



INTRODUCTION

IBCSR Research Review (IRR) is published by the Institute for the Biocultural Study of Religion, a non-profit research institute dedicated to the scientific study of the biocultural aspects of religion. *IRR* briefly annotates and furnishes online information about scientific research articles related to brain, behavior, culture, and religion published in English in leading journals. It also lists relevant books. Articles in press are listed without annotation. Annotations for articles aim to supply a preliminary understanding of the methods and results of a research study, or the argument of a paper. Annotations typically furnish more detail for articles in the scientific study of religion related to religion, brain, and behavior, than for articles in the area of spirituality and health, in accordance with IBCSR research priorities.

Articles for this issue were located by searching the following databases: Applied Science and Technology, ASFA Biological Sciences, ATLA Religion Database, General Science, PubMed, Psychology and Behavioral Sciences Collection, PsycARTICLES, PsycINFO, ScienceDirect, and Web of Science. The search terms were altruism, meditat*, prayer, relig*, psych*, science, spiritu*, and yoga, tailored to the database being searched. Books were located on Amazon.com and Worldcat. Articles not directly relevant to the scientific study of religion were excluded, as were correspondence and reviews. From a universe of 679 articles, 110 articles have been retained from 68 journals. There are 58 pre-publication citations from 39 journals.

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PART 1: ARTICLES IN RELIGION, BRAIN, AND BEHAVIOR

1.1 SCIENTIFIC STUDY OF RELIGION: COGNITIVE NEUROSCIENCE

Bærentsen, Klaus, Hans Stødkilde-Jørgensen, Bo Sommerlund, Tue Hartmann, Johannes Damsgaard-Madsen, Mark Fosnæs & Anders Green. 2010. An investigation of brain processes supporting meditation. *Cognitive Processing* 11(1). 57-84.
doi:[10.1007/s10339-009-0342-3](https://doi.org/10.1007/s10339-009-0342-3).

Researchers investigated meditation with fMRI to identify and characterize both the “neural switch” mechanism used in the voluntary shift from normal consciousness to meditation and the “threshold regulation mechanism” sustaining the meditative state. Participants (n = 31) with 1.5–25 years experience in meditation were scanned using a blocked on–off design with 45 second alternating epochs during the onset of meditation and normal relaxation, respectively. Additionally, 21 subjects were scanned during 14.5 minutes of sustained meditation. The data were analyzed with statistical parametric mapping (SPM) and independent component analysis (ICA). During the onset of meditation, activations were found bilaterally in the putamen and the supplementary motor cortex, while deactivations were found predominately in the right hemisphere, the precuneus, the posterior cingulum and the parieto–temporal area. During sustained meditation, SPM analysis revealed activation in the head of nucleus caudatus. Extensive deactivations were observed in white matter in the right hemisphere, i.e., mainly in the posterior occipito–parieto–temporal area and in the frontal lobes. ICA identified 38 components including known baseline-resting state components, one of which not only overlaps with the activated area revealed in the SPM analysis but extends further into frontal, temporal, parietal and limbic areas, and might presumably constitute a combination of frontoparietal and cinguloopercular task control systems. Part of a special issue: The Neuroscience of Meditation and Consciousness.

Baijal, Shruti & Narayanan Srinivasan. 2010. Theta activity and meditative states: spectral changes during concentrative meditation. *Cognitive Processing* 11(1). 31-38.
doi:[10.1007/s10339-009-0272-0](https://doi.org/10.1007/s10339-009-0272-0).

Researchers investigated the temporal dynamics of oscillatory changes during Sabaj Samadhi meditation in 10 meditators, with 3-7 years of meditation experience, and 10 control subjects. EEG was recorded during yoga meditation for meditators and relaxation for controls. Spectral and coherence analysis was performed for the whole duration as well as specific blocks extracted from the initial, middle, and end portions of meditation or relaxation. The generation of distinct meditative states of consciousness was marked by distinct changes in spectral powers, especially enhanced theta band activity during deep meditation in the frontal areas. Meditators also exhibited increased theta coherence compared to controls. The emergence of the slow frequency waves in the attention-related frontal regions provides strong support to the existing claims of frontal theta in producing meditative states along with trait effects in attentional processing. The authors noted that increased frontal theta activity was accompanied by reduced activity in parietal–occipital areas, signifying reduction in processing associated with self, space, and time. Part of a special issue: The Neuroscience of Meditation and Consciousness.

Boksem, Maarten A. S. & David De Cremer. 2010. Fairness concerns predict medial frontal negativity amplitude in ultimatum bargaining. *Social Neuroscience* 5(1). 118.
doi:[10.1080/17470910903202666](https://doi.org/10.1080/17470910903202666).

EEG readings were taken as subjects participated as recipients in an ultimatum game. Participants responded to fair and unfair offers from different human proposers, and rated themselves on a measure evaluating their concern for fairness. Results showed that medial frontal negativity (MFN) amplitude, which has its source in the anterior cingulate cortex was more pronounced for unfair offers compared to fair offers. Moreover, this effect was shown to be most pronounced for subjects with high concerns for fairness. The authors conclude that the MFN not only

reflects whether outcomes match expectations, but also reflects whether the process by which these outcomes came about matches a social or even a moral norm. In addition, the present results suggest that people in bargaining situations are not only concerned with their own outcomes, but are also concerned with the fairness of the process that resulted in these outcomes. Part of a special issue: Neural Correlates of Deception.

- Cahn, B., Arnaud Delorme & John Polich. 2010. Occipital gamma activation during Vipassana meditation. *Cognitive Processing* 11(1). 39-56.
doi:[10.1007/s10339-009-0352-1](https://doi.org/10.1007/s10339-009-0352-1).

Long-term Vipassana meditators sat in meditation vs. a control rest (mind-wandering) state for 21 minutes in a counterbalanced design with spontaneous EEG recorded. Meditation state dynamics were measured with spectral decomposition of the last 6 minutes of the eyes-closed silent meditation compared to control state. Meditation was associated with a decrease in frontal delta (1–4 Hz) power, especially pronounced in those participants not reporting drowsiness during meditation. Relative increase in frontal theta (4–8 Hz) power was observed during meditation, as well as significantly increased parieto-occipital gamma (35–45 Hz) power, but no other state effects were found for the theta (4–8 Hz), alpha (8–12 Hz), or beta (12–25 Hz) bands. Alpha power was sensitive to condition order, and more experienced meditators exhibited no tendency toward enhanced alpha during meditation relative to the control task. All participants tended to exhibit decreased alpha in association with reported drowsiness. Cross-experimental session occipital gamma power was the greatest in meditators with a daily practice of 10+ years, and the meditation-related gamma power increase was similarly the strongest in such advanced practitioners. The authors conclude that long-term Vipassana meditation contributes to increased occipital gamma power related to long-term meditational expertise and enhanced sensory awareness. Part of a special issue: The Neuroscience of Meditation and Consciousness.

- Farb, Norman A. S., Adam K. Anderson, Helen Mayberg, Jim Bean, Deborah McKeon & Zindel V. Segal. 2010. Minding one's emotions: Mindfulness training alters the neural expression of sadness. *Emotion* 10(1). 25-33.
doi:[10.1037/a0017151](https://doi.org/10.1037/a0017151).

This study employed fMRI to compare neural reactivity to sadness provocation in participants completing 8 weeks of mindfulness training (MT), and waitlisted controls. Sadness resulted in widespread recruitment of regions associated with self-referential processes along the cortical midline. Despite equivalent self-reported sadness, MT participants demonstrated a distinct neural response, with greater right-lateralized recruitment, including visceral and somatosensory areas associated with body sensation. The greater somatic recruitment observed in the MT group during evoked sadness was associated with decreased depression scores. Restoring balance between affective and sensory neural networks-supporting conceptual and body based representations of emotion-could be one path through which mindfulness reduces vulnerability to dysphoric reactivity. Part of a special issue on mindfulness.

- Grant, Joshua A, Jérôme Courtemanche, Emma G Duerden, Gary H. Duncan & Pierre Rainville. 2010. Cortical thickness and pain sensitivity in Zen meditators. *Emotion* 10(1). 43-53.
doi:[10.1037/a0018334](https://doi.org/10.1037/a0018334).

Structural MRI scans were performed, and the temperature required to produce moderate pain was assessed, in 17 meditators and 18 controls. Meditators had significantly lower pain sensitivity than controls. Assessed across all subjects, lower pain sensitivity was associated with thicker cortex in affective, pain-related brain regions including the ACC, bilateral parahippocampal gyrus and anterior insula. Comparing groups, meditators were found to have thicker cortex in the dorsal anterior cingulate and bilaterally in secondary somatosensory cortex. More years of meditation experience was associated with thicker gray matter in the anterior cingulate, and hours of experience predicted more gray matter bilaterally in the lower leg area of the primary somatosensory cortex as well as the hand area in the right hemisphere. Results generally suggest that pain sensitivity is related to cortical thickness in pain-

related brain regions and that the lower sensitivity observed in meditators may be the product of alterations to brain morphometry from long-term practice. Part of a special issue on mindfulness.

- Hare, Todd A., Colin F. Camerer, Daniel T. Knopfle, John P. O'Doherty & Antonio Rangel. 2010. Value Computations in Ventral Medial Prefrontal Cortex during Charitable Decision Making Incorporate Input from Regions Involved in Social Cognition. *Journal of Neuroscience* 30(2). 583-590.
doi:[10.1523/JNEUROSCI.4089-09.2010](https://doi.org/10.1523/JNEUROSCI.4089-09.2010).

Little is known about the neural networks supporting value computation during complex social decisions. Researchers investigated how neural networks support value computation during complex social decision by using fMRI while subjects made donations to different charities. They found that the blood oxygenation level-dependent signal in ventral medial prefrontal cortex (VMPFC) correlated with the subjective value of voluntary donations. Furthermore, the region of the VMPFC identified showed considerable overlap with regions that have been shown to encode for the value of basic rewards at the time of choice, suggesting that it might serve as a common valuation system during decision making. In addition, functional connectivity analyses indicated that the value signal in VMPFC might integrate inputs from networks, including the anterior insula and posterior superior temporal cortex, that are thought to be involved in social cognition.

- Harenski, Carla L., Olga Antonenko, Matthew S. Shane & Kent A. Kiehl. 2010. A functional imaging investigation of moral deliberation and moral intuition. *NeuroImage* 49(3). 2707-2716.
doi:[10.1016/j.neuroimage.2009.10.062](https://doi.org/10.1016/j.neuroimage.2009.10.062).

Researchers hypothesized that medial prefrontal activity would be increased during an explicit, but not an implicit, moral task. Participants (n = 28) were scanned using fMRI while viewing 50 unpleasant pictures, half of which depicted moral violations. Half of the participants rated pictures on moral violation severity (explicit task) while the other half indicated whether pictures occurred indoors or outdoors (implicit task). As predicted, participants performing the explicit, but not the implicit, task showed increased ventromedial prefrontal activity while viewing moral pictures. Both groups showed increased temporo-parietal junction activity while viewing moral pictures. These results suggest that the ventromedial prefrontal cortex may contribute more to moral deliberation than moral intuition, whereas the temporo-parietal junction may contribute more to moral intuition than moral deliberation.

- Haruno, Masahiko & Christopher D Frith. 2010. Activity in the amygdala elicited by unfair divisions predicts social value orientation. *Nature Neuroscience* 13(2). 160-161.
doi:[10.1038/nn.2468](https://doi.org/10.1038/nn.2468).

Using the hypothesis that social value orientation characterizes individual differences in anchoring attitudes toward the division of resources, researchers contrasted people with prosocial and individualistic orientations using fMRI, and found that the degree of inequity aversion in prosocials is predictable from amygdala activity and unaffected by cognitive load. They conclude that automatic emotional processing in the amygdala lies at the core of prosocial value orientation.

- Lamm, Claus, Andrew N Meltzoff & Jean Decety. 2010. How do we empathize with someone who is not like us? A functional magnetic resonance imaging study. *Journal of Cognitive Neuroscience* 22(2). 362-376.
doi:[10.1162/jocn.2009.21186](https://doi.org/10.1162/jocn.2009.21186).

Using fMRI to assess how participants empathize with the feelings of patients who reacted with no pain to surgical procedures, but with pain to a soft touch, researchers found that empathy for the pain of these patients activated the same areas (insula, medial/anterior cingulate cortex) as empathy for persons who responded to painful stimuli in the same way as the observer. Empathy in a situation that was aversive only for the observer but neutral for the patient recruited areas involved in self-other distinction (dorsomedial prefrontal cortex) and

cognitive control (right inferior frontal cortex). In addition, effective connectivity between the latter and areas implicated in affective processing was enhanced. This suggests that inferring the affective state of someone who is not like us can rely upon the same neural structures as empathy for someone who is similar to us. When strong emotional response tendencies exist though, these tendencies have to be overcome by executive functions. From these results, researchers conclude that the fronto-cortical attention network is crucially involved in this process, corroborating that empathy is a flexible phenomenon which involves both automatic and controlled cognitive mechanisms.

Mendez, Mario F. 2009. The neurobiology of moral behavior: review and neuropsychiatric implications. *CNS Spectrums* 14(11). 608-620.

The author examines the neurobiological evidence of innate morality from research involving fMRI from normal subjects, developmental sociopathy, acquired sociopathy from brain lesions, and frontotemporal dementia. These studies indicate a "neuromoral" network for responding to moral dilemmas centered in the ventromedial prefrontal cortex and its connections, particularly on the right. He finds that the neurobiological evidence indicates the existence of automatic "prosocial" mechanisms for identification with others that are part of the moral brain. Patients with disorders involving this moral network have attenuated emotional reactions to the possibility of harming others and may perform sociopathic acts. The author concludes that the existence of this neuromoral system has major clinical implications for the management of patients with dysmoral behavior from brain disorders and for forensic neuropsychiatry.

Raffone, Antonino & Narayanan Srinivasan. 2010. The exploration of meditation in the neuroscience of attention and consciousness. *Cognitive Processing* 11(1). 1-7.
doi:[10.1007/s10339-009-0354-z](https://doi.org/10.1007/s10339-009-0354-z).

In this introduction to the special issue of Cognitive Processing on the neuroscience of meditation and consciousness, the authors present the main features of meditation-based mental training and characterize the current scientific approach to meditation states and traits with special reference to attention and consciousness, in light of the articles contributed to the issue. They hold that the investigation of states and traits related to meditation has especially pronounced implications for the neuroscience of attention, consciousness, self-awareness, empathy and theory of mind, and note that many recent behavioral and neuroscientific studies have revealed the importance of investigating meditation states and traits to achieve an increased understanding of cognitive and affective neuroplasticity, attention and self-awareness.

Travis, Fred, David Haaga, John Hagelin, Melissa Tanner, Alaric Arenander, Sanford Nidich, Carolyn Gaylord-King, Sarina Grosswald, Maxwell Rainforth & Robert Schneider. 2010. A self-referential default brain state: patterns of coherence, power, and eLORETA sources during eyes-closed rest and Transcendental Meditation practice. *Cognitive Processing* 11(1). 21-30.
doi:[10.1007/s10339-009-0343-2](https://doi.org/10.1007/s10339-009-0343-2).

In a 10-week random assignment study, theta2, alpha1, alpha2, beta1, beta2 and gamma EEG coherence, power, and eLORETA cortical sources during eyes-closed rest and Transcendental Meditation (TM) practice were compared (n = 38; M = 23.7), and significant brainwave differences were seen between groups. Compared to eyes-closed rest, TM practice led to higher alpha1 frontal log-power, and lower beta1 and gamma frontal and parietal log-power; higher frontal and parietal alpha1 interhemispheric coherence and higher frontal and frontal-central beta2 intrahemispheric coherence. eLORETA analysis identified sources of alpha1 activity in midline cortical regions that overlapped with the DMN. Greater activation in areas that overlap the DMN during TM practice suggests that meditation practice may lead to a foundational or 'ground' state of cerebral functioning that may underlie eyes-closed rest and more focused cognitive processes. Part of a special issue: The Neuroscience of Meditation and Consciousness.

Urgesi, Cosimo, Salvatore M Aglioti, Miran Skrap & Franco Fabbro. 2010. The Spiritual Brain: Selective Cortical Lesions Modulate Human Self-Transcendence. *Neuron* 65(3). 309-319.
doi:[10.1016/j.neuron.2010.01.026](https://doi.org/10.1016/j.neuron.2010.01.026)

In a study of 88 patients, combining pre- and post-neurosurgery personality assessment with advanced brain-lesion mapping techniques revealed that selective damage to left and right inferior posterior parietal regions induced a specific increase of feelings of self-transcendence. (All patients had high-grade glioma, low-grade glioma, recurrent gliomas, or brain meningiomas.) The authors conclude that modifications of neural activity in temporoparietal areas may induce unusually fast modulations of a stable personality trait related to transcendental self-referential awareness. They hypothesize that the left and right parietal systems are active and crucial in determining self-transcendence.

Way, Baldwin M., J. David Creswell, Naomi I. Eisenberger & Matthew D. Lieberman. 2010. Dispositional mindfulness and depressive symptomatology: Correlations with limbic and self-referential neural activity during rest. *Emotion* 10(1). 12-24.
doi:[10.1037/a0018312](https://doi.org/10.1037/a0018312).

To better understand the relationship between mindfulness and depression, researchers studied normal young adults (n = 27) who completed measures of dispositional mindfulness and depressive symptomatology, which were then correlated with (a) resting neural activity during passive viewing of a fixation cross, relative to a simple goal-directed task (shape-matching); and (b) neural reactivity during viewing of negative emotional faces, relative to the same shape-matching task. Dispositional mindfulness was negatively correlated with resting activity in self-referential processing areas, whereas depressive symptomatology was positively correlated with resting activity in similar areas. In addition, dispositional mindfulness was negatively correlated with resting activity in the amygdala, bilaterally, whereas depressive symptomatology was positively correlated with activity in the right amygdala. Similarly, when viewing emotional faces, amygdala reactivity was positively correlated with depressive symptomatology and negatively correlated with dispositional mindfulness, an effect that was largely attributable to differences in resting activity. The authors conclude that mindfulness is associated with intrinsic neural activity, and that changes in resting amygdala activity could be a potential mechanism by which mindfulness-based depression treatments elicit therapeutic improvement. Part of a special issue on mindfulness.

1.2 SCIENTIFIC STUDY OF RELIGION: EVOLUTION

Boesch, Christophe, Camille Bolé, Nadin Eckhardt & Hedwige Boesch. 2010. Altruism in forest chimpanzees: the case of adoption. *PloS One* 5(1). e8901.
doi:[10.1371/journal.pone.0008901](https://doi.org/10.1371/journal.pone.0008901).

The authors report 18 cases of adoption, a highly costly behavior, of orphaned youngsters by group members in Tai forest chimpanzees. Half of the adoptions were done by males, only one of which proved to be the father. Such adoptions by adults can last for years and thus imply extensive care towards the orphans. The authors conclude that, under the appropriate socio-ecologic conditions, chimpanzees do care for the welfare of other unrelated group members and that altruism is more extensive in wild populations than was suggested by captive studies.

Brown, Sam P. & Peter D. Taylor. 2010. Joint evolution of multiple social traits: a kin selection analysis. *Proceedings of the Royal Society B: Biological Sciences* 277(1680). 415-422.
doi:[10.1098/rspb.2009.1480](https://doi.org/10.1098/rspb.2009.1480).

Recognizing that social traits commonly interact in the evolution of social behaviors, the authors develop a general kin-selection framework for the evolution of social behaviors in multiple dimensions. To understand the new behaviors that arise through the interactions, they use a two-dimensional stability criterion to judge the social dilemma posed by the construction and the exploitation of a shared public good. They find that, contrary to the

separate one-dimensional analyses, evolutionary feedback between the two traits can cause an increase in the equilibrium level of selfish exploitation with increasing relatedness, while both social (production plus exploitation) and asocial (neither) strategies can be locally stable. They conclude that their results demonstrate the importance of emergent stability properties of multidimensional social dilemmas.

- Chiao, Joan Y. & Katherine D. Blizinsky. 2010. Culture–gene coevolution of individualism–collectivism and the serotonin transporter gene. *Proceedings of the Royal Society B: Biological Sciences* 277(1681). 529-537.
doi:[10.1098/rspb.2009.1650](https://doi.org/10.1098/rspb.2009.1650).

To investigate the theory of culture–gene coevolution, the authors examined the association between the cultural values of individualism–collectivism and allelic frequency of the serotonin transporter functional polymorphism (5-HTTLPR), as well as the role this culture–gene association may play in explaining global variability in prevalence of pathogens and affective disorders. They found evidence that collectivistic cultures were significantly more likely to comprise individuals carrying the short (S) allele of the 5-HTTLPR across 29 nations (n = 50,135, gleaned from 124 peer-reviewed publications). Results further show that historical pathogen prevalence predicts cultural variability in individualism–collectivism owing to genetic selection of the S allele. Additionally, cultural values and frequency of S allele carriers negatively predict global prevalence of anxiety and mood disorder. Finally, mediation analyses further indicate that increased frequency of S allele carriers predicted decreased anxiety and mood disorder prevalence owing to increased collectivistic cultural values. They conclude that coevolution between allelic frequency of 5-HTTLPR and cultural values of individualism–collectivism and support the notion that cultural values buffer genetically susceptible populations from increased prevalence of affective disorders.

- Dechmann, Dina K. N., Bart Kranstauber, David Gibbs & Martin Wikelski. 2010. Group Hunting—A Reason for Sociality in Molossid Bats? *PLoS One* 5(2). e9012.
doi:[10.1371/journal.pone.0009012](https://doi.org/10.1371/journal.pone.0009012).

*After hypothesizing that benefits from group hunting might entice tropical bats to live in groups, researchers used a phased antenna array setup to track 51 *Molossus molossus*, a small insectivorous bat in Panama. They found that simultaneously radiotracked individuals from the same colony foraged together significantly more than expected by chance, consistent with the hypothesis that many bats are social because of information transfer between foraging group members. They conclude that this reason for sociality is more widespread than currently assumed, and suggest that the benefits from group hunting may also have contributed to the evolution of group living in other animals specialized on ephemeral food sources.*

- Duffy, J. Emmett & Kenneth S. Macdonald. 2010. Kin structure, ecology and the evolution of social organization in shrimp: a comparative analysis. *Proceedings of the Royal Society B: Biological Sciences* 277(1681). 575-584.
doi:[10.1098/rspb.2009.1483](https://doi.org/10.1098/rspb.2009.1483).

Researchers tested the association of eusociality with ecological performance and genetic structure (via life history) among 20 species of shrimp in Belize. Consistent with hypotheses that cooperative groups enjoy an advantage in challenging habitats, results indicate that the eusocial species are more abundant, occupy more sponges and have broader host ranges than non-social sister species, and that these patterns are robust to correction for the generally smaller body sizes of eusocial species. In contrast, body size explains less or no variation after accounting for sociality. Despite strong ecological pressures on most sponge-dwellers, however, eusociality arose only in species with non-dispersing larvae, which form family groups subject to kin selection. Thus, superior ability to hold valuable resources may favor eusociality in shrimp, but close genetic relatedness is nevertheless key to its origin, as in other eusocial animals.

Ellers, Jacintha & Nadia C. E. van der Pool. 2010. Altruistic behavior and cooperation: The role of intrinsic expectation when reputational information is incomplete. *Evolutionary Psychology* 8(1). 37-48.

<http://www.epjournal.net/filestore/ep083748.pdf>.

Using an economic game (the Dictator Game) with 633 participants (435 females), researchers found that without reputational information participants nonetheless had intrinsic expectations about the altruistic behavior of others, and that these expectations largely explained their own altruistic behavior. They observed two strategies that appeared to co-exist in the study population: some participants expected others to be altruistic and acted even more altruistically themselves, while other participants had low expected altruism scores and acted even less altruistically than they expected others to do. The authors conclude that when no information is available, intrinsic expectations can be as powerful a driver of altruistic behavior as actual knowledge about other people's reputation. Further, researchers found evidence that generosity in economic games translates into benefits for other social contexts: a reputation of financial generosity increased the attractiveness of partners in a social cooperative game.

Krams, Indrikis, Arnis Bērziņš, Tatjana Krama, David Wheatcroft, Kristīne Igaune & Markus J. Rantala. 2010. The increased risk of predation enhances cooperation. *Proceedings of the Royal Society B: Biological Sciences* 277(1681). 513-518.

doi:[10.1098/rspb.2009.1614](https://doi.org/10.1098/rspb.2009.1614).

Researchers evaluated whether increased predation risk enhanced or diminished the occurrence of cooperation in mobbing, a common anti-predator behavior, among breeding pied flycatchers (n = 28). Results showed that birds attended mobs initiated by their neighbors more often, approached a stuffed predator significantly more closely, and mobbed it at a higher intensity, in areas where the perceived risk of predation was experimentally increased. In such high-risk areas, birds also were more often involved in between-pair cooperation, suggesting the positive impact of predation risk on cooperation in breeding songbirds.

Schino, Gabriele & Filippo Aureli. 2010. The relative roles of kinship and reciprocity in explaining primate altruism. *Ecology Letters* 13(1). 45-50.

doi:[10.1111/j.1461-0248.2009.01396.x](https://doi.org/10.1111/j.1461-0248.2009.01396.x).

The authors report on the results of a test comparing the relative roles of kinship and reciprocity in animal altruism, based on a meta-analysis of allogrooming in primates (25 social groups in 14 different species). In contrast to the prevailing view, reciprocity played a much larger role than kinship in explaining primate allogrooming: after controlling for kinship, reciprocity uniquely explained approximately 20% of the total variance in the distribution of grooming. In contrast, grooming given in relation to kinship, when controlling for reciprocity, accounted for only 3% of the total variance.

Viana, Duarte S., Isabel Gordo, Élio Sucena & Marta A. P. Moita. 2010. Cognitive and Motivational Requirements for the Emergence of Cooperation in a Rat Social Game. *PLoS One* 5(1). e8483.

doi:[10.1371/journal.pone.0008483](https://doi.org/10.1371/journal.pone.0008483).

Researchers used an iterated Prisoner's Dilemma game to test rats for the presence of such cognitive abilities as numerical discrimination, memory and control of temporal discounting, by manipulating the strategy of the opponent (Tit-for-Tat and Pseudo-Random), or the relative size of the temptation to defect. They found that rats are able to shape their behavior according to their opponent's strategy and the relative outcome resulting from cooperative or defective moves, indicating that they possess the necessary cognitive capacities for reciprocity-based cooperation. They also note that the cooperation behavior of the rats is contingent upon their motivational state (hungry versus sated).

Weinstein, Netta & Richard M. Ryan. 2010. When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology* 98(2). 222-244.

doi:[10.1037/a0016984](https://doi.org/10.1037/a0016984).

In this research on self-determination theory, four studies tested the impact on well-being of autonomous and controlled motivation for helping others, and explored effects on other outcomes of helping for both helpers and recipients. Study 1 used a diary method to assess daily relations between prosocial behaviors and helper well-being; Study 2 examined the effect of choice on motivation and consequences of autonomous versus controlled helping; Study 3 examined the consequences of autonomous versus controlled helping for both helpers and recipients; Study 4 manipulated motivation to predict helper and recipient outcomes. The authors conclude that autonomous motivation for helping yields benefits for both helper and recipient through greater need satisfaction.

Wright, Jonathan, Paul G. McDonald, Luc te Marvelde, Anahita J. N. Kazem & Charles M. Bishop. 2010. Helping effort increases with relatedness in bell miners, but 'unrelated' helpers of both sexes still provide substantial care. *Proceedings of the Royal Society B: Biological Sciences* 277(1680). 437-445.

doi:[10.1098/rspb.2009.1360](https://doi.org/10.1098/rspb.2009.1360).

Researchers examined nest visit rates, load sizes and prey types delivered by breeding pairs and their helpers in the cooperatively breeding bell miner, and found evidence for the effect of genetic relatedness on individual helping effort per nest within colonies. This positive incremental effect of kinship was facultative, i.e., largely the result of within-individual variation in helping effort. No sex differences were detectable in any aspect of helping, and even non-relatives provided substantial aid. The authors conclude that helping behavior in bell miners therefore appears consistent with adaptive cooperative investment in the brood, and kin-selected care by relatives.

1.3 SCIENTIFIC STUDY OF RELIGION: GENERAL PSYCHOLOGY

Asadullah, Mohammad Niaz & Nazmul Chaudhury. 2010. Religious Schools, Social Values, and Economic Attitudes: Evidence from Bangladesh. *World Development* 38(2). 205-217.

doi:[10.1016/j.worlddev.2009.10.014](https://doi.org/10.1016/j.worlddev.2009.10.014).

Using data on female graduates of registered secondary secular schools and madrasas from rural Bangladesh (n = 191), researchers found that madrasa graduates differ on attitudes associated with issues such as working mothers (less preferable), desired fertility (more likely to answer that the number of children is "up to God"), and higher education for girls (less important than the same for boys), when compared to their secular schooled peers. Like secular education, madrasa education is also associated with a preference for democratic, rather than military, government, though a preference for Islamic rule remained. The authors found that exposure to female and younger teachers is associated with more modern attitudes among graduates.

Barnes, Collin D. & Ryan P. Brown. 2010. A value-congruent bias in the forgiveness forecasts of religious people. *Psychology of Religion and Spirituality* 2(1). 17-29.

doi:[10.1037/a0017585](https://doi.org/10.1037/a0017585).

Using a newly devised method for testing multiple mediator models, researchers examined the hypothesis that religious people's forgiveness values mediate the relationship between religiosity and forgiveness forecasts, independent of self-perceived past forgiveness tendencies. (The first study focused on predicted forgiveness of hypothetical offenders, and the second examined forecasted forgiveness of those responsible for the terrorist attacks against the United States on September 11, 2001.) In both studies, the mediating role of forgiveness values, independent of past forgiveness tendencies, was established, suggesting a value-congruent bias in religious people's forgiveness forecasts.

Cohen, Jeffrey E. 2010. Perceptions of Anti-Semitism among American Jews, 2000-05, A Survey Analysis. *Political Psychology* 31(1). 85-107.
doi:[10.1111/j.1467-9221.2009.00746.x](https://doi.org/10.1111/j.1467-9221.2009.00746.x).

Using annual surveys from the National Survey of American Jews from 2000 through 2005 (n = 3,839), the author found that a multiplicity of factors affect perceptions of the seriousness of anti-Semitism among Jews: those with a stronger sense of Jewish identity, lower income, and older people are more likely to see anti-Semitism as a very serious problem. Respondents also tend to see anti-Semitism as a more serious threat if they live in states with higher anti-Semitic incidents rates and when use of anti-Semitic terms in the news media increases.

Francis, Leslie, Emyr Williams & Mandy Robbins. 2010. Personality, conventional Christian belief and unconventional paranormal belief: a study among teenagers. *British Journal of Religious Education* 32(1). 31-39.
doi:[10.1080/01416200903332056](https://doi.org/10.1080/01416200903332056).

In a survey of 20,345 students between 13- and 15-years old in non-denominational state-maintained secondary schools in England and Wales, data demonstrated that conventional Christian belief and unconventional paranormal belief occupy different locations in relation to the Eysenckian model of personality, in respect of the psychoticism scale and the lie scale. While conventional Christian belief is associated with lower psychoticism scores and higher lie scale scores (indicating greater social conformity), unconventional paranormal belief is associated with higher psychoticism scores and lower lie scale scores (lower social conformity).

Hall, Deborah L., David C. Matz & Wendy Wood. 2010. Why Don't We Practice What We Preach? A Meta-Analytic Review of Religious Racism. *Personality and Social Psychology Review* 14(1). 126-139.
doi:[10.1177/1088868309352179](https://doi.org/10.1177/1088868309352179).

In this meta-analytic review of the link between religiosity and racism in the United States, the authors found that a strong religious in-group identity was associated with derogation of racial out-groups, and propose that other races might be treated as out-groups because religion is practiced largely within race, because training in a religious in-group identity promotes general ethnocentrism, and because different others appear to be in competition for resources. The authors failed to find that racial tolerance arises from humanitarian values, consistent with the idea that religious humanitarianism is largely expressed to in-group members. Only religious agnostics were found to be racially tolerant. Part of a special issue on the social psychological study of the phenomenon of religion.

Hogg, Michael A., Janice R. Adelman & Robert D. Blagg. 2010. Religion in the Face of Uncertainty: An Uncertainty-Identity Theory Account of Religiousness. *Personality and Social Psychology Review* 14(1). 72-83.
doi:[10.1177/1088868309349692](https://doi.org/10.1177/1088868309349692).

The authors argue that religions are well suited to reduce feelings of self-uncertainty for their adherents, as it provides the opportunity to identify with a particularly highly entitative group. In addition to providing belief systems and normative prescriptions, they provide a moral compass and rules for living that pervade a person's life, making them particularly attractive in times of uncertainty. The authors provide data supporting their analysis and discuss conditions that transform religiosity into religious zealotry and extremism. Part of a special issue on the social psychological study of the phenomenon of religion.

Jeong, Hoi Ok. 2008. How Do Religions Differ in Their Impact on Individuals' Social Capital?: The Case of South Korea. *Nonprofit and Voluntary Sector Quarterly* 39(1). 142-160.
doi:[10.1177/0899764008325248](https://doi.org/10.1177/0899764008325248).

This article assesses the extent to which three religious communities in South Korea (Protestantism, Catholicism, and Buddhism) differ in their influence on individuals' civic engagement and interpersonal trust—two components of social capital. Based on South Korea's unique context, the author makes significant modifications to Anheier

and Salamon's ideas about religion. The author examines their four dimensions of the religions: an emphasis on charity and philanthropy, modularity, institutionalization, and autonomy. Regression analysis using data from the 1999-2002 World Values survey shows that Christianity increases individuals' civic engagement, while Buddhism does not have an impact on civic engagement. Neither religious affiliation influences individuals' interpersonal trust.

Kay, Aaron C., Danielle Gaucher, Ian McGregor & Kyle Nash. 2010. Religious Belief as Compensatory Control. *Personality and Social Psychology Review* 14(1). 37-48.
doi:[10.1177/1088868309353750](https://doi.org/10.1177/1088868309353750).

The authors review experimental evidence that religious conviction can be a defensive source of compensatory control when personal or external sources of control are low. They show evidence that belief in religious deities and secular institutions can serve as external forms of control that can compensate for manipulations that lower personal control, and that religious conviction can also serve as compensatory personal control after experimental manipulations that lower other forms of personal or external control. The authors review dispositional factors that differentially orient individuals toward external or personal varieties of compensatory control and conclude that compensatory religious conviction can be a flexible source of personal and external control for relief from the anxiety associated with random and uncertain experiences. Part of a special issue on the social psychological study of the phenomenon of religion.

Knickmeyer, N, H Levitt & SG Horne. 2010. Putting on Sunday Best: The Silencing of Battered Women Within Christian Faith Communities. *Feminism & Psychology* 20(1). 94-113.
doi:[10.1177/0959353509347470](https://doi.org/10.1177/0959353509347470).

This paper presents findings related to the silencing of battered women within Christian faith communities in Memphis, Tennessee. Participants in this qualitative inquiry were 10 Christian identified women from diverse denominations and racial/ethnic and socioeconomic backgrounds who had experienced intimate partner violence. Findings illuminate mechanisms through which Christian beliefs about the sanctity of marriage, and partner and community pressure to present as model Christians, serve to shame and silence battered women.

Koenig, Laura B, Matt McGue & William G Iacono. 2009. Rearing Environmental Influences on Religiousness: An Investigation of Adolescent Adoptees. *Personality and Individual Differences* 47(6). 652-656.
doi:[10.1016/j.paid.2009.06.003](https://doi.org/10.1016/j.paid.2009.06.003).

Researchers examined genetic and environmental influences on a self-report measure of religiousness in a sample consisting of 284 adoptive families (two adopted adolescent siblings and their rearing parents); 208 biological families (two full biological adolescent siblings and their parents); and 124 mixed families (one adopted and one biological adolescent sibling and their parents). A sibling-family model was fit to the data to estimate genetic, shared environmental, and nonshared environmental effects on religiousness, as well as cultural transmission and assortative mating effects. Religiousness showed little evidence of heritability and large environmental effects, which did not vary significantly by gender. This finding is consistent with the results of twin studies of religiousness in adolescent and preadolescent samples. Part of a special issue on the social psychological study of the phenomenon of religion.

Koole, Sander L, Michael E McCullough, Julius Kuhl & Peter H M P Roelofsma. 2010. Why Religion's Burdens Are Light: From Religiosity to Implicit Self-Regulation. *Personality and Social Psychology Review* 14(1). 95-107.
doi:[10.1177/1088868309351109](https://doi.org/10.1177/1088868309351109).

To maintain religious standards, individuals must frequently endure aversive or forsake pleasurable experiences, though often they display higher levels of emotional well-being compared to nonreligious individuals. The authors

suggest that many forms of religion may facilitate a self-regulatory mode that is flexible, efficient, and largely unconscious. In this implicit mode of self-regulation, religious individuals may be able to strive for high standards and simultaneously maintain high emotional well-being. A review of the empirical literature confirmed that religious stimuli and practices foster implicit self-regulation, particularly among individuals who fully internalized their religion's standards. They suggest that some seemingly irrational aspects of religion may have important psychological benefits by promoting implicit self-regulation. Part of a special issue on the social psychological study of the phenomenon of religion.

Kumar, Sanjay & Shirley Telles. 2009. Meditative states based on yoga texts and their effects on performance of a letter-cancellation task. *Perceptual and Motor Skills* 109(3). 679-689.

Performance in a six-letter cancellation task was studied in 35 male experienced meditators with experience ranging from 6 to 12 months. Each participant was studied in four sessions, two Meditation and two Control sessions. The Control sessions were (i) Cancalata or nontargeted thinking and (ii) Ekagrata or focusing on a single topic, in this case, meditation. The Meditation sessions were (i) Dharana or focusing on the symbol "om" and (ii) Dhyana or an effortless single-thought (of "om") state. (Ekagrata and dharana differ in that the former involves focusing with multiple thoughts whereas the latter involves focusing with a single thought, i.e., the significance of "om".) The net scores on the six-letter cancellation task were significantly higher after a session of Dharana and lower after the Cancalata session, while there was no significant change after Ekagrata and Dhyana sessions. Focusing on the symbol "om" in Dharana may favorably influence selective attention, concentration, visual scanning abilities, and a repetitive motor response compared to other sessions.

Lambert, N. M., F. D. Fincham, T. F. Stillman, S. M. Graham & S. R.H. Beach. 2009. Motivating Change in Relationships: Can Prayer Increase Forgiveness? *Psychological Science* 21(1). 126-132.
doi:[10.1177/0956797609355634](https://doi.org/10.1177/0956797609355634).

In a study to determine whether prayer affected forgiveness, researchers found that participants (n = 52) assigned to pray for their romantic partner reported greater willingness to forgive that partner than those who described their partner to an imagined parent. Further, when participants (n = 67) were assigned to pray for a friend, pray about any topic, or think positive thoughts about a friend, those who prayed for the friend every day for 4 weeks reported greater forgiveness for their friend than did those in the other two conditions, even when controlling for baseline forgiveness scores.

Lawler-Row, Kathleen A. 2010. Forgiveness as a mediator of the religiosity—health relationship. *Psychology of Religion and Spirituality* 2(1). 1-16.
doi:[10.1037/a0017584](https://doi.org/10.1037/a0017584).

Three separate studies were conducted to examine whether forgiveness is a pathway through which the effects of religion on health are mediated. In Study 1 (n = 605, older adults) feeling forgiven by God fully mediated associations between frequency of attendance, frequency of prayer, and belief in a watchful God with successful aging. In Study 2 (n = 253) trait forgiveness fully mediated associations between prayer and intrinsic religiosity with illness symptoms and 5 dimensions of successful aging. In Study 3 (n = 80, middle-aged adults), state forgiveness fully mediated the relationships between existential well-being and both symptoms and medications, and trait forgiveness fully mediated the relationship between religious well-being and both intrinsic religiosity and quality of sleep. State forgiveness partially mediated the relationships between spirituality and both sleep and depression.

McNamara, Patrick, James P. Burns, Patricia Johnson & Brian H. McCorkle. 2010. Personal religious practice, risky behavior, and implementation intentions among adolescents. *Psychology of Religion and Spirituality* 2(1). 30-34.
doi:[10.1037/a0017582](https://doi.org/10.1037/a0017582).

In this study of 50 college students, researchers found that participants who engaged more frequently in private religious practice were able to generate both more and higher quality implementation intentions (IIs) about avoiding risky scenarios. The data support the hypothesis that religiousness may protect against risky behaviors by enhancing the abilities of religious adolescents to form IIs to avoid risky behaviors.

Pournaghash-Tehrani, Said, Hadi Bahrami Ehsan & Somaye Gholami. 2009. Assessment of the role of religious tendency in domestic violence. *Psychological Reports* 105(3 Pt 1). 675-684.

Researchers found a negative correlation between Religiosity, Religious Valuation, and self-reported Domestic Violence of husbands and wives in a study of 180 Iranian couples living in Iran. In addition, Religious Disorganization was positively correlated with expressed Domestic Violence of husbands and wives. The results of a regression analysis revealed that only Religiosity and Religious Disorganization predicted self-reported Domestic Violence of husbands and wives.

Rodriguez, Christina M & Ryan C Henderson. 2010. Who spares the rod? Religious orientation, social conformity, and child abuse potential. *Child Abuse & Neglect* 34(2). 84-94.
doi:[10.1016/j.chiabu.2009.07.002](https://doi.org/10.1016/j.chiabu.2009.07.002).

In a study of 207 regularly attending Christians of various denominations, the authors found that Extrinsic religiosity was associated with increased physical abuse potential, with greater social conformity further moderating this association. Intrinsic religious orientation was not associated with abuse risk. Further, those who consider the Bible to be literally true were more socially conformist and evidenced greater abuse risk.

Saroglou, Vassilis. 2010. Religiousness as a cultural adaptation of basic traits: a five-factor model perspective. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc* 14(1). 108-125.
doi:[10.1177/1088868309352322](https://doi.org/10.1177/1088868309352322).

In a meta-analysis of 71 samples (n = 21,715) from 19 countries, taken from literature on personality and religion, researchers found that individual differences in religiousness can be partly explained as a cultural adaptation of two basic personality traits, Agreeableness and Conscientiousness. They are consistent across different religious dimensions, contexts (gender, age, cohort, and country), and personality measures, models, and levels, and seem to predict religiousness rather than be influenced by it. The copresence of Agreeableness and Conscientiousness sheds light on other explanations of religiousness, its distinctiveness from related constructs, its implications for other domains, and its adaptive functions. Part of a special issue on the social psychological study of the phenomenon of religion.

Sedikides, Constantine. 2009. Why Does Religiosity Persist? *Personality and Social Psychology Review* 14(1). 3-6.
doi:[10.1177/1088868309352323](https://doi.org/10.1177/1088868309352323).

The introduction to a special issue exploring the interaction of social and personality psychology, and the phenomenon of religiosity.

Sedikides, Constantine & Jochen E Gebauer. 2010. Religiosity as self-enhancement: a meta-analysis of the relation between socially desirable responding and religiosity. *Personality and Social Psychology Review* 14(1). 17-36.
doi:[10.1177/1088868309351002](https://doi.org/10.1177/1088868309351002).

The authors tested the theoretical formulation that religiosity is a means for self-enhancement through a meta-analysis of relevant literature. The authors operationalized self-enhancement as socially desirable responding (SDR) and focused on three facets of religiosity: intrinsic, extrinsic, and religion-as-quest. They found that both macro-level and micro-level culture moderated the relation between SDR and religiosity: This relation was more

positive in samples that placed higher value on religiosity. The authors conclude that religiosity is partly in the service of self-enhancement. Part of a special issue on the social psychological study of the phenomenon of religion.

- Svedholm, Annika M., Marjaana Lindeman & Jari Lipsanen. 2010. Believing in the purpose of events—why does it occur, and is it supernatural? *Applied Cognitive Psychology* 24(2). 252-265.
doi:[10.1002/acp.1560](https://doi.org/10.1002/acp.1560).

Two questionnaire studies with Finnish volunteer participants (N = 2,650, 1,830 females, m = 26) used structural equation modeling to test the hypotheses that beliefs in the purpose of events are part of the same phenomenon as paranormal beliefs, and that confusions of core knowledge about the psychological, biological and physical domains predict both sets of beliefs. The results showed that beliefs in the purpose of events were to a very high degree accounted for by the same latent factor, General paranormal belief, as other paranormal beliefs such as beliefs in possession by evil spirits (witches), the influence of celestial energies on people's fates (astrology) and lucky amulets. The authors conclude that construing events in terms of purpose is not a universal tendency but an individual cognitive bias that can be accounted for by false analogies from intuitive psychology, biology and physics.

- Toburen, Tina & Brian P. Meier. 2010. Priming God-Related Concepts Increases Anxiety and Task Persistence. *Journal of Social and Clinical Psychology* 29(2). 127-143.
doi:[10.1521/jscp.2010.29.2.127](https://doi.org/10.1521/jscp.2010.29.2.127).

In this experiment, Christians and Atheists/Agnostics/Others were primed with God-related or neutral (non-God related) concepts before completing an unsolvable anagram task described as a measure of verbal intelligence. The results revealed that the God-related primes increased both task persistence and anxiousness, which suggests that experimentally induced God-related thoughts caused participants to persist longer on a stressful task, but also to feel more anxious after finishing it. No effect of religious affiliation was found, indicating that God-related priming affected Christians and non-Christians in a similar fashion.

- Vail, Kenneth E, Zachary K Rothschild, Dave R Weise, Sheldon Solomon, Tom Pyszczynski & Jeff Greenberg. 2010. A terror management analysis of the psychological functions of religion. *Personality and Social Psychology Review* 14(1). 84-94.
doi:[10.1177/1088868309351165](https://doi.org/10.1177/1088868309351165).

The authors review research demonstrating that mortality salience produces increased belief in afterlife, supernatural agency, human ascension from nature, and spiritual distinctions between mind and body – all important components of a terror management system that mitigates the shock of the uniquely human awareness of death. The terror management functions of, and benefits and costs associated with, different types of religious orientation, such as intrinsic religiosity, quest, and religious fundamentalism, are then examined, and terror management is compared to other accounts of religion. Part of a special issue on the social psychological study of the phenomenon of religion.

- Verkuyten, Maykel & Jochem Thijs. 2010. Religious group relations among Christian, Muslim and nonreligious early adolescents in the Netherlands. *The Journal of Early Adolescence* 30(1). 27-49.
doi:[10.1177/0272431609342984](https://doi.org/10.1177/0272431609342984).

Using intergroup theory to examine religious group evaluation, researchers found evidence for a religious group divide, with a third of the Christian and nonreligious participants explicitly indicating negative feelings toward Muslims, and Muslim children having negative feelings toward Christians, nonbelievers, and Jews. Furthermore, the Muslim early adolescents had high religious in-group identification and higher identification was associated with more negative feelings toward nonbelievers and Jews. In addition, the results show that increased opportunities in school for contact between early adolescents from different religious and nonreligious groups contributes to more positive group relations. It is argued that the pattern of results is in agreement with an intergroup perspective in which the role of the broader social context and the concrete situation is taken into account.

Wichman, Aaron L. 2010. Uncertainty and religious reactivity: Uncertainty compensation, repair, and inoculation. *European Journal of Social Psychology* 40(1). 35-42.
doi:[10.1002/ejsp.712](https://doi.org/10.1002/ejsp.712).

After confirming that uncertainty increases self-reported religious faith, two studies investigated different techniques to control compensatory responses to uncertainty: Study 1 demonstrates that uncertainty-induced increases in religiosity can be eliminated by a post-uncertainty directed positive recall writing task; Study 2 presents evidence for an uncertainty inoculation, whereby a pre-uncertainty self-affirmation exercise can protect against uncertainty compensation effects.

Williams, J Mark G. 2010. Mindfulness and psychological process. *Emotion* 10(1). 1-7.
doi:[10.1037/a0018360](https://doi.org/10.1037/a0018360).

In reviewing the articles in the special issue on mindfulness, the author finds that they show that even brief laboratory training can have effects on processing affective stimuli; that long-term meditation practitioners show distinct reactions to pain; that longer meditation training is associated with differences in brain structure; that 8 weeks' mindfulness practice brings about changes in the way emotion is processed showing that participants can learn to uncouple the sensory, directly experienced self from the "narrative" self; that mindfulness training can affect working memory capacity, and enhance the ability of participants to talk about past crises in a way that enables them to remain specific and yet not be overwhelmed.

1.4 SCIENTIFIC STUDY OF RELIGION: METHOD & THEORY

Akdede, Sacit Hadi. 2010. Do more ethnically and religiously diverse countries have lower democratization? *Economics Letters* 106(2). 101-104.
doi:[10.1016/j.econlet.2009.10.013](https://doi.org/10.1016/j.econlet.2009.10.013).

After studying the effects of diversity on democratization from 1992-2006, the author finds that countries with higher religious diversity experienced more democratization in that time period. Ethnic fractionalization and polarization did not seem to affect democratization significantly.

André, Jean-Baptiste. 2010. The Evolution of Reciprocity: Social Types or Social Incentives? *The American Naturalist* 175(2). 197-210.
doi:[10.1086/649597](https://doi.org/10.1086/649597).

In this article, the author offers an alternative explanation of reciprocal cooperation with nonrelated conspecifics, based on a work by Olof Leimar (1997). The explanation consists of taking into account the fact that the payoffs to individuals in social interactions can change through time. This offers a solution because individuals' past behavior then signals their payoffs, which also makes it sensible to reciprocate. While acknowledging that the majority of evolutionary models implicitly endorse the social types mechanism, the author maintains that the social incentives mechanism instead may underlie reciprocity in humans.

Confer, Jaime C., Judith A. Easton, Diana S. Fleischman, Cari D. Goetz, David M. G. Lewis, Carin Perilloux & David M. Buss. 2010. Evolutionary psychology: Controversies, questions, prospects, and limitations. *American Psychologist* 65(2). 110-126.
doi:[10.1037/a0018413](https://doi.org/10.1037/a0018413).

This article identifies some of the most common concerns about evolutionary psychology and attempts to elucidate the discipline's stance pertaining to them. These include issues of testability and falsifiability; the domain specificity versus domain generality of psychological mechanisms; the role of novel environments as they interact with evolved psychological circuits; the role of genes in the conceptual structure of evolutionary psychology; the roles of learning, socialization, and culture in evolutionary psychology; and the practical value of applied evolutionary psychology.

Dawson, LL. 2010. The Study of New Religious Movements and the Radicalization of Home-Grown Terrorists: Opening a Dialogue. *Terrorism and Political Violence* 22(1). 1-21.
doi:[10.1080/09546550903409163](https://doi.org/10.1080/09546550903409163).

This article examines: (1) the reasons for, and absence of, a dialogue between scholars studying new religious movements (NRMs), particularly those responsible for acts of mass violence, and those studying processes of radicalization in home-grown terrorist groups; (2) the substantial parallels between established understandings of who joins NRMs, how, and why, and recent findings about who joins terrorist groups in a Western context, how, and why; and (3) the ways in which explanations of the causes of violent behavior in NRMs are pertinent to securing a more systematic and complete grasp of the process of radicalization in terrorist cells, focusing on the role of apocalyptic belief systems and charismatic forms of authority.

Graham, Jesse & Jonathan Haidt. 2010. Beyond beliefs: religions bind individuals into moral communities. *Personality and Social Psychology Review* 14(1). 140-150.
doi:[10.1177/1088868309353415](https://doi.org/10.1177/1088868309353415).

The authors argue that social psychology can best contribute to scholarship on religion by remaining persistently social, beginning with a social-functionalist approach in which beliefs, rituals, and other aspects of religious practice are best understood as means of creating a moral community. They discuss the ways that religion is intertwined with five moral foundations: the group-focused "binding" foundations of Ingroup/loyalty, Authority/respect, Purity/sanctity. The authors use this theoretical perspective to address three mysteries about religiosity, including why religious people are happier, why they are more charitable, and why most people in the world are religious. Part of a special issue on the social psychological study of the phenomenon of religion.

Granqvist, Pehr, Mario Mikulincer & Phillip R Shaver. 2010. Religion as attachment: normative processes and individual differences. *Personality and Social Psychology Review* 14(1). 49-59.
doi:[10.1177/1088868309348618](https://doi.org/10.1177/1088868309348618).

The authors propose two developmental pathways to religion: The first is a "compensation" pathway, involving distress regulation in the context of insecure attachment and past experiences of insensitive caregiving, setting in motion an "earned security" process for individuals who are insecure with respect to attachment. The second is a "correspondence" pathway, based on secure attachment and past experiences with sensitive caregivers who were religious. The authors also discuss conceptual limitations of the model and propose a more inclusive framework that accommodates concepts such as mindfulness and "nonattachment" from nontheistic religions. Part of a special issue on the social psychological study of the phenomenon of religion.

Gray, Kurt & Daniel M. Wegner. 2010. Blaming God for Our Pain: Human Suffering and the Divine Mind. *Personality and Social Psychology Review* 14(1). 7-16.
doi:[10.1177/1088868309350299](https://doi.org/10.1177/1088868309350299).

Although humans are perceived to have both agency and experience, humans appear to see God as possessing agency, but not experience. God's unique mind is due, the authors suggest, to the uniquely moral role he occupies. In this article, they propose that God is viewed by believers as the ultimate moral agent, the entity people blame and praise when they receive anomalous harm and help. Support for this proposition comes from research on mind perception, morality, and moral typecasting. Although people perceive God as the author of salvation, suffering seems to evoke even more attributions to the divine. Part of a special issue on the social psychological study of the phenomenon of religion.

Greyson, Bruce. 2010. Implications of near-death experiences for a postmaterialist psychology. *Psychology of Religion and Spirituality* 2(1). 37-45.
doi:[10.1037/a0018548](https://doi.org/10.1037/a0018548).

The author holds that complex consciousness, including cognition, perception, and memory, under conditions such as cardiac arrest and general anesthesia, require a revised psychology anchored not in 19th-century classical physics but rather in a 21st-century quantum physics that includes consciousness in its conceptual formulation. Materialist psychology, modeled on the reductionism of classical physics, is insufficient in describing mentation under extreme conditions. "Near-death experiences" include phenomena that challenge materialist reductionism, such as enhanced mentation and memory during cerebral impairment, accurate perceptions from a perspective outside the body, and reported visions of deceased persons, including those not previously known to be deceased.

Mason, Peggy & Inbal Ben-Ami Bartal. 2010. How the social brain experiences empathy: Summary of a gathering. *Social Neuroscience* 5(1). 1-5.
doi:[10.1080/17470911003589085](https://doi.org/10.1080/17470911003589085).

The authors report on a recent conference of scholars in the fields of biology, philosophy, psychology, and anthropology, who were studying how the social brain experiences. Among the topics discussed were the nature of empathy in nonhuman animals, the endocrine requirements for empathy, the effects of empathy on moral behavior, the social nature of pain, the relation between empathy and altruism, the ethnography of empathy, and empathy in the medical setting.

McDaniel, Brenda, James Grice & E. Allen Eason. 2010. Seeking a multi-construct model of morality. *Journal of Moral Education* 39(1). 37-48.
doi:[10.1080/03057240903528626](https://doi.org/10.1080/03057240903528626).

In a study of a multi-construct model of moral development, researchers found support for the hypothesis that the three moral emotions of empathy, shame and guilt interrelate. Further, it was found that a relationship with a higher power (spirituality) involves empathy and guilt.

Schloss, Jeffrey & Michael Murray. 2010. Explaining and Explaining Away Religious Belief: Van Till's Criticisms of Barrett. *Theology and Science* 8(1). 17-23.
doi:[10.1080/14746700903475080](https://doi.org/10.1080/14746700903475080).

The authors respond to an article by Howard van Till (2008), criticizing psychologist Justin Barrett's consideration of challenges for religious belief that are raised by evolutionary and cognitive theories of religion. Where Barrett was criticized for overstating tensions, mischaracterizing the most important epistemological issues, and proposing a solution that perpetuates war on evolution, the authors argue that each of these claims is untrue, and is not conducive to dialogue that constructively engages and attempts to resolve tensions between science and religion where they do exist.

Stoppa, Tara M. & Eva S. Lefkowitz. 2010. Longitudinal Changes in Religiosity Among Emerging Adult College Students. *Journal of Research on Adolescence* 20(1). 23-38.
doi:[10.1111/j.1532-7795.2009.00630.x](https://doi.org/10.1111/j.1532-7795.2009.00630.x).

Researchers investigated longitudinal changes in the religiosity of 434 emerging adult college students (52% female) of diverse ethnic backgrounds during the first 3 semesters of university, and found that while significant declines in the behavioral aspects of religiosity were observed across semesters, the importance of religious beliefs remained relatively constant. Heterogeneity in religiosity based upon gender and religious affiliation was also found.

Tagini, Angela & Antonino Raffone. 2010. The 'I' and the 'Me' in self-referential awareness: a neurocognitive hypothesis. *Cognitive Processing* 11(1). 9-20.
doi:[10.1007/s10339-009-0336-1](https://doi.org/10.1007/s10339-009-0336-1).

Researchers reviewed empirical studies and theories about the 'I' and the 'Me' in cognition and self-related awareness, and subsequently considered the relations between self and different aspects of consciousness. On the basis of the reviewed literature, and with reference to Block's distinction between phenomenal and access

consciousness, the authors formulate a neurocognitive hypothesis about 'I'-related and 'Me'-related self-referential awareness. This hypothesis is extended to metacognitive awareness and a form of non-transitive consciousness, characteristic of meditation experiences and studies, with particular reference to the notion of mindfulness and other Buddhist constructs. Part of a special issue: The Neuroscience of Meditation and Consciousness.

- Teas, Jane. 2010. Medicine can give me a diagnosis, and faith can give me a different prognosis: faith and healing in the American South. *Explore (New York, N.Y.)* 6(1). 17-21.
doi:[10.1016/j.explore.2009.10.006](https://doi.org/10.1016/j.explore.2009.10.006).

The author studied reports of faith healing (n = 47) to learn how people define answered prayers for healing. The author hypothesizes that unlike conventional medicine, being healed by God placed both suffering and healing in a wider framework of personal meaning. Further, ill health as part of God's plan also answered the "why me?" question. Being healed by God transcended the limits of specific health conditions to bring a sense of wholeness to life, allowing recipients "to walk life with the fullness of each day," regardless of physical status.

- Ysseldyk, Renate, Kimberly Matheson & Hymie Anisman. 2010. Religiosity as identity: toward an understanding of religion from a social identity perspective. *Personality and Social Psychology Review* 14(1). 60-71.
doi:[10.1177/1088868309349693](https://doi.org/10.1177/1088868309349693).

The authors propose that religion might be partially explained by the marked cognitive and emotional value that religious group membership provides, such as a distinctive "sacred" worldview and "eternal" group membership. The uniqueness of a positive social group, grounded in a belief system that offers epistemological and ontological certainty, lends religious identity a twofold advantage for the promotion of well-being. However, that uniqueness may have equally negative impacts when religious identity itself is threatened through intergroup conflict. Such consequences are illustrated by an examination of identities ranging from religious fundamentalism to atheism. Part of a special issue on the social psychological study of the phenomenon of religion.

PART 2. ARTICLES IN SPIRITUALITY & HEALTH RESEARCH

2.1 SPIRITUALITY & HEALTH: MEDICAL CONDITIONS

Aukst-Margetić, Branka, Miro Jakovljević, Dragutin Ivanec, Branimir Margetić, Duliano Ljubicić & Mirko Samija. 2009. Religiosity and quality of life in breast cancer patients. *Collegium Antropologicum* 33(4). 1265-1271.

In a study of 115 consecutively admitted female in-patients with breast cancer in the radiotherapy unit, researchers found that moderate religiosity was associated with perception of worse physical health. The statement "the illness decreased my faith" was associated with worse quality of life domains: less well-being, more pain, poor physical health, more effort to cope, worse fatigue and less general satisfaction. The statement "the faith helps me in illness" was associated with higher social support.

Barabasz, Arreed, Linda Higley, Ciara Christensen & Marianne Barabasz. 2010. Efficacy of Hypnosis in the Treatment of Human Papillomavirus (HPV) in Women: Rural and Urban Samples. *International Journal of Clinical and Experimental Hypnosis* 58(1). 102-121.

doi:[10.1080/00207140903310899](https://doi.org/10.1080/00207140903310899).

This article investigates the effect of hypnosis on immunity to the human papillomavirus (HPV). Researchers contrasted hypnosis-only with medical-only therapies. Both hypnosis and medical therapy resulted in a statistically significant reduction in areas and numbers of lesions. At the 12-week follow-up, however, complete clearance rates were 5 to 1 in favor of hypnosis.

Foley, Elizabeth, Andrew Baillie, Malcolm Huxter, Melanie Price & Emma Sinclair. 2010. Mindfulness-based cognitive therapy for individuals whose lives have been affected by cancer: a randomized controlled trial. *Journal of Consulting and Clinical Psychology* 78(1). 72-79.

doi:[10.1037/a0017566](https://doi.org/10.1037/a0017566).

Participants (n = 115) diagnosed with cancer, across site and stage, were randomly allocated to either mindfulness-based cognitive therapy (MBCT) treatment, or the wait-list condition. Treatment involved participation in 8 weekly 2-hour sessions that focused on mindfulness, and participants meditated for up to 1 hour daily and attended an additional full-day session during the course. After the intervention, there were large and significant improvements in mindfulness, depression, anxiety, and distress as well as a trend for quality of life for MBCT participants, compared to those who had not received the training.

Montgomery, Guy H, Michael N Hallquist, Julie B Schnur, Daniel David, Jeffrey H Silverstein & Dana H Bovbjerg. 2010. Mediators of a brief hypnosis intervention to control side effects in breast surgery patients: response expectancies and emotional distress. *Journal of Consulting and Clinical Psychology* 78(1). 80-88.

doi:[10.1037/a0017392](https://doi.org/10.1037/a0017392).

Women (n = 200) undergoing breast-conserving surgery were randomized to a hypnosis or to an attention control group. Researchers found that hypnotic effects on postsurgical pain were partially mediated by pain expectancy but not by distress; hypnotic effects on postsurgical nausea were partially mediated by presurgical distress but not by nausea expectancy; and hypnotic effects on postsurgical fatigue were partially mediated by both fatigue expectancy and presurgical distress.

Rabow, Michael & Blake Rawdin. 2010. Losing Hope: The Relationship between Hope and Pain, Depression, and Spiritual Well-Being among Ambulatory Cancer Patients. *Journal of Pain and Symptom Management* 39(2). 384-385.

doi:[10.1016/j.jpainsymman.2009.11.112](https://doi.org/10.1016/j.jpainsymman.2009.11.112).

At a comprehensive cancer center, 78 participants receiving concurrent oncologic and symptom-focused care completed surveys measuring hope, pain, anxiety and depression, spiritual concerns, and the perception of the personal meaning of the pain associated with cancer. The authors found that hope scores were not associated with age, gender, or the presence of metastatic disease. The correlation was explained by the associations between hope and both depression and spiritual well-being, implying that hope appears to be related to emotional and existential factors, rather than physical ones such as pain.

Tan, Gabriel, Tenley Fukui, Mark Jensen, John Thornby & Karen Waldman. 2010. Hypnosis Treatment for Chronic Low Back Pain. *International Journal of Clinical and Experimental Hypnosis* 58(1). 53-68.

doi:[10.1080/00207140903310824](https://doi.org/10.1080/00207140903310824).

This study indicates that a brief, 4-session standardized self-hypnosis protocol, combined with psycho-education, significantly and substantially reduced pain intensity and pain interference for people suffering from chronic low back pain (CLBP). Significant session-to-session improvements were also noted on pain ratings and mood states; however, follow-up data suggest that these benefits may not have been maintained across time in this sample.

2.2 SPIRITUALITY & HEALTH: MENTAL HEALTH

Cruz, Mario, Harold Alan Pincus, Deborah E Welsh, Devra Greenwald, Elaine Lasky & Amy M Kilbourne. 2010. The relationship between religious involvement and clinical status of patients with bipolar disorder. *Bipolar Disorders* 12(1). 68-76.

doi:[10.1111/j.1399-5618.2009.00772.x](https://doi.org/10.1111/j.1399-5618.2009.00772.x).

In a cross-sectional observation study of 334 patients with bipolar disorder at an urban Veterans Affairs mental health clinic, researchers found significant associations between higher rates of prayer/meditation and participants in a mixed state, as well as lower rates of prayer/meditation and participants who were euthymic. Depression and mania were not associated with religious involvement. The authors conclude that compared to patients with bipolar disorder in depressed, manic, or euthymic states, patients in mixed states have more active private religious lives.

Ellison, Christopher G., Wei Zhang, Neal Krause & John P. Marcum. 2009. Does Negative Interaction in the Church Increase Psychological Distress? Longitudinal Findings from the Presbyterian Panel Survey. *Sociology of Religion* 70(4). 409-431.

doi:[10.1093/socrel/srp062](https://doi.org/10.1093/socrel/srp062).

Using longitudinal data from two surveys of the 1997–1999 Presbyterian Panel, a nationwide panel of members and elders (lay leaders) in congregations of the Presbyterian Church (USA), researchers found that negative interaction at church appears to foster or exacerbate distress over the study period. In addition, specific dimensions of social negativity have distinctive effects; the impact of criticisms on distress surface only in cross-sectional models, while the effects of excessive demands emerge only in the longitudinal models.

Erismann, Shannon M. & Lizabeth Roemer. 2010. A preliminary investigation of the effects of experimentally induced mindfulness on emotional responding to film clips. *Emotion* 10(1). 72-82.

doi:[10.1037/a0017162](https://doi.org/10.1037/a0017162).

Researchers used multimodal assessment to examine the effects of a brief mindfulness intervention in a laboratory setting on emotional experiences and regulation, in response to distressing, positive, and affectively mixed film clips. No effects were shown between mindfulness and control after the distressing film clip, but participants in the mindfulness condition reported significantly greater positive affect in response to the positive film.

Goldin, Philippe R. & James J. Gross. 2010. Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion* 10(1). 83-91.
doi:[10.1037/a0018441](https://doi.org/10.1037/a0018441).

Changes related to MBSR in the brain-behavior indices of emotional reactivity and regulation of negative self-beliefs were measured, and post-MBSR neuroimages assessed, in 14 patients with social anxiety disorder (SAD). Compared with baseline, MBSR completers showed improvement in anxiety and depression symptoms and self-esteem. During one attention task, they also showed decreased negative emotion experience, reduced amygdala activity, and increased activity in brain regions implicated in attentional deployment.

Guillory, Margarita S. 2010. Therapeutic Enterprise: A Psychological Exploration of Healing Elements in a Local African-American Spiritualist Church. *Pastoral Psychology* 59(1). 65-77.
doi:[10.1007/s11089-009-0215-9](https://doi.org/10.1007/s11089-009-0215-9).

This article employs analytical psychology to argue that African-American Spiritualist groups, as seen in the Redeeming Spiritualist Christian Church of Nashville, represent a viable therapeutic enterprise addressing certain psychological disruptions.

Hargus, Emily, Catherine Crane, Thorsten Barnhofer & J. Mark G. Williams. 2010. Effects of mindfulness on meta-awareness and specificity of describing prodromal symptoms in suicidal depression. *Emotion* 10(1). 34-42.
doi:[10.1037/a0016825](https://doi.org/10.1037/a0016825).

Depressed patients who had experienced suicidal crises (n = 27) were randomly allocated to receive mindfulness-based cognitive therapy (MBCT) plus treatment as usual (TAU), or TAU alone. After 3 months, patients randomized to MBCT and TAU displayed significant posttreatment differences in meta-awareness and specificity of memory when compared with TAU-only patients.

Harrawood, LK. 2009. Measuring Spirituality, religiosity, and denial in individuals working in funeral service to predict death anxiety. *Omega - Journal of death and dying* 60(2). 129-142.
doi:[10.2190/OM.60.2.b](https://doi.org/10.2190/OM.60.2.b).

In a study of 234 U.S. funeral directors/embalmers, spirituality along with age of the participants accounted for 19% of the variance of death anxiety, and intrinsic religiosity with denial and age. Other variables correlated negatively with one another: death anxiety with spirituality; intrinsic religiosity and age; spirituality with extrinsic religiosity; intrinsic religiosity with extrinsic religiosity; and extrinsic religiosity with age.

Jackson, Lovie J., Catherine Roller White, Kirk O'Brien, Paul DiLorenzo, Ernie Cathcart, Mary Wolf, Delilah Bruskas, Peter J. Pecora, Vivian Nix-Early & Jorge Cabrera. 2010. Exploring spirituality among youth in foster care: Findings from the Casey Field Office Mental Health Study. *Child & Family Social Work* 15(1). 107-117.
doi:[10.1111/j.1365-2206.2009.00649.x](https://doi.org/10.1111/j.1365-2206.2009.00649.x).

In face-to-face interviews with 188 youth in foster care, ages 14-17, researchers found that 95% believe in God, over 70% believe God is 'creator' and God is 'love', and 79% considered prayer a spiritual practice. Most youth said love and forgiveness help them heal. Two-thirds reported responding to 'bad or tragic things happening' by spending time alone, and over half responded by praying, or sharing the problem with someone else. Youth's top three spiritual goals were to follow God's plan for them, become a better person, and know their purpose in life.

Jha, Amishi P., Elizabeth A. Stanley, Anastasia Kiyonaga, Ling Wong & Lois Gelfand. 2010. Examining the protective effects of mindfulness training on working memory capacity and affective experience. *Emotion* 10(1). 54-64.
doi:[10.1037/a0018438](https://doi.org/10.1037/a0018438).

Resaerchers found that mindfulness training (MT) and practice of mindfulness by military personnel (n = 31) during the high-stress predeployment interval correlated with improved over time compared to a similar control group (n = 17). Working memory capacity (WMC) and affective experience remained stable over time in civilians (n = 12), degraded in the control group, degraded in the MT group with low practice time, and increased in the MT group with high practice time.

Koszycski, Diana, Kelley Raab, Fahad Aldosary & Jacques Bradwejn. 2010. A multifaith spiritually based intervention for generalized anxiety disorder: a pilot randomized trial. *Journal of Clinical Psychology* 66(4). 430-441.
doi:[10.1002/jclp.20663](https://doi.org/10.1002/jclp.20663).

Patients with generalized anxiety disorder (GAD) of at least moderate severity were randomized to either 12 sessions of the spiritually based intervention (SBI) (n=11) or 12 sessions of psychologist-administered cognitive-behavioral therapy (CBT) (n=11). Of the 18 patients who completed the study, the SBI produced robust and clinically significant reductions from baseline in psychic and somatic symptoms of GAD and was comparable in efficacy to CBT. Gains were maintained at 3-month and 6-month follow-ups.

Kubicek, Katrina, Bryce McDavitt, Julie Carpineto, George Weiss, Ellen Iverson & Michele D Kipke. 2009. "God Made me Gay for a Reason": Young Men who have Sex with Men's Resiliency in Resolving Internalized Homophobia from Religious Sources. *Journal of Adolescent Research* 24(5). 601-633.
doi:[10.1177/0743558409341078](https://doi.org/10.1177/0743558409341078).

Drawing upon a longitudinal, mixed methods study, the authors explored the role of religion and spirituality in the lives of a sample of young men who have sex with men (YMSM). They describe messages about homosexuality from religious contexts, how these messages are internalized, and the process used to resolve the conflict between these messages and their sexual identity. The authors conclude with a discussion of how to help YMSM retain the more supportive and nurturing aspects of religion to integrate their sexual and religious identities for a functional support system.

Namini, Sussan, Claudia Appel, Ralph Jürgensen & Sebastian Murken. 2010. How is Well-Being Related to Membership in New Religious Movements? An Application of Person-Environment Fit Theory. *Applied Psychology* 59(2). 181-201.
doi:[10.1111/j.1464-0597.2009.00377.x](https://doi.org/10.1111/j.1464-0597.2009.00377.x).

In research of 58 participants who were new members of a Pentecostal parish, the New Apostolic Church, or the Jehovah's Witnesses, all in Germany, researchers found that membership predicted satisfaction with religious affiliation, mental health, and depression, but not life satisfaction and anxiety. Results indicate that well-being measures tended to decrease as supplies of autonomy and relatedness exceeded needs.

Perlman, David M, Tim V Salomons, Richard J Davidson & Antoine Lutz. 2010. Differential effects on pain intensity and unpleasantness of two meditation practices. *Emotion (Washington, D.C.)* 10(1). 65-71.
doi:[10.1037/a0018440](https://doi.org/10.1037/a0018440).

In a comparison of the regulatory effects of meditation practices on pain, long-term practitioners of meditation, compared to novices, showed a significant reduction of self-reported unpleasantness, but not intensity, of painful stimuli while practicing Open Monitoring. No significant effects were found for Focused Attention meditation.

Schroevers, Maya J. & Rob Brandsma. 2010. Is learning mindfulness associated with improved affect after mindfulness-based cognitive therapy? *British Journal of Psychology* 101(1). 95-107.
doi:[10.1348/000712609X424195](https://doi.org/10.1348/000712609X424195).

In a study of 64 participants with mild to moderate psychological problems, results showed significant decreases in negative affect and increases in positive affect after an 8-week course of mindfulness-based cognitive therapy.

- Shih, Shaw-Nin, Sue Turale, Fu-Jin Shih & Jen-Chen Tsai. 2010. Religiosity influences on bereavement adjustments of older widows in Taiwan. *Journal of Clinical Nursing* 19(5-6). 856-866. doi:[10.1111/j.1365-2702.2009.02947.x](https://doi.org/10.1111/j.1365-2702.2009.02947.x).

Of recently-widowed women in Taiwan who reported intrapersonal and interpersonal problems (n = 20, m = 72.95), those with intrinsic religious beliefs reported fewer coping problems by holding positive attitudes and taking multiple actions for adaptation. The extrinsic religious group had more negative adaptation attitudes, such as withdrawal and low self-esteem and practiced less faith religious activities in worshipping ancestors, experiencing fatalism and using divination. They reported more coping problems than the intrinsic religious group.

- Sisask, Merike, Airi Varnik, Kairi Kolves, Jose M Bertolote, Jafar Bolhari, Neury J Botega, Alexandra Fleischmann, Lakshmi Vijayakumar & Danuta Wasserman. 2010. Is religiosity a protective factor against attempted suicide: a cross-cultural case-control study. *Archives of Suicide Research: Official Journal of the International Academy for Suicide Research* 14(1). 44-55. doi:[10.1080/13811110903479052](https://doi.org/10.1080/13811110903479052).

In a cross-cultural study, community controls (n = 5,484) were more likely than suicide attempters (n = 2,819) to report religious denomination in Estonia, and more likely to report subjective religiosity in four countries: Brazil, Estonia, Islamic Republic of Iran, and Sri Lanka. In South Africa, the effect was exceptional both for religious denomination and subjective religiosity. No effects were found in India and Vietnam.

- Telles, Shirley, Vaishali Gaur & Acharya Balkrishna. 2009. Effect of a yoga practice session and a yoga theory session on state anxiety. *Perceptual and Motor Skills* 109(3). 924-930.

In this study, 300 naive-to-yoga persons attending a yoga therapy center in north India for stress relief as day visitors were assigned to two groups, yoga practice and yoga theory, and their state anxiety was assessed before and after a 2-hr. yoga session. A significant reduction in scores on state anxiety was found in the yoga practice group (14.7% decrease), as well as in the yoga theory group (3.4% decrease). The difference in scores following the sessions was statistically significant.

2.3 SPIRITUALITY & HEALTH: GENERAL HEALTH & WELL-BEING

- Dhikav, Vikas, Girish Karmarkar, Richa Gupta, Myank Verma, Ruchi Gupta, Supriya Gupta & Kuljeet S. Anand. 2010. Yoga in Female Sexual Functions. *Journal of Sexual Medicine* 7(2pt2). 964-970. doi:[10.1111/j.1743-6109.2009.01580.x](https://doi.org/10.1111/j.1743-6109.2009.01580.x).

After completion of a 12 week yoga camp, 40 participating women (m = 34.7) showed significantly improved scores on the Female Sexual Function Index (FSFI) compared to baseline. The improvement occurred in all six domains of FSFI (i.e., desire, arousal, lubrication, orgasm, satisfaction, and pain). The improvement was more in older women (age > 45 years) compared with younger women (age < 45 years).

- Falkenström, Fredrik. 2010. Studying mindfulness in experienced meditators: A quasi-experimental approach. *Personality and Individual Differences* 48(3). 305-310. doi:[10.1016/j.paid.2009.10.022](https://doi.org/10.1016/j.paid.2009.10.022).

Well-being increased in experienced meditators who attended an intensive meditation retreat (n = 48), more than a control group of experienced meditators (n = 28). No change in mindfulness was observed. Pre-retreat, mindfulness was strongly related to well-being in both groups.

Flugel Colle, Kathleen F., Ann Vincent, Stephen S. Cha, Laura L. Loehrer, Brent A. Bauer & Dietlind L. Wahner-Roedler. 2010. Measurement of quality of life and participant experience with the mindfulness-based stress reduction program. *Complementary Therapies in Clinical Practice* 16(1). 36-40.
doi:[10.1016/j.ctcp.2009.06.008](https://doi.org/10.1016/j.ctcp.2009.06.008).

After an 8-week MBSR program at Mayo Clinic, 16 participants showed statistically significant improvement in overall quality of, mental well-being, physical well-being, emotional well-being, level of social activity, and spiritual well-being. No statistically significant changes were seen in frequency of pain, severity of pain, level of fatigue, level of support from friends and family, and financial and legal concerns.

Kiecolt-Glaser, Janice K, Lisa Christian, Heather Preston, Carrie R Houts, William B Malarkey, Charles F Emery & Ronald Glaser. 2010. Stress, inflammation, and yoga practice. *Psychosomatic Medicine* 72(2). 113-121.
doi:[10.1097/PSY.0b013e3181cb9377](https://doi.org/10.1097/PSY.0b013e3181cb9377).

During 3 separate visits, 50 healthy women (m = 41.32), 25 novices and 25 experts, were exposed to yoga, movement control, and passive-video control. The yoga session boosted participants' positive affect compared with the control conditions, but no overall differences in inflammatory or endocrine responses were unique to the yoga session. Novices' serum interleukin (IL)-6 levels were 41% higher than those of experts across sessions, and the odds of a novice having detectable C-reactive protein (CRP) were 4.75 times as high as that of an expert.

Pace, Thaddeus W.W., Lobsang Tenzin Negi, Teresa I. Sivilli, Michael J. Issa, Steven P. Cole, Daniel D. Adame & Charles L. Raison. 2010. Innate immune, neuroendocrine and behavioral responses to psychosocial stress do not predict subsequent compassion meditation practice time. *Psychoneuroendocrinology* 35(2). 310-315.
doi:[10.1016/j.psyneuen.2009.06.008](https://doi.org/10.1016/j.psyneuen.2009.06.008).

Researchers found no associations between responses to a Trier Social Stress Test (TSST) and subsequent amount of meditation practice time (n = 32). The results are significant in light of a previously published study (Pace et al, 2009) that found that the practice of a Tibetan Buddhist-based compassion meditation technique was associated with reduced innate immune responses to a TSST administered after 6 weeks of meditation training.

2.4 SPIRITUALITY & HEALTH: RELIGIOSITY

Dowshen, Nadia, Amy Johnson, Lisa Kuhns & Robert Garofalo. 2010. Religiosity as a Protective Factor Against HIV Risk Among Young Transgender Women. *Journal of Adolescent Health* 46(2, Supplement 1). S2-S3.
doi:[10.1016/j.jadohealth.2009.11.005](https://doi.org/10.1016/j.jadohealth.2009.11.005).

In a sample of 92 young transgender women (m = 20.4), analysis did not show that religiosity was associated with sexual risk. Formal religious practice was significantly and negatively associated with sexual risk among participants who reported recent heavy drinking, but not among those who did not.

Feinstein, Matthew, Kiang Liu, Hongyan Ning, George Fitchett & Donald M Lloyd-Jones. 2010. Burden of cardiovascular risk factors, subclinical atherosclerosis, and incident cardiovascular events across dimensions of religiosity: The multi-ethnic study of atherosclerosis. *Circulation* 121(5). 659-666.
doi:[10.1161/circulationaha.109.879973](https://doi.org/10.1161/circulationaha.109.879973).

Researchers found that study participants (n = 5,474, m = 63) who attended services daily, compared with never, were significantly more likely to be obese, but less likely to smoke. Results were similar for those with frequent

prayer/ meditation or high levels of spirituality. There were no consistent patterns of association observed between measures of religiosity and presence/extent of subclinical cardiovascular disease (CVD) at baseline or incident CVD events during longitudinal follow-up in the course of 4 years.

- Kim, Jungmeen, Michael E McCullough & Dante Cicchetti. 2009. Parents' and Children's Religiosity and Child Behavioral Adjustment among Maltreated and Nonmaltreated Children. *Journal of Child and Family Studies* 18(5). 594-605.
doi:[10.1007/s10826-009-9262-1](https://doi.org/10.1007/s10826-009-9262-1).

Using data from 170 maltreated and 159 nonmaltreated children from low-income families (m = 10), researchers identified evidence of parent-child religiosity interaction suggesting that (1) parents' frequent church attendance was related to lower levels of internalizing symptomatology among nonmaltreated children with low church attendance and (2) parents' importance of faith was associated with lower levels of internalizing and externalizing symptomatology among nonmaltreated children with low faith.

- Wells, Gayle M. 2010. The effect of religiosity and campus alcohol culture on collegiate alcohol consumption. *Journal of American College Health: J of ACH* 58(4). 295-304.
doi:[10.1080/07448480903380250](https://doi.org/10.1080/07448480903380250).

The author found that among college students (n = 530) sampled, alcohol consumption was significantly higher among students at the university (M = 26.9 drinks) versus students at the religious college (M = 11.9 drinks). University students also had lower religiosity scores (M = 23.8) than students at the religious college (M = 26.5). Students who attend a secular university are 4 times more likely to be moderate or heavy drinkers, and students with the least religiosity were 27 times more likely to be a heavy alcohol user, and 9 times more likely to be a moderate alcohol user, compared to students with greater religiosity.

2.5 SPIRITUALITY & HEALTH: METHOD AND THEORY

- AlHaqwi, Ali. 2010. Perception among medical students in Riyadh, Saudi Arabia, regarding alcohol and substance abuse in the community: a cross-sectional survey. *Substance Abuse Treatment, Prevention, and Policy* 5(1). 2.
doi:[10.1186/1747-597X-5-2](https://doi.org/10.1186/1747-597X-5-2).

Of students at two medical colleges in Riyadh, Saudi Arabia (n = 215), researchers found that 75% of them believe that alcohol and substance abuse is a common problem in the community, mainly present in young adult males. Married males and senior students perceived the problem as more serious than their other colleagues. Students perceived that alcohol was the most commonly abused drug in the community, followed by amphetamines, heroin, cannabis and cocaine.

- Borneman, Tami, Betty Ferrell, Shirley Otis-Green, Pamela Baird & Christina Puchalski. 2010. Evaluation of the FICA Spiritual Assessment Tool (501). *Journal of Pain and Symptom Management* 39(2). 406-407.
doi:[10.1016/j.jpainsymman.2009.11.149](https://doi.org/10.1016/j.jpainsymman.2009.11.149).

Researchers found that the FICA spiritual assessment tool closely correlated with quantitative quality of life data in a sample of 76 patients (m = 59) with solid tumors recruited from ambulatory clinics of one comprehensive cancer center. The majority rated faith/belief as very important in their lives.

- Borras, Laurence, Sylvia Mohr, Christiane Gillieron, Pierre-Yves Brandt, Isabelle Rieben, Claude Leclerc & Philippe Huguelet. 2009. Religion and Spirituality: How Clinicians in Quebec and Geneva Cope with the Issue When Faced with Patients Suffering from Chronic Psychosis. *Community Mental Health Journal* 46(1). 77-86.

doi:[10.1007/s10597-009-9247-y](https://doi.org/10.1007/s10597-009-9247-y).

In Geneva, Switzerland and Trois-Rivières, Quebec, a majority of the 221 outpatients reported that religion was an important aspect of their lives. Most of the 57 clinicians were unaware of their patients' religious involvement even if they reported feeling comfortable with the issue.

Davidson, Richard J. 2010. Empirical Explorations of Mindfulness: Conceptual and Methodological Conundrums. *Emotion* 10(1). 8-11.

doi:[10.1037/a0018480](https://doi.org/10.1037/a0018480).

A commentary on the articles in the special issue devoted to the practice of mindfulness.

Galek, Kathleen & Matthew Porter. 2009. A Brief Review of Religious Beliefs in Research on Mental Health and ETAS Theory. *Journal of Health Care Chaplaincy* 16(1). 58-64.

doi:[10.1080/08854720903489246](https://doi.org/10.1080/08854720903489246).

The authors found that organizational religion and subjective religiosity were the most widely used measures in research on psychological well-being, depression, and anxiety, with 30%-52% of studies measuring organizational religion and 34%-36% measuring subjective religiosity. In contrast, only 9%-11% of studies measured religious beliefs.

Gleig, Ann. 2010. The Culture of Narcissism Revisited: Transformations of Narcissism in Contemporary Psychospirituality. *Pastoral Psychology* 59(1). 79-91.

doi:[10.1007/s11089-009-0207-9](https://doi.org/10.1007/s11089-009-0207-9).

The author reviews the history of psychoanalytic theory about the narcissistic character of mysticism and spirituality. Freud, Kohut, and contemporary psychospiritualist A. H. Almaas are discussed. She concludes with a reflection on the benefits of a dialogical approach between psychoanalysis and spirituality.

Hammond, D Corydon. 2010. Hypnosis in the treatment of anxiety- and stress-related disorders. *Expert Review of Neurotherapeutics* 10(2). 263-273.

doi:[10.1586/ern.09.140](https://doi.org/10.1586/ern.09.140).

The author reviews the "tremendous volume of research" on the therapeutic uses of self-hypnosis, and concludes that the practice is an efficacious treatment for state anxiety (e.g., prior to tests, surgery and medical procedures) and anxiety-related disorders, such as headaches and irritable bowel syndrome.

Matousek, Rose H., Patricia L. Dobkin & Jens Pruessner. 2010. Cortisol as a marker for improvement in mindfulness-based stress reduction. *Complementary Therapies in Clinical Practice* 16(1). 13-19.

doi:[10.1016/j.ctcp.2009.06.004](https://doi.org/10.1016/j.ctcp.2009.06.004).

The available literature on the role of cortisol as a physiological marker for improvement with regards to mindfulness practice is reviewed. The authors conclude that the use of cortisol may be useful to validate self-reported benefits attributed to the MBSR program.

Mayo, Kelley Raab. 2009. Support from neurobiology for spiritual techniques for anxiety: a brief review. *Journal of Health Care Chaplaincy* 16(1). 53-57.

doi:[10.1080/08854720903451055](https://doi.org/10.1080/08854720903451055).

The author reviews research in neurobiology that supports the use of spiritual techniques as a beneficial treatment for anxiety by changing brain structure. She finds lacking research on the neurobiological underpinnings of meditation, concluding, with limited evidence, that brain changes occur during prolonged meditation and that meditation activates neural structures involved in attention and control of the autonomic nervous system.

Sperry, Len. 2010. Psychotherapy sensitive to spiritual issues: A postmaterialist psychology perspective and developmental approach. *Psychology of Religion and Spirituality* 2(1). 46-56.
doi:[10.1037/a0018549](https://doi.org/10.1037/a0018549).

After a brief discussion of some scientific and philosophical considerations distinguishing materialist and postmaterialist views, a 4-level model of consciousness and its theoretical and practice implications for spirituality sensitive psychotherapy is described. Well-being therapy, which reflects a postmaterialist perspective, is described and illustrated with case material.

PART 3. BOOKS

3.1 SCIENTIFIC STUDY OF RELIGION, BRAIN, AND BEHAVIOR

- Borg, M & Jan van Henten. 2010. *Powers: Religion as a Social and Spiritual Force*. (Future of the Religious Past). New York: Fordham University Press.
- Daschke, Dereck. 2010. *A cry instead of justice : the Bible and cultures of violence in psychological perspective*. London; New York: T & T Clark International.
- Høgh-Olesen, Henrik (ed.). 2010. *Human morality and sociality : evolutionary and comparative perspectives*. Basingstoke; New York: Palgrave Macmillan.
- Holley, David. 2010. *Meaning and mystery : what it means to believe in God*. Chichester West Sussex U.K.; Malden, Mass.: Wiley-Blackwell.
- Keltner, Dacher. 2010. *The compassionate instinct : the science of human goodness*. New York: W.W. Norton & Co.
- O'Brien, Michael, & Stephen Shennan (eds.). 2010. *Innovation in cultural systems : contributions from evolutionary anthropology*. (Vienna Series in Theoretical Biology). Cambridge, Mass.: MIT Press.
- Pahl, Jon. 2010. *Empire of sacrifice : the religious origins of American violence*. New York: New York University Press.
- Winkelman, Michael & John R. Baker. 2010. *Supernatural as natural : a biocultural approach to religion*. Upper Saddle River, N.J.: Pearson/Prentice Hall.

3.2 SPIRITUALITY & HEALTH RESEARCH

- Mahoney, Amy, & Oliva M. Espin (eds.). 2010. *Sin or salvation : implications for psychotherapy*. (Women & Therapy 31). New York: Routledge.
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