



RESEARCH REVIEW

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

MAY, 2015

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 religion using biocultural techniques. *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: H. W. Wilson Applied Science and Technology, ATLA Religion Database, H. W. Wilson 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 816 articles, 113 articles have been retained from 75 journals. There are 47 pre-publication citations from 37 journals.

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CONTENTS

Part 1: Articles in Religion, Brain, and Behavior	2
1.1 Scientific Study of Religion: Cognitive Neuroscience.....	2
1.2 Scientific Study of Religion: Evolution.....	5
1.3 Scientific Study of Religion: Psychology and Culture.....	7
1.4 Scientific Study of Religion: Method & Theory.....	16
Part 2: Articles in Spirituality & Health Research	21
2.1 Spirituality & Health: General Health & Well-Being.....	21
2.2 Spirituality & Health: Mental Health.....	25
2.3 Spirituality & Health: Method and Theory.....	32
Part 3: Books.....	40
3.1 Scientific Study of Religion, Brain, and Behavior.....	40
3.2 Spirituality & Health Research	40
Part 4: Articles in Press.....	41
4.1 Scientific Study of Religion, Brain, and Behavior.....	41
4.2 Spirituality & Health Research	42

PART 1: ARTICLES IN RELIGION, BRAIN, AND BEHAVIOR

1.1 SCIENTIFIC STUDY OF RELIGION: COGNITIVE NEUROSCIENCE

Critchley, Hugo D., Alessia Nicotra, Patrizia A. Chiesa, Yoko Nagai, Marcus A. Gray, Ludovico Minati & Luciano Bernardi. 2015. Slow Breathing and Hypoxic Challenge: Cardiorespiratory Consequences and Their Central Neural Substrates. *Plos One* 10(5). e0127082. doi:10.1371/journal.pone.0127082.

Controlled slow breathing (six breaths per minute, a rate frequently adopted during yoga practice) can benefit cardiovascular function, including responses to hypoxia. In this study, researchers tested the neural substrates of cardiorespiratory control in humans during volitional controlled breathing and hypoxic challenge using functional magnetic resonance imaging (fMRI). Twenty healthy volunteers were scanned during paced (slow and normal rate) breathing and during spontaneous breathing of normoxic and hypoxic (13% inspired O₂) air. Cardiovascular and respiratory measures were acquired concurrently, including beat-to-beat blood pressure from a subset of participants (n=7). Slow breathing was associated with increased tidal ventilatory volume. Induced hypoxia raised heart rate and suppressed heart rate variability. Within the brain, slow breathing activated dorsal pons, periaqueductal grey matter, cerebellum, hypothalamus, thalamus and lateral and anterior insular cortices. Blocks of hypoxia activated mid pons, bilateral amygdalae, anterior insular and occipitotemporal cortices. Interaction between slow breathing and hypoxia was expressed in ventral striatal and frontal polar activity. Across conditions, within brainstem, dorsal medullary and pontine activity correlated with tidal volume and inversely with heart rate. Activity in rostroventral medulla correlated with beat-to-beat blood pressure and heart rate variability. Widespread insula and striatal activity tracked decreases in heart rate, while subregions of insular cortex correlated with momentary increases in tidal volume. These findings define slow breathing effects on central and

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cardiovascular responses to hypoxic challenge. They highlight the recruitment of discrete brainstem nuclei to cardiorespiratory control, and the engagement of corticostriatal circuitry in support of physiological responses that accompany breathing regulation during hypoxic challenge.

- Desai, Radhika, Anisha Tailor & Tanvi Bhatt. 2015. Effects of yoga on brain waves and structural activation: A review. *Complementary Therapies in Clinical Practice* 21(2). 112–118. doi:10.1016/j.ctcp.2015.02.002.

Previous research has shown the vast mental and physical health benefits associated with yoga. Yoga practice can be divided into subcategories that include posture-holding exercise (asana), breathing (pranayama, Kriya), and meditation (Sahaj) practice. Studies measuring mental health outcomes have shown decreases in anxiety, and increases in cognitive performance after yoga interventions. Similar studies have also shown cognitive advantages amongst yoga practitioners versus non-practitioners. The mental health and cognitive benefits of yoga are evident, but the physiological and structural changes in the brain that lead to this remain a topic that lacks consensus. Therefore, the purpose of this study was to examine and review existing literature on the effects of yoga on brain waves and structural changes and activation. After a narrowed search through a set of specific inclusion and exclusion criteria, 15 articles were used in this review. It was concluded that breathing, meditation, and posture-based yoga increased overall brain wave activity. Increases in gray matter, along with increases in amygdala and frontal cortex activation, were evident after a yoga intervention. Yoga practice may be an effective adjunctive treatment for a clinical and healthy aging population.

- Kemmer, Phebe B., Ying Guo, Yikai Wang & Giuseppe Pagnoni. 2015. Network-based characterization of brain functional connectivity in Zen practitioners. *Frontiers in Psychology* 6. 603. doi:10.3389/fpsyg.2015.00603.

In the last decade, a number of neuroimaging studies have investigated the neurophysiological effects associated with contemplative practices. Meditation-related changes in resting state functional connectivity (rsFC) have been previously reported, particularly in the default mode network, frontoparietal attentional circuits, saliency-related regions, and primary sensory cortices. Researchers collected functional magnetic resonance imaging data from a sample of 12 experienced Zen meditators and 12 meditation-naïve matched controls during a basic attention-to-breathing protocol, together with behavioral performance outside the scanner on a set of computerized neuropsychological tests. A network system of 209 nodes, classified into nine functional modules was adopted, and a multi-stage approach was utilized, to identify rsFC differences in meditators and controls. Between-group comparisons of modulewise FC, summarized by the first principal component of the relevant set of edges, revealed important connections of frontoparietal circuits with early visual and executive control areas. The authors also identified several group differences in positive and negative edgewise FC, often involving the visual, or frontoparietal regions. Multivariate pattern analysis of modulewise FC, using support vector machine (SVM), classified meditators, and controls with 79% accuracy and selected 10 modulewise connections that were jointly prominent in distinguishing meditators and controls; a similar SVM procedure based on the subjects' scores on the neuropsychological battery yielded a slightly weaker accuracy (75%). Finally, a correlation was observed between the across-subject variation in strength of modulewise connections among frontoparietal, executive, and visual circuits, on the one hand, and in the performance on a rapid visual information processing test of sustained attention, on the other. Taken together, these findings highlight the usefulness of employing network analysis techniques in investigating the neural correlates of contemplative practices.

- Kirk, Ulrich, Kirk Warren Brown & Jonathan Downar. 2015. Adaptive neural reward processing during anticipation and receipt of monetary rewards in mindfulness meditators. *Social Cognitive and Affective Neuroscience* 10(5). 752–759. doi:10.1093/scan/nsu112.

Reward seeking is ubiquitous and adaptive in humans. But excessive reward seeking behavior, such as chasing monetary rewards, may lead to diminished subjective well-being. This study examined whether individuals trained in mindfulness meditation show neural evidence of lower susceptibility to monetary rewards. Seventy-eight participants (34 meditators, 44 matched controls) completed the monetary incentive delay task while undergoing functional magnetic resonance imaging. The groups performed equally on the task, but meditators showed lower neural activations in the caudate nucleus during reward anticipation, and elevated bilateral posterior insula activation during reward anticipation. Meditators also evidenced reduced activations in the ventromedial prefrontal cortex during reward receipt compared with controls. Connectivity parameters between the right caudate and bilateral anterior insula were attenuated in meditators during incentive anticipation. In summary, brain regions involved in reward processing—both during reward anticipation and receipt of reward—responded differently in mindfulness meditators than in nonmeditators, indicating that the former are less susceptible to monetary incentives.

Schmalzl, Laura, Chivon Powers & Eva Henje Blom. 2015. Neurophysiological and neurocognitive mechanisms underlying the effects of yoga-based practices: towards a comprehensive theoretical framework. *Frontiers in Human Neuroscience* 9. 235. doi:10.3389/fnhum.2015.00235.

During recent decades numerous yoga-based practices (YBP) have emerged in the West, with their aims ranging from fitness gains to therapeutic benefits and spiritual development. Yoga is also beginning to spark growing interest within the scientific community, and yoga-based interventions have been associated with measureable changes in physiological parameters, perceived emotional states, and cognitive functioning. YBP typically involve a combination of postures or movement sequences, conscious regulation of the breath, and various techniques to improve attentional focus. However, so far little if any research has attempted to deconstruct the role of these different component parts in order to better understand their respective contribution to the effects of YBP. A clear operational definition of yoga-based therapeutic interventions for scientific purposes, as well as a comprehensive theoretical framework from which testable hypotheses can be formulated, is therefore needed. Here the authors propose such a framework, and outline the bottom-up neurophysiological and top-down neurocognitive mechanisms hypothesized to be at play in YBP.

Villemure, Chantal, Marta Čeko, Valerie A. Cotton & M. Catherine Bushnell. 2015. Neuroprotective effects of yoga practice: age-, experience-, and frequency-dependent plasticity. *Frontiers in Human Neuroscience* 9. 281. doi:10.3389/fnhum.2015.00281.

Yoga combines postures, breathing, and meditation. Despite reported health benefits, yoga's effects on the brain have received little study. For this study, researchers used magnetic resonance imaging to compare age-related gray matter (GM) decline in yogis and controls. They also examined the effect of increasing yoga experience and weekly practice on GM volume and assessed which aspects of weekly practice contributed most to brain size. Controls displayed the well documented age-related global brain GM decline while yogis did not, suggesting that yoga contributes to protect the brain against age-related decline. Years of yoga experience correlated mostly with GM volume differences in the left hemisphere (insula, frontal operculum, and orbitofrontal cortex) suggesting that yoga tunes the brain toward a parasympathically-driven mode and positive states. The number of hours of weekly practice correlated with GM volume in the primary somatosensory cortex/superior parietal lobule (S1/SPL), precuneus/posterior cingulate cortex (PCC), hippocampus, and primary visual cortex (V1). Commonality analyses indicated that the combination of postures and meditation contributed the most to the size of the hippocampus, precuneus/PCC, and S1/SPL while the combination of meditation and breathing exercises contributed the most to V1 volume. Yoga's potential neuroprotective effects may provide a neural basis for some of its beneficial effects.

1.2 SCIENTIFIC STUDY OF RELIGION: EVOLUTION

- Bénabou, Roland, Davide Ticchi & Andrea Vindigni. 2015. Religion and Innovation. *American Economic Review* 105(5). 346–351.
doi:10.1257/aer.p20151032.

In earlier work by these researchers identified a robust negative association between religiosity and patents per capita, holding across countries as well as US states. In this paper they relate 11 indicators of individual openness to innovation (e.g., attitudes toward science and technology, new versus old ideas, change, risk taking, agency, imagination, and independence in children) to five measures of religiosity, including beliefs and attendance. The researchers used five waves of the World Values Survey and control for sociodemographics, country and year fixed effects. Across the 52 regressions, greater religiosity is almost uniformly associated to less favorable views of innovation, with high significance.

- Li, Kin-Kit & Wai-Yin Chow. 2015. Religiosity/spirituality and prosocial behaviors among Chinese Christian adolescents: The mediating role of values and gratitude. *Psychology of Religion and Spirituality* 7(2). 150–161.
doi:10.1037/a0038294.

Religiosity and spirituality have been found to be associated with prosocial behaviors. The mechanisms, however, have received little attention. This study examined whether or not value orientations and dispositional gratitude mediated the effects of religiosity and spirituality on prosocial behaviors among adolescents. Recruited through 9 teachers of religious studies and faith groups, 243 Hong Kong Chinese Christian adolescents completed a cross-sectional survey measuring their levels of religiosity, spirituality, value orientations (including self-transcendence, self-enhancement, conservation, and openness to change), gratitude, and prosocial behaviors (including peer-helping behaviors and altruistic behaviors). In addition, teachers also reported the prosocial behaviors of the participating adolescents. Results of a cluster-corrected path analysis revealed that adolescents with higher levels of spirituality reported more peer-helping behaviors. A curvilinear effect was found for religiosity, in which highly and slightly religious adolescents reported more peer-helping behaviors than did the moderately religious. The effects of religiosity and spirituality on other prosocial outcomes were not significant. The effect of spirituality on self-reported peer-helping behaviors was partially mediated by gratitude, whereas openness to change mediated the effects of spirituality on other prosocial outcomes, despite no overall effects being observed. The overlap between religiosity and spirituality led to reciprocal suppressor situations when predicting self-reported peer-helping behaviors and the four value orientations. The prosocial effects of religiosity might share with those of spirituality. Without spirituality development, religiosity may become harmful to prosociality. Religiosity and spirituality are important for promoting prosociality among adolescents. The findings, however, only lent weak support to the mediating roles of values and gratitude.

- Nielsen, Mark, Rohan Kapitány & Rosemary Elkins. 2015. The perpetuation of ritualistic actions as revealed by young children's transmission of normative behavior. *Evolution and Human Behavior* 36(3). 191–198.
doi:10.1016/j.evolhumbehav.2014.11.002.

Children will comprehensively copy others' actions despite manifest perceptual cues to their causal ineffectiveness. In experiment 1, researchers demonstrate that children will overimitate in this way even when the arbitrary actions copied are used as part of a process to achieve an outcome for someone else. It is subsequently shown in experiment 2 that children will omit arbitrary actions, but only if the actions are to achieve a clear, functional goal for a naïve adult. These findings highlight how readily children adopt what appear to be conventional behaviors, even when faced with a clear demonstration of their negligible functional value. This strong, early-emerging propensity for overimitation reveals a sensitivity for ritualistic behavior.

Shaver, John H. 2015. The evolution of stratification in Fijian ritual participation. *Religion, Brain & Behavior* 5(2). 101–117.
doi:10.1080/2153599X.2014.893253.

Social scientists have long sought to explain the complex relationships between religion and social inequality. Building from a recent theoretical model, the author predicts that social hierarchies influence the cultural evolution of ritual systems and explain substantial intracultural variation in ritual behavior. The present work investigates these predictions using historical data and an analysis of observational and ethnographic interview data collected in a contemporary Fijian village. Historical data indicate that status differences between Fijians and missionaries and those between chiefs and commoners influenced the nature of Fijian religion and the socio-ecological environment in which contemporary ritual behavior takes place. Contemporary Fijian ritual life includes participation in Christian church services, and also kava-drinking ceremonies that evolved from the indigenous religion. Observational data reveal that performance within each ritual format is significantly influenced by the age and ascribed status differences of participants, and that high-ranking men are more likely to attend church services while low-ranking men are more likely to attend kava ceremonies. Moreover, a man's ascribed status significantly predicts his achieved role in the church, with higher-ranking men more likely to be lay preachers, and low-ranking men more likely to be members of the choir. These findings point to the importance of developing multilevel approaches to the study of religion and suggest that social inequality exerts an important influence on the cultural evolution of ritual systems.

Tobia, Kevin Patrick. 2015. The effects of cleanliness and disgust on moral judgment. *Philosophical Psychology* 28(4). 556–568.
doi:10.1080/09515089.2013.877386.

Recent experimental studies in cognitive science report the influence of “disgust” and “cleanliness” manipulations on moral judgment, yet little attention has been given to interpreting these studies together or developing models of the causal influence of cleanliness and disgust manipulations on moral judgment. I propose considerations for the causal modeling of these effects. The conclusions are not decisive in favor of one theory of disgust and cleanliness, but suggest several distinct causal roles of disgust- and cleanliness-type manipulations. The incorrect views, I argue, are those that posit causal effects from a single common cognitive mechanism for both disgust and cleanliness.

Vogt, Sonja, Charles Efferson, Joël Berger & Ernst Fehr. 2015. Eye spots do not increase altruism in children. *Evolution and Human Behavior* 36(3). 224–231.
doi:10.1016/j.evolhumbehav.2014.11.007.

The evolutionary legacy hypothesis proposes that an evolved reciprocity-based psychology affects human behavior in anonymous one-shot interactions when reciprocity is not explicitly possible. Empirical support rests on experiments showing that altruism among adults increases in the presence of stylized eye spots or faces. Such stimuli do not affect material payoffs, but they are assumed to activate a person's reciprocity-based psychology. Researchers identify two versions of the evolutionary legacy hypothesis. The weak hypothesis posits that reputational concerns can generate altruism in the absence of opportunities for a good reputation. The strong hypothesis posits that reputational concerns alone can explain anonymous one-shot altruism, and they can do so specifically in lieu of explanations based on group selection. A number of experimental studies support the weak hypothesis but are merely consistent with the strong hypothesis. To address both the weak and strong hypotheses, researchers conducted an eye spot experiment with children. Altruism can vary by age or sex in childhood, and under the strong hypothesis this kind of variation should reveal associated variation in sensitivity to eye spots. Although significant variation in altruism was found among children, there was no corresponding variation in sensitivity to eye spots found. More generally, there were no eye spot effects of any kind identified. It is posited that eye spots might only affect altruism under specific conditions. Conditional effects do not refute the weak hypothesis in any way, but they do suggest potential limitations on the explanatory scope of the strong hypothesis.

Yilmaz, Onurcan & Hasan G. Bahçekapili. 2015. Without God, everything is permitted? The reciprocal influence of religious and meta-ethical beliefs. *Journal of Experimental Social Psychology* 58. 95–100.
doi:10.1016/j.jesp.2015.01.003.

The relation between religious and moral thought has been difficult to unravel because of the multifaceted nature of both religion and morality. Researchers chose to study the belief dimension of religion and the meta-ethics dimension of morality and investigated the relation between God-related thoughts and objectivist/subjectivist morality in three studies. A reciprocal relation was expected between the idea of God and objective morality since God is one prominent way through which objective moral truths could be grounded and thus the lack of such objective truths might imply the absence of God who could set such truths. Study 1 revealed negative correlations between moral subjectivism and several measures of religious belief. Study 2 showed that people adopt moral objectivism more and moral subjectivism less after being implicitly primed with religious words in a sentence unscrambling task. Study 3 showed that people express less confidence about the existence of God after reading a persuasive text about the subjective nature of moral truths. Taken together, the results demonstrate that religious and meta-ethical beliefs are indeed related and can reciprocally influence each other.

1.3 SCIENTIFIC STUDY OF RELIGION: PSYCHOLOGY AND CULTURE

Adamczyk, Amy & Gary LaFree. 2015. Religiosity and reactions to terrorism. *Social Science Research* 51. 17–29.
doi:10.1016/j.ssresearch.2014.12.006.

Although many of the world's most serious outbreaks of conflict and violence center on religion, social science research has had relatively little to say about religion's unique role in shaping individuals' attitudes about these events. In this paper researchers investigate whether Americans' religious beliefs play a central role in shaping attitudes toward the continuing threat of terrorism and their willingness to assist officials in countering these perceived threats. An analysis of an original data collection of almost 1600 Americans shows that more religious respondents are more likely to express concerns about terrorism. However, this relationship is mediated by their level of conservatism. The authors also find that more religious respondents are more likely to claim that they will assist government officials in countering terrorism. This relationship remained even after accounting for conservatism, and people's general willingness to help police solve crimes like breaking and entering.

Antonova, Elena, Paul Chadwick & Veena Kumari. 2015. More Meditation, Less Habituation? The Effect of Mindfulness Practice on the Acoustic Startle Reflex. *Plos One* 10(5). e0123512.
doi:10.1371/journal.pone.0123512.

Mindfulness as a mode of sustained and receptive attention promotes openness to each incoming stimulus, even if repetitive and/or aversive. Mindful attention has been shown to attenuate sensory habituation in expert meditators; however, others were not able to replicate this effect. The present study used acoustic startle reflex to investigate the effect of mindfulness practice intensity on sensory habituation. An Auditory Startle Response (ASR) to 36 startling probes (12 trials \times 3 block with 40ms inter-block intervals) was measured using electromyography (EMG) in three groups of participants (n=12 per group): meditation-naïve, moderate practice, and intensive practice. The intensive practice group showed attenuated startle habituation as evidenced by significantly less habituation over the entire experiment relative to the meditation-naïve and moderate practice groups. Furthermore, there was a significant linear effect showing between-block habituation in meditation-naïve and moderate practice groups, but not in the intensive practice group. However, the Block \times Group interaction between the intensive practice and the meditation-naïve groups was not significant. Moderate practice group was not significantly different from the meditation-naïve in the overall measure of habituation, but showed significantly stronger habituation than both meditation-naïve and intensive practice groups in Block 1. Greater practice

intensity was significantly correlated with slower overall habituation and habituation rate in Blocks 2 and 3 in the intensive, but not in the moderate, practice group. The study thus provides tentative evidence that intensive mindfulness practice attenuates acoustic startle habituation as measured by EMG, but the effect is modest. Moderate practice, on the other hand, appears to enhance habituation, suggesting the effect of mindfulness practice on startle habituation might be non-linear.

Arumugam, Indira. 2015. "The Old Gods Are Losing Power!": Theologies of power and rituals of productivity in a Tamil Nadu village. *Modern Asian Studies* 49(3). 753–786.
doi:10.1017/S0026749X1400016X.

Some Hindus are killing animals in larger numbers, more regularly, and in more spectacular fashions than they have ever done before. In contradiction of the ethnographic record asserting the diminishing significance of ritual killing since the nineteenth century, sacrifices to tutelary deities that had long been abandoned are being reactivated or enacted for the first time. However, such a counter-intuitive surge in the popularity of sacrifices is occurring at a time when the very deities to whom they are dedicated are apparently losing their potency. This seeming paradox, this article proposes, is an implication of both the entrenchment of electoral democracy and the material transformations accompanying economic liberalization in rural Tamil Nadu. In an electoral democracy, the political significance of tutelary deities—and consequently their charisma—has diminished. Their productive valence however, as exemplified in ritual sacrifices, has become ever more resonant in India's post-liberalization milieu, with its heightened sense of opportunity but also competitiveness and uncertainty.

Avineri, Netta. 2015. Yiddish language socialization across communities: Religion, ideologies, and variation. *Language & Communication* 42. 135–140.
doi:10.1016/j.langcom.2014.12.006.

This review article analyzes key themes and trends in recent research on Yiddish language socialization. It considers the use of Yiddish within a multilingual repertoire across communities, highlighting the positive contributions of ethnographic literature in particular. Specifically, it demonstrates how degree of religious affiliation and language contact in diverse communities can play a role in Yiddish language use. The article also examines the central role of language ideologies and language learning motivations among those who learn, learn about, and/or use Yiddish. The discussion illuminates individuals' and groups' cross-cutting identities, hybrid forms of language, and creativity in language use across contexts.

Bickerton, Grant R., Maureen H. Miner, Martin Dowson & Barbara Griffin. 2015. Incremental validity of spiritual resources in the job demands-resources model. *Psychology of Religion and Spirituality* 7(2). 162–172.
doi:10.1037/rel0000012.

This study examines the unique effects of spiritual resources in the job demands-resources model beyond those of the 5-factor model of personality. Hypotheses were tested on a sample of 617 religious workers using structural equation modeling techniques. Results showed that various dimensions of personality were significantly related to spiritual resources, work engagement, exhaustion, and the other elements of the job demands-resources model (job demands, job resources, emotional ill-health, and turnover intention). However, spiritual resources were found to demonstrate a significant relationship with both work engagement and exhaustion in the presence of personality dimensions and work characteristics. The contribution of spiritual resources in predicting work engagement was similar to that of personality, although approximately one third of the magnitude of personality in predicting exhaustion. This cross-sectional analysis suggests that spiritual resources are distinctly, albeit modestly, related to well-being at work for religious workers.

Butz, David A. & Jayson D. Carvalho. 2015. Examining the psychological separation of church and state: The American–Christian effect. *Psychology of Religion and Spirituality* 7(2). 109–119.

doi:10.1037/a0037706.

Although religious diversity is increasing in the United States, there is strong evidence that many Americans perceive America to be a Christian nation. The present work provides insight into the extent to which American–Christian associations are deeply embedded in the American psyche by exploring implicit and explicit associations between the American identity and Christianity. Additionally, the present work examines the implications of American–Christian associations for behavioral intentions concerning Christian and non-Christian religious groups. In support of strong American–Christian associations, in Study 1 participants from across the United States (n=100) associated Christian groups with the American identity more strongly than non-Christian groups. In Study 2 (n=95), a modified Implicit Association Test (LAT) revealed strong implicit American–Christian associations, particularly among self-identified Christian participants. Moreover, strong explicit American–Christian associations were associated with allocating greater resources to Christian groups and fewer resources to non-Christian groups. The findings are discussed in terms of their implications for understanding the intersection of national and religious identities and furthering research on American–Christian associations.

Campante, Filipe & David Yanagizawa-Drott. 2015. Does Religion Affect Economic Growth and Happiness? Evidence from Ramadan. *Quarterly Journal of Economics* 130(2). 615–658.
doi:10.1093/qje/qjv002.

Researchers studied the economic effects of religious practices in the context of the observance of Ramadan fasting, one of the central tenets of Islam. To establish causality, they exploit variation in the length of daily fasting due to the interaction between the rotating Islamic calendar and a country's latitude. Two key, quantitatively meaningful results are reported: (1) longer Ramadan fasting has a negative effect on output growth in Muslim countries, and (2) it increases subjective well-being among Muslims. Evidence is provided that these patterns are consistent with a standard club good explanation for the emergence of costly religious practices: increased strictness of fasting screens out the less committed members, while the more committed respond with an increase in their relative levels of participation. Together, these results underscore that religious practices can affect individual behavior and beliefs in ways that have negative implications for economic performance, but that nevertheless increase subjective well-being among followers.

Chen, Ge. 2015. Challenge and promotion: Influence of religion on Tibetan special education. *International Journal on Disability and Human Development* 14(2). 187–192.

There is a close relationship between religion and education. Tibetan religions have a far-reaching influence on all aspects of Tibetan lives. Tibetan religious ideas bring both challenge and promotion to Tibetan special education, including special schooling and the parenting of disabled children. Both positive and negative influences of religious philosophies on Tibetan special schooling and parenting are analyzed based on the introduction of three kinds of Tibetan religions.

Clément, Pierre. 2015. Muslim teachers' conceptions of evolution in several countries. *Public Understanding of Science* 24(4). 400–421.
doi:10.1177/0963662513494549.

Using a questionnaire validated by the project Biohead-Citizen, where 15 questions are dedicated to evolution, researchers analyze Muslim teachers' conceptions of evolution in several countries. The first part compares nine Francophone countries, with varying degrees of Muslim or Christian culture: France, Morocco, Algeria, Tunisia, Lebanon, Senegal, Burkina Faso, Cameroon and Gabon, and shows a strong contrast between France and the eight other countries. The second part compares Muslim and Christian teachers in the countries where the comparison is possible, finding no difference, or a few differences in Lebanon. The third part analyzes the data related to the 2130 Muslim teachers sampled to identify the controlled parameters that can be correlated to their variations. The discussion is structured by three questions: Are Muslim countries, and Muslim teachers, more

creationist than other ones? Is the teachers' knowledge related to their more or less creationist conceptions? Are Muslim teachers more creationist in European countries?

- Curci, Antonietta, Tiziana Lanciano, Chiara Maddalena, Stefano Mastandrea & Giuseppe Sartori. 2015. Flashbulb memories of the Pope's resignation: Explicit and implicit measures across differing religious groups. *Memory* 23(4). 529–544.
doi:10.1080/09658211.2014.908923.

In the present paper, researchers aimed to provide evidence in support of the idea tested in a recent study by Lanciano and colleagues that flashbulb memories (FBMs) are a special class of autobiographical memories that can be assessed through the autobiographical implicit association test (aIAT). FBMs and event memories (EMs) for the news of the resignation of Pope Benedict XVI were evaluated in three samples of churchgoer Catholic, non-churchgoer Catholic and Evangelical Italian participants through the traditional self-report measures (specificity/accuracy, confidence, consistency) and aIAT indices. Results confirmed the strength of the association between FBM and true information. The aIAT effect was stronger for FBMs than for EM details, and for Catholic respondents who were the group most concerned by the original event. Furthermore, the use of implicit measures for memory assessment concurs with the traditional self-report indices of FBMs. The present evidence supports the idea that FBMs are special autobiographical memories which remain detailed, certain and consistent over time.

- Doane, Michael J. & Marta Elliott. 2015. Perceptions of discrimination among atheists: Consequences for atheist identification, psychological and physical well-being. *Psychology of Religion and Spirituality* 7(2). 130–141.
doi:10.1037/rel0000015.

Atheists are a marginalized group of people in the United States. Although studies have found that atheists perceive prejudice and experience discrimination, little is known about the consequences of such social rejection. To address this gap in research, researchers examined the associations among discrimination, identity, and well-being using original survey data from self-identified atheists (n=960). The researchers investigated their associations in the context of the Rejection–Identification Model, which posits that group identification reduces the negative effect of discrimination on well-being. Consistent with extant research on other marginalized groups, discrimination was negatively associated with well-being while positively associated with atheist identification. Further, atheist identification was positively associated with well-being. In support of the rejection–identification process, evidence was found that atheists may strengthen their group identification in the face of discrimination. Strengthened identification as an atheist may be a strategy that protects atheists from the harmful effects of social rejection.

- Ekici, Tufan & Deniz Yucel. 2015. What determines religious and racial prejudice in Europe? The effects of religiosity and trust. *Social Indicators Research* 122(1). 105–133.
doi:10.1007/s11205-014-0674-y.

This paper analyzes the effects of different dimensions of religiosity and trust on religious and racial prejudice in Europe. The sample is based on 37 European countries that are current or potential members of the European Union (EU). Using multi-level logistic regression modeling and the latest wave from the European Values Study data, researchers test the effects of both individual and country-level variables. Our results suggest that religious particularism is correlated with more religious and racial prejudice. Doctrinal belief and individual spirituality are both correlated with less religious prejudice only. Nonreligious individuals have the highest religious prejudice compared to members of religious denominations. Individual and country-level generalized trust, as well as trust in the EU, are all negatively correlated with religious and racial prejudice.

- Etengoff, Chana & Colette Daiute. 2015. Online coming-out communications between gay men and their religious family allies: A family of choice and origin perspective. *Journal of GLBT Family Studies* 11(3). 278–304.
doi:10.1080/1550428X.2014.964442.

Gay men use social networking sites and blogs more than heterosexual men. However, little is known about how they communicate online while coming out. Yet, coming out often results in a loss of social support for gay youths from religious backgrounds, suggesting that alternative supports such as families of choice and online networks may be particularly beneficial. The present study addresses this gap by focusing on how gay emerging adults (n=23) and their religious family allies (n=15) utilize Facebook to make sense of their experiences by communicating with families of choice and origin. Narrative analysis suggests that gay participants primarily make sense of familial and religious challenges by developing online peer supports (i.e., families of choice) in contrast to their family allies' focus on strengthening existing family-of-origin relationships via online information exchanges. Participants' reported online sociorelational benefits largely contradict recent research indicating that Internet use may lead to negative mental health outcomes. The present study therefore highlights the need for further research to assess the generalizability of online sense-making benefits to other cultural, religious, and sexual minority groups that may be confronting coming-out challenges.

- Guetto, Raffaele¹, Ruud Luijckx & Stefani Scherer. 2015. Religiosity, gender attitudes and women's labour market participation and fertility decisions in Europe. *Acta Sociologica (Sage Publications, Ltd.)* 58(2). 155–172.
doi:10.1177/0001699315573335.

The Second Demographic Transition (SDT) theory underlines the importance of changing values and attitudes to explain the trend toward low fertility and raising female labor market participation. Researchers contribute to this debate comparing religiosity and gender attitudes over several European countries using three waves of the European Values Study (1990, 1999 and 2008). By dealing with the issues of measurement invariance and endogeneity between values and behavior, our results support some critiques of the SDT theory. The pace of the process of sociocultural change has not been the same across European countries and the forerunners of the SDT, that is, the most secularized and gender-egalitarian societies, now have the highest female labour market participation rates and the highest fertility. Researchers provide evidence for a 'macro-micro paradox' regarding the role of values on family behaviours. Religiosity is positively correlated with fertility and housewifery, while gender attitudes are only correlated with women's labour market decisions. These correlations are stronger in more traditional countries, even if aggregate fertility is lower.

- Gutmann, Jerg. 2015. Believe, But Verify? The Effect of Market Structure on Corruption in Religious Organizations. *Kyklos* 68(2). 153–164.
doi:10.1111/kykl.12078.

This first cross-country analysis of the causes of corruption in religious organizations provides evidence in support of policy recommendations by Adam Smith. He argued that clergy are best constrained by competition among religious groups. Their appointment and promotion should, however, be regulated by the state. Both factors are shown to confine corruption. In contrast, David Hume's approach of supporting state religion and limiting entry into the religious market is not a promising strategy for mitigating religious corruption. More generally, these results suggest that the private sector may indeed be shielded from sprawling corruption as long as markets are sufficiently competitive.

- Harris, Casey T. & Ben Feldmeyer. 2015. A shot of morality? Hispanic immigration, religious contextual characteristics, and violence. *Sociological Spectrum* 35(3). 229–253.
doi:10.1080/02732173.2015.1021062.

Extant research often finds that the relative size of the Hispanic immigrant population is inversely associated with rates of crime at the macro level. Yet, few studies have empirically examined the indirect pathways through which Hispanic immigration might affect crime rates, especially sociocultural characteristics such as religious context. Utilizing data on known violent crimes from over 600 U.S. counties in 2010 paired with religious contextual data from the Religious Congregation and Membership Survey (RCMS), researchers observe that the presence of Hispanic immigrants is positively associated with community-level Catholic adherence, civically engaged religious adherence, and religious homogeneity that, in turn, are negatively associated with violent crime. Overall, religious contextual characteristics appear to significantly mediate the link between Hispanic immigration and violence at the macro level.

- Itzhaky, Haya & Karni Kissil. 2015. "It's a Horrible Sin. If They Find Out, I Will Not be Able to Stay": Orthodox Jewish Gay Men's Experiences Living in Secrecy. *Journal of Homosexuality* 62(5). 621–643. doi:10.1080/00918369.2014.988532.

This qualitative study examined the intersection of sexual orientation and religion in the Jewish Orthodox community by exploring 22 Orthodox Jewish gay men's experiences living in secrecy. Analysis of in-depth interviews conducted with these men revealed four primary themes: emotional turmoil, ways of coping, impact on family relationships, and importance of the context. Findings from this study describe the daily struggles these men experienced keeping their homosexuality a secret. The findings suggest that in order to design effective interventions with this population, it is crucial to consider the larger community and religious context.

- Jamal, Ahmad & Juwaidah Sharifuddin. 2015. Perceived value and perceived usefulness of halal labeling: The role of religion and culture. *Journal of Business Research* 68(5). 933–941. doi:10.1016/j.jbusres.2014.09.020.

This research identifies the impact of the perceived value and perceived usefulness of a halal-labeled product, culture and religion on intent to purchase and intent to patronize stores using data from 10 in-depth interviews and 303 self-administered questionnaires among British Muslims. Factor analysis and hierarchical multiple regression are used for data analysis. The results show that perceived usefulness, vertical collectivism, horizontal collectivism and religiosity predict a significant amount of variance in both types of intention. Specifically, perceived usefulness, vertical collectivism and religiosity have a positive relationship with intentions. Horizontal collectivism associates negatively with intentions. Religiosity moderates the relationships between horizontal collectivism and intentions. Perceived value associates positively only with intentions to patronize stores and religiosity moderates this link. The study is the first to emphasize the need to develop halal labeling to enhance the shopping experiences of British Muslims.

- Keiser, Steven Hartman. 2015. Religious identity and the perception of linguistic difference: The case of Pennsylvania German. *Language & Communication* 42. 125–134. doi:10.1016/j.langcom.2014.12.009.

Pennsylvania German is spoken by Old Order Mennonites and Old Order Amish, as well as by other less conservative Anabaptist groups and by so-called nonsectarians. A certain amount of linguistic variation correlates with these differences in religious affiliation, but the degree of divergence is smaller than has been previously suggested, in particular with respect to claims of different norms for sectarians and nonsectarians. In addition, the diversity of religious practices between different sectarian communities has had little effect on rates of borrowing and phonological incorporation. Even so, sectarian speakers do have folk linguistic perceptions of differences in language use, and these are interpreted through the lens of the shared core value of humility.

- Kimhi, Shaul & Asa Kasher. 2015. Moral dilemmas in military situations: Proportionality principle, religiosity, political attitudes, and authoritarian personality. *Military Psychology* 27(3). 169–184. doi:10.1037/mil0000072.

The current study focuses on a moral dilemma in military situations: the amount of force to be used in order to neutralize a “most wanted” terrorist. This study examines the association between this moral dilemma with 4 independent variables: agreement with the proportionality principle (mediating variable), level of religiosity, authoritarian personality, and political attitudes. Three equal groups of participants (together, n=357) were included: Israeli regular army combat soldiers, Israeli reserve combat soldiers, and Israeli students. In accordance with the study hypotheses, the 4 independent variables significantly correlated with each other and with moral decisions. Structural equation modeling indicated that agreement with the proportionality principle is the best predictor of moral decision, and mediated the association between level of religiosity and political attitudes and moral decisions.

- Kulkarni-Joshi, Sonal. 2015. Religion and language variation in a convergence area: The view from the border town of Kupwar post-linguistic reorganisation of Indian states. *Language & Communication* 42. 75–85.
doi:10.1016/j.langcom.2014.12.008.

The study focuses on the contemporary ethnolinguistic situation in Kupwar at the Maharashtra-Karnataka border. Gumperz and Wilson (1971)’s classic study of language contact in this village predicted that multilingualism would be maintained as long as the ethnic (i.e. religious) separateness of home life remained important in the contact situation. This paper examines the influence of religion and regional identity on language choices, especially among the newly created linguistic minority communities. The paper suggests that Kupwar is characterized today by both accentuated religious differentiation and growing linguistic assimilation. Present-day patterns of language choice are interpreted in the light of the changed ethno-social context and the perceived role of religious identity in the region.

- Meeus, Wim. 2015. Why do young people become Jihadists? A theoretical account on radical identity development. *European Journal of Developmental Psychology* 12(3). 275–281.
doi:10.1080/17405629.2015.1024106.

Identity status theory and Lofland and Starks’ model of religious conversion were used to explain why young people become jihad fighters. Both theories maintain that young people with unclear commitments are vulnerable for radical identity change. A religious problem-solving perspective, along with a self-definition as religious seeker, steers this potential identity change into the direction of religious conversion. This may lead young Muslims or young people with an uncertain identity and a religious orientation to move closer to radical Islam and jihad. Also, research from both traditions found that absence of positive affective bonds with relevant others go together with unstable identity. A new group with a clear defined mission may therefore be able to solve their problems in two ways: it offers warm interpersonal bonds, as well as potential new personal goals and commitments. Groups of jihadists are perfectly fit to serve this twofold purpose.

- Meints, Samantha M. & Adam T. Hirsh. 2015. In Vivo Praying and Catastrophizing Mediate the Race Differences in Experimental Pain Sensitivity. *Journal of Pain* 16(5). 491–497.
doi:10.1016/j.jpain.2015.02.005.

Black individuals have a lower tolerance for experimental pain than white individuals. Black and white individuals also differ in their use of pain coping strategies, which may explain the race differences in pain sensitivity. Researchers examined the extent to which situation-specific pain coping mediated black-white differences in pain sensitivity. They hypothesized that 1) black participants would demonstrate lower pain tolerance than white participants, 2) black participants would use different pain coping strategies than white participants, and 3) the differential use of these strategies would mediate the relationship between race and pain tolerance. Healthy college undergraduates (n=190) participated in a cold pressor task and then completed the Coping Strategies Questionnaire-Revised to assess their situation-specific pain coping. Compared with white participants, black participants demonstrated lower pain tolerance, engaged in more situation-specific

catastrophizing and praying, and ignored pain less frequently. Catastrophizing and praying were inversely related to pain tolerance and were significant mediators of the relationship between race and pain tolerance. The indirect effect of praying was stronger than that of catastrophizing. Race differences in pain sensitivity may be due, in part, to differences in the use of catastrophizing and praying as coping strategies.

- Nilsson, Marco. 2015. Foreign fighters and the radicalization of local Jihad: Interview evidence from Swedish Jihadists. *Studies in Conflict & Terrorism* 38(5). 343–358.
doi:10.1080/1057610X.2015.1005459.

Modern jihadism has experienced two distinct crises. The present study analyzes recent developments in jihadism, which can be seen in connection with efforts to solve the latest recruitment crisis of global jihad, and is based on comparative interviews with eight Swedish jihadists defined as foreign fighters. The study identifies three new trends evident in the interviews comparing jihadists active in Syria with those who fought in Afghanistan and Bosnia: socialization to global jihad, normalization of jihad, and an increasing use of the doctrine of takfir (i.e., ex-communication). This can be described as indicating the radicalization of local jihad, as the territorially based jihad, championed by Abdullah Azzam, and the global jihad of Osama bin Laden meet in the territorial realities of Syria and Iraq.

- Ben-Nun Bloom, Pazit, Gizem Arikan & Marie Courtemanche. 2015. Religious Social Identity, Religious Belief, and Anti-Immigration Sentiment. *American Political Science Review* 109(2). 203–221.
doi:10.1017/S0003055415000143.

Somewhat paradoxically, numerous scholars in various disciplines have found that religion induces negative attitudes towards immigrants, while others find that it fuels feelings of compassion. Researchers offer a framework that accounts for this discrepancy. Using two priming experiments conducted among American Catholics, Turkish Muslims, and Israeli Jews, the authors disentangle the role of religious social identity and religious belief, and differentiate among types of immigrants based on their ethnic and religious similarity to, or difference from, members of the host society. They find that religious social identity increases opposition to immigrants who are dissimilar to in-group members in religion or ethnicity, while religious belief engenders welcoming attitudes toward immigrants of the same religion and ethnicity, particularly among the less conservative devout. These results suggest that different elements of the religious experience exert distinct and even contrasting effects on immigration attitudes, manifested in both the citizenry's considerations of beliefs and identity and its sensitivity to cues regarding the religion of the target group.

- San, Marion Van. 2015. Striving in the Way of God: Justifying Jihad by Young Belgian and Dutch Muslims. *Studies in Conflict & Terrorism* 38(5). 328–342.
doi:10.1080/1057610X.2015.1013776.

Since March 2013, the news has been dominated by young Muslims from European countries leaving for Syria to join the armed struggle against the Assad regime. This is especially remarkable in light of the fact that it would appear that, until very recently, European foreign fighters were far and few between. The armed struggle is a topic that is widely discussed among young Muslims on social media such as Facebook. During the research on which this article is based, conversations between young Muslims on Facebook were analyzed, and interviews were conducted with a number of them. The key question was: Why is it that so many young people use social media to profess their willingness to sacrifice their lives in armed struggle while at the same time most of them are not prepared to turn their words into deeds? Despite all the media reports, the fact remains that of the large number of young Muslims who are potentially ready to go into battle, the vast majority prefer to stay at home for the time being. When confronted with this inconsistency, the participants in these discussions offered a number of reasons as to why martyrdom was not yet granted to them. The way in which these considerations shape their lives and the role played by their religious convictions form the subject of this article.

Shiba, Koichiro, Masahiro Nishimoto, Minami Sugimoto & Yoshiki Ishikawa. 2015. The Association between Meditation Practice and Job Performance: A Cross-Sectional Study. *PLoS One* 10(5). e0128287.
doi:10.1371/journal.pone.0128287.

Many previous studies have shown that meditation practice has a positive impact on cognitive and non-cognitive functioning, which are related to job performance. Thus, the aims of this study were to (1) estimate the prevalence of meditation practice, (2) identify the characteristics of individuals who practice meditation, and (3) examine the association between meditation practice and job performance. Two population-based, cross-sectional surveys were conducted. In study 1, researchers examined the prevalence of meditation practice and the characteristics of the persons practicing meditation; in Study 2, researchers examined the association between meditation practice and job performance. The outcome variables included work engagement, subjective job performance, and job satisfaction. The Utrecht Work Engagement Scale was used to assess work engagement, the World Health Organization Health and Work Performance Questionnaire (HPQ) was used to measure subjective job performance, and a scale developed by the Japanese government was used to assess job satisfaction. Hierarchical multiple regression analyses were used in Study 2. Demographic characteristics and behavioral risk factors were included as covariates in the analyses. The results of Study 1 indicated that 3.9% of persons surveyed (n=30,665) practiced meditation; these individuals were younger and had a higher education, higher household income, higher stress level, and lower body mass index than those who did not practice meditation. The results of Study 2 (n=1,470) indicated that meditation practice was significantly predictive of work engagement, subjective job performance, and job satisfaction, even after adjusting for covariates. The results indicate that meditation practice may positively influence job performance, including job satisfaction, subjective job performance, and work engagement.

Sibley, Chris G. & Joseph Bulbulia. 2015. Charity explains differences in life satisfaction between religious and secular New Zealanders. *Religion, Brain & Behavior* 5(2). 91–100.
doi:10.1080/2153599X.2014.899509.

This study investigated whether differences in subjective well-being between religious and non-religious people could be partially accounted for by differences in rates of charitable donation in a New Zealand national probability sample (n=5732). Tobit regression models adjusted for the following potentially confounding demographic factors: gender differences, age, majority ethnic group membership, household income (log), education, parental status, relationship status, and political orientation. Adjusting for these other factors, the residual difference between religious and non-religious people in life satisfaction was fully accounted for by corresponding differences in the amount a person donates to charity. Given the diversity and size of this sample, and the use of strict demographic controls, these results are consistent with a model in which religious people experience greater life satisfaction because they also tend to give more to charity. These findings thus imply that charitable giving, rather than religious affiliation per se, is a proximate predictor of life satisfaction in New Zealand. This study replicates and extends similar models tested in the USA, and shows that increasing charity, whether or not one is religious, may be a vital pathway to human flourishing.

Twenge, Jean M., Julie J. Exline, Joshua B. Grubbs, Ramya Sastry & W. Keith Campbell. 2015. Generational and time period differences in American adolescents' religious orientation, 1966-2014. *PLoS One* 10(5). e0121454.
doi:10.1371/journal.pone.0121454.

In four large, nationally representative surveys (n=11.2 million), American adolescents and emerging adults in the 2010s (Millennials) were significantly less religious than previous generations (Boomers, Generation X) at the same age. The data are from the Monitoring the Future studies of 12th graders (1976-2013), 8th and 10th graders (1991-2013), and the American Freshman survey of entering college students (1966-2014). Although the majority of adolescents and emerging adults are still religiously involved, twice as many 12th graders and college

students, and 20%-40% more 8th and 10th graders, never attend religious services. Twice as many 12th graders and entering college students in the 2010s (vs. the 1960s-70s) give their religious affiliation as "none," as do 40%-50% more 8th and 10th graders. Recent birth cohorts report less approval of religious organizations, are less likely to say that religion is important in their lives, report being less spiritual, and spend less time praying or meditating. Thus, declines in religious orientation reach beyond affiliation to religious participation and religiosity, suggesting a movement toward secularism among a growing minority. The declines are larger among girls, Whites, lower-SES individuals, and in the Northeastern U.S., very small among Blacks, and non-existent among political conservatives. Religious affiliation is lower in years with more income inequality, higher median family income, higher materialism, more positive self-views, and lower social support. Overall, these results suggest that the lower religious orientation of Millennials is due to time period or generation, and not to age.

Yusainy, Cleoputri & Claire Lawrence. 2015. Brief mindfulness induction could reduce aggression after depletion. *Consciousness and Cognition* 33. 125–134.
doi:10.1016/j.concog.2014.12.008.

Many experiments have shown that one's ability to refrain from acting on aggressive impulses is likely to decrease following a prior act of self-control. This temporary state of self-control failure is known as ego-depletion. Although mindfulness is increasingly used to treat and manage aggressive behavior, the extent to which mindfulness may counteract the depletion effect on aggression is yet to be determined. This study (n=110) investigated the effect of a laboratory induced one-time mindfulness meditation session on aggression following depletion. Aggression was assessed by the intensity of aversive noise blast participants delivered to an opponent on a computerized task. Depleted participants who received mindfulness induction behaved less aggressively than depleted participants with no mindfulness induction. Mindfulness also improved performance on a second measure of self-control (i.e., handgrip perseverance); however, this effect was independent of depletion condition. Motivational factors may help explain the dynamics of mindfulness, self-control, and aggression.

Zimmerman, Danielle Dunand. 2015. Young Arab Muslim women's agency challenging Western feminism. *Affilia: Journal of Women & Social Work* 30(2). 145–157.
doi:10.1177/0886109914546126.

In a phenomenological study with 16 American and French Arab Muslim women attending college in the United States and France, all self-declared as religious and half of them wearing the hijab, participants express strong arguments against stereotypes of oppression and submission. They affirm agency and personal choice with respect to veiling, in a context of ambient skepticism that is often endorsed by Western feminism. Attention to intersectional experiences of Muslim women and reference to feminist models centered on non-Western women may help understand how second-generation Arab Muslim women experience and express agency.

1.4 SCIENTIFIC STUDY OF RELIGION: METHOD & THEORY

Baker-Smemoe, Wendy & David Bowie. 2015. Linguistic behavior and religious activity. *Language & Communication* 42. 116–124.
doi:10.1016/j.langcom.2014.12.004.

Studies have found that Mormons and non-Mormons in Utah exhibit significant linguistic differences. The present researchers break this down further by investigating whether there are also differences between Mormons who actively participate in the religion and those who do not, and find significant differences with a medium or larger effect size between the groups for multiple variables. The researchers conclude that when investigating the linguistic correlates of religious affiliation in a community, it is vital to elicit not just respondents' religious affiliations, but also their level of participation within that religion.

Beit-Hallahmi, Benjamin. 2015. Resisting the match between religion and “spirituality.” *Religion, Brain & Behavior* 5(2). 118–123.

doi:10.1080/2153599X.2014.891250.

The author questions the usefulness of the category “spirituality.” The concept itself is a consequence of the secularization process. The field of psychology of religion has been insufficiently critical of spirituality to this point. However, some more recent research has redressed this imbalance, in particular cognitive-evolutionary studies of religion, which investigate religion as a purely immanent concern. This article is part of a book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park.

Boyatzis, Chris. 2015. How shall researchers fulfill the vision of a multilevel multi-method psychology of religion? *Religion, Brain & Behavior* 5(2). 124–125.

doi:10.1080/2153599X.2014.891252.

The author addresses the issue of a multilevel approach to the psychology of religion. He suggests that the multiple methods should be effected by more collaborative work, with multiple scientists working at multiple sites. This article is part of a book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park.

Brown, R. Khari, Robert Joseph Taylor & Linda M. Chatters. 2015. Race/Ethnic and Social-Demographic Correlates of Religious Non-Involvement in America: Findings From Three National Surveys. *Journal of Black Studies* 46(4). 335–362.

doi:10.1177/0021934715573168.

This study investigates racial/ethnic differences in religious non-involvement using data from three national probability surveys: 2000 Social Capital Survey, 2004 National Politics Study, and the 2007 Religious Landscape Survey. Three measures of religious involvement are investigated: service attendance, religious denomination, and religious identification. Researchers consistently find that non-Hispanic White, Hispanic, and Asian Americans are more likely than African Americans and African Caribbean Americans to identify as religiously non-involved. The central role of religion and faith communities in the lives of persons of African Americans and African Caribbeans may help explain the relatively lower levels of religious non-involvement among these groups. Other social-demographic characteristics also consistently predict religious non-involvement. Along these lines, researchers have fairly strong evidence that age cohort maintains a stronger relationship with rarely attending worship services among African Americans than among Hispanic and Asian Americans. That age cohort differentially maintains such relationships likely has implications for how researchers are to understand future growth projections for religious non-involvement in the United States.

Elsdon-Baker, Fern. 2015. Creating creationists: The influence of “issues framing” on our understanding of public perceptions of clash narratives between evolutionary science and belief. *Public Understanding of Science (Bristol, England)* 24(4). 422–439.

doi:10.1177/0963662514563015.

Clash narratives relating to evolutionary science and personal belief are a recurrent theme in media or public space discourse. However, a 2009 British Council poll undertaken in 10 countries worldwide shows that the perception of a necessary clash between evolutionary worldviews and belief in a God is a minority viewpoint. How then does the popular conception that there is an ongoing conflict between evolution and belief in God arise? One contributing factor is the framing and categorization of creationism and evolutionism within large-scale surveys for use within media campaigns. This article examines the issue framing within four polls conducted in the United Kingdom and internationally between 2008 and 2013. It argues that by ignoring the complexity and range of perspectives

individuals hold, or by framing evolutionary science as atheistic, researchers are potentially creating “creationists”—including “Islamic creationists”—both figuratively and literally.

- Germanos, Marie-Aimée & Catherine Miller. 2015. Is religious affiliation a key factor of language variation in Arabic-speaking countries? *Language & Communication* 42. 86–98.
doi:10.1016/j.langcom.2014.12.001.

This paper presents a new theory of religious/sectarian dialectal differentiation and sociolinguistic variation in the Arabic-speaking countries. It is based on the studies that have been conducted so far in the fields of dialectology and sociolinguistics to investigate this issue. The first section reminds the reader of the diversity of sociolinguistic situations in the region in terms of the extent of religious differentiation within a city/area. The second section summarizes the trigger of situations of major religious/sectarian differentiation and the factors that led to their stability for many decades or centuries. It also presents three contemporary evolution processes observable in the areas with major differentiation and some contemporary loci of observation of sectarian/religious variation in areas of minor differentiation.

- Hameed, Salman. 2015. Making sense of Islamic creationism in Europe. *Public Understanding of Science (Bristol, England)* 24(4). 388–399.
doi:10.1177/0963662514555055.

Islamic creationism has been noted as a serious concern in Europe. There have been reports of boycotts of university evolution lectures and, in one extreme case, even a threat of violence. While religious objections are indeed at play in some cases, another understanding of the rise of Islamic creationism should also take into account socioeconomic disparities and its impact on education for Muslim minorities in Europe. Furthermore, the broader narrative of rejection of evolution in Europe, for some Muslims, may be bound up in reactions to the secular culture and in the formation of their own minority religious identity. On the other hand, the stories of Muslim rejection of evolution in media end up reinforcing the stereotype of Muslims as “outsiders” and a threat to the European education system. A nuanced understanding of this dynamic may benefit those who support both the propagation of good science and favor cultural pluralism.

- Ladd, Kevin L., Cara A. Cook, Kaitlyn M. Foreman & Erik A. Ritter. 2015. Neuroimaging of prayer: Questions of validity. *Psychology of Religion and Spirituality* 7(2). 100–108.
doi:10.1037/a0039124.

Studies investigating the brain in relation to religious experiences via neuroimaging tools have increased considerably. Most assume without verification that religious experience (e.g., prayer) while inside an imaging machine is the same as in normal settings. Addressing the validity of this assumption, researchers utilized a mock fMRI to compare self-reported typical prayer experience and 3 experimental conditions (silent room, initial fMRI, and acclimated fMRI). Forty-two individuals participated. In multiple aspects the “typical” and silent room conditions were indistinguishable; however, typical and fMRI conditions differed significantly. In sum, it was not clear what previous studies measured. These findings highlight the need for imaging research exploring religious experiences to include thorough debriefing protocols to disambiguate interpretations and facilitate meta-analytic efforts.

- Martin, L. H. 2015. The continuing enigma of “religion.” *Religion, Brain & Behavior* 5(2). 125–131.
doi:10.1080/2153599X.2014.891247.

Martin comments on the ongoing difficulties in defining religion as a concept. This definitional difficulty has consequences for related problems of theory, method, and evidence. The author himself utilizes a definition of religious phenomena that includes “those ordinary human behaviors or ideologies that are socially legitimated by claims to the authority of superhuman agency.” This definition excludes some versions of Confucianism and Buddhism, as well as most understandings of spirituality, which usually lack a reference to agency. This article is

part of a book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park.

Paloutzian, Raymond F. & Crystal L. Park. 2015. Religiousness and Spirituality: The Psychology of Multilevel Meaning-Making Behavior. *Religion, Brain & Behavior* 5(2). 166–178.
doi:10.1080/2153599X.2014.891254.

The authors respond to the participants in the book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition.

Seitz, Rüdiger J. & Hans-Ferdinand Angel. 2015. Psychology of religion and spirituality: Meaning-making and processes of believing. *Religion, Brain & Behavior* 5(2). 139–147.
doi:10.1080/2153599X.2014.891249.

As part of a book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park, the authors raise three issues with the study of religion: semantic aspects of defining religion and religiosity; brain physiological aspects of human meaning-making; and, the mental processes that make up human engagement with religious systems.

Stausberg, Michael. 2015. The psychology of religion/spirituality and the study of religion. *Religion, Brain & Behavior* 5(2). 147–157.
doi:10.1080/2153599X.2014.891251.

This author addresses five issues with psychology of religion: interdisciplinarity, comparison, progress, spirituality and/versus religion, and meaning. These issues are taken up in relation to the book Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park. This article is part of a symposium on that book.

Vanderstraeten, Raf. 2015. Inclusion ideals and inclusion problems: Parsons and Luhmann on religion and secularization. *Acta Sociologica* 58(2). 173–185.
doi:10.1177/0001699314565213.

This paper builds upon the theoretical work of Talcott Parsons and Niklas Luhmann and offers a critical reconstruction of their views on religion (Christianity) and secularization in the western world. It discusses the relation between the functional differentiation of modern society, the individualization of inclusion imperatives and the changing expectations regarding inclusion/exclusion in religious communication. From this perspective, it analyzes secularization in terms of perceived problems of inclusion in religious communication, and in terms of the reactions of Christian religions to these perceived problems. It thereby shows how the theories of Parsons and Luhmann are useful for empirical and historical research, and how they open up new perspectives for empirical and historical research.

Vinay Kumar, U. A. 2015. On the metaphysical meaning of major religious symbols for a globalized world. *AI & Society* 30(2). 147–165.
doi:10.1007/s00146-014-0572-5.

Two running themes of this paper are as follows: (1) there is an underlying unity of all major world religions, which is, in fact, and “identity” of their substance; (2) different modes of the universe and the unification of cognitions therein are expressions of answer to various metaphysical questions. The present endeavor in this way keeps the unity of human society—a step towards realizing vasudhāeva kutumbakam (“Whole of Earth is a family”) as its ultimate goal. This paper envisages the realization of this objective through arriving at the common metaphysical structure of religions that constitute the core of humanity’s beliefs. The current project in this sense is essential for a globalized world since a globalized world of the twenty-first century will be susceptible to cataclysmic possibilities in the absence of knowledge of existence and understanding of such a common metaphysical structure.

Wink, Paul. 2015. Are religion and spirituality of the same order as other meaning systems? A case for partial exceptionalism. *Religion, Brain & Behavior* 5(2). 157–161.
doi:10.1080/2153599X.2014.891248.

The author questions whether religion and spirituality are members of a set made up of meaning-making systems. The larger context of culture, history, and ontological considerations indicate that there is a partial exceptionalism for religion. This article is part of a book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park.

Zuckerman, Phil. 2015. What about secular people? *Religion, Brain & Behavior* 5(2). 161–166.
doi:10.1080/2153599X.2014.891246.

The author raises the question of the way that non-religious people should fit into a study of the psychology of religion. If the definition of religion includes a meaning-making function, it must be noted that secular people also make meaning in other ways. This article is part of a book symposium on the Handbook of the Psychology of Religion and Spirituality, Second Edition, edited by Ray Paloutzian and Crystal Park.

PART 2: ARTICLES IN SPIRITUALITY & HEALTH RESEARCH

2.1 SPIRITUALITY & HEALTH: GENERAL HEALTH & WELL-BEING

Ali, Jadidi, Farahaninia Marhemat, Janmohammadi Sara & Haghani Hamid. 2015. The Relationship Between Spiritual Well-Being and Quality of Life Among Elderly People. *Holistic Nursing Practice* 29(3). 128–135.
doi:10.1097/HNP.0000000000000081.

This study aims to identify the relationship between spiritual well-being and quality of life among elderly people residing in Kabrizak Senior House, Tehran, Iran. It was an analytical study. After obtaining approval from the ethics committee of the Iran University of Medical Sciences Research Deputy, the 141 elderly people residing in Kabrizak Senior House who signed the inform consent were recruited by census. Data were collected using the Ellison & Palutzian Spiritual Well-Being Index and Short Form Quality of Life (SF-36). The mean score of quality of life was (50.36 +/- 11.3). The mean score of spiritual well-being was (96.26 +/- 17.93). There was a positive correlation between spiritual well-being and quality of life.

File, Karen & Mary-Louise McLaws. 2015. Ni-Vanuatu health-seeking practices for general health and childhood diarrheal illness: results from a qualitative methods study. *BMC Research Notes* 8(1). 189.
doi:10.1186/s13104-015-1151-7.

A local perspective on diarrheal illness has been shown to enhance control strategies for diarrheal disease in traditional rural settings. Researchers aimed to assess caregivers' understandings of childhood general and diarrheal illness, in one rural community in Vanuatu, to help formulate control strategies for preventing diarrheal disease. This was a descriptive study using qualitative analysis of responses to open-ended questions to provide a fuller understanding of illness. Thematic analysis with categories derived from medical anthropology was used to analyze responses and draw conclusions. Twenty-nine participants were interviewed; 22 were maternal responses, three were traditional practitioners, two were rural health care workers, one was a spiritual healer and one had a caregiver role. Respondents categorized illness as biomedical or traditional. Explanations of illness were enmeshed in and derived from both the traditional and biomedical system as the illness experience in the child under their care unfolded. Diarrheal severity influenced treatment selection and respondents expressed a preference for biomedical assistance. Respondents articulated a preference for biomedicine as the primary help-seeking resort for small children. Exclusive reliance on either traditional or biomedical options was uncommon. Local herbal remedies were the preferred home treatment when illness was known or mild, while oral rehydration therapy was used when accessing biomedical practitioners.

Harder, Helena, Carolyn Langridge, Ivonne Solis-Trapala, Charles Zammit, Mokshini Grant, Diane Rees, Lynn Burkinshaw & Valerie Jenkins. 2015. Post-operative exercises after breast cancer surgery: Results of a RCT evaluating standard care versus standard care plus additional yoga exercise. *European Journal of Integrative Medicine* 7(3). 202–210.
doi:10.1016/j.eujim.2015.02.002.

There is a lack of standardization in the guidelines for post-operative exercises following breast cancer surgery. Adherence to exercise programs is low, and complementary therapies such as yoga often appeal to patients and may encourage practice. A step-by-step guide to yoga DVD was evaluated in addition to the standard care exercises (SC) compared to SC alone. Women with early-stage breast cancer were randomized to SC plus or minus a yoga DVD for 10 weeks. Patient-reported outcomes were collected at baseline, 10 weeks and 6 months. The primary study-endpoint was the Trial Outcome Index (TOI) of the Functional Assessment of Cancer Treatment-Breast; a recognised quality of life (QoL) tool with an arm morbidity subscale (FACT-B+4). Of 103

women, 92 were randomized to the study. The SC group reported practicing post-operative exercises more often than the yoga DVD group. There was a 69% improvement from baseline in FACT-B+4 TOI, which included an arm subscale, at 10 weeks and 6 months in the SC group. This was 62% and 81% respectively for the yoga DVD group. Numbness in the affected arm was greater in the SC group and in patients receiving chemotherapy. Despite no group differences, 74% of women would definitely recommend following the yoga DVD after surgery.

Holt, Cheryl L., David L. Roth, Jin Huang & Eddie M. Clark. 2015. Gender Differences in the Roles of Religion and Locus of Control on Alcohol Use and Smoking Among African Americans. *Journal of Studies on Alcohol and Drugs* 76(3). 482–492.

Spiritual health locus of control reflects a person's beliefs about the role of a higher power in one's health and can take an active or a passive perspective. The purpose of this study was to examine the moderating role of active and passive spiritual health locus of control beliefs on select health risk behaviors alcohol use and smoking in a national sample of African Americans. A national U.S. probability sample of study participants (n=2,370; 1,464 women) completed a telephone survey assessing religious involvement, active and passive spiritual health locus of control beliefs, and alcohol consumption and smoking status. Because of previous research suggesting gender-specific associations among these variables, moderation analyses were conducted separately for men and women. For women, higher religious behaviors were associated with less alcohol use, and this effect was more pronounced among those high in active spiritual health locus of control. For men, the combination of lower religious beliefs and higher passive spiritual health locus of control was associated with more alcohol consumption and more days of consuming five or more alcoholic drinks. No moderation effects were found for smoking.

Jiang, Qinxian, Zhengguo Wu, Li Zhou, Jenae Dunlop & Peijie Chen. 2015. Effects of Yoga Intervention during Pregnancy: A Review for Current Status. *American Journal of Perinatology* 32(6). 503–514.
doi:10.1055/s-0034-1396701.

The purpose of this article is to review all randomized control trials (RCTs) that have looked at the health effects of yoga on pregnancy, and to present their evidence on the specific ways in which pregnant women, and their infants can benefit from yoga intervention. The purpose is also to determine whether yoga intervention during pregnancy is more beneficial than other physical exercises. Four databases were searched using the terms “yoga and (pregnancy or pregnant or prenatal or postnatal or postpartum).” Databases were searched from January 2004 to February 2014. Ten randomized controlled trials were evaluated. The findings consistently indicate that yoga intervention presented with lower incidences of prenatal disorders, and small gestational age, lower levels of pain and stress, and higher score of relationship. In addition, yoga can be safely used for pregnant women who are depressed, at high-risk, or experience lumbopelvic pain. Moreover, yoga is a more effective exercise than walking or standard prenatal exercises.

Kim-Spoon, Jungmeen, Gregory S. Longo & Christopher J. Holmes. 2015. Brief report: Bifactor modeling of general vs. specific factors of religiousness differentially predicting substance use risk in adolescence. *Journal of Adolescence* 43. 15–19.
doi:10.1016/j.adolescence.2015.05.004.

Religiousness is important to adolescents in the U.S., and the significant link between high religiousness and low substance use is well known. There is a debate between multidimensional and unidimensional perspectives of religiousness, yet no empirical study has tested this hierarchical model of religiousness related to adolescent health outcomes. The current study presents the first attempt to test a bifactor model of religiousness related to substance use among adolescents (n=220, 45% female). This bifactor model using structural equation modeling suggested the multidimensional nature of religiousness as well as the presence of a superordinate general religiousness factor directly explaining the covariation among the specific factors including organizational and personal religiousness and religious social support. The general religiousness factor was inversely related to substance use. After

accounting for the contribution of the general religiousness factor, high organizational religiousness was related to low substance use, whereas personal religiousness and religious support were positively related to substance use. The findings present the first evidence that supports hierarchical structures of adolescent religiousness that contribute differentially to adolescent substance use.

- Leach, Matthew J., Andrew Francis & Tahereh Ziaian. 2015. Transcendental Meditation for the improvement of health and wellbeing in community-dwelling dementia caregivers [TRANSCENDENT]: A randomised wait-list controlled trial. *BMC complementary and alternative medicine* 15(1). 145.
doi:10.1186/s12906-015-0666-8.

Dementia is a prevalent neurodegenerative disorder affecting an estimated 24.3 million people across the globe. The burden on those caring for people with dementia is substantial, with widespread implications for the caregiver, the care recipient and the community. Relaxation techniques, such as Transcendental Meditation (TM), have been shown to reduce stress and anxiety in healthy workers; similar benefits are anticipated in dementia caregivers. The objective of this study was to ascertain whether TM can improve psychological stress, quality of life, affect and cognitive performance in dementia caregivers. The study was conducted as a pilot prospective, multi-center, community-based, randomized wait-list controlled trial. Community-dwelling caregivers of persons with diagnosed dementia were randomly assigned to a 12-week (14-hour) TM training program or wait-list control. Participants were assessed for quality of life, stress, affect, cognitive performance and adverse effects. The feasibility of the study was also evaluated. Seventeen caregivers were recruited and randomized. Improvements in WebNeuro response speed scores over time were significantly greater in the TM group relative to control. Changes between groups over time in all other primary and secondary outcome measures did not reach statistical significance. However, there was a trend toward greater improvement in WebNeuro stress, depression and negativity bias scores in the TM group. Adverse events were reported among 63% of TM-treated subjects; however, events were generally transient, of mild-moderate intensity and only possibly related to TM.

- Linardakis, M., A. Papadaki, E. Smpokos, K. Sarri, M. Vozikaki & A. Philalithis. 2015. Are religiosity and prayer use related with multiple behavioural risk factors for chronic diseases in European adults aged 50+ years? *Public Health* 129(5). 436–443.
doi:10.1016/j.puhe.2015.02.006.

Behavioral risk factors for chronic diseases involve factors relating to lifestyle habits. This study examined the relationship of religious and spiritual beliefs with the adoption and presence of multiple behavioral risk factors (MBRFs) in European adults. Data were used from 16,557 individuals, aged 50+ years, participating in the Survey of Health, Ageing and Retirement in Europe (2004/05). MBRF's clustering was defined by high body weight, smoking, physical inactivity and risky alcohol consumption, and regression estimations with religiosity and prayer use were assessed based on sampling weights. In total, 79.4% of participants had received religious education, 33.4% had used prayer one or more times per day, and 53.3% had clustering of 2+ MBRFs. Lower prevalence of smoking was found in males as well as in females who prayed one or more times a day compared to those who never prayed. Categorical regression analysis revealed that the presence of MBRFs was associated negatively with religious education and positively with low frequency of prayer use.

- Pagnini, Francesco, Deborah Phillips, Colin M. Bosma, Andrew Reece & Ellen Langer. 2015. Mindfulness, physical impairment and psychological well-being in people with amyotrophic lateral sclerosis. *Psychology & Health* 30(5). 503–517.
doi:10.1080/08870446.2014.982652.

Mindfulness is the process of actively making new distinctions, rather than relying on habitual or automatic categorizations from the past. Mindfulness has been positively associated with physical well-being, better recovery rates from disease or infections, pain reduction and overall quality of life (QOL). Amyotrophic lateral sclerosis

(ALS) is a rare, progressive and fatal neurodegenerative disease, clinically characterized by progressively increasing weakness leading to death, usually within five years. A sample of 197 subjects with ALS were recruited and assessed online twice, with a duration of four months between the two assessments. Assessments included measurements of trait mindfulness, physical impairment, QOL, anxiety and depression. The influence of mindfulness as predictor of changes in physical impairments was evaluated with a mixed-effects model. Mindfulness positively influenced the change of physical symptoms. Subjects with higher mindfulness experienced a slower progression of the disease after four months. Moreover, mindfulness at first assessment predicted higher QOL and psychological well-being. The available data indicate that a psychological construct – mindfulness – can attenuate the progress of a disease that is believed to be almost solely biologically driven. The potential implications of these results extend well beyond ALS.

Paller, Ken A., Jessica D. Creery, Susan M. Florczak, Sandra Weintraub, M.-Marsel Mesulam, Paul J. Reber, Jessica Kiragu, et al. 2015. Benefits of Mindfulness Training for Patients With Progressive Cognitive Decline and Their Caregivers. *American Journal of Alzheimers Disease and Other Dementias* 30(3). 257–267.
doi:10.1177/1533317514545377.

New strategies are needed to help people cope with the repercussions of neurodegenerative disorders such as Alzheimer's disease. Patients and caregivers face different challenges, but here researchers investigated an intervention tailored for this combined population. The program focused on training skills such as attending to the present moment nonjudgmentally, which may help reduce maladaptive emotional responses. Patients participated together with caregivers in weekly group sessions over 8 weeks. An assessment battery was individually administered before and after the program. Pre-post analyses revealed several benefits, including increased quality-of-life ratings, fewer depressive symptoms, and better subjective sleep quality. In addition, participants indicated that they were grateful for the opportunity to learn to apply mindfulness skills and that they would recommend the program to others. In conclusion, mindfulness training can be beneficial for patients and their caregivers, it can be delivered at low cost to combined groups, and it is worthy of further investigation.

Telles, Shirley, Shivangi Pathak, Ankur Kumar, Prabhat Mishra & Acharya Balkrishna. 2015. Ayurvedic Doshas as Predictors of Sleep Quality. *Medical Science Monitor* 21. 1421–1427.

The 3 Ayurvedic constitutional types, or doshas (vata, pitta, and kapha), are responsible for homeostasis and health. The doshas determine various functions, including sleep. According to the Ayurvedic texts, sleep is caused by increased kapha and insomnia by increased vata or pitta, which may follow physical or mental exertion, or disease. The present study was carried out to determine whether this relationship could be found using contemporary standardized questionnaires. In this cross-sectional single-group study, 995 persons participated. Participants were attending a 1-week residential yoga program in northern India. Participants were assessed for dosha scores using a Tridosha questionnaire and the quality of sleep in the preceding week was self-rated using a sleep rating questionnaire. Multiple linear regression analyses were used to determine if each dosha acted as a predictor of quality and quantity of sleep. Vata scores significantly predicted the time taken to fall asleep, and the feeling of being rested in the morning, with higher vata scores being associated with a longer time to fall asleep and a lesser feeling of being rested in the morning. Kapha scores significantly predicted day-time somnolence and the duration of day-time naps in minutes, with higher kapha scores being associated with longer day-time naps.

Webster, Darryl. 2015. The effects of spirituality on drug use. *Journal of Human Behavior in the Social Environment* 25(4). 322–332.
doi:10.1080/10911359.2014.969126.

The purpose of this study was to determine whether there was a statistically significant correlation between the degree of substance use and the level of spirituality among participants in a long-term substance abuse treatment program. Data were collected from 30 individuals attending two long-term substance abuse programs. Mode of

measurement consisted of the Index of Core Spiritual Experiences to measure the level of spirituality and the Addiction Severity Index, which measured the amount of drug use. Data for this study were coded numerically and analyzed using a Pearson product moment correlation coefficient to determine whether there was a statistically significant relationship between spirituality and substance use. Results revealed that there was not a statistically significant correlation between the level of spirituality and substance use. Recommendations for future research are discussed.

Würtzen, Hanne, Susanne Oksbjerg Dalton, Jane Christensen, Klaus Kaae Andersen, Peter Elsass, Henrik L. Flyger, Anne E. Pedersen, Antonia Sumbundu, Marianne Steding-Jensen & Christoffer Johansen. 2015. Effect of mindfulness-based stress reduction on somatic symptoms, distress, mindfulness and spiritual wellbeing in women with breast cancer: Results of a randomized controlled trial. *Acta Oncologica* 54(5). 712–719.
doi:10.3109/0284186X.2014.997371.

In this study researchers tested the effect of MBSR on the burden of breast cancer related somatic symptoms, distress, mindfulness and spiritual wellbeing and evaluated possible effect modification by adjuvant therapy and baseline levels of, distress, mindfulness and spiritual wellbeing. A population-based sample of 336 women Danish women operated for breast cancer stages I-III were randomized to MBSR or usual care and were followed up for somatic symptoms, distress, mindfulness skills and spiritual wellbeing post-intervention and after six and 12 months. Effect was tested by general linear regression models post-intervention, and after six and 12 months follow-up and by mixed effects models for repeated measures of continuous outcomes. Effect size was calculated to explore clinical significance of effects among intervention group. Finally, modification of effect of MBSR on burden of somatic symptoms after 12 months' follow-up by adjuvant therapy and baseline levels of, distress, mindfulness and spiritual wellbeing were estimated. General linear regression showed a significant effect of MBSR on the burden of somatic symptoms post-intervention and after 6 months' follow-up. After 12 months' follow-up, no significant effect of MBSR on the burden of somatic symptoms was found in mixed effect models. A statistically significant effect of MBSR on distress was found at all time-points and in the mixed effect models. Significant effects on mindfulness were seen after six and 12 months and no significant effect was observed for spiritual wellbeing. No significant modification of MBSR effect on somatic symptom burden was identified.

2.2 SPIRITUALITY & HEALTH: MENTAL HEALTH

Agli, Océane, Nathalie Bailly & Claude Ferrand. 2015. Spirituality and religion in older adults with dementia: a systematic review. *International Psychogeriatrics* 27(5). 715–725.
doi:10.1017/S1041610214001665.

Religious and spiritual issues are clearly important to the older adult population and may play a positive role in maintaining health and recovering from illness. This study systematically reviewed the literature examining the effects of religion and spirituality on health outcomes such as cognitive functioning, coping strategies, and quality of life in people with dementia. First, 51 articles with defined keywords were collected from online databases. Then, using inclusion and exclusion criteria, 11 articles were selected. These were classified according to methodological quality before being analyzed one by one. The findings highlight the benefits of spirituality and religion on health outcomes. Three articles showed that in participants who used their spirituality or religion more, through their faith, their practices and in maintaining social interactions, their cognitive disorders tended to reduce or stabilize. In the other eight articles, use of spirituality or faith in daily life enabled people to develop coping strategies to help accept their disease, maintain their relationships, maintain hope, and find meaning in their lives, thereby improving their quality of life. Results indicate that spirituality and religion appear to slow cognitive decline, and help people use coping strategies to deal their disease and have a better quality of life. This literature review allows us to take stock of research over the last decade on spirituality/religion and health outcomes. The benefits observed should be considered with caution and included in rigorous experimental research in the future.

Anderson, Naomi, Suzanne Heywood-Everett, Najma Siddiqi, Judy Wright, Jodi Meredith & Dean McMillan. 2015. Faith-adapted psychological therapies for depression and anxiety: Systematic review and meta-analysis. *Journal of Affective Disorders* 176. 183–196.
doi:10.1016/j.jad.2015.01.019.

Incorporating faith (religious or spiritual) perspectives into psychological treatments has attracted significant interest in recent years. However, previous suggestion that good psychiatric care should include spiritual components has provoked controversy. To try to address ongoing uncertainty in this field researchers present a systematic review and meta-analysis to assess the efficacy of faith-based adaptations of bona fide psychological therapies for depression or anxiety. A systematic review and meta-analysis of randomized controlled trials were performed. The literature search yielded 2274 citations of which 16 studies were eligible for inclusion. All studies used cognitive or cognitive behavioral models as the basis for their faith-adapted treatment (F-CBT). Researchers identified statistically significant benefits of using F-CBT. However, quality assessment using the Cochrane risk of bias tool revealed methodological limitations that reduce the apparent strength of these findings. While the effect sizes identified here were statistically significant, there were relatively a few relevant RCTs available, and those included were typically small and susceptible to significant biases. Biases associated with researcher or therapist allegiance were identified as a particular concern. Despite some suggestion that faith-adapted CBT may out-perform both standard CBT and control conditions (waiting list or “treatment as usual”), the effect sizes identified in this meta-analysis must be considered in the light of the substantial methodological limitations that affect the primary research data. Before firm recommendations about the value of faith-adapted treatments can be made, further large-scale, rigorously performed trials are required.

Buttner, Melissa M., Rebecca L. Brock, Michael W. O’Hara & Scott Stuart. 2015. Efficacy of yoga for depressed postpartum women: A randomized controlled trial. *Complementary Therapies in Clinical Practice* 21(2). 94–100.
doi:10.1016/j.ctcp.2015.03.003.

Up to 20% of women experience postpartum depression (PPD). PPD is associated with anxiety and poor health-related quality of life (HRQOL). Efficacious treatments are critical; many women with PPD prefer complementary therapies. Thus, the current study examined yoga as a complementary therapy for PPD. Fifty-seven postpartum women with scores ≥ 12 on the Hamilton Depression Rating Scale were randomly assigned to a yoga (n=28) or wait-list control (n=29) group. The yoga intervention consisted of 16 classes over 8 weeks. Following intervention, the yoga group experienced significantly greater rate of improvement in depression, anxiety, and HRQOL, relative to the control group with moderate to large effects. Reliable Change Index analyses revealed that 78% of women in the yoga group experienced clinically significant change.

Cheng, Fung Kei. 2015. Recovery from depression through Buddhist wisdom: An idiographic case study. *Social Work in Mental Health* 13(3). 272–297.
doi:10.1080/15332985.2014.891554.

Results from the recent growing trend in using mindfulness training to deal with depression report an evident decrease in depressive symptoms. The present idiographic case study explores the lived experience of how a woman with depression recovered through Buddhist teachings and practices. This single case adopted multiple data sources, including interviews, autobiographies, a genogram, and an autobiographical timeline. Member-checking and peer analysis are employed to enhance the trustworthiness. The first-hand data, analyzed through interpretative phenomenological analysis, reveal the perceived factors causing the informant’s depression, as well as benefits gained from Buddhist practices, and the insight learned from experiencing depression; by which insight self-benefiting altruism can accomplish personal growth by converting suffering into assets that help others. This exploratory research offers an alternative view through which to understand depression and non-medication treatments through Buddhist ideas, and also proposes future research directions.

- Cherry, Katie E., Laura Sampson, Pamela F. Nezat, Ashley Cacamo, Loren D. Marks & Sandro Galea. 2015. Long-term psychological outcomes in older adults after disaster: Relationships to religiosity and social support. *Aging & Mental Health* 19(5). 430–443. doi:10.1080/13607863.2014.941325.

Natural disasters are associated with catastrophic losses. Disaster survivors return to devastated communities and rebuild homes or relocate permanently, although the long-term psychological consequences are not well understood. The authors examined predictors of psychological outcomes in 219 residents of disaster-affected communities in south Louisiana. Current coastal residents with severe property damage from the 2005 Hurricanes Katrina and Rita, and exposure to the 2010 British Petroleum Deepwater Horizon oil spill were compared and contrasted with former coastal residents and an indirectly affected control group. Participants completed measures of storm exposure and stressors, religiosity, perceived social support, and mental health. Non-organizational religiosity was a significant predictor of post-traumatic stress disorder (PTSD) in bivariate and multivariate logistic regressions. Follow-up analyses revealed that more frequent participation in non-organizational religious behaviors was associated with a heightened risk of PTSD. Low income and being a coastal fisher were significant predictors of depression symptoms in bivariate and multivariate models. Perceived social support had a protective effect for all mental health outcomes, which also held for symptoms of depression and GAD in multivariate models.

- Elham, Hedayati, Maryam Hazrati, Marzieh Momennasab & Keshavarzi Sareh. 2015. The Effect of Need-Based Spiritual/Religious Intervention on Spiritual Well-Being and Anxiety of Elderly People. *Holistic Nursing Practice* 29(3). 136–143. doi:10.1097/HNP.0000000000000083.

Anxiety and spiritual distress are the most common problems among the patients admitted to intensive care units. The elderly are more vulnerable to this problem due to impairment of their adaptation mechanisms. Hence, helping to reduce anxiety is one of the most effective nursing interventions. Therefore, this study aimed at investigating the effect of need-based spiritual/religious interventions on spiritual well-being (SWB) and anxiety of the elderly admitted to coronary care unit (CCU). This quasi-experimental study with pre-and posttest control group design was conducted on 66 patients admitted to CCU of Imam Reza hospital in Lar, southern Iran, in 2014. After obtaining informed consents, the data were collected using the Spielberger State-Trait Anxiety Inventory, the SWB Scale, and a demographic questionnaire. The questionnaires were completed through interviewing the patients before and after the intervention. The participants of the intervention group underwent 60 to 90-minute sessions of spiritual and religious need-based interventions for 3 consecutive days. The results showed a significant increase in the mean scores of SWB in the intervention group after the intervention. Also, a significant decrease was found in mean scores of trait and state anxiety in the intervention group in comparing to control group. Moreover, a significant correlation was observed between the mean scores of SWB and state and trait anxiety.

- Eszter, Kovacs & Piko Bettina. 2015. Study on religious addiction as a potential novel type of behavioral addiction in an adolescent population. *Orvosi Hetilap* 156(18). 731–740. doi:10.1556/OH.2015.30137.

Religious addiction is a new behavioral addiction, featured with pathologic religious activity. The authors examined whether this new phenomenon appears in adolescence, and whether it correlates with substance use and mental health variables. The General Addiction Screening Tool was used to investigate the presence of religious addiction among youth (n=656; mean age, 16.5 years; 49.2% females). Besides monthly and lifetime prevalence of substance use, variables of psychological well-being (e.g., depression, aggression, optimism) were also detected. Results indicate that religiosity was relatively low among adolescents. Nearly 1% of the sample might be characterized as being addicted to religion, 16.2% belonged to the symptomatic group, while 83% of them were asymptomatic. Religious addicts were more likely to be more religious and the role of religion in one's life was more important. Also, they tended to pray and attend church more frequently. It was also found that amphetamine use

was more frequent among the addicts. In terms of mental health level, aggression scored lower and spiritual well-being reached higher level.

- Geest, Ivana M. M. van der, Marry M. van den Heuvel-Eibrink, Nette Falkenburg, Erna M. C. Michiels, Liesbeth van Vliet, Rob Pieters & Anne-Sophie E. Darlington. 2015. Parents' Faith and Hope during the Pediatric Palliative Phase and the Association with Long-Term Parental Adjustment. *Journal of Palliative Medicine* 18(5). 402–407.
doi:10.1089/jpm.2014.0287.

The loss of a child is associated with an increased risk for developing psychological problems. However, studies investigating the impact of parents' faith and hope for a cure during the palliative phase on long-term parental psychological functioning are limited. This study's objective was to explore the role of faith and hope as a source of coping and indicator of long-term parental adjustment. Participants were 89 parents of 57 children who died of cancer. The parents completed questionnaires retrospectively, exploring faith, hope, and sources of coping, and measuring parents' current level of grief and depression. For 19 parents (21%) faith was very important during the palliative phase. The majority of parents remained hopeful for a meaningful time with their child (n=68, 76%); a pain-free death (n=58, 65%); and a cure (n=30, 34%). Their child (n=70, 79%) was parents' main source of coping. Twelve parents (14%) suffered from traumatic grief, and 22 parents (25%) showed symptoms of depression. Parents' faith was not associated with less long-term traumatic grief or symptoms of depression, and parents' hope for a cure was not related to more long-term traumatic grief or symptoms of depression.

- Harris, J. Irene, Gary K. Leak, Rachel Dubke & Cory Voecks. 2015. Religious strain and postconventional religiousness in trauma survivors. *Psychology of Religion and Spirituality* 7(2). 173–178.
doi:10.1037/rel0000026.

Postconventional religious reasoning has been one of the best defined indicators of spiritual/religious development in the literature. Several theorists have suggested that postconventional religiousness emerges only after individuals confront challenges to their spiritual beliefs and assumptions. To investigate this idea, researchers studied postconventional spiritual/religious development among trauma survivors in an attempt to identify the types of religious challenges most relevant to the development of postconventional religiousness. Individuals who experienced: (a) more total trauma exposure, (b) more religious rifts with others in their faith group or family, (c) lower levels of religious fear and guilt, and (d) lower levels of religious comfort reported higher levels of postconventional religiousness.

- Harris, J. Irene, Tasha Nienow, Aaron Choi, Brian Engdahl, Xuan V. Nguyen & Paul Thuras. 2015. Client report of spirituality in recovery from serious mental illness. *Psychology of Religion and Spirituality* 7(2). 142–149.
doi:10.1037/a0038538.

Concerns about the ability to understand and communicate about spiritual material have become a source of controversy regarding spiritually integrated care for individuals managing serious mental illnesses. In this study, 91 people receiving outpatient services for serious mental illnesses provided information on their symptoms, level of recovery, spiritual functioning, and preferences about spiritually integrated care, as well as their responses to an infrequency/inconsistency scale. Results indicated that (a) most participants were interested in spirituality and wanted to discuss this with mental health care providers, (b) as a group, most participants were able to provide reliable and valid responses to questions about spirituality.

- Helms, Sarah W., Michelle Gallagher, Casey D. Calhoun, Sophia Choukas-Bradley, Glen C. Dawson & Mitchell J. Prinstein. 2015. Intrinsic Religiosity Buffers the Longitudinal Effects of Peer

Victimization on Adolescent Depressive Symptoms. *Journal of Clinical Child & Adolescent Psychology* 44(3). 471–479.

doi:10.1080/15374416.2013.865195.

Peer victimization is a common and potentially detrimental experience for many adolescents. However, not all youth who are exposed to peer victimization experience maladaptive outcomes, such as depression. Thus, greater attention to potential moderators of peer victimization is particularly important. The current study examined the potential moderating effect of intrinsic religiosity and religious attendance on the longitudinal association between physical and relational victimization and depressive symptoms. A diverse sample of adolescents (n=313; Median age=17.13 years; 54% female; 49% Caucasian, 24% African American, 19% Latino, 8% mixed race/other; 80% Christian religious affiliation) were recruited from a rural, low-income setting. Adolescents completed self-report measures of religious attendance and intrinsic religiosity, and two forms of victimization (i.e., physical and relational) were assessed using sociometric procedures in 11th grade. Depressive symptoms were measured in both 11th and 12th grade. Results suggest that relational victimization is associated prospectively with depressive symptoms only under conditions of adolescents' low intrinsic religiosity.

He, Xiaoli, Wendian Shi, Xiangxiang Han, Nana Wang, Ni Zhang & Xiaoli Wang. 2015. The interventional effects of loving-kindness meditation on positive emotions and interpersonal interactions. *Neuropsychiatric Disease and Treatment* 11. 1273–1277.

doi:10.2147/NDT.S79607.

The study aimed to investigate the effects of loving-kindness meditation on positive emotions, intragroup interactions, and complex understanding of others. A total of 50 freshmen not receiving any training in meditation intervention were randomly divided into the meditation group (25 subjects) and the control group (25 subjects). The meditation group was implemented with group meditation intervention for 4 weeks, three times a week, about 30 minutes each time. The results revealed that the effect sizes in interpersonal interaction and complex understanding of others in the meditation group were both above 0.8, indicating strong effects. It was concluded that loving-kindness meditation can effectively improve positive emotions, interpersonal interactions, and complex understanding of others in college students.

Hou, Wai Kai, Sin Man Ng & Jacky Ho Yin Wan. 2015. Changes in positive affect and mindfulness predict changes in cortisol response and psychiatric symptoms: A latent change score modelling approach. *Psychology & Health* 30(5). 551–567.

doi:10.1080/08870446.2014.990389.

This study examined whether and how changes in positive affect and mindfulness predicted changes in cortisol secretion and psychological distress in adaptation to examination stress. A sample of 105 college students completed a questionnaire set and provided salivary samples before (T1), during (T2) and after (T3) an examination period. Latent change score modelling revealed that T1–T2 and T2–T3 increases in mindfulness were associated with larger T2–T3 decrease in area-under-the-curve ground of cortisol awakening response (CARg), whereas T2–T3 increases in both positive affect and mindfulness were associated with larger T2–T3 decrease in anxiety symptoms. T1–T2 and T2–T3 increases in positive affect were not associated with T2–T3 decrease in CARg, whereas T1–T2 increases in positive affect and mindfulness were not associated with T2–T3 decrease in anxiety symptoms. The authors conclude that the levels of post-stress recovery from anxiety symptoms could depend on concurrent increases in positive affect and mindfulness, whereas the levels of post-stress decline in cortisol secretion could depend on increases in mindfulness both during and after stress.

Iancu, I., E. Bodner, S. Joubran, I. Ben Zion & E. Ram. 2015. Why not the best? Social anxiety symptoms and perfectionism among Israeli Jews and Arabs: a comparative Study. *Comprehensive Psychiatry* 59. 33–44.

doi:10.1016/j.comppsy.2014.11.010.

Social Anxiety Disorder (SAD) has been repeatedly shown to be prevalent in Western society and is characterized by low self-esteem, pessimism, procrastination and also perfectionism. Very few studies on SAD have been done in the Middle East or in Arab countries, and no study tackled the relationship between social anxiety symptoms and perfectionism in non-Western samples. For this study, researchers examined social anxiety symptoms and perfectionism in a group of 132 Israeli Jewish (IJ) and Israeli Arab (IA) students. Subjects completed the Liebowitz Social Anxiety Scale (LSAS), the Multidimensional Perfectionism Scale (MPS), the Negative Automatic Thoughts Questionnaire (ATQ-N), the Positive Automatic Thoughts Questionnaire (ATQ-P) and a socio-demographic questionnaire. Results indicate the rate of SAD in the sample was 17.2% (IJ=13.8%, IA=19%). The correlation between perfectionism and the LSAS was high in both groups, and in particular in the IJ group. The IA group had higher scores of social avoidance, of ATQ-P and of two of the MPS subscales: parental expectations and parental criticism. Concern over mistakes and negative automatic thoughts positively predicted social fear in the IJ group, whereas in the IA group being female, religious and less educated positively predicted social fear. Negative automatic thoughts and age positively predicted social avoidance in the IJ group. In general, the IJ and IA subjects showed higher social anxiety, higher ATQ-N scores and lower parental expectations as compared with non-clinical US samples. Conclusions: Social anxiety symptoms and perfectionism are prevalent in Arab and Jewish students in Israel and seem to be closely related. Further studies among non-western minority groups may detect cultural influences on social anxiety and might add to the growing body of knowledge on this intriguing condition.

Lin, Kun-Pei, Yi-Chun Chou, Jen-Hau Chen, Chi-Dan Chen, Sheng-Ying Yang, Ta-Fu Chen, Yu Sun, et al. 2015. Religious affiliation and the risk of dementia in Taiwanese elderly. *Archives of Gerontology and Geriatrics* 60(3). 501–506. doi:10.1016/j.archger.2015.01.009.

Religious affiliations vary across ethnic groups because of different cultural backgrounds. Some studies have explored the association between religious affiliation and cognitive decline. Only a small portion of patients with cognitive decline progress to dementia. However, the association between religious affiliation and dementia risk remains unclear. In this case-control study, researchers recruited 280 patients with Alzheimer's disease (AD) and 138 with vascular dementia (VaD) from three teaching hospitals in northern Taiwan between 2007 and 2010. Age-matched healthy controls (n=466) were recruited from an elderly health checkup program and from volunteers visiting the hospital during the same period. Results indicate that participants with Christianity affiliation showed decreased AD risk compared with those without any religious affiliation. Moreover, this effect was stronger in women and in participants who exercised regularly. No significant association was observed among participants with Taoism and Buddhism affiliations. Affiliation to none of the religions was associated with VaD risk.

Murphy, Jennie S., David P. Nalbone, Joseph L. Wetchler & Anne B. Edwards. 2015. Caring for Aging Parents: The Influence of Family Coping, Spirituality/Religiosity, and Hope on the Marital Satisfaction of Family Caregivers. *American Journal of Family Therapy* 43(3). 238–250. doi:10.1080/01926187.2015.1034636.

The goal of this study was to gain a more complete understanding of the marital satisfaction of family caregivers based on a strength-based framework of family resiliency. Previous research has identified a relationship between the caregiving experience and coping, spirituality/religiosity, and hope, but no study to date has investigated the effect of those three variables on the marital satisfaction of family caregivers. Researchers hypothesized that family caregivers who are spiritual/religious, hopeful, and use effective family coping strategies would experience greater marital satisfaction. A hierarchical linear regression analyzing data from 191 family caregivers supported the hypotheses.

Neimeyer, Robert A. & Laurie A. Burke. 2015. Loss, grief, and spiritual struggle: The quest for meaning in bereavement. *Religion, Brain & Behavior* 5(2). 131–138. doi:10.1080/2153599X.2014.891253.

From a Buddhist perspective, grief becomes complicated because mourners have trouble accommodating the reality of impermanence in the face of deep and unwelcome change, as they struggle to make sense of the “event story” of their loss and to revise their life story and identity accordingly. Joining this perspective with a constructivist emphasis on grieving as meaning reconstruction, researchers developed a distinctive group intervention to help people reflect on the natural conditions of impermanence and limitation in a compassionate environment in which they were encouraged to cultivate a new self-narrative in the wake of loss. Integrating meditative interludes, dyadic sharing, dharma lessons, and informal didactics on the human quest for meaning, researchers used expressive arts exercises to engage the existential dilemmas of loss from a self-distancing perspective. Evidence from an open trial on 41 participants in 2 groups documents that the intervention is both feasible and acceptable to clients, and that they display significant decreases in grief related suffering, and corresponding increases in meaning making and personal growth, across the brief course of the workshop experience.

Oron, Galia, Erica Allnutt, Tasha Lackman, Tamar Sokal-Arnon, Hananel Holzer & Janet Takefman. 2015. A prospective study using Hatha Yoga for stress reduction among women waiting for IVF treatment. *Reproductive BioMedicine Online* 30(5). 542–548.
doi:10.1016/j.rbmo.2015.01.011.

Yoga has been found to be effective in treating anxiety and depression, reducing stress and improving the overall quality of life in the general population. Minimal research is available on the effect of stress-management programs with IVF patients. Owing to the diversity of conditions treated, the poor quality of most studies, and the different assessment tools used to evaluate the psychological state, it is difficult to draw definite conclusions. Previous studies have used different mind–body interventions and general measures of stress without evaluation of specific stresses known to result from infertility and its treatment using standardized measures. In this single-center study, 49 infertile women were recruited to participate in a 6-week Yoga class during 2013 while awaiting their IVF treatment. Study participants were asked to complete standardized questionnaires assessing fertility-related quality of life (FertiQoL), marital harmony (Dyadic Adjustment Scale [DAS]), state and trait anxiety (State-Trait Anxiety Inventory [STAI]) and depression (Beck Depression Inventory [BDI]) before commencing and after completing the Yoga workshops. Anxiety, depression and fertility-specific quality of life showed improvement over time in association with participation in a 6-week Yoga program in women awaiting their treatment with IVF.

Richardson, George B., Patrick H. Hardesty & Benjamin Jeppsen. 2015. Family Idealization Explains the Effect Between Family Religiousness and Youth Psychological Functioning. *Journal of Child and Family Studies* 24(5). 1243–1255.
doi:10.1007/s10826-014-9932-5.

Research suggests that family religiousness may contribute to youth psychological functioning directly and also by protecting against socialization among peers who engage in externalizing behaviors such as substance use. However, attachment variables and their causes may confound the effects between family religiousness, peer substance use, and youth psychological functioning. This study brings family idealization, a novel construct theorized to translate sensitive caregiving into the formation of secure attachments, to bear on this possibility for the first time. Researchers performed a secondary analysis of data from a sample of 522 secondary students and used structural equations modeling to simultaneously estimate the effects between family religiousness and idealization, peer substance use, and psychological functioning. They found that family religiousness and youth psychological functioning were statistically independent conditional on family idealization. Family idealization was independent of peer substance use, while family religiousness predicted lower levels of socially acceptable substance use among peers. Interestingly, peer substance use did not predict psychological functioning. These results suggest family religiousness may impact peer selection, while its association with youth psychological functioning may be attributable to family idealization.

Warren, Peter, Kathryn Van Eck, Greg Townley & Bret Kloos. 2015. Relationships among religious coping, optimism, and outcomes for persons with psychiatric disabilities. *Psychology of Religion and Spirituality* 7(2). 91–99.
doi:10.1037/a0038346.

Research suggests that the effectiveness of religious belief as a coping strategy may depend on whether an individual adopts a positive or negative view of the association between life events and their religious belief. Many individuals with psychiatric disabilities consider their faith an important aspect of their lives, especially in times of increased distress. As with other populations, they often rely on their religious beliefs to help them improve their daily functioning. Positive religious coping consistently predicts improved psychosocial adjustment, such as lower reports of depression, anxiety, and self-esteem, whereas negative religious coping predicts the opposite effects. It is possible that religious coping influences psychosocial adjustment through optimism, which is a strong predictor of positive psychological outcomes for those with psychiatric disabilities. Researchers proposed a model in which optimism mediated the effect of religious coping on life satisfaction and psychological adjustment for individuals with psychiatric disabilities. It was found that optimism mediated the effect of religious coping on both life satisfaction and psychological distress. Negative religious coping was associated with direct and indirect reductions in life satisfaction and increases in psychological distress. Although positive religious coping was associated with direct and indirect increases in life satisfaction, psychological distress was only indirectly reduced. These results bring attention to the ways that religious coping can improve quality of life, as well as negatively affect outcomes for those diagnosed with psychiatric disabilities.

2.3 SPIRITUALITY & HEALTH: METHOD AND THEORY

Briki, Walid, Asma Aloui, Nicola Luigi Bragazzi, Anis Chaouachi, Thomas Patrick & Karim Chamari. 2015. Trait Self-Control, Identified-Introjected Religiosity and Health-Related-Feelings in Healthy Muslims: A Structural Equation Model Analysis. *Plos One* 10(5). e0126193.
doi:10.1371/journal.pone.0126193.

The present study attempted to test McCullough and Willoughby's hypothesis that self-control mediates the relationships between religiosity and psychosocial outcomes. Specifically, this study examined whether trait self-control (TSC) mediates the relationship of identified-introjected religiosity with positive and negative health-related-feelings (HRF) in healthy Muslims. Two hundred eleven French-speaking participants (116 females, 95 males; median age 28.15) answered questionnaires. One hundred ninety participants were retained for the analyses because they reported to be healthy (105 females, 85 males; median age 27.72). To examine the relationships between religiosity, TSC and HRF, two competing mediation models were tested using structural equation model analysis: while a starting model used TSC as mediator of the religiosity-HRF relationship, an alternative model used religiosity as mediator of the TSC-HRF relationship. The findings revealed that TSC mediated the relationship between identified religiosity and positive HRF, and that identified religiosity mediated the relationship between TSC and positive and negative HRF, thereby validating both models. Moreover, the comparison of both models showed that the starting model explained 13.211% of the variance, whereas the alternative model explained 6.877% of the variance.

Brodtkorb, Eylert & Karl Otto Nakken. 2015. The relationship between epilepsy and religiosity illustrated by the story of the visionary mystic Wise-Knut. *Epilepsy & Behavior* 46. 99–102.
doi:10.1016/j.yebeh.2015.04.017.

Wise-Knut was born in a poor mountain district in Norway in 1792 and lived for 84 years. He had severe and untreated epilepsy with apparent ictal, postictal, and interictal religious symptoms. He heard voices and had religious delusions; a spiritual awakening after a seizure cluster was a turning point in his life. Contemporary biographers have narrated his major life events in detail, but without a precise separation between ictal and

postictal spiritual symptoms. Religious and supernatural significance was attributed to his experiences; he himself believed that his extraordinary abilities were a gift from God: "The prophets have had it like myself." His story corroborates the impression that epilepsy may have had a considerable role in the history of religions. However, apart from anecdotes on visionary and healing abilities, his biographies contain nothing that is miraculous or incredible. He falls into the line of various mystics and religious figures of the past that are currently thought to have had epilepsy. The advancing understanding of epilepsy and its complications has influenced the dynamic balance between faith, superstition, and rationalism.

Garland, Sheila N., Cameron Stainken, Karan Ahluwalia, Neha Vapiwala & Jun J. Mao. 2015. Cancer-Related Search for Meaning Increases Willingness to Participate in Mindfulness-Based Stress Reduction. *Integrative Cancer Therapies* 14(3). 231–239. doi:10.1177/1534735415580682.

A cancer diagnosis can prompt an examination and reevaluation of life's meaning, purpose, and priorities. There is evidence that mindfulness-based stress reduction (MBSR) may help facilitate the meaning-making process. This study examined the influence of meaning in life on willingness to participate (WTP) in MBSR and identified factors associated with the search for and/or presence of meaning. A cross-sectional survey study of 300 patients undergoing radiation therapy was conducted. WTP in MBSR was dichotomized into yes/no by asking, Would you participate in an MBSR program if it was offered at the cancer center? The search for, and the presence of, meaning were assessed using the Meaning in Life Questionnaire. Eighty patients (27%) indicated WTP in MBSR. In a multivariate logistic regression model, search for meaning was the only significant predictor of WTP in MBSR. Identifying as non-white and reporting subclinical or clinical levels of anxiety were the strongest predictors of search for meaning. This study indicates that patients searching for meaning are receptive to MBSR. Nonwhite patients and those experiencing high levels of anxiety are most likely to endorse a search for meaning. Future research is needed to understand how best to support patients who are searching for meaning and remove barriers to evidence-based programs like MBSR.

Greenfield, Brenna L., Kevin A. Hallgren, Kamilla L. Venner, Kylee J. Hagler, Jeremiah D. Simmons, Judith N. Sheche, Everett Homer & Donna Lupee. 2015. Cultural adaptation, psychometric properties, and outcomes of the Native American Spirituality Scale. *Psychological Services* 12(2). 123–133. doi:10.1037/ser0000019.

Spirituality is central to many Native Americans (NAs) and has been associated with recovery from substance use disorders (SUDs). However, no published questionnaire uniquely taps tribal-specific spiritual beliefs and practices. This hinders efforts to integrate traditional NA spirituality into SUD treatment and track spiritual outcomes. As part of a randomized controlled trial examining SUD treatment for NAs, researchers adapted the Daily Spiritual Experience Scale (DSES) in collaboration with members of a Southwest tribe to create the Native American Spirituality Scale (NASS) and measured changes in the NASS over the course of treatment. The 83 participants (70% male) were from a single Southwest tribe and seeking SUD treatment. They completed the NASS at baseline, 4, 8, and 12 months. Exploratory factor analysis of the NASS was conducted and its temporal invariance, construct validity, and longitudinal changes in the factor and item scores were examined. The NASS yielded a 2-factor structure that was largely invariant across time. Factor 1 reflected behavioral practices, while Factor 2 reflected more global beliefs. Both factors significantly increased across 12 months, albeit at different assessment points. At baseline, Factor 1 was negatively related to substance use and positively associated with measures of tribal identification while Factor 2 was unrelated to these measures. Given the importance of tribal spirituality to many NAs, the development of this psychometrically sound measure is a key precursor and complement to the incorporation of tribal spirituality into treatment, as well as research on mechanisms of change for SUD treatment among NAs and assessment of NA spirituality in relation to other aspects of health.

Kestenbaum, Allison, Jennifer James, Stefana Morgan, Michele Shields, Will Hocker, Michael Rabow & Laura B. Dunn. 2015. "Taking your place at the table": an autoethnographic study of chaplains' participation on an interdisciplinary research team. *Bmc Palliative Care* 14. 20. doi:10.1186/s12904-015-0006-2.

There are many potential benefits to chaplaincy in transforming into a "research-informed" profession. However little is known or has been documented about the roles of chaplains on research teams and as researchers or about the effects of research engagement on chaplains themselves. This report describes the experience and impact of three chaplains, as well as tensions and challenges that arose, on one particular interdisciplinary team researching a spiritual assessment model in palliative care. Transcripts of research team meetings, which included the three active chaplain researchers, as well as reflections of all the members of the research team, provide the data for this descriptive, qualitative, autoethnographic analysis. Three major themes emerged from the autoethnographic analytic process: 1) chaplains' unique contributions to the research team; 2) the interplay between the chaplains' active research role and their work identities; and 3) tensions and challenges in being part of an interdisciplinary research team.

Kollontai, Pauline. 2015. Emotional intelligence in higher education: Using art in a philosophical discussion on God, evil and suffering. *Research in Education* 93. 66–76. doi:10.7227/RIE.0012.

The use of emotional intelligence in peace-building has grown significantly during the past few years. Many projects across the world include some form of art activity to help victims of conflict, both individually and together across conflicting parties, in shaping a political process which enables a more profound understanding of each other with the aim of reconciliation and building a future where the break-down of societies into violence are less likely to occur. This led the author to consider how the use of paintings/drawings, done by the victims or witnesses of conflict such as war, genocide and ethnic cleansing, could contribute to the learning experience of students undertaking an elective module on the Philosophy of Religion which addressed the issues of God, evil and suffering. The findings presented here are the result of a qualitative study undertaken with undergraduate students on this elective module over a period of three years.

Lucchetti, Giancarlo, Parameshwaran Ramakrishnan, Azimatul Karimah, Gabriela R. Oliveira, Amit Dias, Anil Rane, A. Shukla, et al. 2015. Spirituality, religiosity, and health: A comparison of physicians' attitudes in Brazil, India, and Indonesia. *International Journal of Behavioral Medicine*. doi:10.1007/s12529-015-9491-1.

The present study aims to compare physicians' perspectives on the influence of spirituality and religion (S/R) on health between Brazil, India, and Indonesia. This is a cross-sectional, cross-cultural, multi-center study carried out from 2010 to 2012, examining physicians' attitudes from two continents. Participants completed a self-rated questionnaire that collected information on sociodemographic characteristics, S/R involvement, and perspectives concerning religion, spirituality, and health. Differences between physicians' responses in each country were examined using chi-squared, ANOVA, and MANCOVA. A total of 611 physicians (194 from Brazil, 295 from India, and 122 from Indonesia) completed the survey. Indonesian physicians were more religious and more likely to address S/R when caring for patients. Brazilian physicians were more likely to believe that S/R influenced patients' health. Brazilian and Indonesians were as likely as to believe that it is appropriate to talk and discuss S/R with patients, and more likely than Indians. No differences were found concerning attitudes toward spiritual issues.

Mamier, Iris & Elizabeth Johnston Taylor. 2015. Psychometric evaluation of the Nurse Spiritual Care Therapeutics Scale. *Western Journal of Nursing Research* 37(5). 679–694. doi:10.1177/0193945914530191.

This study psychometrically evaluated an instrument that operationalizes frequency of nurse-provided spiritual care, the Nurse Spiritual Care Therapeutics Scale (NSCTS). The 17-item NSCTS, with an established content validity index of 0.88, was administered online to registered nurses (RNs) in four hospitals. Responses from 554 RNs (24% response rate), most of whom identified as Christian, provided evidence for the NSCTS' reliability and validity. Internal reliability was supported by an alpha coefficient of .93. Validity was evidenced by item-total correlations ranging from .40 to .80, low to modest direct correlations between the NSCTS and Daily Spiritual Experience Scale and Duke University Religiosity Index, and strong loadings between 0.41 and 0.84 on one factor (explaining 49.5% of the variance) during exploratory factor analysis.

Mitchell, John T., Lidia Zylowska & Scott H. Kollins. 2015. Mindfulness Meditation Training for Attention-Deficit/Hyperactivity Disorder in Adulthood: Current Empirical Support, Treatment Overview, and Future Directions. *Cognitive and Behavioral Practice* 22(2). 172–191. doi:10.1016/j.cbpra.2014.10.002.

Research examining nonpharmacological interventions for adults diagnosed with attention-deficit/hyperactivity disorder (ADHD) has expanded in recent years and provides patients with more treatment options. Mindfulness-based training is an example of an intervention that is gaining promising preliminary empirical support and is increasingly administered in clinical settings. The aim of this review is to provide a rationale for the application of mindfulness to individuals diagnosed with ADHD, describe the current state of the empirical basis for mindfulness training in ADHD, and summarize a treatment approach specific to adults diagnosed with ADHD: the Mindful Awareness Practices (MAPs) for ADHD Program. Two case study examples are provided to demonstrate relevant clinical issues for practitioners interested in this approach.

Murray, Aja L., Wendy Johnson, Alan J. Gow & Ian J. Deary. 2015. Disentangling wording and substantive factors in the Spiritual Well-Being Scale. *Psychology of Religion and Spirituality* 7(2). 120–129. doi:10.1037/a0038001.

Researchers evaluated the extent to which the Spiritual Well-Being Scale (SWBS) may help to meet the need for multidimensional, psychometrically sophisticated measures of spiritual and religious traits. Although the various forms of validity of the scale have, for the most part, been supported by psychometric studies, conflicting evidence surrounding its dimensionality has called into question its structural validity. Specifically, numerous authors have suggested that a more appropriate factor structure for the SWBS includes further substantive factors in addition to the 2 factors that the scale was originally intended to measure. In the current study, the authors attempted to resolve these debates using a combination of exploratory and confirmatory factor analysis based investigations in the Lothian Birth Cohort, 1921 study. Analyses suggested that the additional factors suggested in previous studies may not have reflected substantive constructs; but rather, common variance due to methodological factors.

Narayanasamy, Aru. 2015. Reflexive account of unintended outcomes from spiritual care qualitative research. *Journal of Research in Nursing* 20(3). 234–248. doi:10.1177/1744987115578185.

This paper presents a discussion of the reflexive accounts of research experience of the author when conducting data collection and analysis of an investigation into spirituality and culture in nurse education. This paper draws on the reflective diary and field notes maintained by the researcher throughout the trajectory of the research involving a series of studies into spiritual care in nurse education. Reflective frameworks offer opportunities for honest reflexive accounts which may be quite revealing. The paper illuminates some salient features of unintended outcomes of the research involving participants who shared narratives of coping mechanisms using spiritual resources as they faced critical junctures such as illness in their lives.

Neimeyer, Robert A. & Polly Young-Eisendrath. 2015. Assessing a Buddhist Treatment for Bereavement and Loss: The Mustard Seed Project. *Death Studies* 39(5). 263–273. doi:10.1080/07481187.2014.937973.

From a Buddhist perspective, grief becomes complicated because mourners have trouble accommodating the reality of impermanence in the face of deep and unwelcome change, as they struggle to make sense of the “event story” of their loss and to revise their life story and identity accordingly. Joining this perspective with a constructivist emphasis on grieving as meaning reconstruction, researchers developed a distinctive group intervention to help people reflect on the natural conditions of impermanence and limitation in a compassionate environment in which they were encouraged to cultivate a new self-narrative in the wake of loss. Integrating meditative interludes, dyadic sharing, dharma lessons, and informal didactics on the human quest for meaning, researchers used expressive arts exercises to engage the existential dilemmas of loss from a self-distancing perspective. Evidence from an open trial on 41 participants in 2 groups documents that the intervention is both feasible and acceptable to clients, and that they display significant decreases in grief related suffering, and corresponding increases in meaning making and personal growth, across the brief course of the workshop experience.

Pichon, Latrice Crystal & Terrinieka Williams Powell. 2015. Review of HIV Testing Efforts in Historically Black Churches. *International Journal of Environmental Research and Public Health* 12(6). 6016–6026.
doi:10.3390/ijerph120606016.

This paper aims to critically assess the state of HIV testing in African American churches. A comprehensive review of peer-reviewed publications on HIV testing in church-based settings was conducted by two independent coders. Twenty-six papers published between 1991 and 2015, representing 24 unique projects, were identified addressing at least one dimension of HIV testing. Thirteen faith-based projects have implemented HIV testing events or had clergy promote the importance of testing and knowing one’s HIV status, but empirical data and rigorous study designs were limited. Only eight papers reported onsite HIV testing in churches. Less than 5% of the studies reported the percentage of congregants who returned for their test results. Finally, no study has examined at baseline or post-intervention behavioral intentions to be screened for HIV. Future research is needed to evaluate the effectiveness of HIV testing in churches and to explore the possibilities of the role of the church and leadership structure in the promotion of HIV treatment and care.

Puchalski, Christina M. 2015. Spirituality in Geriatric Palliative Care. *Clinics in Geriatric Medicine* 31(2). 245–252.
doi:10.1016/j.cger.2015.01.011.

This article presents an overview of spirituality as an essential domain of geriatrics palliative care, and provides guidelines for clinicians to diagnose spiritual distress and to integrate spirituality into their clinical practice.

Rogers, Melanie & John Wattis. 2015. Spirituality in nursing practice. *Nursing Standard* 29(39). 51–57.
doi:10.7748/ns.29.39.51.e9726.

Spirituality is an important aspect of holistic care that is frequently overlooked. This is because of difficulties in conceptualizing spirituality and confusion about how it should be integrated into nursing care. This article explores what is meant by spirituality and spiritually competent practice. It examines attitudes to spirituality, describes factors that might affect the integration of spirituality into nursing care and offers practical guidance to equip nurses to incorporate spirituality into their practice.

Sorrell, Jeanne M. 2015. Meditation for older adults: a new look at an ancient intervention for mental health. *Journal of Psychosocial Nursing and Mental Health Services* 53(5). 15–19.
doi:10.3928/02793695-20150330-01.

New research is providing health care professionals with evidence for the effectiveness of mindfulness meditation as an intervention for older adults. Recent studies have provided evidence that meditation results in observable changes in brain structure related to memory, sense of self, empathy, and stress. Health care professionals should consider

mindfulness training as a helpful intervention for older adults with problems such as depression, anxiety, chronic pain, loneliness, and caregiver burden.

Tarrasch, Ricardo. 2015. Mindfulness Meditation Training for Graduate Students in Educational Counseling and Special Education: A Qualitative Analysis. *Journal of Child & Family Studies* 24(5). 1322–1333.

doi:10.1007/s10826-014-9939-y.

Students of teaching and counseling training programs are exposed to relatively high levels of stress during their studies, and later during their work. They are expected to help their pupils deal with stress and frustration. However, few professional development programs specifically address this issue in their curricula. The author developed a two-semester training course to provide theories and research on mindfulness meditation, training of self-application techniques, and instruction in fieldwork teaching of these techniques to children. Over the academic year, students completed weekly journals. Qualitative analysis of students' journal summaries yielded three core themes related to students' mindfulness training: process, experiences, and outcomes. Most students lacked previous experience in meditation and reported difficulties as the process began. Changes in experiences emerged, sometimes following a turning point, together with a change in the relationship to thoughts, accepting them in a more compassionate manner. Outcomes included a better awareness of thoughts, feelings, and behaviors, a perceived reduction in stress, and a better sleep quality. The study suggests that mindfulness practices can be successfully introduced into traditional academic settings and integrated as part of preservice course curricula to enhance professionals' personal mental health and their ability to transmit the benefits of meditation to their pupils.

Testoni, Ines, Dorella Ancona & Lucia Ronconi. 2015. The Ontological Representation of Death: A Scale to Measure the Idea of Annihilation Versus Passage. *Omega: Journal of Death & Dying* 71(1). 60–81.

doi:10.1177/0030222814568289.

Since the borders between natural life and death have been blurred by technology, in Western societies discussions and practices regarding death have become infinite. The studies in this area include all the most important topics of psychology, sociology, and philosophy. From a psychological point of view, the research has created many instruments for measuring death anxiety, fear, threat, depression, meaning of life. This research presents the validation of a new attitude scale, which conjoins psychological dimensions and philosophical ones. This scale may be useful because the ontological idea of death has not yet been considered in research. The hypothesis is that it is different to believe that death is absolute annihilation than to be sure that it is a passage or a transformation of one's personal identity. The hypothetical difference results in a greater inner suffering caused by the former idea. In order to measure this possibility, researchers analyzed the correlation between Testoni Death Representation Scale and Beck Hopelessness Scale, Suicide Resilience Inventory-25, and Reasons for Living Inventory. The results confirm the hypothesis, showing that the representation of death as total annihilation is positively correlated to hopelessness and negatively correlated to resilience.

Viafora, David P., Sally G. Mathiesen & Sara J. Unsworth. 2015. Teaching Mindfulness to Middle School Students and Homeless Youth in School Classrooms. *Journal of Child and Family Studies* 24(5). 1179–1191.

doi:10.1007/s10826-014-9926-3.

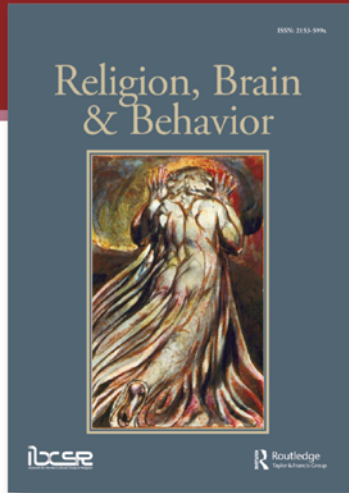
As taught to youth, mindfulness is simply paying attention, with kindness and curiosity, to what's happening inside and outside of oneself, in this present moment. A quickly growing research base is demonstrating treatment feasibility and acceptability, and a range of emotional, meta-cognitive, and behavioral benefits with various populations of youth. Only a few studies have explored mindfulness with middle school students, and no studies have evaluated mindfulness training with youth facing homelessness. The purpose of this study was to evaluate the acceptability, generalizability, and overall effectiveness of an 8-week mindfulness course for traditional middle

school students and middle school students facing homelessness. A quasi-experimental design included two treatment groups and a non-equivalent comparison group: (1) students in traditional classrooms (n=28), (2) those attending a school serving homeless youth (n=15), and (3) waitlisted students (n=20). Researchers reviewed student reported changes from pre- to post-test and post-course evaluations, which included open-ended writing about mindfulness practice. Students in traditional classrooms improved significantly in mindful awareness and acceptance, whereas students facing homelessness reported significantly higher evaluations of the course, greater emotional well-being from mindfulness practice, and were more likely to use mindfulness practice at school, in interpersonal situations, for dealing with anger and other difficult emotions, and to recommend it to friends. There were no significant findings in some outcome measures. The study offers optimistic prospects for further evaluations with adolescents in domains of stress, anger, quality of life, and academic behavioral indices over time, and to assess the effectiveness of teacher trainings for mindfulness instructors.

Zollfrank, Angelika A., Kelly M. Trevino, Wendy Cadge, Michael J. Balboni, Mary Martha Thiel, George Fitchett, Kathleen Gallivan, Tyler VanderWeele & Tracy A. Balboni. 2015. Teaching health care providers to provide spiritual care: a pilot study. *Journal of Palliative Medicine* 18(5). 408–414.

doi:10.1089/jpm.2014.0306.

Health care providers' lack of education on spiritual care is a significant barrier to the integration of spiritual care into health care services. The study objective was to describe the training program, Clinical Pastoral Education for Healthcare Providers (CPE-HP) and evaluate its impact on providers' spiritual care skills. Fifty CPE-HP participants completed self-report surveys at baseline and posttraining measuring frequency of and confidence in providing religious/spiritual (R/S) care. Four domains were assessed: (1) ability and (2) frequency of R/S care provision; (3) comfort using religious language; and (4) confidence in providing R/S care. At baseline, participants rated their ability to provide R/S care and comfort with religious language as "fair." In the previous two weeks, they reported approximately two R/S patient conversations, initiated R/S conversations less than twice, and prayed with patients less than once. Posttraining participants' reported ability to provide spiritual care increased by 33%. Their comfort using religious language improved by 29%, and frequency of R/S care increased 75%. Participants reported having 61% more R/S conversations and more frequent prayer with patients (95% increase). Confidence in providing spiritual care improved by 36% overall, by 20% with religiously concordant patients, and by 43% with religiously discordant patients.



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PART 3: BOOKS

3.1 SCIENTIFIC STUDY OF RELIGION, BRAIN, AND BEHAVIOR

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