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### **On Bended Knee: Embodiment and Religious Judgments**

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#### **ABSTRACT**

*Body movements and positions influence how people feel, think and judge. In two experiments, we examined whether people's body postures affect their judgments of events and photographs. Study 1 investigated whether kneeling participants, compared to a sitting control group, would judge events as more miraculous. Results showed that kneeling individuals judged events as more miraculous compared to participants who simply sat in a chair. Study 2 investigated the effects of kneeling on participants' judgments of photographs, especially images with possible religious undertones. Findings demonstrated that kneeling participants, compared to sitting participants, more readily identified the various photographs as religious objects.*

“O come, let us worship and bow down: let us kneel before the LORD our maker.” Psalm 95:6

Our bodies' movements and positions have an astonishing influence on our judgments and feelings. For instance, when people nod their heads, they judge messages as more persuasive compared to when they shake their heads from side to side (Wells & Petty 1980); and, upright/erect body postures, as opposed to slumped body positions, elicit positive emotions in people (Stepper & Strack 1993). Bodily feedback has also been shown to influence people's memories (Forster & Strack 1996), problem-solving strategies (Broaders, Cook, Mitchell & Goldin-Meadow 2007) and person perception (Mussweiler 2006). Recent embodiment research has even demonstrated embodiment effects within a moral domain, in that washing one's hands alleviates guilty feelings and reduces the severity of one's moral judgments (Schnall, Benton, & Harvey 2008; Zhong & Liljenquist 2006). This extension of embodiment effects into a moral domain is intriguing and indicates that notions of morality are grounded in actions of physical cleanliness (Lakoff & Johnson 1999). Of import to the present studies, these moral embodiment findings suggest that people's religious judgments could also be impacted by their bodily state. Recent data suggests that moral concerns are critical elements used to explain the origin of religion (Wade 2009) and many religions comment on moral instruction in terms of fairness and justice such as the *lex talionis* (e.g., “an eye for an eye”).

Religious contexts, particularly religious visions, beliefs and rituals, are an interesting and unexplored area for studying embodiment effects and mental simulation (Barsalou, Barbey, Simmons & Santos 2005). Indeed, considering people routinely give religious deities human qualities, including the capacity to move along a spatio-temporal pathway (Barrett & Keil 1996), the prospect of studying how people's bodies impact their religious judgments is an intriguing research topic.

Since people kneel regularly during prayer when they are asking for God's guidance/assistance and during Catholic Mass when they are expressing feelings of reverence, the kneeling position is a likely candidate for religious embodiment research. In the two studies reported below, we assess the influence of adopting a kneeling position on people's miracle judgments as well as on their interpretations of photographs with possible religious undertones. Because kneeling is considered an act of submission toward a deity (Barsalou et al. 2005) and miracles have been characterized as demonstrations of God's power/positive nature in the world (Brown 1984), we hypothesized that kneeling participants, compared to sitting participants, would judge various scenarios as significantly more miraculous. We also expected kneeling participants, compared to sitting participants, to more readily identify various images as religious objects. We included only participants with relatively strong religious beliefs since previous research shows that effects with religious underpinnings tend to occur primarily among believers (Dijksterhuis et al. 2008; Norenzayan & Hansen 2006).

## **STUDY 1**

### **Method**

#### ***Participants and Design***

44 undergraduates (25 females, 19 males) participated in exchange for course credit and were randomly assigned to one of two body position conditions (kneeling vs. sitting). We excluded two participants from the analyses because they suspected kneeling influenced their miracle judgments (none of the remaining participants guessed the experimental hypothesis). We only allowed participants who scored in the upper third on a religiosity measure obtained in prescreening to participate in the study (Rohrbaugh & Jessor 1975).

#### ***Materials and Procedure***

Participants first answered various demographic questions. The experimenter then informed participants that the study involved the influence of various body positions on people's judgments. To preclude participants from theorizing about their body postures, the experimenter told all participants that they were in a control condition in which mild postures were being investigated compared to other experimental groups where more complicated body positions were being examined. This cover story regarding body positions has been used successfully in previous research (e.g., Forster & Stepper 2000). Next, the experimenter demonstrated the kneeling or sitting postures. Participants either sat in their chairs or knelt on provided rugs while they filled out the dependent measures. It should be noted that we took steps to ensure participants viewed the events in the same vertical orientation since past research has shown a

relationship between verticality and the divine (Meier, Hauser, Robinson, Friesen & Schjeldahl 2007). Across both kneeling and sitting conditions, we presented text in the horizontal and vertical center of the computer screen. In addition, the experimenter reminded participants to keep their heads level during the experiment since the study was interested in body, not neck, postures.

Participants judged various events (see Appendix A) in randomized order on an eleven-point scale ranging from 0 (*I am sure that the event IS NOT a miracle*) to 10 (*I am sure that the event IS a miracle*). For example, participants judged statements such as “A small child recovers from a terminal illness after the doctors told him and his family that he had no chance of survival.” We took these events from previous miracle research in our lab (Ransom & Alicke 2012). We also measured participants’ personal miracle beliefs, religious backgrounds and religiosity (using the same measure as in pre-testing). At the end of the experiment, participants were probed for suspicion, debriefed, and thanked for their participation.

## **Results and Discussion**

Participants were homogeneous concerning their miracle beliefs and religious backgrounds. All participants believed in miracles and all but one proclaimed they were Christian. To assess whether participants’ body positions influenced their miracle judgments, we aggregated and averaged their judgments with regard to the various events (Cronbach’s alpha = .69). Consistent with our hypothesis, kneeling participants judged the events to be significantly more miraculous ( $M = 7.91, SD = 1.29$ ) compared to sitting participants ( $M = 6.49, SD = 1.66$ ),  $t(1, 40) = 3.11, p = .003, d = .96$ . Additionally, participants’ religiosity means did not significantly differ depending on whether they were sitting ( $M = 3.91, SD = .41$ ) or kneeling ( $M = 3.89, SD = .38$ ),  $t(1,40) = .151, p = .88$ .

In sum, participants who knelt judged the events as more miraculous than participants who simply sat in a chair, suggesting that body orientation, in this case kneeling, influences judgments within a religious context.

## **STUDY 2**

In our second study, we sought to examine the effects of kneeling on participants’ judgments of images; especially depictions with possible religious undertones. Participants were instructed to either sit or kneel and simply to write down what they viewed on the computer screen. We hypothesized kneeling participants, compared to sitting participants, would more readily identify the images as being religious in nature.

## **Method**

### ***Participants and Design***

64 undergraduates (44 females, 20 males), from the same population as in Study 1, participated in exchange for course credit and were randomly assigned to one of two body position conditions (kneeling vs. sitting). We excluded six participants from the analyses because they suspected

that kneeling influenced their judgments (none of the remaining participants guessed the experimental hypothesis). As in Study 1, we used prescreening methods to select highly religious participants and to ensure participants' religiosities did not significantly differ.

### ***Materials and Procedure***

The initial instructions and procedure were the same as in Study 1. After demonstrating the kneeling or sitting postures to the participants, experimenters asked participants to view various photos (5 in total, with 3 having possible religious undertones) and simply write down what they saw. The experimenter instructed participants to provide only one response per photo (all of the participants followed this instruction). Three photos had possible religious undertones (a black book, a fish, and a lowercase t). The two non-religious photos were classic illusion photographs (the face-man in jacket and the old-young woman). There was no time limit; participants could view the images as long as they cared to. Again, we took steps to ensure participants viewed the photos in the same vertical orientation. Across both kneeling and sitting conditions, the images were presented in the horizontal and vertical center of the computer screen and the experimenter reminded participants to keep their heads level during the experiment. At the end of the experiment, we probed participants for suspicion, then debriefed and thanked them.

### **Results and Discussion**

To assess whether participants' body positions influenced their religious photo judgments, we conducted a z-proportion test (one-tailed). Consistent with our hypothesis, kneeling participants,  $n = 29$ , identified the photograph of a black book as a Bible to a significantly greater percentage (68.9%) than did sitting participants,  $n = 29$ , (48.3%),  $z = 1.6, p = .05$ . Also in line with our hypothesis, kneeling participants identified the fish photograph as being a Jesus Fish to a significantly greater percentage (41.3%) compared to a sitting participant control group (20.7%),  $z = 1.7, p = .04$ . Kneeling participants, however, did not identify the lowercase t photograph as being a cross (37.9%) to a significantly greater percentage compared to the sitting control group (34.5%),  $z = .27, p = .39$ . This finding suggests the photograph was too ambiguous.

We also conducted a z-proportion test to examine if participants' body postures impacted their judgments of the non-religious photographs (two-tailed). We performed a two-tailed test because we did not expect participants' body positions to influence their judgments of the non-religious images. Research reveals that recent visual stimuli but not body posture can impact interpretation of these ambiguous photos (Lassiter & Geers 2005). Furthermore, it is widely assumed that these ambiguous photographs are essentially indistinct and can give rise to multiple interpretations (Uttal 1988). Consistent with this expectation, kneeling participants did not identify the non-religious face-man in jacket photograph as being a face to a significantly greater percentage (65.5%) compared to sitting participants (55.1%),  $z = .80, p = .42$ . Also, kneeling participants did not identify the non-religious face-man in jacket photograph as being a man in a jacket to a significantly greater percentage (10.3%) compared to sitting participants (13.8%),  $z = .40, p = .68$ . Also in line with our expectations, kneeling participants did not identify the non-religious young-old woman photograph as being an old lady to a significantly greater percentage (48.3%) compared to sitting participants (65.5%),  $z = 1.32, p = .19$ . Conversely, kneeling participants did identify the young-old lady photograph as being a young lady to a significantly

greater percentage (44.8%) compared to sitting participants (17.2%),  $z = 2.34$ ,  $p = .019$ . However, this finding is not surprising considering research demonstrates a connection between age and bodily states (Laz 2003).

As occurred in Study 1, participants' body positions influenced their judgments. Specifically, kneeling participants, compared to sitting participants, more readily identified the various images as religious objects. These results contribute to a growing body of literature indicating that people's perceptions and judgments are impacted in multiple ways by their body positions (Bhalla & Proffitt 1999; Eerland, Guadalupe & Zwaan 2011). Furthermore, the effect of kneeling tended to be exclusive to photographs that have possible religious undertones, suggesting that the act of kneeling elicits religious thoughts in participants' minds.

## **GENERAL DISCUSSION**

The present two experiments add to the literature on embodiment theory by demonstrating that bodily feedback, in this case kneeling, can influence religious judgments concerning events and objects. Study 1 indicated kneeling participants, compared to a sitting control group, judged events to be significantly more miraculous. Study 2 found kneeling participants more readily identified an image as a religious object compared to participants who were in a sitting control group. The present work is consistent with conclusions from Barsalou and colleagues who contend that the act of kneeling is important in a multitude of religious activities, including prayer (Barsalou et al. 2005). The present studies also contribute to the growing number of experiments that demonstrate how feedback from a wide range of motor movements including body posture (Eerland, Guadalupe & Zwaan 2011), facial expressions (Laird 1974), and arm movements (Cacioppo, Priester & Bernston 1993) can influence people's judgments, cognitions and emotions.

### **Future directions, limitations and implications**

While the current research supports and extends an embodiment account into a religious domain, examining how people's body positions, in this case kneeling, impact their judgments of events and images, our studies provide no evidence as to the mechanisms underlying the effects of embodiment or why kneeling in particular impacts religious judgments. Though, considering embodiment theory's position that concepts and knowledge are grounded in sensory-motor states and movements and taking into account said states and movements tend to lead to an increased activation and accessibility of associated concepts, several mechanisms are possible (Barsalou 2005; Schubert & Koole, 2009). A likely candidate is that the act of kneeling activates religious cognitions, that subsequently lead to more religious judgments. Ensuing research could investigate this notion empirically by having both sitting and kneeling participants fill out a word-stem completion task and taking note if kneeling participants write down more religious-related words.

A related, socio-cognitive mechanism could also explain the current set of findings such that the act of kneeling leads to an activation of a religious self-schema within a person's working self-concept. This accessibility and activation of a religious self-schema should then influence how a participant processes and acts on information (Higgins & Brendl 1995). Indeed, researchers have recently started to explore a possible connection between bodily states and the self-concept

(Schubert & Koole, 2009). Future research could employ a lexical decision task to determine whether kneeling activates a religious self-schema by examining if kneeling participants, compared to a sitting control group, are quicker at identifying religious words.

The current studies foster an interesting avenue for future research which could examine whether the present kneeling effects are amplified in specific religious populations accustomed to kneeling such as strict Catholics, Episcopalians and Muslims, as compared to religious groups not familiar with kneeling such as Mormons or Baptists. In a related vein, cultural differences also warrant further investigation since recent research suggests people's cultures impact their concepts of God (Schneider & Smith 2011). Therefore, a reasonable extension of this research program would be to explore how people's cultures influence their concept of miracles, which are typically defined as acts of God (Clarke 2003).

Subsequent studies can also investigate the effect other bodily states (e.g., facial expressions) have on a person's miracle judgments. One particular facial expression worth exploring in connection to the miraculous is surprise since miracles have been defined as surprising and marvelous events (Mackie 1982). In fact, researchers have determined methodology for the surprise state (Scherer, Zentner & Stern 2004). When creating the surprised facial expression, investigators maintain an individual must raise their brow and open their mouth. Possible cover stories could even incorporate startling events other than miracles.

Finally, future research should also examine how various embodiment states impact other religious activities such as prayer, since praying has been associated with a host of positive outcomes including gratitude, relationship satisfaction and trust (Lambert, Fincham, Braithwaite, Graham, & Beach 2009; Lambert, Fincham, LaVallee, & Brantley 2011).

A significant limitation in the current studies is they offer only a snapshot of how people's embodied states influence their religious judgments, and any generalizations about the effect of kneeling can be applied only to highly religious people. Future research should include a broader population and investigate why kneeling may be less important for less religious individuals, whether due to cognitive, motivational or cultural mechanisms (Norenzayan & Gervais 2013). Finally, worth noting is a potentially important real-world implication of the present findings. Results from the two experiments suggest that certain religious leaders are, indeed, wise to instruct their congregations to kneel when praying for God's help, since kneeling possesses the potential to sway people into judging events as positive and powerful acts of God (miracles).

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## **APPENDIX A: EVENTS**

1. A small child recovers from a terminal illness after the doctors told him and his family that he had no chance of survival.
2. A person wins the lottery. With the money, he is able to pay for a life-saving medical operation for his child.
3. A person wins a \$100 million dollar lottery.
4. A surgeon who has just saved a child's life with a 12-hour operation falls asleep at the wheel and drives his car off a steep cliff. He survives without a scratch, despite the fact that the car is completely demolished and blows up.
5. A person wins \$ 20 million dollars in a lottery where the chances of having the winning number are 1 in 3 million.

## **AUTHOR BIOGRAPHIES**

Michael R. Ransom is an Assistant Professor of Psychology at Fairmont State University. His research examines how people conceptualize miraculous events as well as how individuals engage in hypocritical behavior.

Mark D. Alicke is a Professor of Psychology at Ohio University. His research examines the psychology of the self (including self-enhancement, social comparison, and the self in social judgment), and blame and responsibility.