

## RESEARCH REVIEW

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

OCTOBER, 2014

### 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 678 articles, 95 articles have been retained from 49 journals. There are 54 pre-publication citations from 39 journals.

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

#### 1.1 SCIENTIFIC STUDY OF RELIGION: COGNITIVE NEUROSCIENCE

Alcorta, Candace. 2014. Meditation and the DMN: An intentional approach to attention. Religion, Brain & Behavior 4(3). 230–233.

doi:10.1080/2153599X.2013.826729.

A response to the target article by Sharp. Alcorta raises questions about three of the tenets of the proposal: first, default mode network (DFN) dysfunction; second, unstructured and random meditative brain activity; third, a dopaminergic default state of subjective happiness and bliss. Alcorta cites research supporting an alternate viewpoint, suggesting a different model of DMN/meditation interaction.

Baird, Benjamin, Michael D. Mrazek, Dawa T. Phillips & Jonathan W. Schooler. 2014. Domain-specific enhancement of metacognitive ability following meditation training. *Journal of Experimental Psychology: General* 143(5). 1972–1979. doi:10.1037/a0036882.

Contemplative mental practices aim to enable individuals to develop greater awareness of their own cognitive and affective states through repeated examination of first-person experience. Recent cross-sectional studies of long-term meditation practitioners suggest that the subjective reports of such individuals are better calibrated with objective indices; however, the impact of mental training on metacognitive ability has not yet been examined in a randomized controlled investigation. The present study evaluated the impact of a 2-week meditation-training program on introspective accuracy in the domains of perception and memory. Compared with an active control group that elicited no change, it was found that a 2-week meditation program significantly enhanced introspective accuracy, quantified by metacognitive judgments of cognition on a trial-by-trial basis, in a memory but not a perception domain. Together, these data suggest that, in at least some domains, the human capacity to introspect is plastic and can be enhanced through training.

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Calendar year memberships US\$45 Discounts for retirees and students Berkovich-Ohana, Aviva, Joseph Glicksohn & Abraham Goldstein. 2014. Studying the default mode and its mindfulness-induced changes using EEG functional connectivity. *Social Cognitive and Affective Neuroscience* 9(10). 1616–1624. doi:10.1093/scan/nst153.

The default mode network (DMN) has been largely studied by imaging, but not yet by neurodynamics, using electroencephalography (EEG) functional connectivity (FC). Mindfulness meditation (MM), a receptive, non-elaborative training is theorized to lower DMN activity. Researchers explored: (i) the usefulness of EEG-FC for investigating the DMN and (ii) the MM-induced EEG-FC effects. To this end, three MM groups were compared with controls, employing EEG-FC (-MPC, mean phase coherence). Results show that: (i) DMN activity was identified as reduced overall inter-hemispheric gamma MPC during the transition from resting state to a time production task and (ii) MM-induced a state increase in alpha MPC as well as a trait decrease in EEG-FC. The MM-induced EEG-FC decrease was irrespective of expertise or band. Specifically, there was a relative reduction in right theta MPC, and left alpha and gamma MPC. The left gamma MPC was negatively correlated with MM expertise, possibly related to lower internal verbalization. The trait lower gamma MPC supports the notion of MM-induced reduction in DMN activity, related with self-reference and mind-wandering. This report emphasizes the possibility of studying the DMN using EEG-FC as well as the importance of studying meditation in relation to it.

Posner, Michael I., Yi-Yuan Tang & Gary Lynch. 2014. Mechanisms of white matter change induced by meditation training. *Frontiers in Psychology* 5. 1220. doi:10.3389/fpsyg.2014.01220.

Training can induce changes in specific brain networks and changes in brain state. In both cases it has been found that the efficiency of white matter as measured by diffusion tensor imaging is increased, often after only a few hours of training. In this paper researchers consider a plausible molecular mechanism for how state change produced by meditation might lead to white matter change. According to this hypothesis frontal theta induced by meditation produces a molecular cascade that increases myelin and improves connectivity.

Santarnecchi, Emiliano, Sicilia D'Arista, Eutizio Egiziano, Concetta Gardi, Roberta Petrosino, Giampaolo Vatti, Mario Reda & Alessandro Rossi. 2014. Interaction between Neuroanatomical and Psychological Changes after Mindfulness-Based Training. *PloS One* 9(10). e108359. doi:10.1371/journal.pone.0108359.

Several cross-sectional studies have documented neuroanatomical changes in individuals with a long history of meditation, while a few evidences are available about the interaction between neuroanatomical and psychological changes even during brief exposure to meditation. Here researchers analyzed several morphometric indexes at both cortical and subcortical brain level, as well as multiple psychological dimensions, before and after a brief (8 weeks) Mindfulness Based Stress Reduction (MBSR) training program, in a group of 23 meditation naïve-subjects compared to age-gender matched subjects. Researchers found a significant cortical thickness increase in the right insula and the somatosensory cortex of MBSR trainees, coupled with a significant reduction of several psychological indices related to worry, state anxiety, depression and alexithymia. Most importantly, an interesting correlation between the increase in right insula thickness and the decrease in alexithymia levels during the MBSR training was observed. Moreover, a multivariate pattern classification approach allowed the researchers to identify a cluster of regions more responsive to MBSR training across subjects. Taken together, these findings documented the significant impact of a brief MBSR training on brain structures, as well as stressing the idea of MBSR as a valuable tool for alexithymia modulation. It also plausible neurobiological evidence of a major role of right insula in mediating the observed psychological changes.

Schachter, Steven C. 2014. Seizure-induced bliss: A commentary on "meditation-induced bliss viewed as release from conditioned neural (thought) patterns that block reward signals in the brain pleasure center." *Religion, Brain & Behavior* 4(3). 242–245. doi:10.1080/2153599X.2013.826723.

The author responds to the target article by Sharp, focusing on the so-called ecstatic and orgasmic seizures in persons with epilepsy, and how these experiments of nature may provide empirical support for Sharp's argument.

Sharp, Patricia E. 2014. Meditation-induced bliss viewed as release from conditioned neural (thought) patterns that block reward signals in the brain pleasure center. *Religion, Brain & Behavior* 4(3). 202–229.

doi:10.1080/2153599X.2013.826717.

The target article of this journal issue. The nucleus accumbens orchestrates processes related to reward and pleasure, including the addictive consequences of repeated reward (e.g., drug addiction and compulsive gambling) and the accompanying feelings of craving and anhedonia. The neurotransmitters dopamine and endogenous opiates play interactive roles in these processes. They are released by natural rewards (i.e., food, water, sex, money, play, etc.) and are released or mimicked by drugs of abuse. Repeated drug use induces conditioned down-regulation of these neurotransmitters, thus causing painful suppression of everyday pleasure. As with many spiritual traditions, Buddhism provides strong advice against the pursuit of worldly pleasures to attain the "good life." In contrast, many forms of meditation give rise to an immense and abiding joy. Most of these practices involve "stilling the mind," whereby all content-laden thought (e.g., fantasies, daydreams, plans) ceases, and the mind enters a state of openness, formlessness, clarity, and bliss. This can be explained by the Buddhist suggestion that almost all of our everyday thoughts are a form of addiction. It follows that if a person turns off this internal "gossip of ego," she will find relief from the biochemical dopamine/opiate down-regulation, which is, perhaps, the perpetual concomitant of our daily rumination. The follow-up article includes a response to commentators.

### 1.2 SCIENTIFIC STUDY OF RELIGION: EVOLUTION

Broch, T. B. & E. Kristiansen. 2014. "The margin for error": Ritual coping with cultural pressures. Scandinavian Journal of Medicine & Science in Sports 24(5). 837–845. doi:10.1111/sms.12077.

Meritocratic sport cultures, media attention, coaches' ambitions, and "enthused" parents create stress and make coping pivotal for athletes' performance. A transdisciplinary dialogue between a sports-sociologist and a sport-psychologist manifests ritual practices in athletes' lived sport experiences as coping strategies. Based on two empirical strands, field observations of boy's handball and interviews with elite male wrestlers, analysis of pregame routines scrutinize psychosocial dimensions of athletes' ritual practice. The implications of ritual meaning making are investigated as a means to cope with sport specific sociocultural anxieties. Rituals are interpreted as psychosocial processes applied to construct perceived order and comfort in stressful sport milieus. The authors contend that it is reasonable to believe that successful coping is not solely because of athletes' psychological competencies and experiences, but also because of their ability to ritually use culture in meaningful ways. To manifest important contextual aspects of athletes' lived sport experiences, to nurture task-oriented sport milieus, and to create change in sport and physical cultural contexts, the authors consequently suggest that the cultural meanings applied in ritual should be an important aspect to address.

Galen, Luke W., Todd J. Williams & Amy L. Ver Wey. 2014. Personality Ratings Are Influenced by Religious Stereotype and Ingroup Bias. *International Journal for the Psychology of Religion* 24(4). 282–297.

doi:10.1080/10508619.2013.837658.

A religious prosociality stereotype exists such that religiosity and prosociality are presumed to be positively associated, as evidenced by proxy measures such as personality traits. However, studies using self- and peer-ratings of Agreeableness and Conscientiousness have not simultaneously controlled for the religiosity of the participant and the target. One hundred and sixty students completed measures of religiosity in a prescreening survey. Later, participants rated an array of targets, including a Christian and an atheist, on adjectives corresponding to Agreeableness and Conscientiousness. Regardless of participant religiosity, atheist targets were rated as being lower in Agreeableness and Conscientiousness relative to those labeled as Christians. This bias was greater for highly religious participants. This effect was mediated by perceptions of the morality of the target independent of participants' broader attitudes concerning the target's religious group. Implications are discussed.

Heywood, Bethany T. & Jesse M. Bering. 2014. "Meant to be": How religious beliefs and cultural religiosity affect the implicit bias to think teleologically. *Religion, Brain & Behavior* 4(3). 183–201. doi:10.1080/2153599X.2013.782888.

A large body of previous research has found that people exhibit a cognitive bias to reason teleologically about natural kinds, explaining them in terms of intelligent design and inherent purpose. In the present study, researchers examined whether people are also cognitively biased to explain naturally occurring events in terms of inherent purpose (i.e., mistakenly attributing intentional design behind naturally caused life events), and if so, how explicit religious beliefs may interact with this implicit bias. A semi-structured interview was conducted concerning important autobiographical events. Overall, results indicated that differing levels of cultural religiosity (i.e., whether participants were from the relatively religious USA or the relatively secular UK) did not affect the tendency to reason teleologically. As predicted, explicit religious beliefs had an effect in that atheists gave significantly fewer teleological explanations than theists; however, half the atheists (n=17) gave at least one teleological response and more than three-quarters (n=26) gave a teleological response or admitted feeling conflicted between teleological intuitions and more rational, naturalistic explanations for significant life events. The authors interpret these results as suggesting that basic theory-of-mind competencies underlie the propensity to reason teleologically about major life events.

Klinger, Eric. 2014. Adaptive functions and default nature of undirected thought, bliss or not: Correcting some misconceptions. *Religion, Brain & Behavior* 4(3). 236–239. doi:10.1080/2153599X.2013.826725.

A response to the target article by Sharp. The author corrects Sharp's depictions of "daydreams, fantasies" and "discursive thoughts," presumably subsuming mind-wandering—that is, undirected thinking, consciously unintentional—as wasted mental activity that lowers mood.

Lane, Jonathan D., Henry M. Wellman & E. Margaret Evans. 2014. Approaching an understanding of omniscience from the preschool years to early adulthood. *Developmental Psychology* 50(10). 2380–2392.

doi:10.1037/a0037715.

Individuals in many cultures believe in omniscient (all-knowing) beings, but everyday representations of omniscience have rarely been studied. To understand the nature of such representations requires knowing how they develop. Two studies examined the breadth of knowledge (i.e., types of knowledge) and depth of knowledge (i.e., amount of knowledge within domains) that preschoolers, elementary-school children, and adults (n=180) attributed to an all-knowing being. Preschoolers often reported that an omniscient mind would lack many types of knowledge, and they completely failed to understand the depth of omniscient knowledge. With increasing age, children approached an understanding of omniscience—attributing broader and deeper knowledge to an omniscient agent—but only adults firmly understood the depth of omniscient knowledge. The authors identify socio-cultural and cognitive factors that correlate with children's understandings of omniscience. Findings demonstrate that

childhood representations of fallible, limited, human minds both make possible and constrain developing representations of radically non-human minds.

#### 1.3 SCIENTIFIC STUDY OF RELIGION: PSYCHOLOGY AND CULTURE

Banerjee, Konika & Paul Bloom. 2014. Why did this happen to me? Religious believers' and non-believers' teleological reasoning about life events. *Cognition* 133(1). 277–303. doi:10.1016/j.cognition.2014.06.017.

People often believe that significant life events happen for a reason. In three studies, researchers examined evidence for the view that teleological beliefs reflect a general cognitive bias to view the world in terms of agency, purpose, and design. Consistent with this hypothesis, it was found that individual differences in mentalizing ability predicted both the tendency to believe in fate (Study 1) and to infer purposeful causes of one's own life events (Study 2). In addition, people's perception of purpose in life events was correlated with their teleological beliefs about nature, but this relationship was driven primarily by individuals' explicit religious and paranormal beliefs (Study 3). Across all three studies, the researchers found that while people who believe in God hold stronger teleological beliefs than those who do not, there is nonetheless evidence of teleological beliefs among non-believers, confirming that the perception of purpose in life events does not rely on theistic belief. These findings suggest that the tendency to perceive design and purpose in life events, while moderated by theistic belief, is not solely a consequence of culturally transmitted religious ideas. Rather, this teleological bias has its roots in certain more general social propensities.

Coates, Dominiek D. 2014. New religious movement membership and the importance of stable "others" for the making of selves. *Journal of Religion and Health* 53(5). 1300–1316. doi:10.1007/s10943-013-9715-0.

Challenging the view that people join New Religious Movements because they have fallen victim to powerful brainwashing techniques, the analysis of in-depth life history interviews of 23 former members from 11 different Australian "cults" suggests that membership was personally negotiated and motivated by a desire for stronger social connections, albeit for different reasons. While for some participants a desire for social connectedness was related to a strong need for guidance and direction from "stable" others, for others it reflected a desire for self-change or self-enhancement. To make sense of the participant narratives, symbolic interactionist understandings of the self are applied.

Das, Aniruddha & Stephanie Nairn. 2014. Conservative Christianity, partnership, hormones, and sex in late life. *Archives of Sexual Behavior* 43(7). 1403–1415. doi:10.1007/s10508-014-0273-7.

Using nationally representative data from the 2005-2006 U.S. National Social Life, Health, and Aging Project, this study queried relationship, sexual, and sex hormone patterns among married evangelical women and men aged 57-85, relative to those in other religions. Results suggested that despite potentially more unequal gender roles, evangelical older women may have better marital quality, perhaps due to the recent transformation of their male counterparts into authoritative, yet supportive, "soft patriarchs." Correspondingly, these women, especially those with greater subjective religiosity or more support from a spouse, reported consistently better sexual outcomes than their counterparts in other religions. In addition, they also had lower estradiol, whether due to psychobiological effects of their better relationships or self-selection of those with differential hormone levels into particular partnership patterns. While older men in these communities also experienced more satisfactory marriages, and had lower androgens (testosterone, DHEA), their relational assets were less uniformly matched by better sexual outcomes, perhaps reflecting a gender disparity in the linkage between these factors.

Fincham, Frank D. & Steven R. H. Beach. 2014. I say a little prayer for you: Praying for partner increases commitment in romantic relationships. *Journal of Family Psychology* 28(5). (Spirituality and Religion in Family Life: Couples and Marriage). 587–593. doi:10.1037/a0034999.

Partner-focused petitionary prayer (PFPP) has received little attention in the prayer literature. In two studies, researchers examine PFPP to see whether it is uniquely important in conveying relationship benefits, whether its benefits are transmitted through an effect on relationship satisfaction, and whether one's own or the partner's PFPP is central to beneficial effects. In Study 1, the researchers examined PFPP in a sample of 316 undergraduate students who were in an "exclusive" romantic relationship, finding that PFPP was related to later level of commitment and that this relationship was partially mediated through enhanced relationship satisfaction. Study 2 examined PFPP in a sample of 205, married African American couples, finding that both partners' PFPP was consequential for commitment, with actor effects partially mediated through relationship quality, and partner effects fully mediated. Together the studies suggest the value of continued investigation of PFPP as a potentially important vehicle for enhancing relationship outcomes.

Hvidtjørn, Dorte, Jacob Hjelmborg, Axel Skytthe, Kaare Christensen & Niels Christian Hvidt. 2014. Religiousness and religious coping in a secular society: The gender perspective. *Journal of Religion and Health* 53(5). 1329–1341. doi:10.1007/s10943-013-9724-z.

Women are found to be more religious than men and more likely to use religious coping. Only few studies have explored religious gender differences in more secular societies. This population-based study comprised 3,000 Danish men and women (response rate 45%) between 20 and 40 years of age. Information about demographics, religiousness and religious coping was obtained through a web-based questionnaire. Researchers organized religiousness in the three dimensions: Cognition, Practice and Importance, and then assessed religious coping using the brief RCOPE questionnaire. Substantial gender differences were found in both religiousness and religious coping. Nearly 60% of the women believed in some sort of spirit or in God compared to 40% of the men. Generally, both men and women scored low on the RCOPE scale. However, for respondents reporting high levels of religiousness, the proportion of men who scored high in the RCOPE exceeded the proportion of women in using positive and especially negative coping strategies. Also, in a secular society, women are found to be more religious than men, but in a subset of the most religious respondents, men were more inclined to use religious coping.

Jing, Xiaojuan. 2014. Religiosity of nonbelievers in China. *Psychological Reports* 115(2). 618–626. doi:10.2466/17.PR0.115c20z1.

The religiosity of people describing themselves as "nonbelievers" was explored in a Chinese sample of 578 students. The extent of religious beliefs was measured by the Religiosity subscale of the Social Axiom Survey (SAS). The results indicated that while nonbelievers generally neither believed nor disbelieved in the existence of a supreme being, they did believe that religion has some positive effects, such as providing a meaning to life as well as helping to keep moral standards. Religiosity in China seems to be a continuous and pluralized construct rather than a dichotomous concept.

Kusner, Katherine G., Annette Mahoney, Kenneth I. Pargament & Alfred DeMaris. 2014. Sanctification of marriage and spiritual intimacy predicting observed marital interactions across the transition to parenthood. *Journal of Family Psychology* 28(5). 604–614. doi:10.1037/a0036989.

Researchers examined whether 164 heterosexual, married couples' reports of the sanctification of their marriage and their spiritual intimacy predicted their observed behavior across the transition to parenthood, using highly conservative statistical strategies to control for time-invariant factors and time-varying factors (marital love,

collaborative communication skills) that could explain away these links. Spouses provided self-reports of marital sanctification and love, and joint reports of spiritual intimacy and collaboration by each partner. Criterion variables were positive and negative behaviors that spouses exhibited during dyadic discussions of marital conflicts, videotaped during pregnancy and when the couple's first infant was 3, 6, and 12 months old. Using bivariate fixed-effects regression models to control unmeasured time-invariant predictors (e.g., stable traits), his and her sanctification of marriage predicted more observed positivity by one or both spouses, and his and her spiritual intimacy predicted more positivity and less negativity by both spouses. Using multivariate regression analyses that controlled for demographic factors, the interdependency of spouses' responses, and salient time-varying marital (spouses' love and collaborative skills), her spiritual intimacy predicted more positivity by both spouses and less negativity by him, and his sanctification marginally predicted more positivity and less negativity by him. Findings offer rigorous causal modeling that spousal reports about marital spirituality influence observed spousal behavior by using longitudinal data to rule out unmeasured and measured third-variable confounds, multiple reporters (husbands, wives), multiple methods (self and joint reports, direct observation), and cross-informant data (spousal reports about him predicting her behavior, and vice versa).

Lamothe, Ryan. 2014. Winnicott and helplessness: Developmental theory, religion, and personal life. *The Psychoanalytic Quarterly* 83(4). 871–896. doi:10.1002/j.2167-4086.2014.00125.x.

The author examines Winnicott's theory of development from the perspective of existential helplessness, arguing that (a) his views illuminate healthy (and unhealthy) aspects of religion, and (b) express his stance toward the helplessness of dying and death. The author contends that Winnicott understood the infant's psychic growth in relation to the reality of existential helplessness and absolute dependency. Four interrelated, dynamic paradoxes embedded in Winnicott's developmental perspective are discussed, and these paradoxes are seen as frameworks to depict his notions of ego, transitional objects, and true/false selves. The author posits that religion, which Winnicott included under the rubric of transitional phenomena, can be understood in relation to existential helplessness and can be assessed in terms of the degree to which these paradoxes are dynamic.

Liu, Eleanor X., Erik W. Carter, Thomas L. Boehm, Naomi H. Annandale & Courtney E. Taylor. 2014. In their own words: The place of faith in the lives of young people with autism and intellectual disability. *Intellectual and Developmental Disabilities* 52(5). 388–404. doi:10.1352/1934-9556-52.5.388.

Although the prominence of spirituality and religious connections among the people of the United States is well documented, little is known about the place of faith in the lives of youth with developmental disabilities. In this qualitative interview study, researchers examined the perspectives of 20 young people with intellectual disability or autism on their faith, spiritual expressions, and disability. Participants identified key spiritual expressions and themes reflecting the importance of faith in their lives. They also shared perceptions of their disability in the context of their faith, highlighting affirmation and acceptance of their disability. The authors offer recommendations to families, faith communities, and service systems for supporting the spiritual formation, expression, and connections of young people with disabilities.

Mora, Louis Ernesto, Panayiotis Stavrinides & Wilson McDermut. 2014. Religious fundamentalism and religious orientation among the Greek Orthodox. *Journal of Religion and Health* 53(5). 1498–1513.

doi:10.1007/s10943-013-9734-x.

The experimenters explored how religious fundamentalism related with religious orientation, irrational thinking, and immature defense mechanisms. They also explored the possible moderating role of the Big 5 personality factors. The participants were predominantly Greek Orthodox College students from a Cypriot University. The experimenters employed a cross-sectional design and required participants to complete a series of self-report

measures. Religious fundamentalism significantly predicted irrational thinking. Intrinsic and personal extrinsic religious orientations significantly predicted religious fundamentalism. The results provide support for the idea that the more dogmatically one holds his religious beliefs, the more likely he is to think irrationally.

Pollard, Sara E., Shelley A. Riggs & Joshua N. Hook. 2014. Mutual influences in adult romantic attachment, religious coping, and marital adjustment. *Journal of Family Psychology* 28(5). (Spirituality and Religion in Family Life: Couples and Marriage). 615–624. doi:10.1037/a0036682.

In this study, researchers examined associations among romantic attachment anxiety and avoidance, positive and negative religious coping, and marital adjustment in a community sample of 81 heterosexual couples. Multilevel modeling (MLM) for the Actor-Partner Interdependence Model was used to analyze data from both spouses. Romantic attachment avoidance was associated with less positive religious coping, and romantic attachment anxiety was associated with more negative religious coping. Findings are discussed in light of Hall, Fujikawa, Halcrow, Hill, and Delaney's (2009) Implicit Internal Working Model Correspondence framework. Researchers also found support for Sullivan's (2001) compensation model for attachment avoidance but not for attachment anxiety. That is, positive religious coping buffered the deleterious relationship between attachment avoidance and marital adjustment. However, positive religious coping did not attenuate the negative impact of attachment anxiety on marital adjustment and was associated with higher marital adjustment only for those individuals with low attachment anxiety. Surprisingly, negative religious coping reduced the negative impact of the partner's attachment anxiety on respondents' marital adjustment. Results suggest that attachment theory is one useful approach to conceptualizing religious coping, highlight the complexity of these associations, and point to future research directions. Findings also support the consideration of both attachment dimensions and religious coping in research and applied work with adults and couples.

Sabey, Allen K., Amy J. Rauer & Jakob F. Jensen. 2014. Compassionate love as a mechanism linking sacred qualities of marriage to older couples' marital satisfaction. *Journal of Family Psychology* 28(5). 594–603. doi:10.1037/a0036991.

Previous work has underscored the robust links between sanctification of marriage and marital outcomes, and recent developments in the literature suggest that compassionate love, which is important for intimate relationships, may act as a mediator of that relationship. Accordingly, the current study used actor-partner interdependence models to examine the relationship between a spiritual cognition (i.e., perceived sacred qualities of marriage) and marital satisfaction, and to determine whether that relationship is mediated by compassionate love, in a sample of older married couples (n=64). Results revealed that wives' greater sacred qualities of marriage were significantly and positively linked to marital satisfaction on the part of both spouses, and that these links were partially mediated by couples' reports of compassionate love. These findings highlight the importance of moving beyond simply establishing the existence of the link between global markers of involvement of religion and marriage to understanding how specific spiritual cognitions may foster better relationship quality, especially among older couples.

Wang, Kuan-Yuan, Kyle Kercher, Jui-Yen Huang & Karl Kosloski. 2014. Aging and religious participation in late life. *Journal of Religion and Health* 53(5). 1514–1528. doi:10.1007/s10943-013-9741-y.

The aim of the study is to evaluate the relationship between two dimensions of religiosity and the process of aging. Secondary analysis of longitudinal data from the Florida Retirement Study was used to assess the trajectories of religious development over time. Researchers analyzed data from six interview waves with 1,000 older adults aged 72 or over. A baseline model of growth processes only indicated significant variation and mean decline in religious attendance, but no significant variation nor mean change in religious beliefs over time. A final model including a

set of 17 covariates was estimated, and the model fit statistics indicated very good fit for this latent growth curve model. The decline in mean religious attendance across time did not accompany a mean increase in religious beliefs as expected. There were numerous individual differences in the trajectory of decline for religious attendance, as well as in the initial levels of attendance and religious beliefs.

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

Josipovic, Zoran. 2014. Bliss and authenticity: a commentary on target article by Pat Sharp. *Religion, Brain & Behavior* 4(3). 233–236. doi:10.1080/2153599X.2013.826728.

Response to the target article by Sharp. The author suggests some further avenues for research.

Krysinska, Karolina, Kim De Roover, Jan Bouwens, Eva Ceulemans, Jozef Corveleyn, Jessie Dezutter, Bart Duriez, Dirk Hutsebaut & Didier Pollefeyt. 2014. Measuring Religious Attitudes in Secularized Western European Context: A Psychometric Analysis of the Post-Critical Belief Scale. *International Journal for the Psychology of Religion* 24(4). 263–281. doi:10.1080/10508619.2013.879429.

Wulff's two-dimensional model of approaches to religion was an inspiration for the development of the Post-Critical Belief Scale (PCBS), an instrument measuring religious attitudes, that is, "paradigms of religious belief structure" in a secularized Western European context. The scale has been frequently used in psychological studies, has undergone psychometric analyses and modifications, and has been translated into several languages. The current study shows results of a psychometric analysis of the component structure of PCBS in different age groups over time using Clusterwise Simultaneous Component Analysis-Equal Cross-Product (SCA-ECP). The analysis was based on samples collected in Flanders, Belgium (n=14,599). The one-cluster and two-cluster models yielded three components: Literal Affirmation, Literal Disaffirmation, and Symbolic Attitude, and there were no differences between age groups. In the two-cluster model, subtle differences between samples collected before and after 2002 were found, and these were related to two PCBS items referring to interpretation of Biblical stories. The finding of a generalized Symbolic Attitude might be related to the changes in the approaches to religion in secularized Western Europe, and might capture the religious (dis-)belief of individuals who are open and tolerant to other religious systems, or alternatively, have become indifferent to them. Further cross-cultural and longitudinal studies are needed to better understand the religious attitudes in a secularized context, and the development of a new scale based on the paradigm of personal meaning systems is suggested.

Lindsay, Shane. 2014. Can hyper-synchrony in meditation lead to seizures? Similarities in meditative and epileptic brain states. *Medical Hypotheses* 83(4). 465–472. doi:10.1016/j.mehy.2014.07.015.

Meditation is used worldwide by millions of people for relaxation and stress relief. Given sufficient practice, meditators may also experience a variety of altered states of consciousness. These states can lead to a variety of unusual experiences, including physical, emotional and psychic disturbances. This paper highlights the correspondences between brain states associated with these experiences and the symptoms and neurophysiology of epileptic simple partial seizures. Seizures, like meditation practice, can result in both positive and negative experiences. The neurophysiology and chemistry underlying simple partial seizures are characterized by a high degree of excitability and high levels of neuronal synchrony in gamma-band brain activity. Following a survey of the literature that shows that meditation practice is also linked to high power gamma activity, an account of how meditation could cause such activity is provided. This paper discusses the diagnostic challenges for the claim that meditation practices lead to brain states similar to those found in epileptic seizures, and seeks to develop our understanding of the range of pathological and non-pathological states that result from a hyper-excited and hyper-synchronous brain.

MacLean, Katherine A. & Gary Weber. 2014. A creative and insightful cognitive neuroscience approach for understanding the effects of contemplative training on pleasure and the "gossip of the ego." *Religion, Brain & Behavior* 4(3). 239–242. doi:10.1080/2153599X.2013.826726.

A response to the target article by Sharp. The authors discuss Sharp's proposal in the context of different religious ideas about the purpose of meditation.

Roos, J. Micah. 2014. Measuring science or religion? A measurement analysis of the National Science Foundation sponsored science literacy scale 2006-2010. *Public Understanding of Science* 23(7). 797–813.

doi:10.1177/0963662512464318.

In an effort to measure lay scientific literacy in the United States, the National Science Foundation (NSF) science literacy scale has been a part of the last three waves of the General Social Survey. However, there has been debate over the validity of some survey items as indicators of science knowledge. While many researchers treat the NSF science scale as measuring a single dimension, previous work suggests a bidimensional structure. This paper hypothesizes and tests a new measurement model for the NSF science knowledge scale and finds that two items about evolution and the big bang are more measures of a religious belief dimension termed "Young Earth Worldview" than they are measures of scientific knowledge. Results are replicated in seven samples.

Spezio, Michael L. 2014. Modeling meditation bliss: addiction and the "default mode" of self-referential processing (Comment on Sharp, "Meditation Bliss…"). Religion, Brain & Behavior 4(3). 245–248.

doi:10.1080/2153599X.2013.826727.

A response to the target article by Sharp. The author raises questions about the quality of the scientific data that has been used by Sharp to construct the model of meditation-induced bliss.

Tran, Ulrich S., Ausiàs Cebolla, Tobias M. Glück, Joaquim Soler, Javier Garcia-Campayo & Theresa von Moy. 2014. The Serenity of the Meditating Mind: A Cross-Cultural Psychometric Study on a Two-Factor Higher Order Structure of Mindfulness, Its Effects, and Mechanisms Related to Mental Health among Experienced Meditators. *PloS One* 9(10). e110192. doi:10.1371/journal.pone.0110192.

Researchers aimed to investigate the psychometric and structural properties of the Five Facets Mindfulness Questionnaire (FFMQ) among meditators, to develop a short form, and to examine associations of mindfulness with mental health and the mechanisms of mindfulness. Two independent samples were used, a German (n=891) and a Spanish (n=393) meditator sample, practicing various meditation styles. Structural and psychometric properties of the FFMQ were investigated with multi-group confirmatory factor analysis and exploratory structural equation modeling. Associations with mental health and mechanisms of mindfulness were examined with path analysis. The derived short form broadly matched a previous item selection in samples of non-meditators. Self-regulated Attention and Orientation to Experience governed the facets of mindfulness on a higher-order level. Higher-order factors of mindfulness and meditation experience were negatively associated with symptoms of depression and anxiety, and perceived stress. Decentering and nonattachment were the most salient mechanisms of mindfulness. Aspects of emotion regulation, bodily awareness, and nonattachment explained the effects of mindfulness on depression and anxiety. The authors conclude that a two-component conceptualization for the FFMQ, and for the study of mindfulness as a psychological construct, is recommended for future research.

Wang, Zhizhong, Y. Rong & Harold G. Koenig. 2014. Psychometric properties of a chinese version of the duke university religion index in college students and community residents in china. *Psychological Reports* 115(2). 427–443.

doi:10.2466/08.17.PR0.115c19z8.

A Chinese version of the Duke University Religion Index (DUREL) was developed and the psychometric properties were assessed. The study was conducted in two separate samples of 1,285 college students and 2,564 community residents. To assess test-retest reliability, the DUREL was re-administered after 1 week to 105 college students and 199 community residents. In both samples, three factors were extracted using principal components factor analysis with Promax rotation, which is consistent with the scale content. Internal consistency reliability was acceptable. Test-retest ICCs ranged from .45 to .89 in college students and .75 to .93 in community residents. The authors conclude that the Chinese version of the DUREL is a useful measure of religiosity in Mandarin-speaking populations.

Wildman, Wesley J., Richard Sosis & Patrick McNamara. 2014. Theoretical Neuroscience. *Religion, Brain & Behavior* 4(3). 181–182. doi:10.1080/2153599X.2014.951911.

The editors introduce the special issue of the journal, with its target article by Sharp. They suggest four qualities that a theoretical neurological model should have. First, the model should propose a solution to a problem that is well-known by researchers. It should be consistent with extant findings from experimental neuroscience, and testable in future neuroscientific research studies. Finally, it should inspire innovation in relation to the problem it purports to solve.

#### PART 2: ARTICLES IN SPIRITUALITY & HEALTH RESEARCH

#### 2.1 SPIRITUALITY & HEALTH: GENERAL HEALTH & WELL-BEING

Adams, Rebecca N., Catherine E. Mosher, Rachel S. Cannady, Aurelie Lucette & Youngmee Kim. 2014. Caregiving experiences predict changes in spiritual well-being among family caregivers of cancer patients. *Psycho-Oncology* 23(10). 1178–1184. doi:10.1002/pon.3558.

Although enhanced spiritual well-being has been linked to positive mental health outcomes among family caregivers of cancer patients, little is known regarding predictors of spiritual well-being in this population. The current study aimed to examine caregiving experiences as predictors of change in family caregivers' spiritual well-being during the initial months following the patient's cancer diagnosis. Seventy family caregivers of newly diagnosed cancer patients participated in this longitudinal survey. Caregivers completed baseline questionnaires shortly before staying with the patient at an American Cancer Society Hope Lodge. Baseline questionnaires assessed caregiving experiences (i.e., self-esteem related to caregiving, family support for providing care, impact of caregiving on finances, and impact of caregiving on one's schedule). In addition, caregivers' spiritual well-being (i.e., meaning in life, peace, and faith) was assessed at baseline and 4-month follow-up. In univariate analyses, all caregiving experiences studied were associated with one or more aspects of spiritual well-being at 4-month follow-up. However, in the multivariate analysis, the only caregiving experience associated with aspects of spiritual well-being at 4-month follow-up was caregivers' perceptions of family support. Specifically, lack of family support was associated with lower levels of meaning and peace.

Brown, Jordan, Jan E. Hanson, Brian Schmotzer & Allison R. Webel. 2014. Spirituality and optimism: A holistic approach to component-based, self-management treatment for HIV. *Journal of Religion and Health* 53(5). 1317–1328. doi:10.1007/s10943-013-9722-1.

For people living with HIV, spirituality and optimism have a positive influence on their health, can slow HIV disease progression, and can improve quality of life. The aim of the authors of this article was to describe longitudinal changes in spirituality and optimism after participation in the SystemCHANGETM-HIV intervention. Upon completion of the intervention, participants experienced an 11.5 point increase in overall spiritual well-being, a 6.3 point increase in religious well-being, a 4.8 point increase in existential well-being, and a 0.8 point increase in total optimism. Data suggest a group-based self-management intervention increases spiritual well-being in people living with HIV.

Cramer, Holger, Romy Lauche, Susanne Moebus, Andreas Michalsen, Jost Langhorst, Gustav Dobos & Anna Paul. 2014. Predictors of Health Behavior Change After an Integrative Medicine Inpatient Program. *International Journal of Behavioral Medicine* 21(5). 775–783. doi:10.1007/s12529-013-9354-6.

This study aims to identify predictors for health behavior change after an integrative medicine inpatient program. German internal medicine patients' (n=2,486) practice frequency for aerobic exercise (e.g., walking, running, cycling, swimming), meditative movement therapies (e.g., yoga, tai chi, qigong), and relaxation techniques (e.g., progressive relaxation, mindfulness meditation, breathing exercises, guided imagery) was assessed at admission to a 14-day integrative medicine inpatient program, and 3, 6, and 12 months after discharge. Health behavior change was regressed to exercise self-efficacy, stage of change, and health locus of control (internal, external-social, external-fatalistic). Analysis revealed that short-term increases in practice frequency were found for aerobic exercise: short- and long-term increases for meditative movement therapies and relaxation techniques. After controlling for sociodemographic characteristics, clinical characteristics, and health status, exercise self-efficacy or

interactions of exercise self-efficacy with stage of change predicted increased practice frequency of aerobic exercise at 6 months; of meditative movement therapies at 3 and 6 months; and of relaxation techniques at 3, 6, and 12 months.

Fisher, Mary Insana, Betsy Donahoe-Fillmore, Laura Leach, Colleen O'Malley, Cheryl Paeplow, Tess Prescott & Harold Merriman. 2014. Effects of yoga on arm volume among women with breast cancer related lymphedema: A pilot study. *Journal of Bodywork and Movement Therapies* 18(4). 559–565.

doi:10.1016/j.jbmt.2014.02.006.

Lymphedema affects 3–58% of survivors of breast cancer and can result in upper extremity impairments. Exercise can be beneficial in managing lymphedema. Yoga practice has been minimally studied for its effects on breast cancer related lymphedema (BCRL). The purpose of this study was to determine the effect of yoga on arm volume, quality of life (QOL), self-reported arm function, and hand grip strength in women with BCRL. Six women with BCRL participated in modified Hatha yoga 3 times per week for 8 weeks. Compression sleeves were worn during yoga sessions. Arm volume, QOL, self-reported arm function, and hand grip strength were measured at baseline, half-way, and at the conclusion of yoga practice. Arm volume significantly decreased from baseline to final measures. No significant changes in QOL, self-reported arm function, or hand grip strength were found.

Iranmanesh, Sedigheh, Batool Tirgari, Maryam Tofighi & Mansooreh Azizzadeh Forouzi. 2014. Spiritual wellbeing and perceived uncertainty in patients with multiple sclerosis in south-east Iran. *International Journal of Palliative Nursing* 20(10). 483–492. doi:10.12968/ijpn.2014.20.10.483.

This study was conducted to examine the relationship between spiritual wellbeing and uncertainty among MS patients in south-east Iran. The sample in this cross-sectional, descriptive study comprised 200 non-hospitalized patients with MS referred to a disease centre in Kerman (south-east Iran). Using the Mishel Uncertainty in Illness Scale (MUIS-C) and spiritual wellbeing scale (SWB), data were collected and analyzed. The study results showed that the total mean score of SWB was 93.81. The mean score of the sub-scale of religious wellbeing was greater than the sub-scale of existential wellbeing (50.80 vs 43.01). The mean score of uncertainty scale was 67.20 (12/35). The highest mean score belonged to the sub-category of ambiguity (32.24 $\pm$ 7.90). Pearson correlation test showed that perceived uncertainty score negatively correlated with spiritual wellbeing (r=-0.345; p=0.000), existential wellbeing (r=-0.421; p=0/00) and religious wellbeing (r=-0.172; p=0.015).

Jordão, Lidia M. R., Laís M. Saraiva, Aubrey Sheiham & Maria C. M. Freire. 2014. Relationship between rates of attending religious services and oral health in Brazilian adolescents. *Community Dentistry and Oral Epidemiology* 42(5). 420–427. doi:10.1111/cdoe.12098.

In this study researchers aimed to determine whether there is a relationship between rates of attending religious services and oral health and oral health-related behaviors in Brazilian adolescents. A cross-sectional study was carried out using clinical examinations and self-applied questionnaires. The sample was 664 15-year-old schoolchildren from public and private schools in the city of Goiânia in Central-West Brazil. Dependent variables were dental caries (DMFT and DMFS), periodontal condition (Plaque Index and bleeding on probing), perceived importance given to the care of the teeth and oral health-related behaviors (sugar consumption, oral hygiene and pattern of dental attendance). Independent explanatory variable was frequency of attending religious services. Poisson log-linear regressions were used for statistical analysis of the data. Oral health status was not associated with attending religious services. Attending religious services was positively associated with oral health behaviors such as pattern of dental attendance for dental checkups and to the importance given to the care of the teeth. These associations remained statistically significant after controlling for sex and social class.

Larouche, M., G. Côté, D. Bélisle & D. Lorrain. 2014. Kind attention and non-judgment in mindfulness-based cognitive therapy applied to the treatment of insomnia: State of knowledge. *Pathologie-Biologie* 62(5). 284–291. doi:10.1016/j.patbio.2014.07.002.

Psychophysiological insomnia is characterized by acquired sleep difficulties and/or a state of hypervigilance when going to bed. This mental and physiological condition prevents sleep onset regardless of the presence of anxious or depressive disorders. Despite the fact that cognitive behavioral therapies have been shown to be effective for this disorder, some people are not responding to this treatment. It is therefore important to explore new ways of increasing the effectiveness of current treatments. Approaches based on mindfulness, which promote a non-judgmental acceptance of the living experience, are increasingly reported in the literature to be effective in the treatment of various physical and psychological health conditions, being particularly efficient in reducing the stress and discomfort associated with these problems. This article focuses on some cognitive factors associated with maintaining insomnia and suggests that approaches based on mindfulness, through certain action mechanisms, may help to improve sleep. A review of recent studies on the application of mindfulness-based approaches to treat insomnia is hereby presented.

Lee, Minsun, Arthur M. Nezu & Christine Maguth Nezu. 2014. Positive and negative religious coping, depressive symptoms, and quality of life in people with HIV. *Journal of Behavioral Medicine* 37(5). 921–930.

doi:10.1007/s10865-014-9552-y.

The present study examined the relationships of positive and negative types of religious coping with depression and quality of life, and the mediating role of benefit finding in the link between religious coping and psychological outcomes among 198 individuals with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS). The results of multiple hierarchical analyses revealed that negative religious coping was significantly associated with a high level of depressive symptoms and a low level of quality of life, controlling for demographic and clinical variables. On the other hand, positive religious coping was significantly associated with positive domains of outcome measures such as positive affect and life satisfaction, but not with overall depressive symptoms or quality of life. Tests of mediation analyses showed that benefit finding fully mediated the relationship between positive religious coping and the positive sub-domains of psychological outcomes. The importance of investigating both positive and negative types of religious coping in their relationships with psychological adaptation in people with HIV was discussed, as well as the significance of benefit finding in understanding the link between religious coping and psychological outcomes.

Michaelson, Valerie, Peter Robinson & William Pickett. 2014. Participation in church or religious groups and its association with health: A national study of young Canadians. *Journal of Religion and Health* 53(5). 1353–1373.

doi:10.1007/s10943-013-9726-x.

The purpose of this study was to determine how participation of young Canadians in a church or religious group correlated with holistic health indicators. Health was viewed in terms of risk and protective behaviors, outward looking prosocial behaviors, and measures of internal feelings, with the composite picture of health connecting to the Hebrew concept of shalom. A separate analysis of sports-involved children was used as a comparator. Children involved in religious groups reported lower participation in risk behaviors, higher prosocial behaviors, but poorer levels of the more holistic measures of health. Sports-connected youth reported more positive holistic measures of health and some increases in overt risk-taking. Our findings raise theological and practical issues regarding how the church understands itself and lives out its mission. They suggest an emphasis on teaching about behaviors and morality rather than an understanding of shalom that is grounded in the Incarnation and in the deeply integrative nature of the Christian life.

Raghuram, Nagarathna, Venkateshwara Rao Parachuri, M. V. Swarnagowri, Suresh Babu, Ritu Chaku, Ravi Kulkarni, Bhagavan Bhuyan, Hemant Bhargav & Hongasandra Ramarao Nagendra. 2014. Yoga based cardiac rehabilitation after coronary artery bypass surgery: One-year results on LVEF, lipid profile and psychological states: A randomized controlled study. *Indian Heart Journal* 66(5). 490–502.

doi:10.1016/j.ihj.2014.08.007.

In this single blind prospective randomized parallel two armed active control study, 1026 patients posted for coronary artery bypass grafting (CABG) at Narayana Hrudayalaya Institute of Cardiac Sciences, Bengaluru (India) were screened. Of these, 250 male participants (35–65 years) who satisfied the selection criteria and consented were randomized into two groups. Within and between group comparisons were done at three points of follow up (i.e., 6th week, 6th month, and 12th month). Yoga group had significantly better improvement in Left Ventricular Ejection Fraction (LVEF) than control group in those with abnormal baseline EF after 1 year. There was a better reduction in BMI in the yoga group in those with high baseline BMI (≥23) after 12 months. Yoga group showed significant reduction in blood glucose at one year in those with high baseline FBS ≥110 mg/dl. There was significantly better improvement in yoga than the control group in HDL, LDL, and VLDL in those with abnormal baseline values. There was significantly better improvement in positive affect in yoga group. Within Yoga group, there was significant decrease in perceived stress, anxiety, depression, and negative affect, while in the control group there was reduction only in scores on anxiety.

Tadwalkar, Rigved, Dioma U. Udeoji, Rabbi Jason Weiner, Father Lester Avestruz, Denise LaChance, Anita Phan, David Nguyen, Parag Bharadwaj & Ernst R. Schwarz. 2014. The beneficial role of spiritual counseling in heart failure patients. *Journal of Religion and Health* 53(5). 1575–1585.

doi:10.1007/s10943-014-9853-z.

Researchers sought to ascertain the beneficial role of spiritual counseling in patients with chronic heart failure. This is a pilot study evaluating the effects of adjunct spiritual counseling on quality of life (QoL) outcomes in 23 patients with heart failure. Patients were assigned to "religious" or "non-religious" counseling services based strictly on their personal preferences and subsequently administered standardized QoL questionnaires. A member of the chaplaincy or in-house volunteer organization visited the patient either daily or once every 2 days throughout the duration of their hospitalization. All patients completed questionnaires at baseline, at 2 weeks, and at 3 months. Each of the questionnaires was totaled, with higher scores representing positive response, except for one survey measure where lower scores represent improvement (QIDS-SR16). Total mean scores were assessed on admission, at 2 weeks and at 3 months. Analysis of results indicates that the addition of spiritual counseling to standard medical management for patients with chronic heart failure patients appears to have a positive impact on OoL.

Torchalla, Iris, Kathy Li, Verena Strehlau, Isabelle Aube Linden & Michael Krausz. 2014. Religious participation and substance use behaviors in a Canadian sample of homeless people. *Community Mental Health Journal* 50(7). 862–869. doi:10.1007/s10597-014-9705-z.

This study examined religious behaviors in 380 homeless individuals. Researchers hypothesized that higher frequency of religious attendance is associated with lower rates of use of all substances, lower rates of drug and alcohol dependence, and lower psychological distress. Individuals attending religious ceremonies at least weekly ("frequent attendees") were compared to infrequent attendees. Participants also provided qualitative information about their faith. In univariate analyses, frequent attendees had significantly lower rates of alcohol, cocaine, and opioid use than infrequent attendees. They also had lower rates of alcohol and drug dependence, lifetime suicide attempts, and psychological distress, but these differences were not significant. In multivariate analyses, religious attendance remained significantly associated with alcohol use and opioid use.

Wells, Rebecca Erwin, Rebecca Burch, Randall H. Paulsen, Peter M. Wayne, Timothy T. Houle & Elizabeth Loder. 2014. Meditation for Migraines: A Pilot Randomized Controlled Trial. *Headache* 54(9). 1484–1495.

doi:10.1111/head.12420.

Researchers assessed the safety, feasibility, and effects of the standardized 8-week mindfulness-based stress reduction (MBSR) course in adults with migraines. Researchers conducted a randomized controlled trial with 19 episodic migraineurs randomized to either MBSR (n=10) or usual care (n=9). Following intervention, analysis of results indicated that MBSR is safe and feasible for adults with migraines. Although the small sample size of this pilot trial did not provide power to detect statistically significant changes in migraine frequency or severity, secondary outcomes demonstrated this intervention had a beneficial effect on headache duration, disability, self-efficacy, and mindfulness.

Wen, Ming. 2014. Parental participation in religious services and parent and child well-being: Findings from the National Survey of America's Families. *Journal of Religion and Health* 53(5). 1539–1561.

doi:10.1007/s10943-013-9742-x.

Using data from the 1999 and 2002 National Survey of America's Families, a large-scale nationally representative sample, this study finds that parental religious attendance is positively associated with parent self-rated health, parent mental well-being, positive parenting attitudes, child health, and child school engagement. Although the strength of these associations varies to some extent according to socio-demographic factors, the interactive patterns are not consistently predictable. Moreover, parental health and well-being and positive attitudes toward parenting appear to be important pathways linking parental religious attendance to child well-being. These findings suggest that opportunities for participation in local religious services offered by faith-based organizations may be fruitful avenues through which the government and society can help American families enhance parent and child well-being.

Wurz, Amanda, Carolina Chamorro-Vina, Gregory M. T. Guilcher, Fiona Schulte & S. Nicole Culos-Reed. 2014. The feasibility and benefits of a 12-week yoga intervention for pediatric cancer out-patients. *Pediatric Blood & Cancer* 61(10). 1828–1834. doi:10.1002/pbc.25096.

Physical activity (PA) has been shown to be a safe and effective strategy to mitigate the significant burden of cancer and its treatments, with yoga increasingly gaining recognition as a gentle alternative. The purpose of this study was to determine the feasibility and benefits of a 12-week community-based yoga intervention on health-related quality of life (HRQL), select physical fitness outcomes and PA levels (PAL). Eight pediatric cancer out-patients participated in the 12-week intervention consisting of supervised yoga sessions two times/week. Rates of recruitment, retention, attendance and adverse events indicated the program was feasible. The results provide preliminary evidence for the benefits of yoga on HRQL, physical fitness and PAL in pediatric cancer out-patients. In a population where sedentary behavior and the associated co-morbidities are a growing concern, these results promote the continued exploration of yoga programming.

Yeung, Alan, Hosen Kiat, A. Robert Denniss, Birinder S. Cheema, Alan Bensoussan, Bianca Machliss, Ben Colagiuri & Dennis Chang. 2014. Randomised controlled trial of a 12 week yoga intervention on negative affective states, cardiovascular and cognitive function in post-cardiac rehabilitation patients. *BMC complementary and alternative medicine* 14. 411. doi:10.1186/1472-6882-14-411.

Researchers report on a prospective study. The study will determine the effect of yoga practice on negative affective states, cardiovascular and cognitive function in post-phase 2 cardiac rehabilitation patients. The findings may

provide evidence to incorporate yoga into standardized cardiac rehabilitation programs as a practical adjunct to improve the management of psychosocial symptoms associated with cardiovascular events in addition to improving patients' cognitive and cardiovascular functions.

#### 2.2 SPIRITUALITY & HEALTH: MENTAL HEALTH

Amit, B. H., A. Krivoy, I. Mansbach-Kleinfeld, G. Zalsman, A. M. Ponizovsky, M. Hoshen, I. Farbstein, A. Apter, A. Weizman & G. Shoval. 2014. Religiosity is a protective factor against self-injurious thoughts and behaviors in Jewish adolescents: Findings from a nationally representative survey. *European Psychiatry* 29(8). 509–513. doi:10.1016/j.eurpsy.2014.04.005.

Self-injurious thoughts and behaviors, as well as depression, were assessed in a nationally representative sample of Jewish adolescents (n=620) and their mothers using structured interview. Level of religiosity was inversely associated with self-injurious thoughts and behaviors, decreasing the likelihood of occurrence by 55%, after adjusting for depression and socio-demographic factors. This model was able to correctly classify 95.6% of the patients as belonging either to the high or low risk groups. This is the first study demonstrating religiosity to have a direct independent protective effect against self-injurious thoughts and behaviors in Jewish adolescents.

Bakibinga, Pauline, Hege Forbech Vinje & Maurice Mittelmark. 2014. The role of religion in the work lives and coping strategies of Ugandan nurses. *Journal of Religion and Health* 53(5). 1342–1352.

doi:10.1007/s10943-013-9728-8.

Nursing in Uganda is a highly stressful, underpaid profession, leading to worrisome attrition levels; yet some nurses do manage to stay on the job and thrive. This study explored the ways in which religion influences the work lives and coping strategies of Ugandan nurses who thrive despite job stress. Participants were 15 female nurses working in faith-based and non-faith-based facilities in Uganda. The nurses were all actively religious people, a fact not known at the time they were recruited. All the nurses revealed that religious values affected their performance positively, enabling them to find meaning even in the face of adversity.

Bergen-Cico, Dessa & Sanghyeon Cheon. 2014. The mediating effects of mindfulness and self-compassion on trait anxiety. *Mindfulness* 5(5). 505–519. doi:10.1007/s12671-013-0205-y.

To better understand the operant effects of meditation on mental health, this study examines the potential mediating effects of commonly measured constructs of mindfulness and self-compassion on trait anxiety, a personality trait prevalent in many psychiatric conditions. This longitudinal study uses a meditation treatment (n=108) and comparative control (n=94) designed to examine relational changes in mindfulness, self-compassion, and trait anxiety data collected in three waves: (a) baseline, (b) mid-program, and (c) post-program. Structural equation modeling (SEM) revealed significant increases in mindfulness and self-compassion scores among the treatment cohort and cross-lagged regression models that revealed significant reductions in trait anxiety were mediated by preceding increases in mindfulness. SEM model testing found that increases in mindfulness precipitate increases in self-compassion, but neither self-compassion nor anxiety mediated mindfulness. Whereas both self-compassion and mindfulness were associated with reductions in anxiety, the cultivation of mindfulness had the most robust mediating effect on reductions in trait anxiety. These finding reinforce previous studies that have suggested that increases in mindfulness skills may mediate the effects of meditation on mental health outcomes. Among the strengths of the current study are the longitudinal three waves of data, including mid-program data that enables cross-lagged regression. The cross-lagged models indicate the temporal ordering of changes and reveal mindfulness as the key mediating variable preceding substantive changes in self-compassion and trait anxiety.

Black, David S. & Randima Fernando. 2014. Mindfulness training and classroom behavior among lower-income and ethnic minority elementary school children. *Journal of Child and Family Studies* 23(7). 1242–1246. doi:10.1007/s10826-013-9784-4.

This field intervention trial evaluated the effect of a 5-week mindfulness-based curriculum on teacher-ratings of student classroom behavior at a Richmond, CA public elementary school, and examined if the addition of more sessions provided added benefit to student outcomes. Seventeen teachers reported on the classroom behaviors of 409 children (83% enrolled in a California free lunch program and 95.7% ethnic minority) in kindergarten through sixth grade at pre-intervention, immediate post-intervention, and 7 weeks post-intervention. Results showed that teachers reported improved classroom behavior of their students (i.e., paying attention, self-control, participation in activities, and caring/respect for others) that lasted up to 7 weeks post-intervention. Overall, improvements were not bolstered by the addition of extra sessions, with the exception of paying attention. The implications of this study are limited due to the lack of a mindfulness program-naïve control group, yet findings suggest that mindfulness training might benefit teacher-based perceptions of improved classroom behavior in a public elementary school, which has practice implications for improving the classroom learning environment for lower-income and ethnically-diverse children.

Bluth, Karen & Priscilla W. Blanton. 2014. Mindfulness and Self-Compassion: Exploring Pathways to Adolescent Emotional Well-Being. *Journal of Child and Family Studies* 23(7). 1298–1309. doi:10.1007/s10826-013-9830-2.

Adolescents today are confronted with the compounded stressors of life in a high-pressured society and the cognitive, physiological, and emotional changes characteristic of this stage of development. To explore ways to promote wellbeing in this population, mindfulness, defined as paying attention in the moment in an intentional and purposeful way, was examined in terms of its associations with aspects of emotional well-being. It has been reported to have positive effects on emotional well-being in adults, and shows promise for similar results in research with youth. Moreover, the mechanisms through which being mindful may influence positive outcomes have only recently been explored, and have not been investigated with adolescents. Self-compassion, defined by the three components of selfkindness, sensing oneself as part of a common humanity, and maintaining perspective in challenging circumstances, was examined as a potential mediator of the relationship of mindfulness to various outcome measures. Measures assessing mindfulness, self-compassion, and aspects of emotional well-being comprised an online survey that was administered to 67 adolescents in an urban high school. Path analysis was utilized to explore relationships among the variables. An alternate model with self-compassion as the predictor and mindfulness as the mediator was also investigated. Results suggested that both mindfulness and self-compassion functioned as mediators in the pathway to emotional well-being. A theorized model is presented which depicts a reciprocal relationship between mindfulness and self-compassion and describes an iterative process that takes place between these two constructs, promoting emotional well-being. Implications for research and practice include conducting longitudinal studies, which assess constructs at three time points to definitively establish mediation, and developing a self-compassion program tailored for adolescents to facilitate improvements in emotional well-being.

Chafos, Vanessa H. & Peter Economou. 2014. Beyond borderline personality disorder: The mindful brain. *Social Work* 59(4). 297–302.

Numerous studies have showed an improvement in symptoms characteristic of borderline personality disorder (BPD) when mindfulness-based interventions were integrated into the daily lives of individuals with BPD. Although these studies have examined the etiology and diagnostic prognosis of BPD, and have discussed the use of mindfulness-based treatments, few researchers have attempted to interpret the neuroscientific findings, which have showed an increase in gray matter in key areas of the brain in clients with BPD who engaged in mindfulness practice. Some clients who had originally met a minimum of five of the DSM-IV-TR diagnostic criteria for BPD

no longer did so upon engaging in mindfulness-based treatment. This article highlights the efficacy of mindfulness-based interventions with an emphasis on meditation, which leads to overall better psychological functioning in clients with BPD in three key areas: impulsivity, emotional irregularity, and relationship instability.

Dam, Nicholas T. Van, Andréa L. Hobkirk, Sean C. Sheppard, Rebecca Aviles-Andrews & Mitch Earleywine. 2014. How does mindfulness reduce anxiety, depression, and stress? An exploratory examination of change processes in wait-list controlled mindfulness meditation training. *Mindfulness* 5(5). 574–588. doi:10.1007/s12671-013-0229-3.

The evidence base supporting mindfulness meditation training (MMT) as a potential intervention for anxiety, depression, and stress has grown dramatically in the last few decades. As MMT has grown in popularity, considerable variation has arisen in the way that mindfulness is conceptualized and in the trainings and interventions that have been included under this umbrella term. Increasing popularity has also raised concerns about how MMTs seem to have their effects. While previous studies have examined a wide variety of potential mechanisms, few studies have simultaneously examined these processes, potentially limiting conclusions about how MMTs might best be characterized as having their effects. The present study aimed to compare aspects of mindfulness, self-compassion, and emotion regulation, ascertaining which was most predictive of changes in anxiety, depression, and stress among 58 participants, randomly assigned on a 2:1 basis to MMT training or wait-list in a pre-/post-assessment design. The results indicated that the facets of over-identification and self-judgment (components of self-compassion) were most robustly predictive of changes in outcome variables, though mindfulness and emotion regulation also contributed. The findings suggest that mindfulness, as a process, may be more complicated than some have given credit and that attention and emotional balance may be particularly important aspects related to its effects.

Daubenmier, Jennifer, Dara Hayden, Vickie Chang & Elissa Epel. 2014. It's not what you think, it's how you relate to it: Dispositional mindfulness moderates the relationship between psychological distress and the cortisol awakening response. *Psychoneuroendocrinology* 48. 11–18. doi:10.1016/j.psyneuen.2014.05.012.

The cortisol awakening response (CAR) is a natural metabolic response that can be potentiated by negative cognitive-emotional processes, including stress appraisals, negative affect, and rumination. Psychological distress and the CAR are not consistently related, however. Individual differences in aspects of dispositional mindfulness which reflect how people relate to negative thoughts and emotions may help explain such inconsistencies. Researchers tested whether the tendency to (1) label and describe inner experiences and (2) accept negative thoughts and feelings without judgment moderated the association between psychological distress and the CAR. Self-reported dispositional mindfulness, perceived stress, anxiety, negative affect, rumination, and the CAR were assessed among overweight/obese women. Regression analyses were conducted to examine whether dispositional mindfulness moderated the relationship between indicators of psychological distress and the CAR. While psychological distress was consistently positively related to the CAR, these associations were qualified by significant interactions with both components of dispositional mindfulness. Psychological distress was associated with the CAR at lower levels of dispositional mindfulness but not at higher levels. These findings are consistent with the idea that the tendency to describe and accept experiences may buffer the impact of psychological distress on physiological arousal. These metacognitive processes may be important moderators in unraveling the complex relationship between psychological distress and physiological stress reactivity.

Earley, Michael D., Margaret A. Chesney, Joyce Frye, Preston A. Greene, Brian Berman & Elizabeth Kimbrough. 2014. Mindfulness intervention for child abuse survivors: A 2.5-year follow-up. *Journal of Clinical Psychology* 70(10). 933–941. doi:10.1002/jclp.22102.

The present study reports on the long-term effects of a mindfulness-based stress reduction (MBSR) program for adult survivors of childhood sexual abuse. Of the study participants, 73% returned to the clinic for a single-session follow-up assessment of depression, posttraumatic stress disorder (PTSD), anxiety, and mindfulness at 2.5 years. Repeated measures mixed regression analyses revealed significant long-term improvements in depression, PTSD, anxiety symptoms, and mindfulness scores.

Inozu, Mujgan, Fulya Ozcanli Ulukut, Gokce Ergun & Gillian M. Alcolado. 2014. The mediating role of disgust sensitivity and thought-action fusion between religiosity and obsessive compulsive symptoms. *International Journal of Psychology* 49(5). 334–341. doi:10.1002/ijop.12041.

Psychological theories of obsessions and compulsions have long recognized that strict religious codes and moral standards might promote thought-action fusion (TAF) appraisals. These appraisals have been implicated in the transformation of normally occurring intrusions into clinically distressing obsessions. Furthermore, increased disgust sensitivity has also been reported to be associated with obsessive compulsive (OC) symptoms. No research, however, has investigated the mediating roles of TAF and disgust sensitivity between religiosity and OC symptoms. This study was composed of 244 undergraduate students who completed measures of OC symptoms, TAF, disgust sensitivity, religiosity and negative effect. Analyses revealed that the relationship between religiosity and OC symptoms was mediated by TAF and disgust sensitivity. More importantly, the mediating role of TAF was not different across OC symptom subtypes, whereas the mediating role of disgust sensitivity showed different patterns across OC symptom subtypes. These findings indicate that the tendency for highly religious Muslims to experience greater OC symptoms is related to their heightened beliefs about disgust sensitivity and the importance of thoughts.

Lenze, Eric J., Steven Hickman, Tamara Hershey, Leah Wendleton, Khanh Ly, David Dixon, Peter Doré & Julie Loebach Wetherell. 2014. Mindfulness-based stress reduction for older adults with worry symptoms and co-occurring cognitive dysfunction. *International Journal of Geriatric Psychiatry* 29(10). 991–1000. doi:10.1002/gps.4086.

In this treatment development project, researchers examined MBSR in older adults with worry symptoms and cooccurring cognitive dysfunction. Two sites (St. Louis and San Diego) enrolled individuals aged 65 years or older with significant anxiety-related distress plus subjective cognitive dysfunction, into traditional 8-session MBSR groups and 12-session groups that had the same content but more repetition of topics and techniques. Participants (N=34) showed improvements in worry severity, increases in mindfulness, and improvements in memory as measured by paragraph learning and recall after a delay, all with a large effect size. Most participants continued to use MBSR techniques for 6 months post-instruction and found them helpful in stressful situations. There was no evidence that the extended 12-week MBSR produced superior cognitive or clinical outcomes, greater satisfaction, or greater continuation of MBSR techniques than 8-week MBSR.

Mhizha, Samson. 2014. Religious self-beliefs and coping among vending adolescent in Harare. *Journal of Religion and Health* 53(5). 1487–1497. doi:10.1007/s10943-013-9767-1.

The present study sought to explore the relationship between vending childhood and adolescent religious self-beliefs and religious coping among vending children in Harare, Zimbabwe. The research objectives were to investigate the nature of religious self-beliefs and religious coping among vending children in Harare. A psycho-ethnographic research design was employed in this study. This involved collection of data for a sustained period in the context within which the participants live. A total of 20 participants took part in this study. Key informant interviews, focus group discussions, in-depth interviews, participant and non-participant observations were the data collection methods. Thematic content analysis was used for analyzing the data. Data analysis revealed largely negative

religious self-beliefs. Most vending adolescent children believed that they were controlled and influenced by evil spirits. The vending children believed that faith healing and spiritual cleansing by prophets and Pentecostal pastors could solve their spiritual, judicial and economic problems. Religion seemed to be able to provide meaning to lives and as a viable coping mechanism among the vending children.

Ostafin, Brian D., Jessica J. Brooks & Magali Laitem. 2014. Affective reactivity mediates an inverse relation between mindfulness and anxiety. *Mindfulness* 5(5). 520–528. doi:10.1007/s12671-013-0206-x.

Little is known about the mechanisms through which mindfulness is related to psychological symptoms such as anxiety. One potential mechanism consists of individual differences in emotion-responding variables such as reactivity to aversive stimuli. The current research was designed to examine whether affective reactivity may act as a mechanism of mindfulness. Across two studies, an inverse relation between trait mindfulness (specifically, the Nonjudging of Inner Experience and Acting with Awareness factors of the Five-Facet Mindfulness Questionnaire) and chronic anxiety was partially mediated by affective reactivity, assessed with direct (self-report in study 1) and indirect (lexical decision task in study 2) measures.

Power, Leah & Cliff McKinney. 2014. The effects of religiosity on psychopathology in emerging adults: Intrinsic versus extrinsic religiosity. *Journal of Religion and Health* 53(5). 1529–1538. doi:10.1007/s10943-013-9744-8.

The current study examined intrinsic and extrinsic religiosity and a range of psychopathology in 486 emerging adult college students. Analysis of results indicated a main effect for intrinsic religiosity on a range of psychopathology and an interaction effect between intrinsic and extrinsic religiosity on antisocial personality problems.

Sharma, Manoj & Sarah E. Rush. 2014. Mindfulness-based stress reduction as a stress management intervention for healthy individuals: A systematic review. *Journal of Evidence-Based Complementary & Alternative Medicine* 19(4). 271–286. doi:10.1177/2156587214543143.

The purpose of this study was to look at studies from January 2009 to January 2014 and examine whether mindfulness-based stress reduction is a potentially viable method for managing stress. Following a systematic search, a total of 17 articles met the inclusion criteria. Of the 17 studies, 16 demonstrated positive changes in psychological or physiological outcomes related to anxiety and/or stress. Despite the limitations of not all studies using randomized controlled design, having smaller sample sizes, and having different outcomes, mindfulness-based stress reduction appears to be a promising modality for stress management.

Tan, Lucy B. G., Barbara C. Y. Lo & C. Neil Macrae. 2014. Brief mindfulness meditation improves mental state attribution and empathizing. *PloS One* 9(10). e110510. doi:10.1371/journal.pone.0110510.

The ability to infer and understand the mental states of others (Theory of Mind) is a cornerstone of human interaction. While considerable efforts have focused on explicating when, why and for whom this fundamental psychological ability can go awry, considerably less is known about factors that may enhance theory of mind. Accordingly, the current study explored the possibility that mindfulness-based meditation may improve people's mindreading skills. Following a 5-minute mindfulness induction, participants with no prior meditation experience completed tests that assessed mindreading and empathic understanding. The results revealed that brief mindfulness meditation enhanced both mental state attribution and empathic concern, compared to participants in the control group. These findings suggest that mindfulness may be a powerful technique for facilitating core aspects of social-cognitive functioning.

Thomas, Lori P. Montross, Emily A. Meier & Scott A. Irwin. 2014. Meaning-centered psychotherapy: A form of psychotherapy for patients with cancer. *Current Psychiatry Reports* 16(10). 488.

doi:10.1007/s11920-014-0488-2.

Caring for patients with cancer involves addressing their myriad physical, psychological, social, and spiritual needs. Although many cancer treatments focus on physical or psychological needs, few treatments specifically target the basic need for meaning and spiritual well-being in this population. This article describes the creation and evolution of a new psychotherapy devoted to these needs, a therapy termed "meaning-centered psychotherapy." The authors provide a detailed description of meaning-centered psychotherapy. An explanation of the current research findings related to this treatment are also offered, with information about the various group and individual treatments as well as the new expansions for use with cancer survivors or nursing staff. Overall, meaning-centered psychotherapy shows promise for enhancing meaning and spiritual well-being among patients with cancer and offers exciting possibilities for future research in other areas.

Walker, Rheeda L., Temilola K. Salami, Sierra E. Carter & Kelci Flowers. 2014. Perceived Racism and Suicide Ideation: Mediating Role of Depression but Moderating Role of Religiosity among African American Adults. *Suicide & Life-Threatening Behavior* 44(5). 548–559. doi:10.1111/sltb.12089.

Suicide is a public health problem for African Americans who are young and of working age. The purpose of this study was to examine mediated and moderated effects of perceived racism on suicide ideation in a community sample of 236 African American men and women. Measures of suicide ideation, depression symptoms, intrinsic/extrinsic religiosity, and perceived racism were administered. Perceived racial discrimination was directly and indirectly associated with suicide ideation. For participants who reported low levels of extrinsic religiosity, the mediated effect of perceived racism (via depression symptoms) was significant.

#### 2.3 SPIRITUALITY & HEALTH: METHOD AND THEORY

Balboni, Michael J., Christina M. Puchalski & John R. Peteet. 2014. The relationship between medicine, spirituality and religion: Three models for integration. *Journal of Religion and Health* 53(5). 1586–1598.

doi:10.1007/s10943-014-9901-8.

The integration of medicine and religion is challenging for historical, ethical, practical and conceptual reasons. In order to make more explicit the bases and goals of relating spirituality and medicine, the authors distinguish here three complementary perspectives: a whole-person care model that emphasizes teamwork among generalists and spiritual professionals; an existential functioning view that identifies a role for the clinician in promoting full health, including spiritual well-being; and an open pluralism view, which highlights the importance of differing spiritual and cultural traditions in shaping the relationship.

Chui, Ping Lei, Khatijah Lim Abdullah, Li Ping Wong & Nur Aishah Taib. 2014. Prayer-for-health and complementary alternative medicine use among Malaysian breast cancer patients during chemotherapy. *BMC Complementary and Alternative Medicine* 14. 425. doi:10.1186/1472-6882-14-425.

The inclusion of prayer-for-health (PFH) in the definition of complementary alternative medicine (CAM) has resulted in higher levels of CAM use. The objective of this study was to assess PFH and CAM use among breast cancer patients undergoing chemotherapy. A cross-sectional study was performed at two chemotherapy providers. Patients were questioned about use of three categories of CAM, mind-body practices (MBPs), natural products (NPs) and traditional medicine (TM). PFH was also examined separately from CAM to better characterise the

patterns of CAM and PFH used during chemotherapy. A total of 546 eligible patients participated in the study; 70.7% (n=386) reported using some form of CAM, and 29.3% (n=160) were non-CAM users. Excluding PFH from the definition of CAM reduced the prevalence of overall CAM use. Overall, CAM use was associated with higher education levels and household incomes, advanced cancer and lower chemotherapy schedule compliance. Many patients perceived MBP to be beneficial for improving overall well-being during chemotherapy. These findings, while preliminary, clearly indicate the differences in CAM use when PFH is included in, and excluded from, the definition of CAM.

Carey, Lindsay B., Carla Polita, Candace Renee Marsden & Lillian Krikheli. 2014. Pain control and chaplaincy in Aotearoa New Zealand. *Journal of Religion and Health* 53(5). 1562–1574. doi:10.1007/s10943-013-9748-4.

This paper summarizes the results of 100 New Zealand health care chaplains with regard to their involvement in issues concerning pain control within the New Zealand health care context. Both quantitative (via survey) and qualitative methods (in-depth interviewing) were utilized. The findings of this study indicated that approximately 52% of surveyed hospital chaplains had provided some form of pastoral intervention directly to patients and/or their families dealing with issues concerning pain, and that approximately 30% of hospital chaplains had assisted clinical staff with issues concerning pain. NZ chaplaincy personnel involved in pain-related issues utilized a number of pastoral interventions to assist patients, their families and clinical staff. Differences of involvement between professional salaried hospital chaplains and their volunteer chaplaincy assistants are noted, as are the perspectives of interviewed chaplains about their pastoral interventions with issues relating to pain. Some implications of this study with respect to chaplaincy utility, training and collaboration with clinical staff are noted, as are comparisons with international findings.

Efthimiadis-Keith, Helen & Graham Lindegger. 2014. The subjective experience of using Ignatian meditation by male and female South African university students: An exploratory study. *Journal of Religion and Health* 53(5). 1456–1471. doi:10.1007/s10943-013-9764-4.

This study is set out to examine the subjective experience of using the Ignatian method of meditation to reflect on and pray through the second chapter of the biblical book of Ruth. A group of male and female theology students from the University of KwaZulu-Natal were invited to reflect upon/pray through Ruth 2 using Ignatian meditation. Following this exercise, participants were invited to participate in a focus group in which they shared their experience of this exercise, focusing particularly on some of the gendered aspects of the experience. The transcribed focus group material was subjected to a critical thematic analysis, in order to identify which core aspects of the experience of using this method of meditation and reflection were responsible for the reported subjective experiences. The analysis also included a comparison of the experience for men and women participating in this exercise, and the differential effect of various aspects of the exercise on men and women.

Eliassen, A. Henry. 2014. Religious involvement and readiness to confirm reported physical disability. *Journal of Religion and Health* 53(5). 1427–1439. doi:10.1007/s10943-013-9763-5.

This investigation examines the influence of religious involvement on likelihood of verifying previously reported disability, net of current activity difficulty and self-rated health. It compares African American and white community-dwelling adults confirming (n=348) and not confirming (n=164) activity limitations. Logistic regressions show service attendance negatively associated with disability perception only among African Americans. For whites, use of beliefs in coping mitigates against confirmation of disability. Observed associations are conditioned by socioeconomic status and gender.

Fitzpatrick, Scott J., Christopher F. C. Jordens, Ian H. Kerridge, Damien Keown, James J. Walter, Paul Nelson, Mohamad Abdalla, Lisa Soleymani Lehmann & Deepak Sarma. 2014. Religious perspectives on the use of psychopharmaceuticals as an enhancement technology. *Journal of Religion and Health* 53(5). 1440–1455. doi:10.1007/s10943-013-9761-7.

The use of psychopharmaceuticals as an enhancement technology has been the focus of attention in the bioethics literature. However, there has been little examination of the challenges that this practice creates for religious traditions that place importance on questions of being, authenticity, and identity. Researchers asked expert commentators from six major world religions to consider the issues raised by psychopharmaceuticals as an enhancement technology. These commentaries reveal that in assessing the appropriate place of medical therapies, religious traditions, like secular perspectives, rely upon ideas about health and disease and about normal human behavior. But unlike secular perspectives, faith traditions explicitly concern themselves with ways in which medicine should or should not be used to live a "good life".

Green, Melissa A., Justin Lucas, Laura C. Hanson, Tonya Armstrong, Michelle Hayes, Stacie Peacock, Sharon Elliott-Bynum, Moses Goldmon & Giselle Corbie-Smith. 2014. Carrying the burden: Perspectives of African American pastors on peer support for people with cancer. *Journal of Religion and Health* 53(5). 1382–1397. doi:10.1007/s10943-013-9729-7.

For African Americans facing advanced cancer, churches are trusted sources of support and ideal settings to improve access to supportive care. The Support Team model enhances community support for practical, emotional, and spiritual caregiving. The authors of this article report on focus groups with pastors of 23 Black churches and explore their perspective on the Support Team model for church members with cancer. Pastors describe the needs of church members facing cancer from a holistic perspective and recognize opportunities for synergistic faith-health collaboration. The results of this study indicate potential benefits of the Support Team model in Black churches to reduce silent suffering among individuals facing cancer.

Greenberg, Jonathan & Nachshon Meiran. 2014. Is mindfulness meditation associated with "feeling less?" *Mindfulness* 5(5). 471–476. doi:10.1007/s12671-013-0201-2.

Following previous research which has suggested that mindfulness meditators are less affected by emotional stimuli, the current study examined the hypothesis that mindfulness meditation is associated with decreased emotional engagement, by inducing moods and asking participants to generate as many autobiographical memories opposite in valence as possible. Experienced mindfulness meditators took twice as long as non-meditators to generate the first opposite mood memory yet generated the same total number of memories as non-meditators. Contrary to the initial hypothesis, results indicate that mindfulness may be associated with increased emotional engagement, increased contact with emotions, and rapid recovery from the emotional experience. The effect of mindfulness on implicit and explicit aspects of emotion is discussed, as well as potential implications for treatment of related disorders.

Greensky, Crystal, Mollie A. Stapleton, Kevin Walsh, Leslie Gibbs, Jacque Abrahamson, Dawn M. Finnie, Julie C. Hathaway, et al. 2014. A Qualitative Study of Traditional Healing Practices among American Indians with Chronic Pain. *Pain Medicine* 15(10). 1795–1802. doi:10.1111/pme.12488.

Although chronic pain is prevalent among American Indian (AI) populations, the use of traditional healing practices has not been widely investigated. The aim of this qualitative study was to solicit information from adult AIs with chronic pain regarding use of traditional health practices (THPs) for chronic pain and pain reduction.

Participants included 21 AI patients with chronic pain who gave semi-structured interviews to researchers. A range of THP were described including smudging (burning sage), sweat lodge (ceremonial sauna), sema (ceremonial tobacco), feasting (strengthening process), pipes (ceremonial herb and tobacco), storytelling (nonhierarchical environment for verbal communication), and contact with a traditional healer (elder spiritual leader). The majority of individuals from the Reservation described prior exposure to THP; however, the majority of urban individuals reported limited exposure. Although the majority of individuals endorsed inclusion of THP in ambulatory-based pain treatment programs, recommendations for inclusion of specific practices were not systematically identified.

Hafizi, Sina, Harold G. Koenig, Mohammad Arbabi, Mohammad Pakrah & Amene Saghazadeh. 2014. Attitudes of Muslim physicians and nurses toward religious issues. *Journal of Religion and Health* 53(5). 1374–1381. doi:10.1007/s10943-013-9730-1.

There is a growing body of evidence that suggests a positive role for religious involvement in physical and mental health. Studies have shown that attitudes of physicians toward religion affect their relationship with patients and their medical decisions, and in this way may ultimately affect treatment outcomes. Attitudes of nurses toward religion could also influence whether or not they address patients' unmet spiritual needs. To assess attitudes of physicians and nurses toward religion and how these attitudes vary by education level and demographic characteristics, a total of 800 physicians, medical students, and nurses from some of the largest hospitals in Tehran, Iran, were approached, of whom 720 completed questionnaires (148 nurses, 572 medical students and physicians). Regression analysis revealed that except for intrinsic religiosity, physicians were not less religious than nurses on any other dimension of religiosity. Training level (year of training) was a predictor of religiosity, with those having less training being the most religious. The findings suggest that there are few religious differences between nurses and physicians in Iran. However, religiosity may become less as the training level increases. Lack of emphasis in training on the important role that religion plays in health care may result in a decrease in religious involvement and the development of negative attitudes toward religion over time (displaced by a focus on the technological aspects of health care).

Holt, Cheryl L., Eddie M. Clark & David L. Roth. 2014. Positive and Negative Religious Beliefs Explaining the Religion–Health Connection Among African Americans. *International Journal for the Psychology of Religion* 24(4). 311–331. doi:10.1080/10508619.2013.828993.

Theory and literature suggests that the reason religiously involved people tend to have good health outcomes is because they have healthy lifestyles and behaviors in accord with religious beliefs. Other literature suggests that religious involvement may play a negative role in health outcomes due to beliefs about illness originating as punishment for sins. These ideas were tested as part of a theoretical model of the religion—health connection in a national sample of African Americans. Outcomes included a variety of health-related behaviors. Study participants (n=2,370) randomly selected from a U.S. national call list completed a telephone survey assessing religious involvement, health behaviors, and demographic characteristics. Structural equation modeling was used to analyze study data. Findings indicate that perceived religious influence on health behavior mediated the relationship between religious beliefs and behaviors and higher fruit consumption and lower alcohol use and smoking. Belief that illness is the result of punishment for sin mediated the relationship between (a) religious beliefs and higher vegetable consumption and lower binge drinking and (b) religious behaviors and lower vegetable consumption and higher binge drinking. These findings could be applied to health education activities conducted in African American faith-based organizations, such as health ministries, in the effort to eliminate health disparities.

Jordan, Kevin D., Kevin S. Masters, Stephanie A. Hooker, John M. Ruiz & Timothy W. Smith. 2014. An Interpersonal Approach to Religiousness and Spirituality: Implications for Health and Well-Being. *Journal of Personality* 82(5). 418–431. doi:10.1111/jopy.12072.

The interpersonal tradition provides a rich conceptual and methodological framework for theory-driven research on mechanisms linking religiousness and spirituality (R/S) with health and well-being. In three studies, researchers illustrate this approach to R/S. In Studies 1 and 2, undergraduates completed various self-report measures of R/S, interpersonal style, and other aspects of interpersonal functioning. In Study 3, a community sample completed a wide variety of R/S measures and a measure of interpersonal style. Many, but not all, aspects of religiousness (e.g., overall religiousness, intrinsic religiousness) were associated with a warm interpersonal style, and most aspects and measures of spirituality were associated with a warm and somewhat dominant style. Spirituality and related constructs (i.e., gratitude, compassion) were associated with interpersonal goals that emphasize positive relationships with others, and with beneficial interpersonal outcomes (i.e., higher social support, less loneliness, and less conflict). However, some aspects of R/S (e.g., extrinsic religiousness, belief in a punishing God) were associated with a hostile interpersonal style. R/S have interpersonal correlates that may enhance or undermine health and emotional adjustment. This interpersonal perspective could help clarify why some aspects of religiousness and spirituality are beneficial and others are not.

Kangas, Maria. 2014. The Evolution of Mindfulness-based Cognitive Therapy. *Australian Psychologist* 49(5). 280–282. doi:10.1111/ap.12072.

In an article in the same issue of the journal, Metcalf and Dimidjian present a timely review of the evolving evidence base and mechanisms of mindfulness-based cognitive therapy (MBCT). The present commentary on that article extends the discussion on the current evidence base for MBCT based on findings from recent meta-analytic reviews in this field which attest to the promising outcome for mindfulness-based therapies, particularly for depressed populations. However, the specific effects of MBCT as applied to anxiety, health and developmental populations is still very much in its infancy. The second objective of this commentary extends discussion on the transdiagnostic applications of MBCT versus traditional cognitive behavioral therapy (CBT). It is recommended that with the continuing expansion of MBCT, the effects of this therapeutic approach needs to be evaluated against other empirically supported therapies, including traditional CBT.

Levinson, Daniel B., Eli L. Stoll, Sonam D. Kindy, Hillary L. Merry & Richard J. Davidson. 2014. A mind you can count on: Validating breath counting as a behavioral measure of mindfulness. *Frontiers in Psychology* 5. 1202. doi:10.3389/fpsyg.2014.01202.

Mindfulness practice of present moment awareness promises many benefits, but has eluded rigorous behavioral measurement. To date, research has relied on self-reported mindfulness or heterogeneous mindfulness trainings to infer skillful mindfulness practice and its effects. In four independent studies with over 400 total participants, researchers present the first construct validation of a behavioral measure of mindfulness, breath counting. The researchers found that the measure was reliable, correlated with self-reported mindfulness, differentiated long-term meditators from age-matched controls, and was distinct from sustained attention and working memory measures. In addition, the authors employed breath counting to test the nomological network of mindfulness. As theorized, skill in breath counting was found, associated with more meta-awareness, less mind wandering, better mood, and greater non-attachment (i.e., less attentional capture by distractors formerly paired with reward). Researchers also found in a randomized online training study that 4 weeks of breath counting training improved mindfulness and decreased mind wandering relative to working memory training and no training controls. Together, these findings provide the first evidence for breath counting as a behavioral measure of mindfulness.

Lindsay, Shane. 2014. Can hyper-synchrony in meditation lead to seizures? Similarities in meditative and epileptic brain states. *Medical Hypotheses* 83(4). 465–472. doi:10.1016/j.mehy.2014.07.015.

Meditation is used worldwide by millions of people for relaxation and stress relief. Given sufficient practice, meditators may also experience a variety of altered states of consciousness. These states can lead to a variety of unusual experiences, including physical, emotional and psychic disturbances. This paper highlights the correspondences between brain states associated with these experiences and the symptoms and neurophysiology of epileptic simple partial seizures. Seizures, like meditation practice, can result in both positive and negative experiences. The neurophysiology and chemistry underlying simple partial seizures are characterized by a high degree of excitability and high levels of neuronal synchrony in gamma-band brain activity. Following a survey of the literature that shows that meditation practice is also linked to high power gamma activity, an account of how meditation could cause such activity is provided. This paper discusses the diagnostic challenges for the claim that meditation practices lead to brain states similar to those found in epileptic seizures, and seeks to develop our understanding of the range of pathological and non-pathological states that result from a hyper-excited and hyper-synchronous brain.

Liu, Yi-Jung. 2014. A proposal for a spiritual care assessment toolkit for religious volunteers and volunteer service users. *Journal of Religion and Health* 53(5). 1414–1426. doi:10.1007/s10943-013-9760-8.

Based on the idea that volunteer services in healthcare settings should focus on the service users' best interests and providing holistic care for the body, mind, and spirit, the aim of this study was to propose an assessment toolkit for assessing the effectiveness of religious volunteers and improving their service. By analyzing and categorizing the results of previous studies, the present researchers incorporated effective care goals and methods in the proposed religious and spiritual care assessment toolkit. Two versions of the toolkit were created. The service users' version comprises 10 questions grouped into the following five dimensions: "physical care," "psychological and emotional support," "social relationships," "religious and spiritual care," and "hope restoration." Each question could either be answered with "yes" or "no." The volunteers' version contains 14 specific care goals and 31 care methods, in addition to the 10 care dimensions in the residents' version. A small sample of 25 experts was asked to judge the usefulness of each of the toolkit items for evaluating volunteers' effectiveness. Although some experts questioned the volunteer's capacity, to improve the spiritual care capacity and effectiveness provided by volunteers is the main purpose of developing this assessment toolkit. The toolkit developed in this study may not be applicable to other countries, and only addressed patients' general spiritual needs. Volunteers should receive special training in caring for people with special needs.

Lopez, Violeta, Imke Fischer, Maria Cynthia Leigh, David Larkin & Sue Webster. 2014. Spirituality, religiosity, and personal beliefs of Australian undergraduate nursing students. *Journal of Transcultural Nursing* 25(4). 395–402. doi:10.1177/1043659614523469.

Researchers explored Australian nursing students' perceptions of spirituality, religiosity, and personal belief. A cross-sectional survey was conducted using the 32-item WHO-QOL-SRPB questionnaire. The sample consisted of 483 undergraduate nursing students in Sydney, Australia. There were no significant difference between male and female nursing students, but there were difference in SRPB scores between first-, second-, and third-year students and between religious affiliations.

Mendel, Peter, Kathryn Pitkin Derose, Laura Werber, Kartika Palar, David E. Kanouse & Michael Mata. 2014. Facilitators and barriers to HIV activities in religious congregations: Perspectives of clergy and lay leaders from a diverse urban sample. *Journal of Religion and Health* 53(5). 1472–1486. doi:10.1007/s10943-013-9765-3.

This paper examines facilitators and barriers to HIV activities within religious congregations, the relative internal or external sources of these influences, and suggestive differences across congregational types. Results are based on in-depth interviews with clergy and lay leaders (n=57) from 14 congregations in Los Angeles County, California, purposively selected to reflect diversity in racial-ethnic composition, denomination, size, and HIV activity level. Many common facilitators and barriers were related to norms and attitudes, only a few of which appeared overtly associated with theological orientations. Clergy support was a facilitator particularly prevalent among congregations having higher HIV activity levels, indicating its importance in sustaining and expanding HIV programs. Resource issues were also prominent, with material resource barriers more frequently mentioned by smaller congregations and human resource barriers more among larger congregations. Organizational structure issues were mostly centered on external linkages with various social service, public health, and faith-based entities. Analysis of internal versus external sources highlights the roles of different stakeholders within and outside congregations in promoting HIV activities. Potential differences across congregational types represent fruitful areas for future research.

Metcalf, Christina A & Sona Dimidjian. 2014. Extensions and Mechanisms of Mindfulness-based Cognitive Therapy: A Review of the Evidence: Evidence for mindfulness-based cognitive therapy. *Australian Psychologist* 49(5). 271–279. doi:10.1111/ap.12074.

Mindfulness-based cognitive therapy (MBCT) was originally developed to prevent depressive relapse and recurrence and has also been widely extended to new patient populations and target problems over the last 14 years. In this article, the authors provide a comprehensive review of this literature, examining the strength of the evidence base for specific populations and target problems and identifying questions for future research to address. Specifically, they review studies addressing the use of MBCT for depressive disorders (prevention of depressive relapse and treatment of residual and current depressive symptoms), the use of MBCT in the treatment or management of other mental disorders (bipolar disorder, anxiety disorders, mixed anxiety and depression symptoms, disordered eating, personality disorders, and psychosis), and the use of MBCT in behavioral medicine contexts. Additionally, the authors discuss the extension of MBCT during specific developmental periods, like childhood, pregnancy and post-partum, and adult caregiving, and, finally, address the use of MBCT among clinical health-care providers. In the second section, the researchers review hypothesized mechanisms of change in MBCT and reflect on implications for theories of how MBCT works in the application to various patient populations and target problems. They conclude with a review of research addressing active ingredients and what is known about the 'dosage' of meditation practice.

Mohr, Sylvia & Philippe Huguelet. 2014. The wishes of outpatients with severe mental disorders to discuss spiritual and religious issues in their psychiatric care. *International Journal of Psychiatry in Clinical Practice* 18(4). 304–307. doi:10.3109/13651501.2014.902071.

In a previous multisite comparative study of spiritual and religious coping (S/R) among outpatients with schizophrenia; S/R were adaptive for 80% of patients; harmful for 13%; and marginal for 7%. This importance was underestimated by clinicians. Researchers created an interfaith therapeutic group to address such topics. The aim of the study is to assess patients' wish to address S/R issues in their psychiatric care. Psychiatrists asked consecutive outpatients about their wish; with who they shared S/R concerns; and their interest to enroll in the "Spiritual and Recovery Group." Among the 147 patients included, less than half shared their spiritual concerns with other people. A quarter wished to address S/R issues in their care; 24 already shared those issues with a religious professional; half of them wished also to share them with their psychiatrist. Among the 21 patients who participated in an in-depth spiritual assessment, 16 patients were directed to the S/R group and 5 patients were directed to groups addressing other therapeutic objectives. The authors conclude that in one patient out of ten, S/R

issues were of a clinical significance warranting integration into psychiatric treatment. This study shows that patients' views are in accordance with former research, putting forward psychiatrists' stance on this issue.

Newmeyer, Mark, Benjamin Keyes, Sonji Gregory, Kamala Palmer, Daniel Buford, Priscilla Mondt & Benjamin Okai. 2014. The Mother Teresa Effect: The modulation of spirituality in using the CISM model with mental health service providers. *International Journal of Emergency Mental Health* 16(1). 251–258.

Mental health service providers are at risk of experiencing compassion fatigue, burnout, and vicarious traumatization as a result of working in difficult contexts or when working with individuals who have experienced trauma. Numerous studies have examined the mitigating factors in professional caregivers' stress and related prevention strategies thought to be associated with professional self-care. This retrospective study examined the impact of debriefing strategies referred to as Critical Incident Stress Management (CISM) and spirituality in 22 mental health service providers working in a stressful, cross-cultural context. Quantitative analysis of pre and post self-report instruments suggests that training and utilization of CISM techniques may be important in preventing future problems. To the surprise of the researchers, spirituality may not only serve as a protective factor in moderating compassion fatigue, but also increases compassion satisfaction among professional caregivers.

Payne, Jennifer Shepard. 2014. The influence of secular and theological education on pastors' depression intervention decisions. *Journal of Religion and Health* 53(5). 1398–1413. doi:10.1007/s10943-013-9756-4.

A random sample of 204 Protestant pastors completed surveys about their treatment practices for depression. Fisher's exact analyses revealed that more pastors with some secular education yet no degree felt that they were the best person to treat depression than pastors who had no secular education or pastors who had at least a secular bachelor's degree. However, the level of theological education did not influence beliefs about the pastor being the best person to treat depression. In addition, neither secular nor theological education level influenced pastors' views on referring people to mental health centers for depression treatment.

Pfeiffer, Jane Bacon, Carla Gober & Elizabeth Johnston Taylor. 2014. How Christian nurses converse with patients about spirituality. *Journal of Clinical Nursing* 23(19-20). 2886–2895. doi:10.1111/jocn.12596.

The authors describe the experience of conversing with clients in order to provide spiritual care, from the perspective of 14 Christian nurses identified as exemplary spiritual caregivers. More specifically, findings presented here describe the goals and strategies of these nurses when conversing with patients about spirituality. Findings illustrate compassionate nursing with specifiable goals and strategies for conversations about spirituality; they also raise questions about how nurse religious beliefs are to ethically inform these conversations. The Invitation, Connection, Attentive care, Reciprocity mnemonic is offered as a means for nurses to remember essentials for communication with patients about spirituality.

Raffay, Julian. 2014. How staff and patient experience shapes our perception of spiritual care in a psychiatric setting. *Journal of Nursing Management* 22(7). 940–950. doi:10.1111/jonm.12056.

The author explored how an understanding of care practice is shaped by the extent of engagement with staff and patient experience. A database search was conducted, the grey literature analyzed, spirituality assessment tools were explored, and an approach based on user experience was considered. Each of these four perspectives resulted in different perceptions of care. By engaging patient and staff experience, the author began to see spiritual care very differently. There may be rich opportunities for research into the lived experience of the support systems that service users create for each other on wards when they experience staff as inaccessible. Deeper engagement with patients

and staff and their concerns is likely to result in breakthroughs in both the understanding and the practice of spiritual care as well as potentially other areas of nursing care.

Selman, Lucy, Teresa Young, Mieke Vermandere, Ian Stirling & Carlo Leget. 2014. Research Priorities in Spiritual Care: An International Survey of Palliative Care Researchers and Clinicians. *Journal of Pain and Symptom Management* 48(4). 518–531. doi:10.1016/j.jpainsymman.2013.10.020.

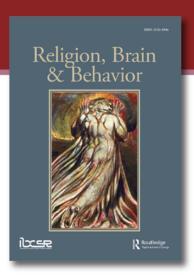
Spiritual distress, including meaninglessness and hopelessness, is common in advanced disease. Spiritual care is a core component of palliative care, yet often neglected by health care professionals owing to the dearth of robust evidence to guide practice. An online, cross-sectional, mixed-methods survey was conducted. Respondents were asked whether there is a need for more research in spiritual care, and if so, to select the five most important research priorities from a list of 15 topics. Free-text questions were asked about additional research priorities and respondents' single most important research question, with data analyzed thematically. In total, 971 responses, including 293 from palliative care physicians, 112 from nurses, and 111 from chaplains, were received from 87 countries. Integrating quantitative and qualitative data demonstrated three priority areas for research: 1) development and evaluation of conversation models and overcoming barriers to spiritual care in staff attitudes, 2) screening and assessment, and 3) development and evaluation of spiritual care interventions and determining the effectiveness of spiritual care.

Silton, Nava R., Kevin J. Flannelly, Kathleen Galek & Christopher G. Ellison. 2014. Beliefs about God and mental health among American adults. *Journal of Religion and Health* 53(5). 1285–1296. doi:10.1007/s10943-013-9712-3.

This study examines the association between beliefs about God and psychiatric symptoms in the context of Evolutionary Threat Assessment System Theory, using data from the 2010 Baylor Religion Survey of US Adults (n=1,426). Three beliefs about God were tested separately in ordinary least squares regression models to predict five classes of psychiatric symptoms: general anxiety, social anxiety, paranoia, obsession, and compulsion. Belief in a punitive God was positively associated with four psychiatric symptoms, while belief in a benevolent God was negatively associated with four psychiatric symptoms, controlling for demographic characteristics, religiousness, and strength of belief in God. Belief in a deistic God and one's overall belief in God were not significantly related to any psychiatric symptoms.

Watkins, Leanne. 2014. Should emergency nurses attempt to meet patients' spiritual needs? *Emergency Nurse* 22(6). 36–38. doi:10.7748/en.22.6.36.e1333.

Research suggests there is a positive correlation between addressing some patients' spiritual needs and the outcomes of their care. This article describes a case study in which a patient with mental health problems who frequently reattended an emergency department (ED) sought spiritual support from a hospital chaplain. The patient was referred to a charitable organization that offers spiritual care and her re-attendance at the ED has become less frequent.



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### PART 3: BOOKS

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

- Martin, Luther H. & Jesper Sørensen (eds.). 2014. *Past Minds: Studies in Cognitive Historiography*. (Religious Narrative, Cognition and Culture). London: Routledge.
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