiences of spiritual presence.

With this emergent theory in mind, in this paper we present a re-analysis of four large datasets (total  $N=3150$ ) containing self-reports of a variety of spiritual presence events, originally reported in Luhrmann, Weisman, et al. (2021). These studies were conducted in the US, Ghana, Thailand, China, and Vanuatu, with participants from a range of religious backgrounds, including Christians of many varieties, Buddhists, and practitioners of a range of indigenous religious traditions. These countries in particular were chosen not just because of their local religious variety but also because they have different traditions in thinking about the mind (Luhrmann, 2020b).

Our goal in this re-analysis is to describe the relative frequency of 18 distinct spiritual presence events, and to compare patterns in frequency across the five countries included in these datasets. In so doing, we aim to provide a “spiritual epidemiology” of sorts—that is, a description of the incidence of different experiences and categories of experience across diverse cultural settings.

We argue that these descriptive analyses provide insights into the underlying architecture of spiritual experience, and in turn shed new light on the underlying cognitive, perceptual, and cultural mechanisms. Our interpretations are guided by three linking hypotheses: (1) If some of the pathways from ordinary phenomenal experiences to spiritual presence events are “easier” than others, then those “easier to experience” events should be reported more commonly than others. (2) To the extent that the relative “ease” of some pathways depends on universal constraints on human minds, brains, and bodies, we should expect these patterns of relative frequency to be similar across diverse cultural settings. (3) To the extent that cultural forces shape the salience of these pathways to spiritual presence events, we should expect to see that the relative frequencies of different events vary across cultural-religious settings.

## Methods

The datasets employed in the current re-analysis were collected as a part of the Mind and Spirit Project. (The description that follows is based on the collaboratively written description in the initial reports from the project; Luhrmann, 2020b.) This project drew on the expertise of anthropologists, psychologists, historians, and philosophers to explore whether different understandings of “mind,” broadly construed, might shape the ways that people attend to and interpret experiences they deem “spiritual” or “supernatural.” The project employed an interdisciplinary, mixed-method, multi-phase approach, combining participant observation, long-form semi-structured interviews, quantitative surveys, and psychological experiments. Work took place in five countries: the US, Ghana, Thailand, China, and Vanuatu. Within each country, researchers worked in both urban and rural locations with members of charismatic evangelical Christian churches and with practitioners of other religious traditions of local importance; in urban centers with adults from the general population; and with undergraduates.

The current re-analysis focuses on the four empirical studies first reported in Luhrmann, Weisman, et al. (2021).

### Participants

For detailed descriptions of methods for these four studies, see Luhrmann, Weisman, et al. (2021). Briefly: In Study 1, 334 adults with strong religious commitments and faith practices were interviewed in depth by experienced ethnographers. This study included charismatic evangelical Christians and practitioners of another faith of local salience and was conducted in both urban and rural settings in all five countries. In Study 2, adults from the general population ( $n=766$ ), as well as a smaller sample of charismatic evangelical Christians ( $n=260$ ), were interviewed briefly about their experiences of spiritual presence events (total  $n=1026$ ). In Studies 3 ( $n=519$ ) and 4 ( $n=505$ ), undergraduates were given pen-and-paper surveys.

### Measure: The Spiritual Events scale

These four studies all employed variations of the Spiritual Events scale (Luhrmann, Weisman, et al., 2021) which featured questions aimed at gauging whether a participant had ever experienced each of 18 distinct spiritual presence events. (Some studies also included measures of the frequency of these events for the individual participant and some studies included additional items. The current analysis focuses only on the “ever or never” responses for the 18 events included across all four studies.)

These 18 events included the following: (1) God or a spirit speaking in a voice heard outside the participant’s head; (2) God or a spirit speaking in a voice experienced inside the head; (3) God or a spirit placing thoughts inside the head; (4) Visions understood to be sent by God or a spirit; (5) God or a spirit placing an image inside the participant’s head; (6) Feeling the touch of God or a spirit on the body; (7) Smelling God or a spirit; (8) Tasting God or a spirit; (9) Dreams

understood to be sent by God or a spirit; (10) Feeling God or a spirit to be near-tangibly present, as if they were next to the participant; (11) Feeling a demonic presence in the room; (12) Experiencing a supernatural presence that was not God, a spirit, or a demon; (13) Uncontrollable shaking or trembling during prayer (sometimes called being “slain in the spirit”); (14) Overwhelming emotion during prayer; (15) Intense power shooting through the participant during prayer; (16) Out of body experiences, in which the participant was separated from their body and could see their body from the outside; (17) Feeling that a supernatural force, like the Holy Spirit or a demon, took control of the body and its movements (sometimes called “spirit possession”); and (18) Being awake but unable to move (sometimes called “sleep paralysis”—an experience that is deemed spiritual or demonic in many cultures; Hufford, 2005). The wording used to describe these events varied slightly across studies (see Luhrmann, Weisman, et al., 2021, Tables S2-S4).

In Study 1, interviewers were trained anthropologists and employed a method they called “comparative phenomenology” to ask about these events, probing for details about participants’ experiences in the manner of a clinical interview. These open-ended conversations included specific follow-up questions designed to capture the phenomenological qualities of the participant’s experience (e.g., in response to a participant recounting an auditory experience, “Did you hear it with your ears? Did you turn your head to see where it was coming from?”). During the interview, interviewers also made blunt yes-or-no judgments of whether the participant reported having experienced each event. Responses were later recoded independently by research assistants, yielding intraclass correlation coefficients (ICC)  $\geq 0.50$  for all spiritual presence events included in the current re-analysis (see Luhrmann, Weisman, et al., 2021, Table S2).

In preparation for the current re-analysis, we reviewed the interview transcripts from Study 1 carefully to establish whether participants did indeed have phenomenological experiences of the events about which they were asked. In most cases, participants clearly recognized the phenomenon described in the question and answered either, “Yes, I have experienced that” or, “No, I have not experienced that.” We consider both these responses to reveal a recognition of the kind of event being discussed. Those who answered “Yes” were usually able to elaborate and give details about the experience. For example, one charismatic Christian participant in Ghana, when asked about whether he had ever had a spiritual dream, retold a dream he had had over 10 years prior, in which Jesus appeared to him and told him that he should “preach like him.” In another example, a charismatic Christian in China described his childhood experience of sleep paralysis, saying that while some think it is a ghost sitting on the chest, he comes from a family of doctors who now know the medical diagnosis for this condition. Taken together, our review of interview transcripts gives us confidence in interpreting participants’ responses as sincere reports of real phenomenal experiences.

In Study 2, research assistants elicited open-ended responses from participants in face-to-face conversations, using a brief, more rigidly structured version of the Study 1 interview protocol.

In Studies 3 and 4, these interviews were further adapted to create pen-and-paper surveys in which participants answered written questions about spiritual presence events.

## Results

### Analysis 1: Individual spiritual presence events

The rates of endorsement for each of the 18 spiritual presence events are displayed in Figure 1, both for all participants in the full pooled dataset (collapsing across countries and studies) and for participants from each of the five countries (collapsing across studies).

We found recurrent patterns in the relative frequencies of events. The patterns we find when collapsing across all studies, countries, and religions (Fig. 1, leftmost column) are similar to those found within each country considered alone (remaining columns). (Similar patterns were also found within each study considered alone—not pictured here.) In each country, and in the full pooled dataset, there were certain experiences that were almost always among the most commonly endorsed spiritual presence events, and others that were nearly always among the least commonly endorsed spiritual presence events. Although there were certainly differences across cultural settings in both the absolute and relative frequency of specific spiritual presence events (see “Variability across cultural settings,” below), country-wise differences did not overpower this overall structure.

**Most common events** Overall, the most commonly endorsed spiritual presence event was *overwhelming emotion in prayer* (see Fig. 1, leftmost column, top row). This event stands out for its absolute frequency in participants’ self-reports: fully 66% of all participants reported having had this experience, and this rate was relatively consistent across studies and samples, with 45-77% of participants in any given sample endorsing this event. The relative incidence of this event was remarkably consistent across cultural settings: It was in the top four items for all five countries. The interview transcripts from Study 1 confirm that for participants who endorsed this event, this was not merely an emotional experience but an extraordinary experience of spiritual presence.

The second most commonly endorsed event was the experience of *thoughts placed in one’s mind by God or a spirit*. Overall, this event was endorsed by 59% of all participants. This was the most commonly endorsed event in the US (54% endorsement) and in Vanuatu (84%), and the second-most endorsed event in Ghana (79%). However, both the relative and the absolute frequency of endorsements for spiritual thought insertion were lower in Thailand and China: In neither of these countries did this spiritual presence event fall within the top four items, and in both countries this event was endorsed by well under half of participants (Thailand: 37%; China: 35%).

The third most commonly endorsed event was the experience of *dreams understood to be sent by God or a spirit*. 58% of all participants endorsed this event, and it was in the top four items in the US (48% endorsement), Ghana (81%), and Thailand (60%), as well as being endorsed at a high rate in Vanuatu (64%). In a notable exception to this trend, only 29% of participants in China reported having had this experience.

In our view, what these three events—overwhelming emotion, thought insertion, and spiritual dreams—have in common is that they are ordinary experiences of one’s own inner mental life (e.g., thoughts, feelings) which are attributed to an external source and interpreted as experiences of a spiritual nature. We return to this below (“Analysis 2”).

Finally, *sleep paralysis* was the fourth most commonly endorsed event in these datasets, endorsed by a notable majority (55%) of all participants. Indeed, in China sleep paralysis was tied for the most commonly endorsed experience (48% endorsement), and it was one of the top four most endorsed spiritual experiences in both Thailand (55%) and Vanuatu (74%). In the US and Ghana, it was not in the top four items, but it was endorsed at relatively high rates (US: 41%; Ghana: 58%). One important caveat here is that the questions used to ask about this kind of event (e.g., “Have you ever had the experience of being awake but unable to move?”) were the only items in the Spiritual Events scale that did not explicitly refer to a spiritual or religious being or practice; these questions thus cast a much wider net. Being awake and unable to move is also tied to the body in a unique way—it is something that some bodies do more than others (Adler 2011; Cassaniti and Luhrmann, 2014).

**Least common events** Overall, the least commonly endorsed spiritual presence event was *out of body experiences* (see Fig. 1, leftmost column, bottom row). This event stands out for its absolute frequency in participants’ self-reports: only 15% of all participants reported having had this experience. However, the relative incidence of this event was not particularly consistent across cultural settings: It was in the bottom four items for Ghana (15% endorsement), Thailand (4%), and Vanuatu (15%), but as frequent as many other events in the US (25%) and China (16%).

The second and third least commonly endorsed events were *smelling God or a spirit* and *spirit possession*, both standing at a 18% endorsement rate overall. Smell was in the bottom four items in four of the five countries: the US (10% endorsement), Ghana (20%), China (7%), and Vanuatu (21%). In a notable exception to this trend, fully 29% of participants in Thailand reported having had this experience. Possession was one of the bottom four items in all five countries, but was markedly more common in Ghana (29%) and Vanuatu (30%) than in the US (10%), China (10%), or Thailand (11%).

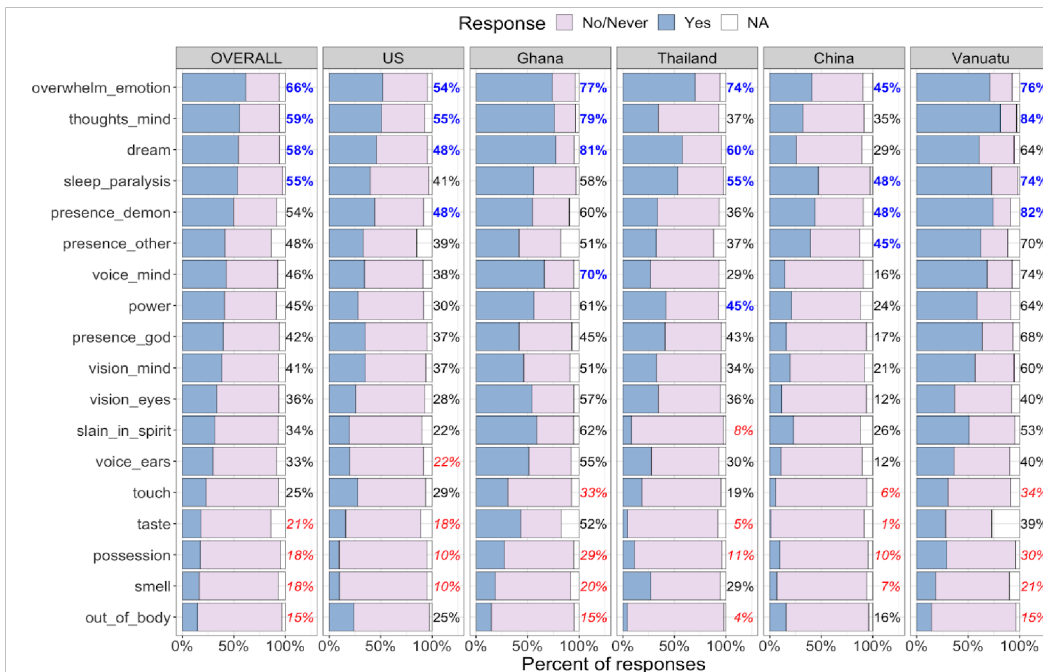


Figure 1: Rates of endorsement of items from the Spiritual Events scale, collapsing across all studies and all samples within each country. In each panel, the 4 most commonly endorsed items are in blue, and the 4 least commonly endorsed items are in red. (Note that response scales varied across studies; for this visualization, “yes” responses include responses of “yes” on forced-choice response options, as well as responses of “once” or more on Likert-type response scales. The denominator for the % is non-NA responses, not total responses.)

The fourth least common event was *tasting God or a spirit* (21% endorsement overall). Taste was in the bottom four items in three of the five countries (US: 18% endorsement; Thailand: 5%; China: 1%), but was markedly more common in Vanuatu (39%) and Ghana (52%).

In our view, what some of these events—namely, smell and taste—have in common is that they are hallucination-like events in which a person feels as if they had a sensory experience, and yet there is no material stimulus which could have given rise to these events. We return to this below (“Analysis 2”). Meanwhile, the variation in out of body experiences and spirit possession reflect the importance of culture in spiritual presence events. We return to this below also (“Variability across cultural settings”).

**Interim summary** This analysis revealed many notable differences across cultural settings in both the absolute and relative rates of spiritual presence events. However, we would emphasize the striking commonality across countries in these most and least commonly endorsed experiences: Despite coming from different religious traditions, living in different social and physical worlds, speaking different languages, and so on, participants in this diverse range of cultural settings largely converged in the differential likelihoods of spiritual presence events.

## Analysis 2: Categories of spiritual presence events

To better understand what might account for this pattern of most and least commonly endorsed spiritual presence events, we turned to a more theory-driven approach, driven by the idea that different kinds of spiritual presence events might have different pathways in the body. Drawing on past work (Luhmann, 2020a), we took a closer look at three categories of experiences.

The first category consisted of what we will call *relabelled events*: ordinary experiences of one’s own inner mental life (e.g., thoughts, feelings) which are attributed to an external source and interpreted as experiences of a spiritual nature (Taves, 2009). This category included the following five events: God or a spirit placing thoughts inside the head; God or a spirit speaking in a voice experienced inside the head; God or a spirit placing an image inside the participant’s head; dreams understood to be sent by God or a spirit; and overwhelming emotion during prayer.

The second category consisted of *presence events*: items that described the sense that another being is present in the near environment (Alderson-Day, 2023). A number of mechanisms have been proposed for such events, including disruptions to bodily self-awareness and intense states of imagination (Arzy et al., 2006; Alderson-Day et al., 2023; Castiello et al., in prep). In the current analysis, this category included the following three events: feeling God or a spirit to be near-tangibly present, as if they were next to the participant; feeling a demonic presence in the room; and

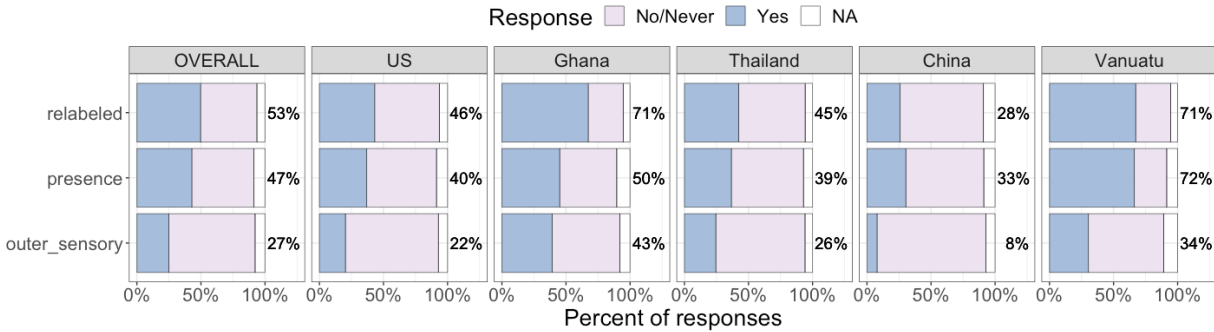


Figure 2: Mean rates of endorsement grouped by category.

experiencing a supernatural presence that was not God, a spirit, or a demon.

The third category consisted of what we will call *outer sensory events*: hallucination-like events in which a person feels as if they saw with their eyes, heard with their ears, etc., and yet there is no material stimulus which could have given rise to these events. This category included the following five events: God or a spirit speaking in a voice heard outside the participant’s head; visions understood to be sent by God or a spirit seen with the eyes; God or a spirit touching the participant in a way they felt on their body; smelling God or a spirit; and tasting God or a spirit.

(The remaining five events in Analysis 1 were not included in Analysis 2.)

The Spiritual Events scale was not designed with these categories in mind. However, each of these categories demonstrates fairly high internal consistency in the pooled dataset (reabeled events: Cronbach’s  $\alpha = 0.77$ ; presence events:  $\alpha = 0.62$ ; outer sensory events:  $\alpha = 0.77$ ). For the current analysis, we averaged participants’ yes/no responses within each category, yielding a score for each participant that corresponds to the percent of items in a category that they reported having experienced at least once. The mean rates of endorsement for these three categories of spiritual presence events are displayed in Figure 2.

This analysis revealed a clear pattern that was fairly robust across cultural settings: Relabeled events were often more commonly endorsed than mere presence events, but mere presence events were always more commonly endorsed than outer sensory events.

On average, events in the ‘reabeled’ category were endorsed by 53% of participants overall (see Fig. 2, leftmost column, top row), and this was the most commonly endorsed category of events in nearly all countries (US: 46% mean endorsement; Ghana: 71%; Thailand: 45%; China: 28%; Vanuatu: 71%).

Mere presence events were the second most common category of spiritual experience (Fig. 2, second row). The exception to this pattern is that mere presence events were the most commonly endorsed category of events in China (33% compared with 28% endorsing relabeled experiences) and in Vanuatu (72% compared with 71% endorsing relabeled experiences).

Overall, and in all five countries, outer sensory events were the least commonly endorsed category of spiritual presence events (Fig. 2, bottom row).

### Variability across cultural settings

Both analyses described above reveal robust commonalities across cultural settings, but there are also striking differences.

First, the overall “base rates” of spiritual presence events varied substantially, with participants in Ghana and Vanuatu endorsing events at much higher rates than participants in other settings, and participants in China endorsing events at lower rates. We primarily attribute this intensification effect to the different religious traditions and differential emphasis on religion and spirituality across settings: In Ghana and Vanuatu, participants were more likely to be Christian, particularly evangelical charismatic Christian, and to self-identify as more religious—trends representative of the general population in these countries. In China, on the other hand, even religious participants were embedded in a largely secularized setting, where non-religion has historically been a government mandate; the samples from China in Studies 2-4 were predominantly atheists. Samples from the US and Thailand were somewhere in the middle, in accordance with the moderate emphasis placed on religion in these settings: not as secularized as China, and not as “charismatic” (or Christian) as Ghana and Vanuatu. Such country-wise differences in base rates may also be rooted in different models of mind (e.g., the degree to which the boundary between mind and world is understood to be “porous”; Luhrmann, Weisman, et al., 2021), or domain-general norms about how to provide polite and helpful answers (e.g., a cultural emphasis on agreeability might incline participants to respond more positively, while an emphasis on equanimity might draw participants closer to the midpoint of a response scale).

Second, certain specific spiritual presence events stick out as being particularly variable in their rates of endorsement across countries. For example, the experience of smelling God or a spirit was notably higher in Thailand (29%), where both ethnographic reports and linguistic studies suggest that smell is highly attended to and discussed using a large and rich olfactory terminology (Wnuk, Laophaioj, & Majid, 2020). Similarly, endorsement of spirit possession was quite

low in the US (10% endorsement), China (10%), and Thailand (11%), but notably higher in Ghana (29%) and Vanuatu (30%). In Ghana, spirit possession is one of the main pillars of traditional Ghanaian religious practice: A priest or priestess (*okomfo*) serves the local gods and is regarded as having special abilities to channel these gods and allow the gods to speak through them. In line with this, the vast majority (31 out of 40) of the *okomfo* included in Study 1 reported having experienced spirit possession at least once. Both in Ghana and Vanuatu, ethnographic work finds that the Holy Spirit is often experienced in ways that strongly resemble spirit possession (Hagan, 1988; Burrow-Branine, 2010; Eriksen, Blanes and MacCarthy, 2019).

## Discussion

At the outset of this paper, we posited that if some of the pathways to experiences of spiritual presence events are “easier” than others, then certain kinds of experiences should be reported more commonly than others; and that, to the extent that this is modulated by universal constraints on human minds, brains, and bodies, we should expect these patterns to be similar across cultural settings. Both these results are evident in the current analyses. Across the cultural settings represented in these datasets, there were certain spiritual presence events—such as overwhelming emotion in prayer, thoughts placed in one’s mind by God or a spirit, and dreams understood to be sent by God or a spirit—that were almost always among the most commonly endorsed items in each cultural setting, and others—such as out of body experiences, smelling God or a spirit, spirit possession, and tasting God or a spirit—that were generally among the least commonly endorsed. In our analysis of categories of events, what we have called “reabeled events”—those experiences which are common and ordinary unto themselves but deemed spiritual in certain cases—were more commonly endorsed than presence events and outer sensory experiences in three out of five countries.

How can we account for these patterns of endorsement? One explanation might be that different pathways from phenomenal experience to spiritual presence events might involve more or fewer judgments on the part of the perceiver. All spiritual presence events require the perceiver to make judgments about their phenomenal experience.

There are judgments about the source of the experience: *Did it come from me?* There are judgments about interiority: *Did that happen inside my mind, or outside?* In some cases, there are judgments about phenomenological veridicality: *Did that really happen?* (e.g., *Did I really hear that?*) Both judgments of source (me vs. not me) and interiority (inside vs. outside) are shaped by cultural models of the mind. One culturally variable model of the mind is the extent to which the boundary between the mind and world is considered to be permeable. A person with a more porous mind-world barrier is likely to make different kinds of internality attributions than somebody with a very rigid mind-world barrier (Luhrmann and Weisman, 2022).

In the case of relabeled events—rooted in experiences of dreams, thoughts, emotions, etc.—the phenomenal experience is understood to be interior, and the question of veridicality does not apply; the only required judgment is a source judgment. *Was that my thought, or did God place that thought there?* The thought happens and afterwards, based on some criteria—e.g., the apparent speed or spontaneity of the thought (Luhrmann, 2020a; Morewedge et al., 2007)—the thinker decides it came from God. An outer sensory event requires a source judgment, an interiority judgment, and a veridicality judgment: The perceiver feels that they may have heard God’s voice (seen a vision, smelled a spirit, etc.), but there is no publicly available material stimulus, so questions of source, interiority, and veridicality all apply. In one sense, there are simply more judgments to make—more barriers to overcome—for an outer sensory event to be deemed spiritual, compared to a relabeled event. Questions about presence events might draw on a more diverse range of cognitive and perceptual mechanisms, but still require more judgments than relabeled experiences.

Finally, we asserted at the outset of this paper that, to the extent that cultural forces shape the salience of pathways to spiritual presence events, we should expect to see that the relative frequencies of different events vary across cultural-religious settings. Within the overall pattern of spiritual experience, we found many examples of the effects of culture—in absolute base rates and in the endorsements of particular events. In other words, culture shapes the salience of different pathways to spiritual experience, within constraints.

These results align with a kindling theory of spiritual experience (Luhrmann, 2020a), which posits that culture gives significance to certain sensations and those sensations will be noticed more in places where they are significant, although sensations are constrained by an individual’s vulnerability to those experiences. When a “pathway” is established for an individual, that experience and related ones become more likely, more habituated, and more fluent (Cassaniti & Luhrmann, 2014). Luhrmann (2020a) predicts that meaningful events would become more common in the communities that value them, but still not as common as more easily kindled experiences. We find support for this—in places like Ghana where possession is valued, it is more commonly experienced, but still not as commonly as relabeled events like thoughts in the mind or spiritual dreams. We find, as the kindling theory predicts, an overarching spiritual architecture which culture shapes but does not determine.

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