



# RESEARCH REVIEW

A DIGEST OF NEW SCIENTIFIC RESEARCH  
CONCERNING RELIGION, BRAIN & BEHAVIOR

JANUARY, 2010

## 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, cooperation, evolution, meditat\*, prayer, Qi Gong, 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 915 articles, 153 articles have been retained from 82 journals. There are 55 pre-publication citations from 36 journals.

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## PART 1: ARTICLES IN RELIGION, BRAIN, AND BEHAVIOR

### 1.1 SCIENTIFIC STUDY OF RELIGION: COGNITIVE NEUROSCIENCE

Chasteen, Alison L., Donna C. Burdzy & Jay Pratt. 2010. Thinking of God moves attention. *Neuropsychologia* 48(2). 627-630.  
doi:[10.1016/j.neuropsychologia.2009.09.029](https://doi.org/10.1016/j.neuropsychologia.2009.09.029).

*To discover whether exposure to divine concepts produces shifts of attention in visual cognition, 28 participants (60% Christian; 13% Muslim; 8% Buddhist; 19% non-religious) completed a target detection task in which they were presented with God- and Devil-related words (God/Lord and Devil/Satan). Researchers found faster response times when God-related word targets appeared in upper right locations, and when Devil-related word targets appeared in lower left locations. Results did not vary by participants' religiosity. The authors conclude that metaphors associated with the divine have strong spatial components that can produce shifts of attention, and that this research adds to the growing evidence for an extremely robust connection between internal spatial representations and where attention is allocated in the external environment.*

Diekhof, Esther K & Oliver Gruber. 2010. When desire collides with reason: functional interactions between anteroventral prefrontal cortex and nucleus accumbens underlie the human ability to resist impulsive desires. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience* 30(4). 1488-1493.  
doi:[10.1523/jneurosci.4690-09.2010](https://doi.org/10.1523/jneurosci.4690-09.2010).

*Using fMRI in a study of 18 subjects (10 female), researchers found that behavior favoring a long-term goal ("reason"), but counteracting immediate reward desiring ("desire"), relied on a negative functional interaction of anteroventral prefrontal cortex (avPFC) with nucleus accumbens (Nacc) and ventral tegmental area. The subjects were performing a novel sequential forced-choice task, in which they had to collect or reject a series of stimuli according to a predefined superordinate task goal to achieve a high reward after successful task completion. In addition, the degree of functional interaction between avPFC and Nacc predicted behavioral success during pursuit of the distal goal, when confronted with a proximal reward option, and scaled with interindividual differences in trait impulsivity. The authors conclude that performing reasonable behavior, oriented toward long-term goals, in the face of instant gratification, requires a suppression of reflexive reward desiring, and this is accomplished through the inhibitory avPFC influencing Nacc activity.*

Epley, Nicholas, Benjamin A Converse, Alexa Delbosc, George A Monteleone & John T Cacioppo. 2009. Believers' estimates of God's beliefs are more egocentric than estimates of other people's beliefs. *Proceedings of the National Academy of Sciences of the United States of America* 106(51). 21533-21538.  
doi:[10.1073/pnas.0908374106](https://doi.org/10.1073/pnas.0908374106).

*In this review of 7 correlational, experimental, and neuroimaging studies, the authors find that people are egocentric not only when reasoning about others' beliefs, but also when reasoning about a religious agent's beliefs (e.g., God). Across both national and local samples, 4 studies found that people's own beliefs on important social and ethical issues were consistently correlated more strongly with estimates of God's beliefs than with estimates of other people's beliefs. Two studies found that manipulating people's beliefs similarly influenced estimates of God's beliefs but did not as consistently influence estimates of other people's beliefs. One neuroimaging study demonstrated a clear convergence in neural activity when reasoning about one's own beliefs and God's beliefs, but clear divergences when reasoning about another person's beliefs; in particular, reasoning about God's beliefs activated areas associated with self-referential thinking more so than did reasoning about another person's beliefs.*

*The authors conclude that, while believers commonly use inferences about God's beliefs as a moral compass, that compass appears especially dependent on one's own existing beliefs.*

## **1.2 SCIENTIFIC STUDY OF RELIGION: EVOLUTION**

Ackerman, Joshua M., Jenessa R. Shapiro & Jon K. Maner. 2009. When Is It Good to Believe Bad Things? *Behavioral and Brain Sciences* 32(06). 510-511.

doi:[10.1017/S0140525X09991142](https://doi.org/10.1017/S0140525X09991142).

*The authors hypothesize that both positive and negative misbeliefs may have evolved to serve important adaptive functions. They focus on the role of negative misbeliefs in promoting adaptive outcomes within the contexts of romantic relationships and intergroup interactions. They conclude that believing bad things can paradoxically encourage romantic fidelity, personal safety, competitive success, and group solidarity. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Ainslie, George. 2009. Non-Instrumental Belief Is Largely Founded on Singularity. *Behavioral and Brain Sciences* 32(06). 511-512.

doi:[10.1017/S0140525X09991154](https://doi.org/10.1017/S0140525X09991154).

*The author holds that the ability to excite the reward process for its own sake, in imagination, is the radical evolutionary step that divides human decision-making from that of nonhumans. Combined with hyperbolic over-valuation of the present, this ability is a potential threat to both the individual's long term survival and the natural selection of high intelligence. Human belief is intrinsically "unfounded" or under-founded, which may or may not be adaptive. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Bertamini, Marco & Roberto Casati. 2009. False Beliefs and Naive Beliefs: They Can Be Good for You. *Behavioral and Brain Sciences* 32(06). 512-513.

doi:[10.1017/S0140525X09991178](https://doi.org/10.1017/S0140525X09991178).

*Granted that naive physics beliefs can be systematically mistaken, the authors determine that those beliefs provide a useful test-bed because they are common, and their existence must rely on some adaptive advantage within a given context. They also discuss the methodological question of when a whole family of misbeliefs should be considered together as a single phenomenon. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Boyer, Pascal. 2009. Extending the Range of Adaptive Misbelief: Memory "Distortions" as Functional Features. *Behavioral and Brain Sciences* 32(06). 513-514.

doi:[10.1017/S0140525X09991397](https://doi.org/10.1017/S0140525X09991397).

*Reviewing research in cognitive psychology focused on memory distortions, understood as deviations from various (largely implicit) standards, the author concludes that many memories may be examples of functionally adaptive misbelief. Many alleged distortions suggest a highly functional system that balances the cost of acquiring new information with the benefit of relevant, contextually appropriate decision-making. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Brown, Jonathon D. 2009. Positive Illusions and Positive Collusions: How Social Life Abets Self-Enhancing Beliefs. *Behavioral and Brain Sciences* 32(06). 514-515.

doi:[10.1017/S0140525X0999118X](https://doi.org/10.1017/S0140525X0999118X).

*The author finds that most people hold overly (though not excessively) positive self-views of themselves, their ability to shape environmental events, and their future. These positive illusions are generally (though not always) beneficial, promoting achievement, psychological adjustment, and physical well-being. Social processes conspire to*

*produce these illusions, suggesting that affiliation patterns may have evolved to nurture and sustain them. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (below).*

- Brown, Melissa J & Marcus W Feldman. 2009. Sociocultural epistasis and cultural exaptation in footbinding, marriage form, and religious practices in early 20th-century Taiwan. *Proceedings of the National Academy of Sciences of the United States of America* 106(52). 22139-22144.  
doi:[10.1073/pnas.0907520106](https://doi.org/10.1073/pnas.0907520106).

*The authors provide ethnographic evidence of how cultural evolution, at the level of individuals, can be influenced by social evolution. Sociocultural epistasis—association of cultural ideas with the hierarchical structure of social roles—influences cultural change in unexpected ways. They document the existence of cultural exaptation, where a custom’s origin was not due to acceptance of the later associated ideas. As a cultural exaptation can develop in the absence of a cultural idea favoring it, or even in the presence of a cultural idea against it, such associations indicate a potentially larger role for social evolutionary dynamics in explaining individual human behavior than previously anticipated.*

- Bulbulia, Joseph & Richard Sosis. 2009. Ideology as cooperative affordance. *Behavioral and Brain Sciences* 32(6). 515-516.  
doi:[10.1017/S0140525X09991403](https://doi.org/10.1017/S0140525X09991403).

*The authors combine the conclusion of McKay and Dennett – that beliefs need not be true in order to evolve – with Schelling’s work on cooperative commitment to suggest that some beliefs – ideologies – are best approached as social goals. They explain why a social-interactive perspective is important to explaining the dynamics of belief formation and revision among situated partners. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (below).*

- Clark, Kevin B. 2010. Origins of learned reciprocity in solitary ciliates searching grouped ‘courting’ assurances at quantum efficiencies. *Biosystems* 99(1). 27-41.  
doi:[10.1016/j.biosystems.2009.08.005](https://doi.org/10.1016/j.biosystems.2009.08.005).

*Using mock social trials, researchers found that the microbes, solitary ciliates, were able to learn to reciprocate necessary preconjugal touches perceived during complex “courtship rituals.” Ciliates could improve their signaling expertise with each felt vibration, by grouping serial escape strategies gesturing opposite “courting” assurances of playing “harder to get” or “easier to get” into separate, topologically invariant computational networks. Ciliates performed fast, quantum-like distributed modular searches to guide future replies of specific fitness content. Heuristic-guided searches helped initial inferior repliers (ciliates with high initial reproductive costs) learn to sensitize their behavioral output and opportunistically compete with presumptive mating rivals’ advertising higher quality fitness.*

- Clutton-Brock, Tim. 2009. Cooperation between non-kin in animal societies. *Nature* 462(7269). 51-57.  
doi:[10.1038/nature08366](https://doi.org/10.1038/nature08366).

*Reviewing research on cooperation in animal societies, the author finds both contrasts and similarities with human behavior. Both humans and other animals often assist relatives, share benefits and use coercion and inducement to manipulate each other. Unique among humans, however, is that reciprocal exchanges of costly services or valuable resources between non-kin are widespread and often involve considerable time delays between assistance given and received and extensive opportunities for cheating; this difference with nonhuman animals is likely based on their lack of language, needed to establish the intentions and expectations of both parties regarding the nature and timing of exchanges. As a result, other animals may be restricted to cooperative strategies that generate immediate benefits to their inclusive fitness.*

Cokely, Edward T. & Adam Feltz. 2009. Adaptive Diversity and Misbelief. *Behavioral and Brain Sciences* 32(06). 516.  
doi:[10.1017/S0140525X09991415](https://doi.org/10.1017/S0140525X09991415).

*The authors find that McKay and Dennett's proposal is limited because the argument for adaptive misbelief is not new, the arguments presented overextend the evidence provided, and the alleged sufficient conditions are not as prohibitive as suggested. The authors offer alternative perspectives and evidence, including individual differences research, which indicate that adaptive misbeliefs are likely much more widespread than implied. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Coltheart, Max. 2009. Delusions and Misbeliefs. *Behavioral and Brain Sciences* 32(06). 517.  
doi:[10.1017/S0140525X09991191](https://doi.org/10.1017/S0140525X09991191).

*The author asks for clarification regarding what McKay and Dennett mean by misbelieve, given that beliefs may be true or false, and grounded or ungrounded. They state that misbeliefs are "simply false beliefs," treating those properties of belief as independent. The author asks whether they consider a very well-grounded belief that is false a misbelief, and if beliefs that are very poorly grounded should be considered delusions, even when they are true. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Dubreuil, Benoît. 2010. Paleolithic public goods games: why human culture and cooperation did not evolve in one step. *Biology and Philosophy* 25(1). 53-73.  
doi:[10.1007/s10539-009-9177-7](https://doi.org/10.1007/s10539-009-9177-7).

*This article argues that cooperation and culture did not evolve in one step in the human lineage and that the capacity to stick to long-term and risky cooperative arrangements evolved before properly modern culture. The author presents evidence that *Homo heidelbergensis* became increasingly able to secure contributions from others in two demanding Paleolithic public good games (PPGGs): cooperative feeding and cooperative breeding. The temptation to defect is high in these PPGGs and the evolution of human cooperation in *Homo heidelbergensis* is best explained by the emergence of modern-like abilities for inhibitory control and goal maintenance. These executive functions are localized in the prefrontal cortex and allow humans to stick to social norms in the face of competing motivations. This scenario is consistent with data on brain evolution that indicate that the largest growth of the prefrontal cortex in human evolution occurred in *Homo heidelbergensis* and was followed by relative stasis in this part of the brain.*

Dunning, David. 2009. Misbelief and the Neglect of Environmental Context. *Behavioral and Brain Sciences* 32(06). 517-518.  
doi:[10.1017/S0140525X09991208](https://doi.org/10.1017/S0140525X09991208).

*The author holds that McKay and Dennett provide an incomplete analysis of misbelief because they neglect the crucial role played by the external environment in producing misbeliefs and determining whether those misbeliefs are adaptive. In some environments, positive illusions are not adaptive. Further, misbeliefs often arise because the environment commonly fails to provide crucial information needed to form accurate judgments.*

Dweck, Carol S. 2009. Why We Don't Need Built-in Misbeliefs. *Behavioral and Brain Sciences* 32(06). 518-519.  
doi:[10.1017/S0140525X09991427](https://doi.org/10.1017/S0140525X09991427).

*The author questions the idea that positive illusions are evolved misbeliefs on the grounds that positive illusions are often maladaptive, are not universal, and may be by-products of existing mechanisms. Further, because different beliefs are adaptive in different situations and cultures, it makes sense to build in a readiness to form beliefs rather than the beliefs themselves. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*



Einolf, Christopher J. 2010. Does extensivity form part of the altruistic personality? An empirical test of Oliner and Oliner's theory. *Social Science Research* 39(1). 142-151.  
doi:[10.1016/j.ssresearch.2009.02.003](https://doi.org/10.1016/j.ssresearch.2009.02.003).

*Using data from the 1995 and 2005 waves of the Midlife in the United States (MIDUS) survey, the author provides support for Samuel and Pearl Oliner's theory that extensivity is a cause of prosocial behaviors. Analysis of a set of 19 questions about moral obligations supports the Oliners' contention that some individuals have a constricted moral sense, meaning that they feel stronger obligations to help family members and friends than strangers, while others have an extensive moral sense and feel obligated to help both close and distant others. Tobit regression demonstrates that people with extensive moral obligations are more likely than people with constricted obligations to engage in volunteer work and charitable giving.*

Flanagan, Owen. 2009. "Can Do" Attitudes: Some Positive Illusions Are Not Misbeliefs. *Behavioral and Brain Sciences* 32(06). 519-520.  
doi:[10.1017/S0140525X09991439](https://doi.org/10.1017/S0140525X09991439).

*Where McKay and Dennett argue that positive illusions are a plausible candidate for a class of evolutionarily "selected for" misbeliefs, the author argues that some of the alleged positive illusions are best understood as positive attitudes, hopes, and the like, not as beliefs at all. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Frankish, Keith. 2009. Adaptive Misbelief or Judicious Pragmatic Acceptance? *Behavioral and Brain Sciences* 32(06). 520-521.  
doi:[10.1017/S0140525X0999121X](https://doi.org/10.1017/S0140525X0999121X).

*The author highlights the distinction between belief and pragmatic acceptance, and asks whether the positive illusions discussed in section 13 of the McKay and Dennett's article may be judicious pragmatic acceptances, rather than adaptive misbeliefs. He discusses the characteristics of pragmatic acceptance and makes suggestions about how to determine whether positive illusions are attitudes of this type. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Gardner, Andy. 2010. Sex-biased dispersal of adults mediates the evolution of altruism among juveniles. *Journal of Theoretical Biology* 262(2). 339-345.  
doi:[10.1016/j.jtbi.2009.09.028](https://doi.org/10.1016/j.jtbi.2009.09.028).

*The author shows that dispersal affects the evolution of cooperation if there is a sex difference in dispersal rate, even when the expression of cooperation is not conditional upon the actor's dispersal status or sex. He shows that cooperation among juveniles is relatively favored when there is a small sex bias in adult dispersal in favor of the sex with the greatest variance in reproductive success, and is relatively disfavored when this sex bias is large or in the opposite direction. He concludes that this is because dispersal by individuals of each sex can have different consequences for the genetic structure of the population.*

Gjersoe, Nathalia L. & Bruce M. Hood. 2009. On the Adaptive Advantage of Always Being Right (Even When One Is Not). *Behavioral and Brain Sciences* 32(06). 521-522.  
doi:[10.1017/S0140525X09991221](https://doi.org/10.1017/S0140525X09991221).

*The authors find that a positive illusion – overconfidence in the generalisability of one's theory – fits with McKay and Dennett's criteria for adaptive misbeliefs. It is a strongly held conviction arising from normal functioning of the doxastic system that confers adaptive advantage on the individual. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Haselton, Martie G. & David M. Buss. 2009. Error Management Theory and the Evolution of Misbeliefs. *Behavioral and Brain Sciences* 32(06). 522-523.

doi:[10.1017/S0140525X09991440](https://doi.org/10.1017/S0140525X09991440).

*The authors argue that many evolved biases produced through selective forces described by error management theory are likely to entail misbeliefs, illustrating their argument with the male sexual overperception bias. A misbelief could create motivational impetus for courtship, overcome the inhibiting effects of anxiety about rejection, and in some cases transform an initially sexually uninterested woman into an interested one. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Johnson, Dominic D. P. 2009. God would be a costly accident: Supernatural beliefs as adaptive. *The Behavioral and Brain Sciences* 32(6). 523-524.

doi:[10.1017/S0140525X09991245](https://doi.org/10.1017/S0140525X09991245).

*Responding to McKay and Dennett's challenge, to explain why false beliefs are better than "cautious action policies" in navigating adaptive problems with asymmetric errors, the author suggests that there are interactions between supernatural beliefs, self-deception, and positive illusions, that render elements of all such misbeliefs adaptive. He argues that supernatural beliefs cannot be rejected as adaptive simply because recent experiments are inconclusive, and that the great costs of religion betray its even greater adaptive benefits. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Konečni, Vladimir J. 2009. A Positive Illusion About "Positive Illusions" *Behavioral and Brain Sciences* 32(06). 524-525.

doi:[10.1017/S0140525X09991257](https://doi.org/10.1017/S0140525X09991257).

*The author makes the case that, rather than being a genuine adaptation, "positive illusions" are examples of doxastically uncommitted policies implemented at both the individual and societal levels. Even when they are genuine misbeliefs, most positive illusions are not evolved but ephemeral – a phenomenon limited to a particular social and economic moment. They are essentially a consumer response to messages from the pop-psychology industry in the recently terminated era of easy credit. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Krebs, Dennis L. & Kathy Denton. 2009. Benign folie à deux: The social construction of positive illusions. *Behavioral and Brain Sciences* 32(06). 525-526.

doi:[10.1017/S0140525X09991269](https://doi.org/10.1017/S0140525X09991269).

*While appreciative of McKay and Dennett's distinguishing among various forms of misbelief and evaluating the idea that they stem from evolved mental mechanisms, the authors argue that a complete account of misbeliefs must attend to the role that others play in creating and maintaining positive illusions. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Kruger, Justin, Steven Chan & Neal Roese. 2009. (Not so) Positive Illusions. *Behavioral and Brain Sciences* 32(06). 526-527.

doi:[10.1017/S0140525X09991270](https://doi.org/10.1017/S0140525X09991270).

*The authors question whether "positive illusions" truly exist, pointing out that the evidence is mixed. As a result, the question of whether they are adaptive from an evolutionary standpoint may be premature in light of the fact that their very existence may be an illusion. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (below).*

Langdon, Robyn. 2009. Pathological and Non-Pathological Factors in Delusional Misbelief. *Behavioral and Brain Sciences* 32(06). 527-528.

doi:[10.1017/S0140525X09991282](https://doi.org/10.1017/S0140525X09991282).

*The author considers how the putative doxastic shear-pin system, which enables misbeliefs to form in situations of extreme psychological stress, as described by McKay and Dennett, might combine with both pathological belief-*

*making (“culpable” breakdowns caused by neuropathy) and normal belief-making to explain a spectrum of delusions. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (below).*

Leigh, E G. 2010. The group selection controversy. *Journal of Evolutionary Biology* 23(1). 6-19.  
doi:[10.1111/j.1420-9101.2009.01876.x](https://doi.org/10.1111/j.1420-9101.2009.01876.x).

*This extensive article reviews the history and major features of the group selection controversy, focusing on the dispute in the 1960’s between Wynne-Edwards, who promoted group selection, and Maynard Smith and George Williams, who opposed it, and the beginnings of its resolution, to the present day. The author criticizes the attempt to dismiss group selection by simply subsuming it under inclusive fitness, and holds that all instances of group selection can be viewed as increasing inclusive fitness of autosomal genomes.*

McKay, Ryan T. & Daniel C. Dennett. 2009. The Evolution of Misbelief. *Behavioral and Brain Sciences* 32(6). 493-510.  
doi:[10.1017/S0140525X09990975](https://doi.org/10.1017/S0140525X09990975).

*The primary article in a special issue of Behavioral and Brain Sciences. Seeking to account for mistaken beliefs, bizarre delusions, and self-deception, the authors distinguish between two general types of misbelief: those resulting from a breakdown in the normal functioning of the belief formation system (e.g., delusions) and those arising in the normal course of that system’s operations (e.g., beliefs based on incomplete or inaccurate information). They hold that a sub-class, misbeliefs that are best conceived as design features, would have been systematically adaptive in the evolutionary past. Such misbeliefs, furthermore, would not be reducible to judicious, but doxastically noncommittal, action policies. Finally, such misbeliefs would have been adaptive in themselves, constituting more than mere by-products of adaptively biased misbelief-producing systems. They explore a range of potential candidates for evolved misbelief, and conclude that, of those surveyed, only positive illusions meet our criteria.*

McKay, Ryan T. & Daniel C. Dennett. 2009. Our Evolving Beliefs About Evolved Misbelief. *Behavioral and Brain Sciences* 32(06). 541-561.  
doi:[10.1017/S0140525X09991555](https://doi.org/10.1017/S0140525X09991555).

*The authors respond to the commentaries on their paper “The Evolution of Misbelief” (above).*

Millikan, Ruth Garrett. 2009. It Is Likely Misbelief Never Has a Function. *Behavioral and Brain Sciences* 32(06). 529-530.  
doi:[10.1017/S0140525X09991300](https://doi.org/10.1017/S0140525X09991300).

*The author highlights and amplifies three central points that McKay and Dennett make about the origin of failures to perform biologically proper functions, and questions whether even positive illusions meet criteria for evolved misbelief. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Mishara, Aaron L. & Phil Corlett. 2009. Are Delusions Biologically Adaptive? Salvaging the Doxastic Shear Pin. *Behavioral and Brain Sciences* 32(06). 530-531.  
doi:[10.1017/S0140525X09991464](https://doi.org/10.1017/S0140525X09991464).

*In contrast to McKay and Dennett’s view that “motivation” plays a psychological, but not a biological, function in a two-factor model of the forming and maintenance of delusions, the authors propose a single impairment in prediction-error-driven (i.e., motivational) learning in three stages, in which delusions play a biologically adaptive role. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Norenzayan, Ara, Azim F. Shariff & Will M. Gervais. 2009. The Evolution of Religious Misbelief. *Behavioral and Brain Sciences* 32(06). 531-532.  
doi:[10.1017/S0140525X09991312](https://doi.org/10.1017/S0140525X09991312).



*The authors examine whether belief in moralizing supernatural agents supplies a case for what McKay and Dennett call “evolved misbelief”, concluding that it might be more persuasively seen as an example of culturally evolved misbelief. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Oda, Ryo, Takuya Naganawa, Shinsaku Yamauchi, Noriko Yamagata & Akiko Matsumoto-Oda. 2009. Altruists are trusted based on non-verbal cues. *Biology Letters* 5(6). 752-754.  
doi:[10.1098/rsbl.2009.0332](https://doi.org/10.1098/rsbl.2009.0332).

*Researchers investigated differences in responses to videotaped altruists and non-altruists playing the Faith Game. They found that participants (N = 40) tended to entrust real money to altruists more than to non-altruists, providing evidence that cognitive adaptations evolve as counter-strategies to subtle cheating. The identification of altruists based on non-verbal cues might offer a solution to the problem of subtle cheating.*

Randolph-Seng, Brandon. 2009. The (Mis)management of Agency: Conscious Belief and Nonconscious Self-Control. *Behavioral and Brain Sciences* 32(06). 532-533.  
doi:[10.1017/S0140525X09991336](https://doi.org/10.1017/S0140525X09991336).

*The author asks whether there be other types of beliefs, besides positive illusions, that may qualify as adaptive misbeliefs. He addresses this and other questions through identifying belief in free will as a potential candidate as an adaptive misbelief. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Schloss, Jeffrey P. & Michael J. Murray. 2009. You Can’t Always Get What You Want: Evolution and True Beliefs. *Behavioral and Brain Sciences* 32(06). 533-534.  
doi:[10.1017/S0140525X09991476](https://doi.org/10.1017/S0140525X09991476).

*While acknowledging McKay and Dennett’s argument against many proposals for adaptively functioning misbelief, the authors hold that their further conclusion, that true beliefs are generally adaptive, does not follow. Adaptive misbeliefs may be few in kind but many in number; maladaptive misbeliefs may routinely elude selective pruning; reproductively neutral misbeliefs may abound; and adaptively grounded beliefs may reliably co-vary with, but not truthfully represent, reality. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Sherkat, Darren E. 2010. Religion and verbal ability. *Social Science Research* 39(1). 2-13.  
doi:[10.1016/j.ssresearch.2009.05.007](https://doi.org/10.1016/j.ssresearch.2009.05.007).

*Using data from the 1984–2006 General Social Surveys, the author finds that both an inerrant belief in scripture and sectarian affiliations have substantial negative effects on verbal ability. Religious participation has a modest positive effect on verbal ability, but its influence is mostly confined to sectarian Protestants and biblical inerrantists. The positive effect of age on verbal ability is substantially weaker among sectarians and biblical inerrantists, suggesting that their closed social networks hinder learning throughout their lifetime.*

Smead, Rory. 2010. Indirect reciprocity and the evolution of “moral signals”. *Biology and Philosophy* 25(1). 33-51.  
doi:[10.1007/s10539-009-9175-9](https://doi.org/10.1007/s10539-009-9175-9).

*The author finds that while it is possible for “moral signals” to evolve alongside indirect reciprocity, without some external pressure aiding the evolution of a signaling system, a coevolution of social signals and large-scale cooperation is unlikely. Using the tools of evolutionary game theory, he presents a model that incorporates primitive “moral signaling” into a simple setting of indirect reciprocity. This model reveals some potential difficulties for the evolution of “moral signals.”*

Sperber, Dan. 2009. Culturally Transmitted Misbeliefs. *Behavioral and Brain Sciences* 32(06). 534-535.

doi:[10.1017/S0140525X09991348](https://doi.org/10.1017/S0140525X09991348).

*The author argues that most human beliefs are acquired through communication, as are most misbeliefs. Just like the misbeliefs discussed by McKay and Dennett, culturally transmitted misbeliefs tend to result from limitations, rather than malfunctions, of the mechanisms that produce them, and few if any can be argued to be adaptations. However, the mechanisms involved, the contents, and the hypothetical adaptive value tend to be specific to the cultural case. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (above).*

Sutton, John. 2009. Adaptive Misbeliefs and False Memories. *Behavioral and Brain Sciences* 32(06). 535-536.

doi:[10.1017/S0140525X09991488](https://doi.org/10.1017/S0140525X09991488).

*Where McKay and Dennett suggest that some positive illusions are adaptive, there is a bidirectional link between memory and positive illusions: biased autobiographical memories filter incoming information, and self-enhancing information is preferentially attended and used to update memory. The author asks if certain false memories might be adaptive, defending a broad view of the psychosocial functions of remembering. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (above).*

Takagishi, Haruto, Shinya Kameshima, Joanna Schug, Michiko Koizumi & Toshio Yamagishi. 2010. Theory of mind enhances preference for fairness. *Journal of Experimental Child Psychology* 105(1-2). 130-137.

doi:[10.1016/j.jecp.2009.09.005](https://doi.org/10.1016/j.jecp.2009.09.005).

*A study of 68 preschoolers playing the Ultimatum Game in a face-to-face setting found that those who had acquired theory of mind (defined as the understanding of false beliefs using the Sally-Anne task) proposed higher mean offers than children who had not acquired theory of mind. This implies that the ability to infer the mental states of others plays an important role in fairness-related behavior.*

Talmont-Kaminski, Konrad. 2009. Effective untestability and bounded rationality help in seeing religion as adaptive misbelief. *The Behavioral and Brain Sciences* 32(6). 536-537.

doi:[10.1017/S0140525X0999135X](https://doi.org/10.1017/S0140525X0999135X).

*The author suggests adding two elements to McKay and Dennett's criteria for adaptive misbeliefs that result from the normal, though fallible, functioning of human cognition: first, the significance of a belief's testability for its functionality; second, an account of reason appropriate to understanding systemic misbelief. Together, these show why religion probably is an adaptive misbelief. Part of a special issue responding to McKay and Dennett, "The Evolution of Misbelief" (above).*

Ule, Aljaz, Arthur Schram, Arno Riedl & Timothy N Cason. 2009. Indirect punishment and generosity toward strangers. *Science (New York, N.Y.)* 326(5960). 1701-1704.

doi:[10.1126/science.1178883](https://doi.org/10.1126/science.1178883).

*Theoretical and experimental evidence suggests that "indirect rewarding" of strangers who have been kind to others sustains cooperation between unrelated humans, though the rewarders incur costs but receive no immediate benefits. Researchers provide experimental evidence regarding the payoffs received by individuals (N = 140) who employ strategies such as "indirect punishment" by imposing costs on unkind strangers. They find that if unkind strangers cannot be punished, defection earns most; if they can be punished, however, then indirect rewarding earns most. They conclude that indirect punishment plays this important role in human society, even if it gives a low payoff and is rarely implemented.*

Wereha, Tyler J. & Timothy P. Racine. 2009. Belief in Evolved Belief Systems: Artifact of a Limited Evolutionary Model? *Behavioral and Brain Sciences* 32(06). 537-538.

doi:[10.1017/S0140525X09991361](https://doi.org/10.1017/S0140525X09991361).

*The authors hold that a belief in evolved belief systems stems from using a population-genetic model of evolution that misconstrues the developmental relationship between genes and behavior, confuses notions of “adapted” and “adaptive,” and ignores the fundamental role of language in the development of human beliefs. They suggest that theories about the evolution of belief would be better grounded in a developmental model of evolution. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Wilks, Yorick. 2009. Lamarck, Artificial Intelligence (AI), and Belief. *Behavioral and Brain Sciences* 32(06). 538-539.  
doi:[10.1017/S0140525X09991385](https://doi.org/10.1017/S0140525X09991385).

*The author comments that nothing in McKay and Dennett’s article deals with the issue of how the adaptivity, or some other aspect, of beliefs might become a biological adaptation; it doesn’t address how the functions discussed might be coded in such a way in the brain that their development was also coded in gametes or sex transmission cells. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Wilson, David Sloan & Steven Jay Lynn. 2009. Adaptive Misbeliefs Are Pervasive, but the Case for Positive Illusions Is Weak. *Behavioral and Brain Sciences* 32(06). 539-540.  
doi:[10.1017/S0140525X09991543](https://doi.org/10.1017/S0140525X09991543).

*The authors write that the case for positive illusions as an example of adaptive misbelief is weak, and, unlike McKay and Dennett, they think that adaptive belief systems rely heavily upon misbeliefs. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

Zawadzki, Tadeusz W. 2009. Adaptive Self-Directed Misbeliefs: More Than Just a Rarefied Phenomenon? *Behavioral and Brain Sciences* 32(06). 540-541.  
doi:[10.1017/S0140525X0999149X](https://doi.org/10.1017/S0140525X0999149X).

*The author argues that adaptive, self-directed misbeliefs are more prevalent and important than McKay and Dennett claim. Humans often falsely interpret their own behavior in terms of culturally afforded categories. Despite their falsity, such self-interpretations are often adaptive because of humans’ disposition to behave consistently with them. This makes people easier to interpret by similarly enculturated interactants. Part of a special issue responding to McKay and Dennett, “The Evolution of Misbelief” (above).*

### ***1.3 SCIENTIFIC STUDY OF RELIGION: GENERAL PSYCHOLOGY***

Awad, Germaine H. 2010. The impact of acculturation and religious identification on perceived discrimination for Arab/Middle Eastern Americans. *Cultural Diversity and Ethnic Minority Psychology* 16(1). 59-67.  
doi:[10.1037/a0016675](https://doi.org/10.1037/a0016675).

*Using a sample of 177 individuals of Arab or Middle Eastern descent, researchers found that Arab/Middle Eastern Americans who reported lower levels of dominant society immersion tended to report higher levels of discrimination. Furthermore, Muslims reported a higher level of discrimination than Christians, though this finding was moderated by level of acculturation. Specifically, Muslims who reported a high level of dominant society immersion experienced the most discrimination, whereas Christians who reported a high level of dominant society immersion reported less discrimination.*

Bamford, Christi & Kristin Hansen Lagattuta. 2010. A new look at children’s understanding of mind and emotion: the case of prayer. *Developmental Psychology* 46(1). 78-92.  
doi:[10.1037/a0016694](https://doi.org/10.1037/a0016694).

*In a study examining children’s awareness of connections between emotion and prayer, 4-, 6-, and 8-year-olds, and adults (combined N = 100) predicted whether people would pray when feeling different emotions, explained*

*why characters in different situations decided to pray, and predicted whether characters' emotions would change after praying. Four- and 6-year-olds exclusively judged that positive emotions motivate prayer, whereas 8-year-olds and adults most often predicted that negative emotions would cause people to pray, and that praying could improve emotions. Religious background predicted individual differences in reasoning only for 4-year-olds.*

- Barbosa, Peter, Hector Torres, Marc Anthony Silva & Noshaba Khan. 2010. Agapé Christian Reconciliation Conversations: Exploring the Intersections of Culture, Religiousness, and Homosexual Identity in Latino and European Americans. *Journal of Homosexuality* 57(1). 98.  
doi:[10.1080/00918360903445913](https://doi.org/10.1080/00918360903445913).

*Participants (N = 122) of Latin American heritage, after completing a program designed to address the issues connecting homosexual identity, culture, and Christianity, completed measures of homophobic attitudes and qualitative appraisal of the program. Analysis revealed that age and political ideology were related negatively to homophobia. Eighty-five percent found the program to be very useful or useful, and 95% indicated that they would recommend it to others. The data illustrates a positive trend in changing attitudes towards homosexuality in the Latino Christian community. Part of a special issue on homosexuality and spirituality.*

- Campbell, Heidi A. 2010. Religious Authority and the Blogosphere. *Journal of Computer-Mediated Communication* 15(2). 251-276.  
doi:[10.1111/j.1083-6101.2010.01519.x](https://doi.org/10.1111/j.1083-6101.2010.01519.x).

*It is often argued that the internet poses a threat to traditional forms of authority. This paper argues for an approach that looks separately at authoritative roles, structures, beliefs/ideologies, and texts, and applies that approach to a thematic analysis of 100 religious blogs. The author finds that religious bloggers use their blogs to frame authority in ways that may more often affirm than challenge traditional sources of authority.*

- Ghumman, Sonia & Linda Jackson. 2010. The downside of religious attire: The Muslim headscarf and expectations of obtaining employment. *Journal of Organizational Behavior* 31(1). 4-23.  
doi:[10.1002/job.601](https://doi.org/10.1002/job.601).

*Data from 219 American Muslim females indicated that Muslim women who wear the headscarf (Hijabis) had lower expectations of receiving a job offer than Muslim women who do not wear the hijab. This difference increased as the amount of public contact associated with the occupation decreased, and job status of the occupation increased. Furthermore, work centrality moderated this relationship, but only for Muslim women who did not wear the headscarf.*

- Gonsoulin, Margaret & Anjeanette LeBoeuf. 2010. Intra-group variation in conservative Christians' gender ideologies (1972-2006). *The Social Science Journal* 47(1). 225-236.  
doi:[10.1016/j.sosci.2009.09.001](https://doi.org/10.1016/j.sosci.2009.09.001).

*This paper identifies significant intra-group variations in the gender ideologies of conservative Christians in the United States. Between the 1970s and the present, both conservative Christian men and conservative Christian women have become increasingly accepting of women's roles in politics and women's participation in the workforce. Religiously conservative women have become more opposed to sexual freedoms and abortion rights. Religiously conservative men have become less opposed over time to sexual freedoms and have not changed with regard to abortion ideology. In general, for both men and women, conservative Christians who are older, attend church services more often, and have less education tend to be more conservative in their gender ideologies. For females only, higher incomes lead to less conservative gender ideologies, and living in the southern region of the United States tends to decrease their support for female politicians.*

- Jansen, Bernard J., Andrea Tapia & Amanda Spink. 2010. Searching for salvation: An analysis of US religious searching on the World Wide Web. *Religion* 40(1). 39-52.  
doi:[10.1016/j.religion.2009.07.002](https://doi.org/10.1016/j.religion.2009.07.002).

*After analyzing 5 data sets from a Web search engine, collected between 1997 and 2005, of over a million queries, researchers authors found, first, that there is no evidence of a decrease in religious Web-searching behaviors. Second, those seeking religious information on the Web are becoming slightly more interactive in their searching. Third, there is no evidence for a move away from mainstream religions toward non-mainstream religions, since the majority of the search terms are associated with established religions. Fourth, the hypothesis that traditional religious affiliation is associated with lower adoption of or sophistication with technology is not supported.*

- Jaspal, Rusi & Adrian Coyle. 2010. "Arabic is the language of the Muslims—that's how it was supposed to be": exploring language and religious identity through reflective accounts from young British-born South Asians. *Mental Health, Religion & Culture* 13(1). 17.  
doi:[10.1080/13674670903127205](https://doi.org/10.1080/13674670903127205).

*After interviews with 12 British-born South Asians, researchers identified four superordinate themes: participants' meaning-making regarding "the sanctification of language" and the consequential suitability of "the liturgical language as a symbol of religious community"; and the themes of "ethnic pride versus religious identity" and "linguistic Otherness and religious alienation" concerned potential ethno-linguistic barriers to a positive religious identity.*

- Kay, Aaron C, Danielle Gaucher, Ian McGregor & Kyle Nash. 2010. Religious belief as compensatory control. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc* 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, first, belief in religious deities and secular institutions can serve as external forms of control that can compensate for manipulations that lower personal control and, second, religious conviction can also serve as compensatory personal control after experimental manipulations that lower other forms of personal or external control. The authors 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.*

- Kray, Laura J., Linda G. George, Katie A. Liljenquist, Adam D. Galinsky, Philip E. Tetlock & Neal J. Roese. 2010. From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of Personality and Social Psychology* 98(1). 106-118.  
doi:[10.1037/a0017905](https://doi.org/10.1037/a0017905).

*Analyzing the results of 4 experiments, researchers found that, rather than implying a random quality to life, counterfactual thinking heightens the meaningfulness of key life experiences. Reflecting on alternative pathways to pivotal turning points even produced greater meaning than directly reflecting on the meaning of the event itself. Fate perceptions ("it was meant to be") and benefit-finding (recognition of positive consequences) were identified as independent causal links between counterfactual thinking and the construction of meaning. Through counterfactual reflection, the upsides to reality are identified, a belief in fate emerges, and ultimately more meaning is derived from important life events.*

- Mahmud, Yusr & Viren Swami. 2010. The influence of the hijab (Islamic head-cover) on perceptions of women's attractiveness and intelligence. *Body Image* 7(1). 90-93.  
doi:[10.1016/j.bodyim.2009.09.003](https://doi.org/10.1016/j.bodyim.2009.09.003).

*Fifty-seven non-Muslim men and 41 Muslim men rated a series of images of women, half of whom were unveiled and half of whom wore the hijab. A mixed analysis of variance showed a significant effect of hijab status, with women wearing the hijab being rated more negatively than unveiled women. For attractiveness ratings, there was*



*no significant effect of participant religion, although non-Muslim men rated unveiled women significantly higher than veiled women. For intelligence ratings, non-Muslim men provided significantly higher ratings than Muslim men for both conditions. In addition, Muslim men's ratings of the attractiveness and intelligence of women wearing the hijab was positively correlated with self-reported religiosity.*

- Pitt, Richard N. 2010. "Still Looking for My Jonathan": Gay Black Men's Management of Religious and Sexual Identity Conflicts. *Journal of Homosexuality* 57(1). 39-53.  
doi:[10.1080/00918360903285566](https://doi.org/10.1080/00918360903285566).

*Using interviews with homosexual Black men who are heavily involved in fundamentalist African-American churches, the author explores how these men manage the conflict between a committed gay identity and a strong religious identity that says the two cannot coexist. Though the messages preached by their church leaders and the doctrines of their churches are often stridently anti-homosexuality, these men not only attend the churches, but are viewed as leaders in these churches in positions ranging from associate pastor to director of facilities management. Part of a special issue on homosexuality and spirituality.*

- Prior, Jason & Carole M. Cusack. 2010. Spiritual Dimensions of Self-Transformation in Sydney's Gay Bathhouses. *Journal of Homosexuality* 57(1). 71-97.  
doi:[10.1080/00918360903445327](https://doi.org/10.1080/00918360903445327).

*In interviews with patrons and proprietors of Sydney's gay bathhouses, a majority of interviewees asserted that spirituality and self-transformation was as important to them as sexual exploration and liberation from societal restraints, both as motivations for and outcomes of the bathhouse experience. Some of those interviewed adhered to mainstream religion (including Christianity and Judaism), but a significant number expressed a commitment to eclectic, personalized spiritual paths. Both groups described the bathhouses as "churches" and "temples," the activities that took place there as both collective and individual "rituals," and attributed their spiritual growth and development to their experiences in the bathhouses. Part of a special issue on homosexuality and spirituality.*

- Pronk, Tila M., Johan C. Karremans, Geertjan Overbeek, Ad A. Vermulst & Daniël H. J. Wigboldus. 2010. What it takes to forgive: When and why executive functioning facilitates forgiveness. *Journal of Personality and Social Psychology* 98(1). 119-131.  
doi:[10.1037/a0017875](https://doi.org/10.1037/a0017875).

*Researchers conducted four studies that examined and supported the prediction that executive functioning (a set of cognitive control processes) facilitates forgiveness. First, a correlational study revealed a positive relation between executive functioning and dispositional forgiveness. Second, a longitudinal study demonstrated that executive functioning predicts the development of forgiveness over a period of 5 weeks after the offense. Finally, 2 experiments showed that executive functioning facilitates forgiveness only in the case of relatively severe (as compared with mild) offenses. The latter study also provided evidence for a psychological mechanism underlying the relation between executive functioning and forgiveness by demonstrating the mediating role of rumination about the offense.*

- Rodriguez, Eric M. 2010. At the Intersection of Church and Gay: A Review of the Psychological Research on Gay and Lesbian Christians. *Journal of Homosexuality* 57(1). 5-38.  
doi:[10.1080/00918360903445806](https://doi.org/10.1080/00918360903445806).

*Working within a theoretical paradigm that views gays and lesbians as spiritual and religious beings in and of themselves, the author integrates a fractured body of literature on gay and lesbian Christians; second, reviews and critiques relevant psychological theories currently in use in this area; and, third, introduces to the field the relevant theoretical concepts of integration as process and empowerment to better outline comprehensive pathways for future research on not just the lives of gay and lesbian Christians, but of Gay, Lesbian, Bisexual, Transgender people of faith.*

Thumala Olave, Angélica. 2010. The richness of ordinary life: Religious justification among Chile's business elite. *Religion* 40(1). 14-26.  
doi:[10.1016/j.religion.2009.04.011](https://doi.org/10.1016/j.religion.2009.04.011).

*Based on 75 interviews with elite Chilean businessmen, the author examines how the practice of conservative forms of Catholicism has allowed for a restoration of the historical bond between the Chilean elite and its religious tradition. The representation of business as a religious vocation has been part of the justification, on religious and moral grounds, of the establishment of a neo-liberal economic model during Augusto Pinochet's regime (1973–1989). The author concludes that the case of Chile's elite can be seen as an example of an increase in pluralism which does not lead to a weakening of religious belief and practice, but to their strengthening.*

Williams, Emyr, Leslie Francis & Andrew Village. 2010. Marriage, religion and human flourishing: how sustainable is the classic Durkheim thesis in contemporary Europe? *Mental Health, Religion & Culture* 13(1). 93-104.  
doi:[10.1080/13674670903203766](https://doi.org/10.1080/13674670903203766).

*Drawing on the three waves of the European Values Survey across five countries (Great Britain, Italy, the Netherlands, Northern Ireland, Spain and Sweden), researchers find that religiosity is, in general, positively correlated with both indicators of positive psychology, conceptualized as feelings of happiness and satisfaction with life. Further, across all waves and all countries, respondents who are married are likely to report higher levels of happiness and greater satisfaction in life, providing contemporary support for the classic Durkheim thesis linking the two institutions of marriage and religion with human flourishing.*

#### **1.4 SCIENTIFIC STUDY OF RELIGION: METHOD & THEORY**

Dell, Paul F. 2010. Involuntariness in hypnotic responding and dissociative symptoms. *Journal of Trauma & Dissociation: The Official Journal of the International Society for the Study of Dissociation (ISSD)* 11(1). 1-18.  
doi:[10.1080/15299730903317964](https://doi.org/10.1080/15299730903317964).

*This essay seeks to retrieve the Janetian paradigm of dissociation as automatism. Automatisms are unexpected, uninitiated, involuntary behaviors that just “happen”. The author argues that human sensitivity to the experience of involuntariness is quite important, was selected by evolution, and is central to both hypnotic responses and dissociative symptoms. The essay urges the hypnosis field and the dissociation field to jointly undertake a renewed investigation of the experience of involuntariness and to follow recent neuroimaging studies which indicate that the parietal cortex underlies the experience of involuntariness.*

Goode, Leslie. 2009. Creating Descent After Nancy Jay: A Reappraisal of Sacrifice and Social Reproduction. *Method & Theory in the Study of Religion* 21(4). 383-401.

*This paper uses a range of ethnographic evidence to challenge Nancy Jay's theory that ritual sacrifice involves the violent appropriation of female biological powers for male cultural/political ends, and that the social identities thereby reproduced necessarily possess a pseudo-biological character. Sacrificially reproduced forms of kinship are shown to differ from modern non-sacrificial forms of social identity precisely in their transcendence of those dichotomies of biological and cultural, domestic and political, on which Jay's theory rest. The inappropriate application of such dichotomies to sacrificing societies constitutes an essentialization of Western conceptual categories, entailing distortions of ethnographic interpretation.*

McBride, Michael. 2010. Religious Market Competition in a Richer World. *Economica* 77(305). 148-171.  
doi:[10.1111/j.1468-0335.2008.00732.x](https://doi.org/10.1111/j.1468-0335.2008.00732.x).

*The author argues that economic growth has not led to a decline in religion despite past predictions that it would. Using a formal model of religious competition, the author shows how economic growth produces counteracting effects on religious activity in an open religious market, and that it has little effect in a religious market that is already secularized due to regulations that prohibit religious competition, or in a highly religious market with regulations that inhibit secular activities. The author concludes that theories predicting the decline of religion, due to rising opportunity costs of religious demand and supply, ignore countervailing influences.*

Mellor, Philip A. & Chris Shilling. 2010. Body pedagogics and the religious habitus: A new direction for the sociological study of religion. *Religion* 40(1). 27-38.  
doi:[10.1016/j.religion.2009.07.001](https://doi.org/10.1016/j.religion.2009.07.001).

*While sociological theory has been central to the modern study of religion, the global resurgence of religious phenomena, and the challenge this has presented for the assumptions that characterized much twentieth century sociology, calls for new theoretical models. This paper builds upon Durkheim's suggestion that religious social facts become fully efficacious only when internalized, and Luhmann's interest in sociological manifestations of "transcendence" and "immanence", in order to analyze religion as a thoroughly embodied phenomenon that can be understood through the study of religious body pedagogics. After outlining the key steps involved in the analysis of body pedagogics, the authors illustrate the utility of this realist framework through an ideal-typical representation of Christianity and Islam and reflect on how this approach can deal with the complexities and contingencies of contemporary religion. It is suggested that this systematic body pedagogic focus on embodied commonalities and differences across diverse religious contexts offers a valuable basis upon which to engage critically with religion today.*

Nordin, Andreas. 2009. Good-death Beliefs and Cognition in Himalayan Pilgrimage. *Method & Theory in the Study of Religion* 21(4). 402-436.

*Utilizing the cognitive anthropology and cognitive science of religion, this article discusses the notions of a good death associated with Hindu pilgrimages in the Nepalese and Tibetan Himalayas. Drawing on the cultural epidemiological method, the author explains why certain systems of thought and behavior are favored over others in cultural transmission. The thesis is that the apprehension of contagion and/or contamination, combined with prevailing cultural representations, exerts selective pressure on the formation of beliefs about good death. Pilgrimage sites are associated with intuitions about contagious and contaminating contact, avert the pollution of death, and provide links to supernatural agents.*

Pearce, II, John, David A. Fritz & Peter S. Davis. 2010. Entrepreneurial Orientation and the Performance of Religious Congregations as Predicted by Rational Choice Theory. *Entrepreneurship Theory and Practice* 34(1). 219-248.  
doi:[10.1111/j.1540-6520.2009.00315.x](https://doi.org/10.1111/j.1540-6520.2009.00315.x).

*As empirical and anecdotal evidence suggests that businesses that act with an entrepreneurial orientation enjoy superior performance, researchers investigate whether nonprofit religious congregations can benefit from similar initiatives. They utilize the Rational Choice Theory of Religion, which was developed by social scientists to bring economic analysis to the understanding of the effects of competition among nonprofit organizations. Using a sample of 250 religious congregations in five different geographical markets, an entrepreneurial orientation is found to be positively associated with organizational performance. A hypothesized interaction effect between environmental munificence and entrepreneurial orientation is assessed.*

Pyne, Derek Arnold. 2010. A model of religion and death. *Journal of Socio-Economics* 39(1). 46-54.  
doi:[10.1016/j.soccec.2009.08.003](https://doi.org/10.1016/j.soccec.2009.08.003).

*This paper provides a rationale for several empirical findings regarding religion. The main one is between religion and the fear of death. Some empirical evidence indicates moderately religious individuals fear death more than*

*either atheists or extremely religious individuals. The model also explains the positive relationship often found between religious activity (e.g., church attendance) and age. It also provides an explanation of the positive relationship between education and religious activity despite a negative relationship between education and religious belief.*

Rican, Pavel & Pavlina Janosova. 2010. Spirituality as a Basic Aspect of Personality: A Cross-Cultural Verification of Piedmont's Model. *International Journal for the Psychology of Religion* 20(1). 2-13.  
doi:[10.1080/10508610903418053](https://doi.org/10.1080/10508610903418053).

*This study generally confirms Ralph Piedmont's concept of spirituality as a dimension, or set of dimensions, of individual differences, traditionally neglected by factor analytic research. Researchers found that Piedmont's model was able to hold in a different culture, and with a spirituality questionnaire constructed on the basis of a strategy largely different from Piedmont's original. In addition, an original six-scale Prague Spirituality Questionnaire (PSQ) was devised. It was constructed for the extremely secularized Czech youth who largely reject organized religion. The results were similar to Piedmont's: Six factors were found, unambiguously interpretable as the Big Five (Openness to experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism), plus a sixth factor, Spirituality, saturating all of the 6 PSQ scales.*

Sengers, Erik. 2010. Marketing in Dutch Mainline Congregations: What Religious Organizations Offer and How They Do It. *Journal of Contemporary Religion* 25(1). 21-35.  
doi:[10.1080/13537900903416796](https://doi.org/10.1080/13537900903416796).

*The article proposes marketing theory as a way to analyze the rewards offered by religious organizations. In rational choice theory, the central explanatory term for the vitality of religious organizations is "cost". The higher the cost, the more successful the organization is supposed to be. However, as cost and reward are complementary, research should also pay attention to the rewards offered by religious organizations. The value of marketing theory is shown by analyzing three renewal movements active in Dutch mainline churches: the liberal "Church as an inn", the ecumenical Alpha Course, and the orthodox-Catholic Neocatechumenal Way. Further, the activities of selected local congregations working with the concepts of these movements are evaluated. In the conclusion, the value of marketing for a further development of rational choice theory is discussed.*

## PART 2. ARTICLES IN SPIRITUALITY & HEALTH RESEARCH

### 2.1 SPIRITUALITY & HEALTH: MEDICAL CONDITIONS

Allahverdiipour, Hamid, Mohsen Bazargan, Abdollah Farhadinasab, Alireza Hidarnia & Saeed Bashirian. 2009. Effectiveness of skill-based substance abuse intervention among male adolescents in an Islamic country: case of the Islamic Republic of Iran. *Journal of Drug Education* 39(2). 211-222.

*This longitudinal quasi-experimental panel study designed and implemented a skill-based intervention to prevent and reduce substance use among urban adolescents who attended 2 randomly selected high-schools in Tehran, Iran. One-year post intervention data show that substance abuse, knowledge, attitudes, peer resistance skills, level of self-control, self-efficacy, and perceived susceptibility among intervention group were significantly improved, whereas level of self control and attitudes against substance abuse among the control group deteriorated.*

Breitbart, William, Barry Rosenfeld, Christopher Gibson, Hayley Pessin, Shannon Poppito, Christian Nelson, Alexis Tomarken et al. 2010. Meaning-centered group psychotherapy for patients with advanced cancer: a pilot randomized controlled trial. *Psycho-Oncology* 19(1). 21-28.  
doi:[10.1002/pon.1556](https://doi.org/10.1002/pon.1556).

*Patients with advanced (stage III or IV) solid tumor cancers (N = 90) were randomly assigned to either meaning-center group psychotherapy (MCGP) or a supportive group psychotherapy (SGP). Patients were assessed before and after completing the 8-week intervention, and again 2 months after completion. Outcome assessment included measures of spiritual well-being, meaning, hopelessness, desire for death, optimism/pessimism, anxiety, depression and overall quality of life. MCGP resulted in significantly greater improvements in spiritual well-being and a sense of meaning. Treatment gains were even more substantial (based on effect size estimates) at the second follow-up assessment. Improvements in anxiety and desire for death were also significant (and increased over time). There was no significant improvement on any of these variables for patients participating in SGP.*

Chokkhanchitchai, Surachai, Tanee Tangarunsanti, Suphaneewan Jaovisidha, Kanokrat Nantiruj & Suchela Janwityanujit. 2010. The effect of religious practice on the prevalence of knee osteoarthritis. *Clinical Rheumatology* 29(1). 39-44.  
doi:[10.1007/s10067-009-1295-8](https://doi.org/10.1007/s10067-009-1295-8).

*In a study of 153 Buddhists and 150 Muslims aged  $\geq 50$  years, the prevalence of knee pain and radiographic knee osteoarthritis (ROA) was significantly higher in Buddhists than in Muslims (67.11 vs. 55.80 for knee pain; 85.62 vs. 70.67 for ROA). For symptomatic knee OA, Buddhists showed a trend towards higher prevalence than Muslims (47.71 vs. 37.32). Muslims had a lower prevalence of OA than their Buddhists counterparts with the same ethnicity but different religious practice. The Muslim way of praying since childhood, forcing the knees into deep flexion, may stretch the soft tissue surrounding the knee and decrease stiffness and contact pressure of the articular cartilage.*

Hodge, David R & Jini L Roby. 2010. Sub-Saharan African women living with HIV/AIDS: an exploration of general and spiritual coping strategies. *Social Work* 55(1). 27-37.

*Researchers used a mixed-methods approach to explore how one sample of sub-Saharan African women (N = 162) attending an AIDS clinic in Entebbe, Uganda, cope with their circumstances. The results reveal the importance of indigenous service providers, spirituality, and, to a lesser extent, social support. Approximately 85% of the women reported that spirituality played some role in their ability to cope. Among these, 43% indicated that spirituality was the most important factor that kept them going. The most widely used spiritual coping strategies consisted of support from other believers, prayer, and trusting in God.*



Jain, Manish, Anmol Mathur, Santhosh Kumar, Prabu Duraiswamy & Suhas Kulkarni. 2009. Oral hygiene and periodontal status among Terapanthi Svetambar Jain monks in India. *Brazilian Oral Research* 23(4). 370-376.

*Researchers studied the oral hygiene status of 180 Jain monks in Udaipur, India, and found that only 5.6% of the subjects had good oral hygiene. Overall periodontal disease prevalence was 100%. The findings confirmed that Jain monks have poor oral hygiene and an increased prevalence of periodontal disease compared to that of the similarly aged general population because many Jain individuals avoid brushing their teeth especially during fasting, keeping in mind not to harm the microorganisms present in the mouth.*

Jaseja, Harinder. 2010. Potential role of self-induced EEG fast oscillations in predisposition to seizures in meditators. *Epilepsy & Behavior* 17(1). 124-125.  
doi:[10.1016/j.yebeh.2009.10.022](https://doi.org/10.1016/j.yebeh.2009.10.022).

*The author examines research regarding the potential role of meditation-induced EEG fast oscillations in the predisposition to seizures in meditation practitioners with epilepsy, concluding that in view of the demonstrated association of fast oscillations with ictal events, patients with epilepsy may be cautioned against the practice of meditation.*

Kwekkeboom, Kristine L., Catherine H. Cherwin, Jun W. Lee & Britt Wanta. 2010. Mind-Body Treatments for the Pain-Fatigue-Sleep Disturbance Symptom Cluster in Persons with Cancer. *Journal of Pain and Symptom Management* 39(1). 126-138.  
doi:[10.1016/j.jpainsymman.2009.05.022](https://doi.org/10.1016/j.jpainsymman.2009.05.022).

*An analysis of 43 studies regarding mind-body interventions found that imagery/hypnosis and cognitive behavioral interventions have produced improvements in pain, fatigue, and sleep disturbance. Relaxation has resulted in improvements in pain and sleep disturbance. Meditation interventions have demonstrated beneficial effects on fatigue and sleep disturbance. Music interventions have demonstrated efficacy for pain and fatigue.*

Lahmann, Claas, Frank Röhrich, Nina Sauer, Michael Noll-Hussong, Joram Ronel, Gerhard Henrich, Angela von Arnim & Thomas Loew. 2010. Functional Relaxation as Complementary Therapy in Irritable Bowel Syndrome: A Randomized, Controlled Clinical Trial. *The Journal of Alternative and Complementary Medicine* 16(1). 47-52.  
doi:[10.1089/acm.2009.0084](https://doi.org/10.1089/acm.2009.0084).

*In a study of 80 patients with irritable bowel syndrome (IBS), participants were randomly allocated either to functional relaxation (FR) or to enhanced medical care (EMC: treatment as usual plus two counseling interviews) as control intervention with 2 weekly sessions over the 5-week trial each. Thirty-nine patients completed FR and 39 received EMC. FR was significantly superior to EMC, with a standardized effect size of 0.85. The achieved effects through FR remained stable in terms of psychic and bodily impairment after 3-month follow-up.*

McCracken, Lance M. & Sophie C. Velleman. 2010. Psychological flexibility in adults with chronic pain: A study of acceptance, mindfulness, and values-based action in primary care. *Pain* 148(1). 141-147.  
doi:[10.1016/j.pain.2009.10.034](https://doi.org/10.1016/j.pain.2009.10.034).

*Researchers studied 239 adults with chronic pain, who completed measures of acceptance of chronic pain, mindfulness, psychological acceptance, values-based action, health status, and GP visits related to pain – termed “psychological flexibility”. Correlation coefficients demonstrated significant relations between the components of psychological flexibility and the measures of health and GP visits. Psychological flexibility accounted for significant variance. Pain intensity accounted for an average of 9.2% of variance while psychological flexibility accounted for 24.1%, suggesting that psychological flexibility may reduce the impact of chronic pain in patients with low to moderately complex problems outside of specialty care.*

Rosenzweig, Steven, Jeffrey M. Greeson, Diane K. Reibel, Joshua S. Green, Samar A. Jasser & Denise Beasley. 2010. Mindfulness-based stress reduction for chronic pain conditions: Variation in treatment outcomes and role of home meditation practice. *Journal of Psychosomatic Research* 68(1). 29-36.

doi:[10.1016/j.jpsychores.2009.03.010](https://doi.org/10.1016/j.jpsychores.2009.03.010).

*Researchers compared changes in bodily pain, health-related quality of life (HRQoL), and psychological symptoms during an 8-week mindfulness-based stress reduction (MBSR) program among 133 chronic pain patients between 1997-2003. Greater home meditation practice was associated with improvement on several outcome measures, including overall psychological distress, somatization symptoms, and self-rated health, but not pain and other quality of life scales.*

Schütze, Robert, Clare Rees, Minette Preece & Mark Schütze. 2010. Low mindfulness predicts pain catastrophizing in a fear-avoidance model of chronic pain. *Pain* 148(1). 120-127.

doi:[10.1016/j.pain.2009.10.030](https://doi.org/10.1016/j.pain.2009.10.030).

*A heterogeneous sample of 104 chronic pain outpatients at a multidisciplinary pain clinic in Australia completed self-report measures of major variables: Pain intensity, negative affect, pain catastrophizing, pain-related fear, pain hypervigilance, and functional disability. Results showed that mindfulness significantly negatively predicts each of these variables, accounting for 17-41% of their variance. Hierarchical multiple regression analysis showed that mindfulness uniquely predicts pain catastrophizing when other variables are controlled, and moderates the relationship between pain intensity and pain catastrophizing.*

Telles, Shirley, Visweswaraiiah K Naveen, Acharya Balkrishna & Sanjay Kumar. 2010. Short term health impact of a yoga and diet change program on obesity. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research* 16(1). CR35-40.

*A single group of 47 persons were assessed on the first and last day of a residential yoga and diet change program, with 6 days of the intervention between assessments. Participants practiced yoga for 5 hours every day and had a low fat, high fiber, vegetarian diet. Following the 6-day, participants showed a decrease in BMI (1.6 percent), waist and hip circumferences, fat-free mass, total cholesterol (7.7 percent decrease), high density lipoprotein (HDL) cholesterol (8.7 percent decrease), fasting serum leptin levels (44.2 percent decrease) and an increase in postural stability and hand grip strength.*

Vadiraja, H S, M Raghavendra Rao, Raghuram Nagarathna, H R Nagendra, M Rekha, N Vanitha, K S Gopinath et al. 2009. Effects of yoga program on quality of life and affect in early breast cancer patients undergoing adjuvant radiotherapy: a randomized controlled trial. *Complementary Therapies in Medicine* 17(5-6). 274-280.

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

*Eighty-eight stage II and III breast cancer outpatients were randomly assigned to receive yoga (N = 44) or brief supportive therapy (N = 44) prior to their radiotherapy treatment. Intervention consisted of yoga sessions lasting 60 minutes daily, while the control group was imparted supportive therapy once in 10 days. In the yoga group, there was significant improvement in positive affect, emotional function, and cognitive function, and decrease in negative affect, as compared to controls. There was a significant positive correlation between positive affect with role function, social function and global quality of life. There was a significant negative correlation between negative affect with physical function, role function, emotional function and social function.*

## **2.2 SPIRITUALITY & HEALTH: MENTAL HEALTH**

Abdel-Khalek, Ahmed M. 2010. Religiosity, subjective well-being, and neuroticism. *Mental Health, Religion & Culture* 13(1). 67.

doi:[10.1080/13674670903154167](https://doi.org/10.1080/13674670903154167).

*In a sample of 487 Muslim Kuwaiti undergraduates, completing 6 self-rating scales, researchers found that those who consider themselves religious were healthier, enjoying subjective well-being, and obtained lower scores on neuroticism. The main predictor of religiosity in the stepwise regression was religious belief and satisfaction with life.*

Abel, Ernest L & Michael L Kruger. 2009. The widowhood effect: a comparison of Jews and Catholics. *Omega* 59(4). 325-337.

*Using mortality data derived from tombstones in two Midwestern cemeteries, researchers found that Jewish men and women were both more likely to die sooner after the death of their spouses compared to Catholic men and women. Life table survival analysis indicated that the median number of years of survival following widowhood for Catholic and Jewish men were 7.7 years and 5.0 years, respectively. For Catholic and Jewish women, it was 11.0 and 9.5 years, respectively.*

Aird, Rosemary L., James G. Scott, John McGrath, Jake M. Najman & Abdullah Al Mamun. 2010. Is the New Age phenomenon connected to delusion-like experiences? Analysis of survey data from Australia. *Mental Health, Religion & Culture* 13(1). 37.

doi:[10.1080/13674670903131843](https://doi.org/10.1080/13674670903131843).

*Using data derived from a 3,777 young adults, researchers found that belief in a spiritual or higher power other than God was found to be significantly associated with endorsement of 16 of 19 items linked to delusion-like experiences, such as thought disturbance, suspiciousness, and delusions of grandeur.*

Borders, Tyrone F, Geoffrey M Curran, Rhonda Mattox & Brenda M Booth. 2010. Religiousness among at-risk drinkers: is it prospectively associated with the development or maintenance of an alcohol-use disorder? *Journal of Studies on Alcohol and Drugs* 71(1). 136-142.

*A prospective cohort study was conducted among at-risk drinkers identified through a population-based telephone survey of adults residing in the southeastern United States (N = 658). Among persons without an alcohol-use disorder (AUD) at baseline, more frequent organized religious attendance and coping through prayer were associated with lower adjusted odds of developing an AUD. In contrast, among persons with an AUD at baseline, no dimension of religiousness was associated with the maintenance or remission of an AUD.*

Dew, R.E., S.S. Daniel, D.B. Goldston, W.V. McCall, M. Kuchibhatla, C. Schleifer, M.F. Triplett & H.G. Koenig. 2010. A prospective study of religion/spirituality and depressive symptoms among adolescent psychiatric patients. *Journal of Affective Disorders* 120(1-3). 149-157.

doi:[10.1016/j.jad.2009.04.029](https://doi.org/10.1016/j.jad.2009.04.029).

*In a sample of 145 subjects from two psychiatric outpatient clinics, aged 12-18 and who completed the Beck Depression Inventory-II (BDI-II), the Fetzer multidimensional survey of religion/spirituality, and inventories of substance abuse and perceived social support, 9 of the 13 religious/spiritual characteristics assessed showed strong cross-sectional relationships to BDI-II score. When perceived social support and substance abuse were controlled for, forgiveness, negative religious support, loss of faith, and negative religious coping retained significant relationships to BDI-II. In longitudinal analyses, loss of faith predicted less improvement in depression scores over 6 months, controlling for depression at study entry. Findings suggest that perceived social support and substance abuse account for some of these correlations but do not explain relationships to negative religious coping, loss of faith, or forgiveness. Endorsing a loss of faith may be a marker of poor prognosis among depressed youth.*

Dunkel, Trisha M., Denise Davidson & Shaji Qurashi. 2010. Body satisfaction and pressure to be thin in younger and older Muslim and non-Muslim women: The role of Western and non-Western dress preferences. *Body Image* 7(1). 56-65.

doi:[10.1016/j.bodyim.2009.10.003](https://doi.org/10.1016/j.bodyim.2009.10.003).

*Younger and older Muslim (N = 95) and non-Muslim women (N = 106) living in the United States completed questionnaires about body satisfaction and their internalization of Western standards of beauty (thin-ideal). Younger Muslim women wearing non-Western clothing and a head veil were significantly less likely to express drive for thinness or pressure to attain a thin-ideal standard of beauty than women wearing Western dress or younger women wearing non-Western dress without a head veil. Older women, while expressing greater discrepancy between their ideal body shape and their current body shape, and less satisfaction with their bodies than younger women, reported less drive for thinness and less pressure to attain the Western thin-ideal standard of beauty than younger women.*

Harris, J. Irene, Christopher R. Erbes, Brian E. Engdahl, Richard G. Tedeschi, Raymond H. Olson, Ann Marie M. Winkowski & Joelle McMahill. 2010. Coping Functions of Prayer and Posttraumatic Growth. *International Journal for the Psychology of Religion* 20(1). 26.  
doi:[10.1080/10508610903418103](https://doi.org/10.1080/10508610903418103).

*Trauma survivors from diverse, Midwestern Christian churches (N = 327) completed questionnaires assessing trauma history, prayer coping functions, and Posttraumatic Growth (PTG). Multiple linear regression analyses found that praying for calm and focus was independently related to higher levels of PTG. When considering all variables in the model, the relationship between prayer for calm and focus and PTG was not significant for those whose most significant trauma was interpersonal in nature, but significant for those with noninterpersonal trauma.*

Heinz, Adrienne J, Elizabeth R Disney, David H Epstein, Louise A Glezen, Pamela I Clark & Kenzie L Preston. 2010. A focus-group study on spirituality and substance-user treatment. *Substance Use & Misuse* 45(1-2). 134-153.  
doi:[10.3109/10826080903035130](https://doi.org/10.3109/10826080903035130).

*In focus groups held in 2005–2006 with 25 urban methadone-maintained outpatients, thematic analyses suggested that spirituality and religious practices suffered in complex ways during active addiction, and went “hand in hand” with recovery. Participants agreed that integration of a voluntary spiritual discussion group into formal treatment would be preferable to currently available alternatives. All participants reported being highly spiritual.*

Hepworth, Margaret, Laura Maria Simonds & Robert Marsh. 2010. Catholic priests’ conceptualisation of scrupulosity: a grounded theory analysis. *Mental Health, Religion & Culture* 13(1). 1-16.  
doi:[10.1080/13674670903092177](https://doi.org/10.1080/13674670903092177).

*Eleven Catholic priests took part in a semi-structured interview based on a vignette describing a person with scrupulosity. Data were analyzed using a grounded theory approach. Priests understood scrupulosity as a psychological problem that they felt unqualified to deal with, but for which they could offer spiritual guidance. Scrupulous individuals were perceived as difficult to develop a supportive relationship with and were sometimes a challenge to priests’ emotional well-being.*

Hook, Joshua N., Everett L. Worthington Jr, Don E. Davis, David J. Jennings II, Aubrey L. Gartner & Jan P. Hook. 2010. Empirically supported religious and spiritual therapies. *Journal of Clinical Psychology* 66(1). 46-72.  
doi:[10.1002/jclp.20626](https://doi.org/10.1002/jclp.20626).

*Researchers evaluated the efficacy status of religious and spiritual (R/S) therapies for mental health problems, including treatments for depression, anxiety, unforgiveness, eating disorders, schizophrenia, alcoholism, anger, and marital issues. Several R/S therapies were found to be helpful for clients, supporting the further use and research on these therapies. There was limited evidence that R/S therapies outperformed established secular therapies, thus*



*the decision to use an R/S therapy may be an issue of client preference and therapist comfort. Religions represented included Christianity, Islam, Taoism, and Buddhism. Some studies incorporated a generic spirituality.*

Ironson, Gail & Heidemarie Kremer. 2009. Spiritual transformation, psychological well-being, health, and survival in people with HIV. *International Journal of Psychiatry in Medicine* 39(3). 263-281.

*Researchers related interviews of 147 people with HIV (identifying the presence/absence of spiritual transformation (ST)) to questionnaires measuring demographics, medical history, treatment adherence, physical symptoms, and psychological well-being (i.e., stress, coping, life attitude, and spirituality), and assessments of CD4-counts and viral load and survival 3 to 5 years later. The presence of ST was significantly associated with better treatment success, better medication adherence, fewer symptoms, less distress, more positive coping, different life attitudes (i.e., existential transcendence, meaning/purpose in life, optimism, death acceptance), more spiritual practices, and increased spirituality. ST was also associated with substance-use recovery and with being African American. Survival up to 5 years was 5.35 times more likely among participants with ST. According to a Cox-regression adjusted for baseline CD4-counts, age, race-ethnicity, gender, education, years since HIV-diagnosis, and a history of substance-use problems, ST still reduced the risk of death.*

Kimbrough, Elizabeth, Trish Magyari, Patricia Langenberg, Margaret Chesney & Brian Berman. 2010. Mindfulness intervention for child abuse survivors. *Journal of Clinical Psychology* 66(1). 17-33. doi:[10.1002/jclp.20624](https://doi.org/10.1002/jclp.20624).

*In a sample of 27 adult survivors of childhood sexual abuse who underwent an 8-week mindfulness meditation-based stress reduction (MBSR) program and daily home practice of mindfulness skills, depressive symptoms were reduced by 65% 8 weeks later. Statistically significant improvements were observed in all outcomes post-MBSR, with effect sizes above 1.0. Improvements were largely sustained through the final measurement at 24 weeks.*

McHugh, Louise, Anna Simpson & Phil Reed. 2010. Mindfulness as a potential intervention for stimulus over-selectivity in older adults. *Research in Developmental Disabilities* 31(1). 178-184. doi:[10.1016/j.ridd.2009.08.009](https://doi.org/10.1016/j.ridd.2009.08.009).

*The current study aimed to remediate stimulus over-selectivity in an elderly population (N = 24; M = 79) by means of a focused attention/mindfulness induction. The level of emergent over-selectivity in an elderly population was significantly reduced after a focused attention induction when compared to an unfocused attention induction.*

Newton, A. Taylor & Daniel N. McIntosh. 2010. Specific Religious Beliefs in a Cognitive Appraisal Model of Stress and Coping. *International Journal for the Psychology of Religion* 20(1). 39-58. doi:[10.1080/10508610903418129](https://doi.org/10.1080/10508610903418129).

*In a national sample of 103 parents of children with disabilities, positive God image was associated positively with appraisals that the disability is a challenge, a benefit, and God is in control; it was associated negatively with loss appraisal. Vertical religious focus was associated positively with the appraisal that God is in control. Consistent with the model, appraisals mediated the relation between specific beliefs and coping strategies. Loss appraisal mediated the relation of vertical focus and God image with engagement coping and the appraisal that God is in control further explained the relation between vertical focus and engagement coping.*

Shinbara, Christina G & Lynn Olson. 2010. When nurses grieve: spirituality's role in coping. *Journal of Christian Nursing: A Quarterly Publication of Nurses Christian Fellowship* 27(1). 32-37.

*This study explored spirituality as an aspect of support for nurses grieving the loss of patients. Previous research has sought to understand the grief support needs of nurses; spirituality is one support nurses describe. Fifty-eight nurses responded to questions related to spirituality from a Needs Assessment Questionnaire (NAQ) designed to study grief support for nurses. Nurses reported spirituality as important in their daily lives (75%) and in helping*



*them cope with patient-related grief (70%), and cited spiritual-based resources as beneficial in coping. Spirituality can play an important role in coping with grief and should be included in nurses' support.*

- Uebelacker, Lisa A, Gary Epstein-Lubow, Brandon A Gaudiano, Geoffrey Tremont, Cynthia L Battle & Ivan W Miller. 2010. Hatha yoga for depression: critical review of the evidence for efficacy, plausible mechanisms of action, and directions for future research. *Journal of Psychiatric Practice* 16(1). 22-33.  
doi:[10.1097/01.pra.0000367775.88388.96](https://doi.org/10.1097/01.pra.0000367775.88388.96).

*In this review of 8 trials regarding the efficacy of hatha yoga for depression, the authors found that while the results should be viewed as very preliminary due substantial methodological limitations, further research should continue. First, current strategies for treating depression are not sufficient, and yoga may be a good way to augment current depression treatment strategies. Second, aspects of yoga - including mindfulness promotion and exercise - are thought to be "active ingredients" of other successful treatments for depression. Third, there are plausible biological, psychological, and behavioral mechanisms by which yoga may have an impact on depression.*

### **2.3 SPIRITUALITY & HEALTH: GENERAL HEALTH & WELL-BEING**

- Bowden, Deborah, Lorna Goddard & John Gruzelier. 2010. A randomised controlled single-blind trial of the effects of Reiki and positive imagery on well-being and salivary cortisol. *Brain Research Bulletin* 81(1). 66-72.  
doi:[10.1016/j.brainresbull.2009.10.002](https://doi.org/10.1016/j.brainresbull.2009.10.002).

*Researchers assigned 35 undergraduates to a single-blind non-contact Reiki or No-Reiki group. In the former, Reiki was administered by the experimenter who sat behind the participants as they were absorbed in tasks involving relaxation/self-hypnosis. Participants experienced ten 20-min intervention sessions over a period of two and a half to 12 weeks. Self-report measures of illness symptoms, mood and sleep were assessed pre-post-intervention, as was salivary cortisol. While the Reiki group had a tendency towards a reduction in illness symptoms, a substantive increase was seen in the No-Reiki. The Reiki group also had a near-significant comparative reduction in stress, although they also had significantly higher baseline illness symptoms and stress scores.*

- Chiesa, Alberto. 2010. Vipassana Meditation: Systematic Review of Current Evidence. *The Journal of Alternative and Complementary Medicine* 16(1). 37-46.  
doi:[10.1089/acm.2009.0362](https://doi.org/10.1089/acm.2009.0362).

*In this review of literature on Vipassana Meditation (VM), 7 studies, though mainly of poor quality, were identified. Three neuro-imaging studies suggested that VM practice could be associated with the activation of the prefrontal and the anterior cingulate cortex during meditative periods, and with increased thickness in cortical areas related to attention as well as increased subcortical gray matter in right insula and hippocampus in long-term meditators. Three clinical studies in incarcerated populations suggested that VM could reduce alcohol and substance abuse but not post-traumatic stress disorder symptoms in prisoners. One clinical study in healthy subjects suggested that VM could enhance more mature defenses and coping styles.*

- Cowen, Virginia S. 2010. Functional fitness improvements after a worksite-based yoga initiative. *Journal of Bodywork and Movement Therapies* 14(1). 50-54.  
doi:[10.1016/j.jbmt.2009.02.006](https://doi.org/10.1016/j.jbmt.2009.02.006).

*In a study of 77 firefighters who received yoga classes for 6 weeks, paired t-tests revealed significant improvements in the Functional Movement Screen, a seven item test that measures functional fitness. Improvements were also noted in trunk flexibility and perceived stress. Participants also reported favorable perceptions of yoga: feeling more focused and less musculoskeletal pain.*

Ross, Alyson & Sue Thomas. 2010. The Health Benefits of Yoga and Exercise: A Review of Comparison Studies. *The Journal of Alternative and Complementary Medicine* 16(1). 3-12.  
doi:[10.1089/acm.2009.0044](https://doi.org/10.1089/acm.2009.0044).

*In a review of 81 studies on yoga and exercise, the authors found that yoga interventions appeared to be equal or superior to exercise in nearly every outcome measured except those involving physical fitness.*

## **2.4 SPIRITUALITY & HEALTH: RELIGIOSITY**

Choi, Youngtae, Rahul Kale & Jongkuk Shin. 2010. Religiosity and consumers' use of product information source among Korean consumers: an exploratory research. *International Journal of Consumer Studies* 34(1). 61-68.  
doi:[10.1111/j.1470-6431.2009.00850.x](https://doi.org/10.1111/j.1470-6431.2009.00850.x).

*Researchers found that the way in which Korean consumers (N = 510) used various product information sources vary based upon their levels of religiosity. Highly religious consumers were more likely to choose members of their same religious group, and less likely to depend on media advertisements, when they look for product information than those consumers who are less religious.*

Ghaffari, Azadeh & Ayşe Çiftçi. 2010. Religiosity and Self-Esteem of Muslim Immigrants to the United States: The Moderating Role of Perceived Discrimination. *International Journal for the Psychology of Religion* 20(1). 14-25.  
doi:[10.1080/10508610903418038](https://doi.org/10.1080/10508610903418038).

*In a study of 714 Muslim immigrants to the U.S., researchers found a significant positive relationship between measures of religiosity and perceived discrimination. The authors also found a significant difference between Muslim men and women in regards to measures of religiosity, with men displaying higher religiosity scores.*

Gillum, R Frank, Nicole Jarrett & Thomas O Obisesan. 2009. Access to health care and religion among young American men. *International Journal of Environmental Research and Public Health* 6(12). 3225-3234.  
doi:[10.3390/ijerph6123225](https://doi.org/10.3390/ijerph6123225).

*In a national sample of 4276 men aged 18-44 years, researchers found that, compared to those raised in no religion, those raised mainline Protestant were more likely to report a usual source of care (67% vs. 79%), health insurance coverage (66% vs. 80%) and physical examination (43% vs. 48%). Religion raised was not associated with testicular exams, STD counseling or HIV testing. In multivariate analyses controlling for confounders, significant associations of religion raised with insurance coverage, a physician as usual source of care and physical examination remained*

Khodayarifard, Mohammad & James McClenon. 2010. Evaluating Secondary Trauma: Social Adjustment, Father-Offspring Relationships, and Religiosity of Students in Tehran. *Journal of Loss & Trauma* 15(1). 43-53.  
doi:[10.1080/15325020902925530](https://doi.org/10.1080/15325020902925530).

*The study found significant positive relationships between quality of father-offspring relationship, religiosity, and social adaptation among a stratified random sample of Iran-Iraq War veteran offspring (N = 240) and Iranian civilian offspring (N = 240) in Tebran. A hypothesis predicting lower social adaptation among veterans' offspring was not supported.*

## 2.5 SPIRITUALITY & HEALTH: METHOD AND THEORY

Andrade, Chittaranjan & Rajiv Radhakrishnan. 2009. Prayer and healing: A medical and scientific perspective on randomized controlled trials. *Indian Journal of Psychiatry* 51(4). 247-253.  
doi:[10.4103/0019-5545.58288](https://doi.org/10.4103/0019-5545.58288).

*The authors describe randomized controlled trials on prayer and healing, with one study in each of different categories of outcome, providing a critical analysis of the scientific and philosophical dimensions of such research. Prayer has been reported to improve outcomes in human as well as nonhuman species, to have no effect on outcomes, to worsen outcomes and to have retrospective healing effects. The authors hold that research on the healing effects of prayer is riddled with assumptions, challenges and contradictions that make the subject a scientific and religious minefield. They conclude that the research has led nowhere, and that future research, if any, will forever be constrained by scientific limitations.*

Balboni, Tracy Anne, Mary Elizabeth Paulk, Michael J Balboni, Andrea C Phelps, Elizabeth Trice Loggers, Alexi A Wright, Susan D Block, Eldrin F Lewis, John R Peteet & Holly Gwen Prigerson. 2010. Provision of spiritual care to patients with advanced cancer: associations with medical care and quality of life near death. *Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology* 28(3). 445-452.  
doi:[10.1200/JCO.2009.24.8005](https://doi.org/10.1200/JCO.2009.24.8005).

*In a prospective, multisite study of patients with advanced cancer (N = 343), patients whose spiritual needs were largely or completely supported by the medical team received more hospice care in comparison with those not supported. High religious coping patients whose spiritual needs were largely or completely supported were more likely to receive hospice and less likely to receive aggressive care in comparison with those not supported. Spiritual support from the medical team and pastoral care visits were associated with higher QOL scores near death.*

Bean, Melanie K, Douglas Gibson, Maureen Flattery, Angela Duncan & Michael Hess. 2009. Psychosocial factors, quality of life, and psychological distress: ethnic differences in patients with heart failure. *Progress in Cardiovascular Nursing* 24(4). 131-140.  
doi:[10.1111/j.1751-7117.2009.00051.x](https://doi.org/10.1111/j.1751-7117.2009.00051.x).

*Researchers examined psychosocial factors associated with depression and anxiety in 97 heart failure (HF) patients. Medical records were reviewed and patients (M = 53, 50% African American) completed surveys examining social support, coping, spirituality, and QOL for their association with depression and anxiety. Multiple regressions suggested that psychosocial factors were associated with psychological health. Patients with lower social support, lower meaning/peace and more negative coping reported greater depression; positive coping, and lower meaning/peace were associated with higher anxiety. Ethnicity stratified models suggested that spiritual well-being was associated with depression only among African Americans and QOL partially mediated this relationship.*

Braun, Michal, Dalya Gordon & Beatrice Uziely. 2010. Associations between oncology nurses' attitudes toward death and caring for dying patients. *Oncology Nursing Forum* 37(1). E43-49.  
doi:[10.1188/10.ONF.E43-E49](https://doi.org/10.1188/10.ONF.E43-E49).

*At an oncology nurses conference, the authors administered the Frommelt Attitude Toward Care of the Dying Scale, Death Attitude Profile-Revised Scale, and a demographic questionnaire to 147 Israeli nurses who were exposed to death in their daily work. They found that generally nurses demonstrated positive attitudes toward care of dying patients. The attitudes were significantly negatively correlated with death avoidance, fear of death, and approach acceptance of death. A mediating role of death avoidance was found between fear of death and attitudes toward caring for dying patients.*

- Cragun, Ryan T, Amelia R Woltanski, Melanie F Myers & Deborah L Cragun. 2009. Genetic counselors' religiosity & spirituality: are genetic counselors different from the general population? *Journal of Genetic Counseling* 18(6). 551-566.  
doi:[10.1007/s10897-009-9241-0](https://doi.org/10.1007/s10897-009-9241-0).

*After controlling for several sociodemographic factors, the percentage of genetic counselors (GCs) who report having a religious affiliation is similar to the general U.S. population, but GCs are less likely to affiliate with conservative Christian religions, and are more likely to be Jewish. GCs are significantly less likely than the general U.S. population to: believe in God, attend religious services, pray, and believe in an afterlife. Despite the lower levels of religiosity, a majority of GCs do report themselves to be moderately to highly spiritual.*

- El Hamri, Najat. 2010. Approaches to family planning in Muslim communities. *The Journal of Family Planning and Reproductive Health Care / Faculty of Family Planning & Reproductive Health Care, Royal College of Obstetricians & Gynaecologists* 36(1). 27-31.  
doi:[10.1783/147118910790291019](https://doi.org/10.1783/147118910790291019).

*The article provides a brief background on the historical development of family planning in the Muslim community, and outlines Muslim perceptions on this issue. The author concludes with recommendations for non-governmental organizations on how to effectively implement acceptable family planning programs within Muslim settings.*

- Horwath, Jan & Janet Lees. 2010. Assessing the Influence of Religious Beliefs and Practices on Parenting Capacity: The Challenges for Social Work Practitioners. *British Journal of Social Work* 40(1). 82-99.  
doi:[10.1093/bjsw/bcn116](https://doi.org/10.1093/bjsw/bcn116).

*Drawing on a literature review of 77 papers on religion and parenting, the authors identify challenges social workers face when assessing the influence of religious beliefs on parenting: a lack of clarity with regard to what is meant by "religion"; small-scale research studies with limited scope; a focus on perceptions of the influence of religious beliefs; and disregard for both social workers' own views about religion and the ways in which these views are likely to influence practice.*

- Ilyas, Muhammad, Mukhtar Alam, Habib Ahmad & Sajid-ul-Ghafoor. 2009. Abortion and protection of the human fetus: religious and legal problems in Pakistan. *Human Reproduction and Genetic Ethics* 15(2). 55-59.

*The authors discuss issues regarding abortions in Pakistan, where jurists are unanimous in declaring that after the fetus is completely formed and has been given a soul, abortion is haram (forbidden). Pakistan has an estimated abortion rate of 29 abortions per 1,000 women of reproductive age, despite the procedure being illegal except to save a woman's life.*

- Jotkowitz, Alan & Ari Z Zivotofsky. 2010. "Love your neighbor like yourself": a Jewish ethical approach to the use of pain medication with potentially dangerous side effects. *Journal of Palliative Medicine* 13(1). 67-71.  
doi:[10.1089/jpm.2009.0182](https://doi.org/10.1089/jpm.2009.0182).

*This article analyzes the views of 3 Jewish authorities on the use of pain medications with potentially significant side effects in terminal patients. The Jewish position demonstrates how an ancient tradition struggles to develop an ethic consistent with modern sensibilities.*

- Lavery, Megan E. & Erin L. O'Hea. 2010. Religious/spiritual coping and adjustment in individuals with cancer: unanswered questions, important trends, and future directions. *Mental Health, Religion & Culture* 13(1). 55-65.

doi:[10.1080/13674670903131850](https://doi.org/10.1080/13674670903131850).

*Research indicates that negative religious coping appears negatively associated with illness adjustment, while the relationship between positive religious coping and adjustment is unclear. Findings are mixed when examining whether religious coping affects adjustment directly, with nonreligious coping and stage of cancer as potential mediators and moderators. Religious needs assessments, as well as spiritually focused therapy may positively impact illness adjustment. Further, causal conclusions are generally curtailed by universal limitations in the design and methods of the religious coping research.*

- Mafimisebi, Taiwo E & Adegboyega E Oguntade. 2010. Preparation and use of plant medicines for farmers' health in Southwest Nigeria: socio-cultural, magico-religious and economic aspects. *Journal of Ethnobiology and Ethnomedicine* 6(1). 1-9.

doi:[10.1186/1746-4269-6-1](https://doi.org/10.1186/1746-4269-6-1).

*The authors offer hypotheses explaining the efficacy of socio-cultural and magico-religious practices in rural Nigeria. The paper concludes that the psychological aspect of traditional medicine are reflected in its socio-cultural and magico-religious practices, and suggests that government should fund research into traditional medicine to identify components of it that can be integrated into the national health system.*

- Moga, Diana E, Deborah L Cabaniss, Eric R Marcus, B Timothy Walsh & David A Kahn. 2009. Religious delusions in an evangelical Christian woman with anorexia nervosa. *Journal of Psychiatric Practice* 15(6). 477-483.

doi:[10.1097/01.pra.0000364291.86080.66](https://doi.org/10.1097/01.pra.0000364291.86080.66).

*This case report describes the history and hospital course of a 42-year-old devout evangelical Christian woman with a long standing history of anorexia nervosa, binge/purge type, who developed religious delusions, including the conviction that God was prohibiting her from eating. The discussion emphasizes the difficulties of diagnosing and treating psychosis in devout individuals, and the interplay between anorexia, psychosis, and religion.*

- Pesut, Barbara. 2010. Ontologies of nursing in an age of spiritual pluralism: closed or open worldview? *Nursing Philosophy: An International Journal for Healthcare Professionals* 11(1). 15-23.

doi:[10.1111/j.1466-769X.2009.00420.x](https://doi.org/10.1111/j.1466-769X.2009.00420.x).

*The author discusses secularization and "sacralization", the process where ideas of spirituality are infused into the public domain; this is especially relevant in nursing discourse, where it is common to find claims about the nature of persons as inherently spiritual. The challenges of a unified ontological perspective, or closed world view, is discussed, for this diversity, using examples from both a naturalistic and a unitary perspective. The author concludes by arguing for a unified approach within nursing ethics rather than a nursing ontology.*

- Phillips, John R. 2010. The universality of Rogers' science of unitary human beings. *Nursing Science Quarterly* 23(1). 55-59.

doi:[10.1177/0894318409353795](https://doi.org/10.1177/0894318409353795).

*The universality of Martha E. Rogers' science is discussed within the context of science and religion, with an emphasis on an "alive universe". Elizabeth Barrett's power theory is presented as an exemplar of the universality of Rogers' science. Rogers and Barrett are recognized for their contributions to nursing science and the sacred alive universe.*

- Posadzki, Paul, Sheetal Parekh, Marie-Luce O'Driscoll & Dariusz Mucha. 2010. Qi Gong's relationship to educational kinesiology: A qualitative approach. *Journal of Bodywork and Movement Therapies* 14(1). 73-79.

doi:[10.1016/j.jbmt.2008.11.002](https://doi.org/10.1016/j.jbmt.2008.11.002).



*This paper reviews two complementary therapies: Qi Gong and educational kinesiology (EK). The authors provide support to the hypothesis that Qi Gong and EK are united through a qualitative convergence and a shared underlying concept, leading to an understanding of Chinese health exercises from the perspective of neuroanatomy, neurophysiology and psychoneuroimmunology.*

Sansone, Randy A. & Lori A. Sansone. 2010. Psychotherapy: What's metaphysical got to do with it? *Psychiatry* 6(12). 26-31.

*The authors describe their finding that adding a metaphysical/spiritual component to psychotherapy may be helpful, particularly for those patients with histories of childhood trauma. They discuss four metaphysical techniques for facilitating patient healing: refocusing on the present; reframing adversity; practicing surrender; and meditation.*

Upchurch, Dawn M, Claire E Dye, Laura Chyu, Ellen B Gold & Gail A Greendale. 2010. Demographic, behavioral, and health correlates of complementary and alternative medicine and prayer use among midlife women: 2002. *Journal of Women's Health* (2002) 19(1). 23-30.  
doi:[10.1089/jwh.2008.1096](https://doi.org/10.1089/jwh.2008.1096).

*Using data on midlife women aged 40-59 years (N = 5,849) from the 2002 (U.S.) National Health Interview Survey, researchers found that 46% of midlife women used any type of CAM in the past 12 months, and 54% reported using prayer for health reasons. The top five specific CAM therapies used were herbs and natural products; relaxation techniques; chiropractic care; yoga, tai chi, or qi gong; and massage.*

Varas-Diaz, N, T B Neilands, S Malave Rivera & E Betancourt. 2010. Religion and HIV/AIDS stigma: Implications for health professionals in Puerto Rico. *Global Public Health*. 1-18.  
doi:[10.1080/17441690903436581](https://doi.org/10.1080/17441690903436581).

*This study explores the role of religion in HIV/AIDS stigma manifested by Puerto Rican health professionals in practice and in training. Through a mixed-method approach, 501 health professionals completed qualitative interviews (N = 80) and self-administered questionnaires (N = 421). Results show that religion plays some role in conceptualizations of health and illness among participants in the study. Furthermore, the importance placed on religion and participation in such activities was related to higher levels of HIV/AIDS stigma.*

Walker, Steven. 2010. Young people's mental health: the spiritual power of fairy stories, myths and legends. *Mental Health, Religion & Culture* 13(1). 81-92.  
doi:[10.1080/13674670903196721](https://doi.org/10.1080/13674670903196721).

*This paper suggests that mental health practitioners can utilize powerful narratives from mythology therapeutically, and in a culturally respectful and spiritually innovative way, in order to harness the child's imagination. This can be a powerful vehicle for a transforming experience at the psychic level with consequent positive benefits for emotional well-being.*

Weinberger-Litman, Sarah L, Margaret A Muncie, Laura T Flannelly & Kevin J Flannelly. 2010. When do nurses refer patients to professional chaplains? *Holistic Nursing Practice* 24(1). 44-48.  
doi:[10.1097/HNP.0b013e3181c8e491](https://doi.org/10.1097/HNP.0b013e3181c8e491).

*This study examines specific patient and family issues for which nurses make referrals to chaplains. A previously piloted questionnaire asking how often nurses and allied staff refer patients to chaplains was distributed to 133 staff members at a New York area hospital, the majority of whom were registered nurses. Analysis revealed significant differences with respect to the kinds of issues that nurses are likely to refer to chaplains, with referrals being most likely for family issues and least likely for treatment-related issues.*

Whittington, Brandon L. & Steven J. Scher. 2010. Prayer and Subjective Well-Being: An Examination of Six Different Types of Prayer. *International Journal for the Psychology of Religion* 20(1). 59-68.

doi:[10.1080/10508610903146316](https://doi.org/10.1080/10508610903146316).

*Participants (N = 430) were recruited online and completed a measure of 6 prayer types (adoration, confession, thanksgiving, supplication, reception, and obligatory prayer). Measures of subjective well-being (self-esteem, optimism, meaning in life, satisfaction with life) were also administered. Three forms of prayer (adoration, thanksgiving, reception) had consistently positive relations with well-being measures, whereas the other three forms of prayer had negative or null relations with the well-being measures. The prayer types having positive effects appear to be less ego-focused, and more focused on God, whereas the negative types have an opposite nature.*

## PART 3. BOOKS

### ***3.1 SCIENTIFIC STUDY OF RELIGION, BRAIN, AND BEHAVIOR***

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- Brown, William. 2010. *The seven pillars of Creation: the Bible, science, and the ecology of wonder*. Oxford; New York: Oxford University Press.
- Browning, Don. 2010. *Reviving Christian humanism: the new conversation on spirituality, theology, and psychology*. Minneapolis: Fortress Press.
- Rensma, Ritske. 2009. *The innateness of myth: a new interpretation of Joseph Campbell's reception of C.G. Jung*. New York; London: Continuum.
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- Stewart, Melville. 2010. *Science and religion in dialogue*. Malden, Mass.: Wiley-Blackwell.
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### 4.1 SCIENTIFIC STUDY OF RELIGION, BRAIN, AND BEHAVIOR

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doi:[10.1016/j.neulet.2009.12.044](https://doi.org/10.1016/j.neulet.2009.12.044).
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