



RESEARCH REVIEW

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

OCTOBER, 2012

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, ATLA Religion Database, General Science, PubMed, EBSCO Psychology and Behavioral Sciences Collection, PsycARTICLES, PsycINFO, ScienceDirect, and Web of Science. The search terms were altruism, god, goddess, meditat*, prayer, relig*, ritual, spiritu*, and yoga, tailored to the database being searched. Books were located on Amazon.com. Articles not directly relevant to the scientific study of religion were excluded, as were correspondence and reviews. From a universe of 576 articles, 80 articles have been retained from 38 journals. There are 43 pre-publication citations from 26 journals.

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PART 1: ARTICLES IN RELIGION, BRAIN, AND BEHAVIOR

1.1 SCIENTIFIC STUDY OF RELIGION: COGNITIVE NEUROSCIENCE

Allen, Micah, Martin Dietz, Karina S Blair, Martijn van Beek, Geraint Rees, Peter Vestergaard-Poulsen, Antoine Lutz & Andreas Roepstorff. 2012. Cognitive-Affective Neural Plasticity following Active-Controlled Mindfulness Intervention. *The Journal of Neuroscience: The official Journal of the Society for Neuroscience* 32(44). 15601–15610. doi:10.1523/jneurosci.2957-12.2012.

Mindfulness meditation is a set of attention-based, regulatory, and self-inquiry training regimes. Although the impact of mindfulness training (MT) on self-regulation is well established, the neural mechanisms supporting such plasticity are poorly understood. MT is thought to act through interoceptive salience and attentional control mechanisms, but until now conflicting evidence from behavioral and neural measures renders difficult distinguishing their respective roles. To resolve this question researchers conducted a fully randomized 6 week longitudinal trial of MT, explicitly controlling for cognitive and treatment effects with an active-control group. Behavioral metacognition and whole-brain BOLD signals were measured using functional MRI during an affective Stroop task before and after intervention in healthy human subjects. Although both groups improved significantly on a response-inhibition task, only the MT group showed reduced affective Stroop conflict. Moreover, the MT group displayed greater dorsolateral prefrontal cortex responses during executive processing, consistent with increased recruitment of top-down mechanisms to resolve conflict. In contrast, overall group-by-time interactions on negative affect-related reaction times or BOLD responses were not observed. However, only participants with the greatest amount of MT practice showed improvements in response inhibition and increased recruitment of dorsal anterior cingulate cortex, medial prefrontal cortex, and right anterior insula during negative valence processing. The authors conclude that these findings highlight the importance of active control in MT research, indicate unique neural mechanisms for progressive stages of mindfulness training, and suggest that optimal application of MT may differ depending on

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context, contrary to a one-size-fits-all approach.

- Johnstone, Brick, Angela Bodling, Dan Cohen, Shawn E. Christ & Andrew Wegrzyn. 2012. Right Parietal Lobe-Related “Selflessness” as the Neuropsychological Basis of Spiritual Transcendence. *International Journal for the Psychology of Religion* 22(4). 267–284.
doi:10.1080/10508619.2012.657524.

The purpose of this study is to replicate studies that suggest that a frontal-parietal circuit is related to spiritual-religious experiences, and specifically that a decreased focus on the self (i.e., selflessness), associated with decreased right parietal lobe (RPL) functioning, serves as the primary neuropsychological foundation for spiritual transcendence. Participants included 20 outpatients with brain injury referred for neuropsychological assessment. Outcome variables included measures of spirituality and neuropsychological abilities (i.e., bilateral parietal, temporal, and frontal lobes). Consistent with previous research, Pearson correlations indicated that decreased RPL functioning is significantly associated with increased spiritual transcendence as measured by the InSpirit; and increased frontal lobe functioning is significantly associated with more frequent religious practices. Spiritual transcendence (i.e., emotional connection with the numinous/mystical) is a specific spiritual dimension that appears to be primarily related to increased selflessness associated with decreased RPL functioning. Increased frontal lobe functioning also appears to be related to more frequent religious practices (and spiritual experiences to a lesser extent), although the specific neuropsychological process/mechanism remains uncertain.

1.2 SCIENTIFIC STUDY OF RELIGION: EVOLUTION

- Agnati, Luigi F., Peter Barlow, Roberta Ghidoni, Dasiel O. Borroto-Escuela, Diego Guidolin & Kjell Fuxe. 2012. Possible genetic and epigenetic links between human inner speech, schizophrenia and altruism. *Brain Research* 1476. 38–57.
doi:10.1016/j.brainres.2012.02.074.

Unique mental abilities have been crucial for evolutionary success of Homo sapiens and for the development of his complex social organization. However, these abilities have also become a target for mental disorders which often result in a reduced fitness and in conflicts between the individual and the conventions of society. To account for this evolutionary maladaptation, the authors advance a new concept: that of “mis-exaptation,” derived from SJ Gould and E. Vrba’s concept of exaptation. Mis-exaptation is a characteristic which, although it may confer positive effects in one field of activity, may reach an inappropriate degree of specialization to have deleterious effects in that or in another field thereby leading to a decrease in fitness of the individual. This paper considers “inner speech” as an exaptation. Although inner speech is usually a positive aid to learning and reasoning, it may also favor the emergence of mental disturbances, such as the auditory hallucinations which are characteristic of schizophrenia. There is, nevertheless, a possible evolutionary value in mis-exaptational inner speech; two traits associated with the mis-exapted state would be altruistic behavior and heightened creativity, the latter being over-expressed in relatives of schizophrenic patients. A possible solution for the evolutionary-genetic paradox posed by altruism and schizophrenia arising from mis-exaptation will be suggested in the light of a cryptic genetic repertoire. A selection of illustrative examples of each of these mental states is presented as they appear in the pages of the European literature. An article in a special issue titled “Brain Integration.”

- Barrett, Nathaniel F. 2012. Religion and the evolution of meaning: Is meaning made or perceived? *Religion, Brain & Behavior* 2(3). 225–230.
doi:10.1080/2153599X.2012.721215.

The author raises questions about two of Robert Bellah’s assumptions: his insistence on a sharp contrast between the experience of meaningfulness and everyday life, and his view of meaning as a product of the mind. An article in a symposium on Robert Bellah’s Religion in Human Evolution.

Bellah, Robert N. 2012. Religion in human evolution revisited: response to commentators. *Religion, Brain & Behavior* 2(3). 260–270.
doi:10.1080/2153599X.2012.712758.

A response by the author to the symposium on his Religion in Human Evolution.

Donald, Merlin. 2012. The complex origins of religion: The work of Robert Bellah. *Religion, Brain & Behavior* 2(3). 230–237.
doi:10.1080/2153599X.2012.721216.

The author raises questions about Bellah's definition of the two key terms "religion" and "evolution." An article in a symposium on Robert Bellah's Religion in Human Evolution.

Green, William Scott. 2012. An "axial" work. *Religion, Brain & Behavior* 2(3). 238–242.
doi:10.1080/2153599X.2012.721217.

This commentary addresses aspects Bellah's conception of religion and his book's description of ancient Israel. An article in a symposium on Robert Bellah's Religion in Human Evolution.

Jensen, Jeppe Sinding. 2012. Religion in human evolution: On some generative and selective mechanisms. *Religion, Brain & Behavior* 2(3). 242–248.
doi:10.1080/2153599X.2012.721218.

The author here raises questions about the omission of Iranian religion, a tradition he identifies as having an important role in the "Axial Age" scenario. An article in a symposium on Robert Bellah's Religion in Human Evolution.

McClenon, James. 2012. A community survey of psychological symptoms: Evaluating evolutionary theories regarding shamanism and schizophrenia. *Mental Health, Religion & Culture* 15(8). 799–816.

In this study, a questionnaire, administered to a predominately African-American sample in North Carolina (n=965), surveyed schizotypal experience and other psychological symptoms, absorption and related psychological variables, childhood and adolescent difficulty, and incidence of unusual experiences (apparitions, paranormal dreams, waking ESP, out-of-body experience, near-death experience, sleep paralysis, UFOs, spiritual healing, and religious experiences). Study findings replicated Mirowsky's results regarding overlapping boundaries between psychiatric diagnoses. Findings also supported evolutionary hypotheses regarding correlations between schizotypal experiences, psychological variables related to shamanism, unusual experiences, and childhood/ adolescent difficulty.

Payne, Richard K. 2012. Bellah's Religion in Human Evolution: Four theoretical issues. *Religion, Brain & Behavior* 2(3). 249–255.
doi:10.1080/2153599X.2012.721219.

This response critiques Bellah's explanatory principles, focusing on the heritage of Romanticism in his analysis of the human condition; the theory of mind implicit in the work; his treatment of ritual; and the category "religion." An article in a symposium on Robert Bellah's Religion in Human Evolution.

Piazza, Jared. 2012. "If You Love Me Keep My Commandments": Religiosity Increases Preference for Rule-Based Moral Arguments. *International Journal for the Psychology of Religion* 22(4). 285–302.

Two experiments demonstrated that religiosity affects the way people resolve moral dilemmas. Participants were presented a series of immoral actions and were asked to justify the wrongness of the action by appealing to either the violation of a rule (rule-based argument) or the negative consequences resulting from the action (outcome-based argument). In Study 1, it was shown both among British and American samples that religious individuals preferred rule-based moral arguments to consequentialist moral arguments more than nonreligious individuals, and

covariance with political conservatism did not account for this effect. Study 2 replicated these results with revisions to the materials and extended measures. In this study, dimensions of religiosity, particularly Christian Orthodoxy, predicted rule-based morality independent of a personal need for structure, need for cognition, and right-wing authoritarianism. These results imply that religious individuals who are committed to orthodox religious teaching display a deontological style of morality for reasons that extend beyond a need for structure, cognitive simplicity, or submission to authority.

Taylor, Alex H, Rachael Miller & Russell D Gray. 2012. New Caledonian crows reason about hidden causal agents. *Proceedings of the National Academy of Sciences of the United States of America* 109(40). 16389–16391.
doi:10.1073/pnas.1208724109.

The ability to make inferences about hidden causal mechanisms underpins scientific and religious thought. It also facilitates the understanding of social interactions and the production of sophisticated tool-using behaviors. However, although animals can reason about the outcomes of accidental interventions, only humans have been shown to make inferences about hidden causal mechanisms. In this study, researchers show that tool-making New Caledonian crows react differently to an observable event when it is caused by a hidden causal agent. Eight crows watched two series of events in which a stick moved. In the first set of events, the crows observed a human enter a hide, a stick move, and the human then leave the hide. In the second, the stick moved without a human entering or exiting the hide. The crows inspected the hide and abandoned probing with a tool for food more often after the second, unexplained series of events. The authors conclude that this difference shows that the crows can reason about a hidden causal agent.

Turchin, Peter. 2012. Religion and empire in the Axial Age. *Religion, Brain & Behavior* 2(3). 256–260.
doi:10.1080/2153599X.2012.721220.

The author mentions areas of interest that should be studied further: the study of Achaemenid Persia and the role Zoroastrianism played in the development of that civilization, as well as “proto-axial” developments in Ancient Egypt that seemingly led nowhere. An article in a symposium on Robert Bellah’s Religion in Human Evolution.

Vail, Kenneth E, III, Jamie Arndt & Abdolhossein Abdollahi. 2012. Exploring the existential function of religion and supernatural agent beliefs among Christians, Muslims, atheists, and agnostics. *Personality & Social Psychology Bulletin* 38(10). 1288–1300.
doi:10.1177/0146167212449361.

Building on research suggesting one primary function of religion is the management of death awareness, the present research explored how supernatural beliefs are influenced by the awareness of death, for whom, and how individuals’ extant beliefs determine which god(s), if any, are eligible to fulfill that function. In Study 1, death reminders had no effect among Atheists, but enhanced Christians’ religiosity, belief in a higher power, and belief in God/Jesus and enhanced denial of Allah and Buddha. Similarly, death reminders increased Muslims’ religiosity and belief in a higher power, and led to greater belief in Allah and denial of God/Jesus and Buddha (Study 2). Finally, in Study 3, death reminders motivated Agnostics to increase their religiosity, belief in a higher power, and their faith in God/Jesus, Buddha, and Allah. The studies tested three potential theoretical explanations and were consistent with terror management theory’s worldview defense hypothesis.

1.3 SCIENTIFIC STUDY OF RELIGION: PSYCHOLOGY AND CULTURE

Brandt, Mark J. & P. J. Henry. 2012. Psychological Defensiveness as a Mechanism Explaining the Relationship Between Low Socioeconomic Status and Religiosity. *International Journal for the Psychology of Religion* 22(4). 321–332.

doi:10.1080/10508619.2011.646565.

People who are low in socioeconomic status (SES) are more likely to be religious than their higher status counterparts; however, little research has tested the mechanisms for this relationship. Using data from 90 diverse societies and multilevel path analysis, researchers replicated findings that individuals low in SES are more religious and furthermore found that in wealthy countries this relationship was mediated by a measure of psychological defensiveness even while controlling for participants' sense of financial insecurities. These results suggest that religious belief may play a psychologically protective role for low SES individuals, independent of realistic economic concerns.

Burris, Christopher T. & Elyse K. Redden. 2012. No Other Gods Before Mario?: Game Preferences Among Atheistic and Religious Individuals. *International Journal for the Psychology of Religion* 22(4). 243–251.

doi:10.1080/10508619.2011.638606.

The authors extend recent studies showing that atheists are less capable of internally simulating vivid, emotionally evocative experiences relative to those who identify with religion. Consequently, relative to religious individuals, atheists were expected to find the engaging, multisensory experience offered by virtual gaming environments to be an especially appealing form of play. This hypothesis was supported. Indeed, atheists did not rate narrative-oriented tabletop games more appealing than did religious individuals, and rated them as less appealing compared to agnostic/no religion individuals. The disparity in atheists' game preferences was further polarized by individual differences in psychological absorption. Atheists' preference for "what you see is what you get" video game environments over tabletop games that require greater imaginative effort for less immersive benefits may reflect a broad orientation that provides an experiential basis for disbelief in the unseen.

Chairy. 2012. Spirituality, Self-Transcendence, and Green Purchase Intention in College Students. *Procedia - Social and Behavioral Sciences* 57. 243–246.

doi:10.1016/j.sbspro.2012.09.1181.

This study investigated the influence of spirituality and self-transcendence on green purchase intention in undergraduate students at Tarumanagara University. Researchers found that spirituality and self-transcendence significantly influenced green purchase intention, supporting the idea that spirituality and self-transcendence should correspond to a stronger desire to consume pro-environmental product.

Davis, Don, Joshua Hook, Daryl VanTongeren, Aubrey Gartner & Everett Worthington. 2012. Can Religion Promote Virtue?: A More Stringent Test of the Model of Relational Spirituality and Forgiveness. *International Journal for the Psychology of Religion* 22(4). 252–266.

doi:10.1080/10508619.2011.646229.

The present studies sought to strengthen evidence for a model of relational spirituality and forgiveness, given the reliance of prior studies on cross-sectional designs that did not control for hurtfulness of the offense. In Study 1, spiritual appraisals predicted unforgiveness, controlling for hurtfulness and other covariates. Furthermore, using structural equation modeling, empathy was found to partially mediate the relationship between spiritual appraisals and unforgiveness. In Study 2, participants (n=123) completed a survey weekly for 6 weeks that included measures of relational spirituality and forgiveness. Appraisals of relational spirituality predicted subsequent unforgiveness, as well as the rate of decline in unforgiveness. Thus, using a more stringent test, additional evidence for the model was found.

Idris, Fazilah, Nur Riza Mohd Suradi, Siti Syaznira Muhamad, Khairul Anwar Mastor, Hasnan Kasan & Khalim Zainal. 2012. Influence of Ritual Behavior on Religious Delinquent Behavior Among Youth: A Path Analysis Approach. *Procedia - Social and Behavioral Sciences* 59. 51–60.

doi:10.1016/j.sbspro.2012.09.245.

This paper reports on a study about the influence of ritual behavior on the religious behavior delinquency. Ritual behavior consists of syabadah, prayer, fasting, giving alms and knowledge, while delinquent behavior is divided into five categories: delinquency in religion, life, mind, heredity and property. Ritual behavior is expected to abstain one from indulging in delinquent behavior from religious point of view. Research questionnaires were developed consisting of items on ritual behavior and delinquent behavior forms. About 600 respondents from eastern part of peninsular Malaysia participated in the study through the multi-stage stratified sampling method. Data were analyzed using path analysis. Results indicated that prayer followed by fasting significantly influence all five forms of delinquent behavior. This suggests that prayer is the most influential preventive measure in abstaining one from delinquent behavior.

Needham-Penrose, Judith & Harris L. Friedman. 2012. Moral Identity versus Moral Reasoning in Religious Conservatives: Do Christian Evangelical Leaders Really Lack Moral Maturity? *Humanistic Psychologist* 40(4). 343–363.
doi:10.1080/08873267.2012.724256.

Research using moral dilemmas has consistently found religious conservatives make poorer moral decisions than liberals. A sample of 104 Evangelical Christians leaders were found to score poorly in moral reasoning using this approach, but were also found to have high moral identity. Their moral identity correlated highly with self-reported moral behavior, yet their moral decision-making did not, suggesting moral identity is more salient than decision-making in their moral development. A subsample of 10 who scored low on moral decision-making but high on other moral indicators was qualitatively found to have a sophisticated morality based on different assumptions than used in past research. These findings are discussed in terms of bias in past research using moral dilemmas that denigrate religious conservatives.

Siraj, Asifa. 2012. “I don’t want to taint the name of Islam”: The influence of religion on the lives of Muslim lesbians. *Journal of Lesbian Studies* 16(4). 449–467.
doi:10.1080/10894160.2012.681268.

Islam is characterized as an extremely homophobic religion, which strictly forbids the union of two people of the same sex. This belief causes an immeasurable amount of strain and anxiety for lesbians because their feelings, desires, and emotions are considered “unnatural” and aberrant. The homophobic Islamic model of homosexuality thus celebrates heteronormative performances of gender and sexuality. In the present study, the issue of how religious identity interplays with sexual identity is examined. Using data gained from online interviews with five Muslim lesbians, the article considers whether the women are able to create their lesbian identity within a discourse that negates their sexual orientation. Their lives as Muslim lesbians produces a unique intersection where religion and sexuality converge, yet they are forced apart by religiously sanctioned homophobia, preventing them from exploring and expressing their sexuality. The article further examines whether Islam is a source upon which the women draw strength to understand their sexuality and to cope with being in the closet. Despite being members of Imaan, a Muslim LGBT (lesbian, gay, bisexual, and transgender) support group, the women continue to experience a significant degree of conflict. A reconciliation of faith with their sexuality is undermined by an unrelenting and intolerant religious attitude toward homosexuality.

1.4 SCIENTIFIC STUDY OF RELIGION: METHOD & THEORY

Chattoe-Brown, Edmund. 2012. How do we convince agent-based modeling agnostics? *Religion, Brain & Behavior* 2(3). 201–203.
doi:10.1080/2153599X.2012.703448.

The author highlights three challenges to agent-based modeling (ABM) acceptance. The first is the importance of literature reviewing. The second issue is being honest (but not defensive) about the extent to which ABM are supported by data. The third issue is not limited to ABM: the risk of letting models dominate the system they are

supposed to represent, with the result that one fails to ask “non-model” questions of equal significance. Commentary on Whitehouse, et al., below.

Cooling, Trevor. 2012. Contestable beliefs in education: Fairness and/or neutrality? *Oxford Review of Education* 38(5). 551–566.

The author responds to participants in a symposium discussing his report “Doing God in Education.” A special issue.

Costopoulos, Andre. 2012. Can simulation be more than a heuristic tool for studying belief systems? *Religion, Brain & Behavior* 2(3). 203–205.
doi:10.1080/2153599X.2012.703449.

The author encourages the development of a clearly defined mode to study religious systems that focuses on quantifiable attributes of beliefs and their hosts without completely ignoring content value; such a model could improve the efficacy of belief system modeling and simulation for understanding the phenomena, rather than for the mere heuristic value of the process itself. Commentary on Whitehouse, et al., below.

Cromby, John. 2012. Beyond belief. *Journal of Health Psychology* 17(7). 943–957.
doi:10.1177/1359105312448866.

Psychology, including health psychology, frequently invokes the concept of belief but almost never defines it. Drawing upon scholarship associated with the ‘affective turn’, this article argues that belief might usefully be understood as a structure of socialized feeling, contingently allied to discursive practices and positions. This conceptualization is explained, and its implications for health psychology discussed with respect to research on religiosity and spirituality and debates about the value of social cognition models such as the theory of planned behavior.

Czachesz, István. 2012. We need focused, transparent, and validated models of religion. *Religion, Brain & Behavior* 2(3). 205–207.
doi:10.1080/2153599X.2012.703450.

This author raises questions about the maximalist philosophy of modeling utilized by Whitehouse, et al. (below). Commentary on Whitehouse, et al., below.

Geller, Armando. 2012. “There shall be life!” Some critical remarks on modeling modes of religiosity. *Religion, Brain & Behavior* 2(3). 207–209.
doi:10.1080/2153599X.2012.703451.

The modeling and simulation aspects of theory building, agent design, and empirical evidence, mentioned by Whitehouse, et al. in the article below, are commented upon by this author.

Hand, Michael. 2012. Special issue: Trevor Cooling’s Doing God in education. *Oxford Review of Education* 38(5). 511–513.

The article reviews the book “Doing God In Education,” by Trevor Cooling, and introduces the special issue of the journal.

Hand, Michael. 2012. What’s in a worldview? On Trevor Cooling’s Doing God in education. *Oxford Review of Education* 38(5). 527–537.

The author holds that Cooling conflates two different arguments in his book, predicated on two different concepts marked by the term ‘worldview’, and that only one of the arguments is plausible. The first argument assumes that worldviews are theories of the meaning of life and contends that learning in all areas of the curriculum bears on the credibility of rival worldviews, including religious ones. The second argument assumes that worldviews are

conceptual schemes and contends that, without initiation into a worldview, ‘children cannot think at all’. While it may be true that having a conceptual scheme is a condition of the possibility of experience, it is highly implausible to suppose that religions qualify as worldviews in this sense. An article in a special issue devoted to Cooling’s “Doing God in Education.”

Hooper, Paul L. 2012. Modeling the evolution of religious institutions. *Religion, Brain & Behavior* 2(3). 209–212.
doi:10.1080/2153599X.2012.703452.

The author comments on Whitehouse, et al. (below), holding that those authors rightly emphasize the need for tight linkage between empirics and theory development. Commentary on Whitehouse, et al., below.

Komarova, Natalia L. 2012. The spread of conventions and the search for the optimal strategy. *Religion, Brain & Behavior* 2(3). 212–215.
doi:10.1080/2153599X.2012.703453.

Building on the work of Whitehouse, et al., this author presents a different set of tools and ideas that could be of use in the social sciences: first, the framework of quasi-species equations which is widely used in evolutionary biology and game theory, showing how this framework can reproduce quantitatively some of the verbal reasoning presented in the target article. Second, she draws an analogy between aspects of group behavior modeling and cancer modeling. Commentary on Whitehouse, et al., below.

Marshall, Janis & Harris L. Friedman. 2012. Human versus Computer-Aided Qualitative Data Analysis Ratings: Spiritual Content in Dream Reports and Diary Entries. *Humanistic Psychologist* 40(4). 329–342.
doi:10.1080/08873267.2012.724255.

Three computer-aided qualitative data analysis software (CAQDAS) were compared to each other and to a hand-coded method for analyzing spiritual content in 49 dream journals and 11 diary entries. The CAQDAS ratings demonstrated strong convergence with each other, despite using different assumptions; the hand-coded ratings were less correlated with the CAQDAS than the CAQDAS were to each other. The pattern of convergence and divergence of the ratings (hand coded vs. CAQDAS) and traits (dream vs. diary) was compared in a multitrait multimethod matrix, interpreted as supportive of the validity of both methods. However, all three CAQDAS uncovered material missed by the hand-coded method, suggesting their relative advantage, even when applied to content as ambiguous as spiritual categories.

McCorkle, William W. & Justin Lane. 2012. Ancestors in the simulation machine: Measuring the transmission and oscillation of religiosity in computer modeling. *Religion, Brain & Behavior* 2(3). 215–218.
doi:10.1080/2153599X.2012.703454.

McCorkle and Lane find the methodological engagement with computer simulation evidenced by Whitehouse, et al. refreshing and warranted in the cognitive science of religion, and agree that simulation does have an important role to play in these fields. Commentary on Whitehouse, et al., below.

Moulin, Daniel & James Robson. 2012. Doing God in a Liberal Democracy. *Oxford Review of Education* 38(5). 539–550.

The authors here argue that Cooling fails to give an adequate account of how fairness can be conceived, particularly because he does not decisively tackle the issues surrounding doing God in a plural context, or the contentious issues of compulsory collective worship and faith schools. In order to explore an argument from fairness with these issues in mind, they introduce three key concepts from the philosophy of John Rawls: reasonable pluralism, overlapping consensus and hypothetical contract. An article in a special issue devoted to Cooling’s “Doing God in Education.”

Norman, Richard. 2012. Worldviews, humanism and the (im)possibility of neutrality. *Oxford Review of Education* 38(5). 515–525.

The author holds that Cooling's "Argument from Fairness" is shared by humanists and religious believers, and can be a shared starting-point from which the two groups can debate the contentious practical issues, but that this argument needs to be detached from his contestable claims about the inescapability of worldviews and the impossibility of neutrality. An article in a special issue devoted to Cooling's "Doing God in Education."

Park, Crystal L. 2012. Attending to the construct of beliefs in research on religion/spirituality and health: Commentary on "Beyond belief." *Journal of Health Psychology* 17(7). 969–973.
doi:10.1177/1359105312448868.

The author holds that beliefs should not be considered affect or emotion but rather should be examined in relation to them, and that their development likely arises through myriad sources. She provides an alternative definition of religious beliefs and conclude with suggestions for future research on religious beliefs and health. A commentary on Cromby, above.

Whitehouse, Harvey, Ken Kahn, Michael E. Hochberg & Joanna J. Bryson. 2012. The role for simulations in theory construction for the social sciences: case studies concerning Divergent Modes of Religiosity. *Religion, Brain & Behavior* 2(3). 182–201.
doi:10.1080/2153599X.2012.691033.

In this paper, researchers demonstrate the benefits of simulating the predictions of a well-known theory in the Cognitive Science of Religion, the theory of Divergent Modes of Religiosity. Many of these predictions have already been tested against contemporary and longitudinal evidence, using the methods of both qualitative case study and large-scale survey, and some of the mechanisms responsible for the patterns observed have been investigated by means of controlled experiments. Nevertheless, in simulating the patterns of religious transmission and transformation predicted by the modes theory we discovered numerous aspects that were underspecified, generating new hypotheses for investigation in future empirical research. This back-and-forth between simulation and theory testing has the potential to accelerate progress in the scientific study of religion. The target article in this issue of the journal.

Whitehouse, Harvey, Ken Kahn, Michael E. Hochberg & Joanna J. Bryson. 2012. From the imaginary to the real: the back and forth between reality and simulation. *Religion, Brain & Behavior* 2(3). 219–224.
doi:10.1080/2153599X.2012.703455.

The authors respond to the responses to their article.

PART 2. ARTICLES IN SPIRITUALITY & HEALTH RESEARCH

2.1 SPIRITUALITY & HEALTH: GENERAL HEALTH & WELL-BEING

Balaji, P A, Smitha R Varne & Syed Sadat Ali. 2012. Physiological effects of yogic practices and transcendental meditation in health and disease. *North American Journal of Medical Sciences* 4(10). 442–448.
doi:10.4103/1947-2714.101980.

Researchers reviewed literature on the evaluation of the physiological effects of yogic practices and transcendental meditation. It was found that there were considerable health benefits, including improved cognition, respiration, reduced cardiovascular risk, body mass index, blood pressure, and diabetes. Yoga also influenced immunity and ameliorated joint disorders.

Burdette, Amy M & Natasha V Pilkauskas. 2012. Maternal religious involvement and breastfeeding initiation and duration. *American Journal of Public Health* 102(10). 1865–1868.
doi:10.2105/AJPH.2012.300737.

Although religious involvement is associated with a number of beneficial health outcomes, few studies have investigated whether religious involvement is associated with breastfeeding behaviors. Analyses of 2 waves of data from the Fragile Families and Child Wellbeing Study (n=4,166) indicate that mothers who frequently attend religious services are more likely to initiate breastfeeding than are mothers who never attend services.

Caribé, André C, Rafael Nunez, Diogo Montal, Larissa Ribeiro, Stella Sarmento, Lucas C Quarantini & Angela Miranda-Scippa. 2012. Religiosity as a protective factor in suicidal behavior: a case-control study. *The Journal of Nervous and Mental Disease* 200(10). 863–867.
doi:10.1097/nmd.0b013e31826b6d05.

The impact of religiosity in suicidal behavior was evaluated in Brazil through a case-control study in which 110 subjects who had attempted suicide through the use of toxic substances were compared with 114 control subjects with no history of suicide attempts. Religiosity was measured in three aspects: organizational religious activities, non-organizational religious activities, and intrinsic religiosity. Religiosity, in its three dimensions, was shown to be an important protective factor against suicide attempts, even after controlling for relevant risk factors associated with suicidal behavior

Cobb, Rachel K. 2012. How Well Does Spirituality Predict Health Status in Adults Living with HIV-Disease: A Neuman Systems Model Study. *Nursing Science Quarterly* 25(4). 347–355.
doi:10.1177/0894318412457051.

The purpose of this study was to examine the relationship between spirituality and health status of 39 adult men and women living with HIV-disease. A model building approach was used to explore the associations among the five variables of the Neuman systems model, which was the guiding framework for the study. The model presented includes existential well-being, meaningfulness, age, and income.

Cramer, H, R Lauche, A Paul & G Dobos. 2012. Mindfulness-based stress reduction for breast cancer: A systematic review and meta-analysis. *Current Oncology (Toronto, Ont.)* 19(5). e343–352.
doi:10.3747/co.19.1016.

This systematic review and meta-analysis assessed the effectiveness of mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) in patients with breast cancer. Three RCTs with a total of 327 subjects were included. The authors found that, compared with usual care, MBSR was superior in decreasing depression and anxiety, but not in increasing spirituality.

- Creswell, J. David, Michael R. Irwin, Lisa J. Burkland, Matthew D. Lieberman, Jesusa M. G. Arevalo, Jeffrey Ma, Elizabeth Crabb Breen & Steven W. Cole. 2012. Mindfulness-Based Stress Reduction training reduces loneliness and pro-inflammatory gene expression in older adults: A small randomized controlled trial. *Brain Behavior and Immunity* 26(7). 1095–1101.
doi:10.1016/j.bbi.2012.07.006.

The present study tested whether the 8-week Mindfulness-Based Stress Reduction (MBSR) program (compared to a Wait-List control group) reduces loneliness and down-regulates loneliness-related pro-inflammatory gene expression in older adults (n=40). Consistent with study predictions, the MBSR program reduced loneliness, compared to small increases in loneliness in the control group. Moreover, at baseline, there was an association between reported loneliness and up-regulated pro-inflammatory NF-kappa B-related gene expression in circulating leukocytes, and MBSR down-regulated this NF-kappa B-associated gene expression profile at post-treatment. Finally, there was a trend for MBSR to reduce C Reactive Protein.

- Hosseini, M., P. Davidson, A. Salehi & M. Khoshknab Fallahi. 2012. The Effect of Spiritual Training on Anxiety of CABG Candidates in Iran. *Heart, Lung and Circulation* 21, Supplement 1. S289.
doi:10.1016/j.hlc.2012.05.707.

In this randomized controlled trial, a total of 66 participants were randomly allocated to a treatment and control groups prior to coronary artery bypass graft surgery. Following an intervention based on spiritual training principles and congruent with Islamic Zikr, there was a statistically significant difference in anxiety mean scores between the intervention and control groups.

- Hybels, Celia F, Dan G Blazer, Linda K George & Harold G Koenig. 2012. The complex association between religious activities and functional limitations in older adults. *The Gerontologist* 52(5). 676–685.
doi:10.1093/geront/gnr156.

From survey of 2,924 adults aged 65+, researchers found that increased religious attendance was associated with fewer limitations in basic activities of daily living, instrumental activities of daily living, or mobility limitations, 3-4 years later. Neither use of religious media nor private religious activities was associated with functional change. The authors conclude that religious attendance may protect against decline in functional limitations in older adults.

- Kozasa, Elisa H., Luiza H. Tanaka, Carlos Monson, Stephen Little, Frederico Camelo Leao & Mario P. Peres. 2012. The Effects of Meditation-Based Interventions on the Treatment of Fibromyalgia. *Current Pain and Headache Reports* 16(5). 383–387.
doi:10.1007/s11916-012-0285-8.

This review aims to evaluate whether meditation-based interventions can help the treatment of fibromyalgia. Most of the studies reviewed indicate improvement in fibromyalgia-related symptoms in patients who participated in a meditation-based intervention. Considering only 4 of the 13 studies achieved a score of 3 on the Jadad scale, the authors suggest that researchers of meditation interventions should discuss the best methodological control for these studies.

- Patel, Neela K., Ann H. Newstead & Robert L. Ferrer. 2012. The Effects of Yoga on Physical Functioning and Health Related Quality of Life in Older Adults: A Systematic Review and Meta-Analysis. *Journal of Alternative and Complementary Medicine* 18(10). 902–917.
doi:10.1089/acm.2011.0473.

A systematic review of studies from 1950 to 2010 which evaluated the effects of yoga on older adults yielded 18 eligible studies (n=649). Researchers conclude that the small studies, of mixed methodological quality, suggested that yoga may be superior to conventional physical-activity interventions in elderly people. The precision of the

estimates remains low. Larger studies are necessary to define better the intersection of populations, settings, and interventions in which yoga is most beneficial.

- Rakhshani, A., R. Nagarathna, R. Mhaskar, A. Mhaskar, A. Thomas & S. Gunasheela. 2012. The effects of yoga in prevention of pregnancy complications in high-risk pregnancies: A randomized controlled trial. *Preventive Medicine* 55(4). 333–340.
doi:10.1016/j.ypmed.2012.07.020.

This randomized controlled trial investigated the effects of yoga in prevention of pregnancy complications in high-risk pregnancies for the first time. High-risk pregnant women (n=68) were recruited from two maternity hospitals in Bengaluru, India and were randomized into yoga and control groups. The yoga group (n=30) received standard care plus one-hour yoga sessions, three times a week, from the 12th to the 28th week of gestation. The control group (n=38) received standard care plus conventional antenatal exercises (walking) during the same period. Following intervention, significantly fewer pregnancy induced hypertension, preeclampsia, gestational diabetes and intrauterine growth restriction cases were observed in the yoga group. Significantly fewer Small for Gestational Age babies and newborns with low APGAR scores were born in the yoga group.

- Salmoirago-Blotcher, Elena, Sybil Crawford, Chau Tran, Robert Goldberg, Lawrence Rosenthal & Ira Ockene. 2012. Spiritual well-being may buffer psychological distress in patients with implantable cardioverter defibrillators (ICD). *Journal of Evidence-based Complementary & Alternative Medicine* 17(3). 148–154.
doi:10.1177/2156587212447627.

From a sample of 46 patients with implantable cardioverter defibrillators (ICDs), researchers found that spiritual wellbeing was independently associated with lower psychological distress. They conclude that spiritual wellbeing could act as a protective factor against psychological distress in these high-risk patients.

- Tewari, Shruti, Sammyh Khan, Nick Hopkins, Narayanan Srinivasan & Stephen Reicher. 2012. Participation in mass gatherings can benefit well-being: Longitudinal and control data from a north Indian hindu pilgrimage event. *PLoS one* 7(10). e47291.
doi:10.1371/journal.pone.0047291.

Researchers studied well-being in 416 religious pilgrims who attended a demanding month-long Hindu religious festival in North India, and compared their data to 127 controls who did not attend. Analysis indicated that those participating in the collective event reported a longitudinal increase in well-being relative to those who did not participate.

2.2 SPIRITUALITY & HEALTH: MENTAL HEALTH

- Abdel-Khalek, Ahmed M. 2012. Associations between religiosity, mental health, and subjective well-being among Arabic samples from Egypt and Kuwait. *Mental Health, Religion & Culture* 15(8). 741–758.

Two samples of Egyptian (n = 577) and Kuwaiti (n = 674) college students were administered questionnaires to (a) explore the sex-and country differences in religiosity, mental health, and subjective well-being, (b) estimate the associations between and factors from the last-mentioned variables, and (c) explore the predictors of religiosity. The participants completed the Arabic Scale of Mental Health, the Rosenberg Self-esteem Scale and five self-rating scales to assess religiosity, physical health, mental health, happiness, and satisfaction with life. Egyptian and Kuwaiti men obtained significantly higher mean scores than did their female counterparts. Kuwaiti men and women had significantly higher mean scores on all the scales than their Egyptian counterparts. All the correlations between the scales were significant and positive. A highly loaded factor was identified and labeled Mental health,

well-being and religiosity. Stepwise regression indicated that the main predictors of religiosity were self-esteem, happiness, satisfaction and mental health in different combinations.

- Agorastos, Agorastos, Tanja Metscher, Christian G Huber, Lena Jelinek, Francesca Vitzthum, Christoph Muhtz, Michael Kellner & Steffen Moritz. 2012. Religiosity, magical ideation, and paranormal beliefs in anxiety disorders and obsessive-compulsive disorder: A cross-sectional study. *The Journal of Nervous and Mental Disease* 200(10). 876–884.
doi:10.1097/NMD.0b013e31826b6e92.

This study investigated the differences in religiosity/spirituality (R/S) and magical/paranormal ideation among obsessive-compulsive disorder patients (OCD; n=49), patients with other anxiety disorders (ADs; n=36), and healthy controls (HCs; n=35). Results suggest negative religious coping as being the only parameter showing significantly higher scores in OCD and AD participants in comparison with HCs. Negative religious coping reflects negative functional expressions of R/S in stressful situations. Logistic regression also suggested negative religious coping as the strongest predictor of group affiliation to the nonhealthy group. Further results show no significant differences between other R/S, magical, and paranormal ideation traits among groups.

- Barnes, David M & Ilan H Meyer. 2012. Religious affiliation, internalized homophobia, and mental health in lesbians, gay men, and bisexuals. *The American Journal of Orthopsychiatry* 82(4). 505–515.
doi:10.1111/j.1939-0025.2012.01185.x.

The authors investigated the relationship between exposure to non-affirming religious environments and internalized homophobia and mental health in a sample of lesbians, gay men, and bisexuals (LGBs) in New York City (n=355). Results showed that non-affirming religion was associated with higher internalized homophobia. There was no main effect of non-affirming religion on mental health, an unexpected finding discussed in this article. Latinos, but not Blacks, had higher internalized homophobia than Whites, and as predicted, this was mediated by their greater exposure to non-affirming religion.

- Bostanov, Vladimir, Philipp M. Keune, Boris Kotchoubey & Martin Hautzinger. 2012. Event-related brain potentials reflect increased concentration ability after mindfulness-based cognitive therapy for depression: A randomized clinical trial. *Psychiatry Research* 199(3). 174–180.
doi:10.1016/j.psychres.2012.05.031.

In the main phase of this study, 91 recurrently depressed patients in remission were randomly assigned to eight-week treatment by either mindfulness-based cognitive therapy (MBCT) or waiting (WAIT for delayed MBCT). Following intervention, the MBCT group showed an increase in the late component of the contingent negative variation (CNV), an event-related brain potential (ERP), known to reflect the allocation of attentional resources. This result reflects patients' improved ability to shift their attention toward current moment experience and away from potentially depressogenic thinking or rumination during mild dysphoric states, a known risk factor for depressive relapse/recurrence.

- Collicutt, Joanna & Amanda Gray. 2012. “A merry heart doeth good like a medicine”: humour, religion and wellbeing. *Mental Health, Religion & Culture* 15(8). 759–778.
doi:10.1080/13674676.2011.630385.

This essay explores the relationship between humor, religion, and wellbeing. It surveys some historical and contemporary psychological approaches to humor, and examines the empirical findings on the relationship between humor and health. It notes the historical antipathy between religion and humor, and argues that this is based on an incomplete analysis of the complexities of both religion and humor, including the chronological aspects of phase in the life of a religion or religious movement, and the capacity of humor both to conserve and subvert received wisdom of the faith tradition. Finally, it argues that aspects of both humor and religion are associated with transcendence, and that this maybe a helpful a conceptual bridge linking the two.

- James, Anthony G., Mark A. Fine & Linda Jo Turner. 2012. An Empirical Examination of Youths' Perceptions of Spirituality as an Internal Developmental Asset During Adolescence. *Applied Developmental Science* 16(4). 181–194.
doi:10.1080/10888691.2012.722891.

This mixed method study explores youths' perceived conceptions of spirituality and tests whether spirituality is an additional internal developmental asset (IDA). Spirituality was assessed using an open-ended question asking youth to define spirituality followed by a closed-ended item gauging the extent to which their definition reflected their own spirituality. Using grounded theory to assess youths' qualitative responses resulted in the creation of 10 "spiritual categories." Quantitative analyses revealed that youths' self-assessment of spirituality had significant concurrent effects on six domains of positive youth development (PYD). However, the longitudinal change model only revealed a significant effect between youths' self-ratings of spirituality and their later Character scores.

- Lim, Michelle H., John F. Gleeson & Henry J. Jackson. 2012. The Jumping-to-Conclusions Bias in New Religious Movements. *Journal of Nervous and Mental Disease* 200(10). 868–875.
doi:10.1097/NMD.0b013e31826b6eb4.

The jumping-to-conclusions bias has not been examined in a new religious movement (NRM) group. Twenty-seven delusion-prone NRM individuals were compared with 25 individuals with psychotic disorders and 63 non-delusion-prone individuals on four probabilistic inference tasks, together with measures of psychotic symptoms and delusion proneness. The NRM individuals requested significantly less evidence when compared with the control individuals on both meaningful and non-meaningful tasks. The NRM individuals requested significantly more evidence on a difficult meaningful task when compared with the individuals with psychotic disorders. A specific reasoning style but not a general reasoning style differentiates the NRM individuals from the individuals with psychotic disorders. These findings may be specific to NRM individuals and may not be generalized to other delusion-prone groups.

- Lotfi, Yaser, Ali Ayar & Simin Shams. 2012. The Relation Between Religious Practice and Committing Suicide: Common and Suicidal People in Darehshahr, Iran. *Procedia - Social and Behavioral Sciences* 50. 1051–1060.
doi:10.1016/j.sbspro.2012.08.105.

This article attempts to study the relationship between different dimensions of religiosity (ideological, emotional, ritual, knowledge, and consequential) and committing suicide. The study tries to illustrate the relation between different aspects of religiosity and committing suicide in Darehshahr, Iran, 2009. Findings of the research indicate that different dimensions of religiosity among normal individuals (control group) are higher than that among the suicidal people.

- Majid, S. Asmaee, T. Seghatoleslam, H. A. Homan, A. Akhvast & H. Habil. 2012. Effect of Mindfulness Based Stress Management on Reduction of Generalized Anxiety Disorder. *Iranian Journal of Public Health* 41(10). 24–28.

The aim of this study was to evaluate whether an eight-week group mindfulness-based stress reduction program would be an acceptable and effective treatment for patients suffering from generalized anxiety disorder (GAD). Subjects were randomized to an eight week course of group mindfulness based stress reduction program (16 subjects) or a control group (15 subjects). There were significant reductions in anxiety, depressive and worry symptoms from baseline to end of treatment for intervention patients.

- Marashian, Fatemeh & Elahe Esmaili. 2012. Relationship Between Religious Beliefs of Students with Mental Health Disorders Among the Students of Islamic Azad University of Ahvaz. *Procedia - Social and Behavioral Sciences* 46. 1831–1833.
doi:10.1016/j.sbspro.2012.05.387.

The aim of this study, was the relationship between religious beliefs of students with mental health disorders in the Islamic Azad University of Abvaz. The sample included 300 students (150 female) who were selected by stratified random manner. Results showed a significant negative relationship between religious beliefs and mental health disorder.

Park, Jisung, Soonhee Roh & Younsook Yeo. 2012. Religiosity, social support, and life satisfaction among elderly Korean immigrants. *The Gerontologist* 52(5). 641–649.
doi:10.1093/geront/gnr103.

In a sample of 200 Korean immigrant older adults in New York City, researchers found that greater religiosity was related to greater life satisfaction and that social support partially explained the positive relationship between religiosity and life satisfaction.

Pearce, Michelle J, April D Coan, James E Herndon 2nd, Harold G Koenig & Amy P Abernethy. 2012. Unmet spiritual care needs impact emotional and spiritual well-being in advanced cancer patients. *Supportive Care in Cancer: Official Journal of the Multinational Association of Supportive Care in Cancer* 20(10). 2269–2276.
doi:10.1007/s00520-011-1335-1.

Patients with advanced cancer (n=150) were surveyed during their inpatient stay at a southeastern medical center using validated instruments documenting spirituality, quality of life, mood, and satisfaction with care. Almost all patients had spiritual needs (91%) and the majority desired and received spiritual care from their healthcare providers (67%; 68%), religious community (78%; 73%), and hospital chaplain (45%; 36%). However, a significant subset received less spiritual care than desired from their healthcare providers (17%), religious community (11%), and chaplain (40%); in absolute terms, the number who received less care than desired from one or more sources was substantial (42 of 150). Attention to spiritual care would improve satisfaction with care while hospitalized for 35% of patients. Patients who received less spiritual care than desired reported more depressive symptoms and less meaning and peace.

Taylor, Robert Joseph, Linda M Chatters & Jamie M Abelson. 2012. Religious Involvement and DSM-IV 12-Month and Lifetime Major Depressive Disorder Among African Americans. *The Journal of Nervous and Mental Disease* 200(10). 856–862.
doi:10.1097/NMD.0b013e31826b6d65.

This study explores relationships between lifetime and 12-month DSM-IV major depressive disorder (MDD) and religious involvement within a nationally representative sample of African American adults (n=3,570). Results indicate that reading religious materials were positively associated with 12-month and lifetime MDD, religious service attendance was inversely associated with 12-month and lifetime MDD, and religious coping was inversely associated with 12-month MDD.

Wei, Meifen, Tsun-Yao Ku, Hwei-Jane Chen, Nathaniel Wade, Kelly Yu-Hsin Liao & Gwo-Jen Guo. 2012. Chinese Christians in America: Attachment to God, Stress, and Well-Being. *Counseling and Values* 57(2). 162–180.
doi:10.1002/j.2161-007X.2012.00015.x.

This study examined whether attachment to God moderated the relation between perceived stress and well-being (i.e., life satisfaction and positive affect) among 183 Chinese Christian international students and immigrants. Results showed significant main effects of (a) perceived stress on life satisfaction and (b) secure attachment to God and avoidant attachment to God on life satisfaction and positive affect. There was a significant interaction of perceived stress and avoidant attachment to God on life satisfaction. Specifically, high avoidant attachment to God exacerbated the association between perceived stress and life satisfaction, whereas low avoidant attachment to God buffered the association between perceived stress and life satisfaction.

Wortmann, Jennifer H., Crystal L. Park & Donald Edmondson. 2012. Spiritual Struggle and Adjustment to Loss in College Students: Moderation by Denomination. *International Journal for the Psychology of Religion* 22(4). 303–320.
doi:10.1080/10508619.2011.638605.

In a longitudinal study of college students dealing with personally significant losses, the authors assessed how spiritual struggle was related to negative (symptoms of posttraumatic stress and depression) and positive (stress-related growth and life satisfaction) aspects of adjustment and whether denomination moderated these relationships. Results indicated that struggle has a powerful adverse impact on adjustment. Further, denomination moderated the relationship of struggle with posttraumatic stress disorder symptoms concurrently and after a 2-month lag, such that spiritual struggle appeared particularly toxic in terms of loss-related distress for students identifying with the Catholic tradition.

2.3 SPIRITUALITY & HEALTH: METHOD AND THEORY

Adams, C & A Manenti. 2012. Flexibility and pragmatism in promoting health: An experience of synergy between health and religion in the Islamic Republic of Iran. *Eastern Mediterranean health journal = La revue de santé de la Méditerranée orientale = al-Majallah al-ṣiḥḥiyah li-sharq al-mutawassiṭ* 18(8). 892–898.

In the Islamic Republic of Iran, religion has traditionally played a central role in the lives of the people. Following the Islamic Revolution in 1979, it has also become integral to the country's governance. Since the Revolution, an exceptional synergy has arisen between the domain of religion and the health sector in the development of family planning policies, which have resulted in dramatic changes in population growth and fertility: the population growth rate decreased from 3.9% (1986) to 1.2% (2000) and total fertility from 6.8 (1984) to 2.1 (2000). The extraordinary aspect of this experience is that the position of religious authorities changed from one of opposition to one of active promotion of family planning. This paper describes the establishment and course of family planning programs in Iran and makes use of interviews with two main protagonists of this experience (Dr Alireza Marandi--Minister of Health 1984-1989, 1993-1997; Dr Hossein Malekafzali--former Deputy Minister of Health). It is hoped that dissemination of this experience outside of the Islamic Republic of Iran will encourage the development of similar dialogue and synergy between religion and health in other countries.

Baldacchino, Donia R, Josette Borg, Charlene Muscat & Cassandra Sturgeon. 2012. Psychology and theology meet: Illness appraisal and spiritual coping. *Western Journal of Nursing Research* 34(6). 818–847.
doi:10.1177/0193945912441265.

This descriptive exploratory study explored illness appraisal and spiritual coping of three groups of individuals with life-threatening illness. These were hospice clients with cancer (Ca; n=10), clients with first myocardial infarction (MI; n=6), and parents of children with cystic fibrosis (CF; n=16). Qualitative data were collected by audiotaped face-to-face interviews (parents) and focus groups (MI and Ca). Similarities in illness appraisal and spiritual coping were found across the three groups except appreciation of crafts, which was found only in clients with Ca and causal meaning of parents (CF). Overall, illness was appraised negatively and positively, whereas spiritual coping incorporated existential and religious coping. These findings confirm the psychological theory (Lazarus & Folkman, 1984) and theological theory (Otto, 1950), which guided this study. Recommendations were proposed to integrate spirituality and religiosity in the curricula, clinical practice and to conduct cross-cultural comparative longitudinal research.

Bekke-Hansen, Sidsel, Christina Gundgaard Pedersen, Kristian Thygesen, Søren Christensen, Lynn C Waelde & Robert Zachariae. 2012. Faith and use of complementary and alternative medicine

among heart attack patients in a secular society. *Complementary Therapies in Medicine* 20(5). 306–315.

doi:10.1016/j.ctim.2012.03.003.

Researchers administered questionnaires to 97 consecutively recruited patients with acute coronary syndrome from a Danish cardiac university hospital unit, 6 months after hospitalization. Only unambiguous faith in God predicted CAM use. No significant association was found between heart disease severity and CAM use. The majority of CAM treatments were rated as having some degree of positive influence on quality of life (75.9%) and the heart disease (58.6%).

Bornsheuer, Jennifer N., Richard C. Henriksen & Beverly J. Irby. 2012. Psychological Care Provided by the Church: Perceptions of Christian Church Members. *Counseling and Values* 57(2). 199–213. doi:10.1002/j.2161-007X.2012.00017.x.

Spirituality and religion are integral parts of a person's belief system and support network. Although there are many avenues a person can take when seeking mental health care, conservative Protestant clients have a tendency to seek assistance through their church. There is a paucity of literature about conservative Protestant church members' perceptions of mental health care. The authors used phenomenology to understand participants' perceptions of mental health care provided by the church. Themes found within participants' stories included the importance of the relationship when seeking care, the use of knowledgeable practitioners, and the use of religious practices in counseling.

Cantz, Paul. 2012. Towards a biblical psychoanalysis: A second look at the first book. *Mental Health, Religion & Culture* 15(8). 779–797.

The author extends the dialectical interplay of biblical and Hellenistic attitudes in Western culture into the realm of individual psychology, showing a way in which psychoanalysis and biblical thought can constructively coexist. Prototypical myths from the Greek and biblical traditions can reliably be situated on a psycho-mythological continuum, with Greek myths representing a less integrated level of ego development and biblical narratives reflecting an un-ambivalent, higher level of psychological organization.

Cohen, Marlene Z, Lyn M Holley, Steven P Wengel & Rabbi Mendel Katzman. 2012. A platform for nursing research on spirituality and religiosity: Definitions and measures. *Western Journal of Nursing Research* 34(6). 795–817. doi:10.1177/0193945912444321.

Research on the relationship of religiousness or spirituality to health spans more than one discipline and applies many definitions and measures. The purpose of this multidisciplinary work is to facilitate research by nurses who seek to investigate the relationship between health and religiousness or spirituality, and provide evidence-based guidance for nursing practice. Senior researchers summarize the history of inquiry on this topic, discuss particular and persistent challenges posed by definitions of religion and spirituality, describe selected measures that have enjoyed wide application, and make recommendations for consideration by nurse researchers.

Collin, Margery. 2012. The search for a higher power among terminally ill people with no previous religion or belief. *International Journal of Palliative Nursing* 18(8). 384–389.

In this small qualitative study involving six patients, fear, hope, and a natural connection are posited as possible prompts for a desire to connect with a higher power. The results highlight the complexity of ambivalent feelings toward a transcendent being that can be the focus of anger and blame while simultaneously offering a source of comfort and hope for an afterlife. Moreover, the study revealed something of the extent to which health professionals may feel limited in facilitating necessary discussion by a need to protect patients and themselves from entering an unfamiliar and complex area.

- Dalmida, Safiya George, Marcia McDonnell Holstad, Colleen DiIorio & Gary Laderman. 2012. The meaning and use of spirituality among African American women living with HIV/AIDS. *Western Journal of Nursing Research* 34(6). 736–765.
doi:10.1177/0193945912443740.

The purpose of this qualitative study was to explore the meaning and use of spirituality among African American (AA), predominantly Christian women with HIV. A nonrandom sample of 20 AA women from a large infectious disease clinic in Metro-Atlanta participated in the study. The study used focus groups and individual interviews to interview women about their lived spiritual experience. The findings revealed the spiritual views and practices of AA women with HIV. The following themes (and subthemes) emerged: Spirituality is a process/journey or connection (connection to God, higher power, or spirit and HIV brought me closer to God), spiritual expression (religion/church attendance, prayer, helping others, having faith), and spiritual benefits (health/healing, spiritual support, inner peace/strength/ability to keep going, and here for a reason or purpose/a second chance).

- Dein, Simon, Christopher C H Cook & Harold Koenig. 2012. Religion, spirituality, and mental health: Current controversies and future directions. *The Journal of Nervous and Mental Disease* 200(10). 852–855.
doi:10.1097/NMD.0b013e31826b6dle.

Although studies examining religion, spirituality, and mental health generally indicate positive associations, there is a need for more sophisticated methodology, greater discrimination between different cultures and traditions, more focus on situated experiences of individuals belonging to particular traditions, and, in particular, greater integration of theological contributions to this area. The authors suggest priorities for future research based on these considerations.

- Holt, Cheryl L, Isabel C Scarinci, Katrina Debnam, Chastity McDavid, Mark Litaker, Sandre F McNeal, Vivian Southward, et al. 2012. Spiritually based intervention to increase colorectal cancer awareness among African Americans: Intermediate outcomes from a randomized trial. *Journal of Health Communication* 17(9). 1028–1049.
doi:10.1080/10810730.2012.665418.

The present study evaluated a spiritually based approach to increasing Health Belief Model-based pre-screening outcomes in a Community Health Advisor-led intervention conducted in African American churches. Sixteen urban churches were randomized to receive either the spiritually based intervention or a nonspiritual comparison of the same structure and core colorectal cancer content. Both interventions resulted in significant pre/post increases in knowledge, perceived benefits of screening, and decreases in perceived barriers to screening. Among women, the spiritually based intervention resulted in significantly greater increases in perceived benefits of screening relative to the nonspiritual comparison. This finding was marginal in the sample as a whole. In addition, perceived benefits to screening were associated with behavioral intention for screening. The authors conclude that the spiritually based was generally as effective as the nonspiritual (secular) communication.

- Lowry, Lois W. 2012. A qualitative descriptive study of spirituality guided by the Neuman systems model. *Nursing Science Quarterly* 25(4). 356–361.
doi:10.1177/0894318412457052.

The purposes of this qualitative descriptive study were to explore the meaning of spirituality as described by aging adults in various states of health, to describe the relationship between spirituality and health, and to explain client expectations for healthcare providers related to spirituality. All identified meanings and themes were compared to the characteristics of spirituality proposed by Betty Neuman in the Neuman systems model to determine the credibility of the model for assessing and guiding holistic nursing practice. Three themes were formulated: a)

Spirituality is an individual, conscious, committed connection to God, requiring a human response; b) positive spirituality contributes to personal wholeness and health; and c) spirituality sustains and comforts in times of stress.

Muselman, Dannette M. & Marsha I. Wiggins. 2012. Spirituality and Loss: Approaches for Counseling Grieving Adolescents. *Counseling and Values* 57(2). 229–240.
doi:10.1002/j.2161-007X.2012.00019.x.

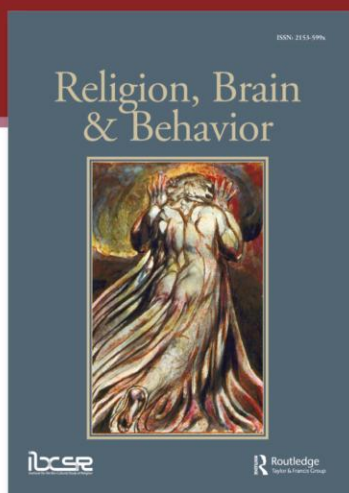
The authors review relevant research on the grief process and spirituality in adolescence, and they give a rationale for integrating spirituality into adolescent grief work. By way of a case illustration, they draw implications for counselors' use of spirituality in addressing adolescent grief.

Taylor, Carol. 2012. Rethinking Hopelessness and the Role of Spiritual Care When Cure Is No Longer an Option. *Journal of Pain and Symptom Management* 44(4). 626–630.
doi:10.1016/j.jpainsymman.2012.07.010.

This article uses a personal narrative to explore the hopelessness of a patient diagnosed with non-resectable pancreatic cancer and the challenge it raised for the author. Hope is described as a virtue that takes as its object "a future good, difficult but possible to obtain," and that sits squarely between false hopes and despair. Spiritual care that addresses three universal spiritual needs (meaning and purpose, love and relatedness, and forgiveness) is recommended as a valuable intervention to address hopelessness.

Tuck, Inez. 2012. A Critical Review of a Spirituality Intervention. *Western Journal of Nursing Research* 34(6). 712–735.
doi:10.1177/0193945911433891.

This article describes the spiritual intervention developed by the author and documents the testing of its effectiveness with clinical and nonclinical populations. The findings from a series of studies have been mixed. Preliminary studies reported that the intervention positively influenced patients' outcomes, including overall quality of life and reduced selected stress responses. Significant positive trends were found that supported the potential effectiveness of the intervention for a variety of populations and clinical settings. However, subsequent testing in clinical trials indicated limited effect of the intervention although there were several noteworthy findings.



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PART 3. BOOKS

3.1 SCIENTIFIC STUDY OF RELIGION, BRAIN, AND BEHAVIOR

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