March 2012 Article of the Month

This month's article selection is by Chaplain John Ehman,
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Ai, A. L., Wink, P. and Shearer, M. "**Secular reverence predicts shorter hospital length of stay among middle-aged and older patients following open-heart surgery**." *Journal of Behavioral Medicine* 34, no. 6 (December 2011): 532-541.

SUMMARY and COMMENT: This month's article reports important data but also puts forward a significant concept: secular reverence. The lead author, Amy L. Ai, PhD (psychology), who was at the University of Pittsburgh at the time of the study but who is now at Florida State University, is a very active researcher whose work has previously been featured as Articles-of-the-Month [--see: January 2003 and May 2005]. Attention to *conceptual* issues in spirituality & health -- so necessary for the development of this nascent field of study -- is characteristic of Dr. Ai's investigations, and so it is with this research into "secular reverence."

Ai and her colleagues here build upon previous research [especially "Prayer and reverence in naturalistic, aesthetic, and socio-moral contexts" (2009) --see Items of Related Interest, §I (below)], to delve deeper into secular reverence and its role in the hospital courses of Coronary Artery Bypass Graft patients, more than doubling the sample size from that earlier study for an analysis with greater statistical power. A total of 481 Midwestern cardiac patients consented for enrollment (61% of those approached). An interview with questionnaires collected data approximately two weeks before surgery, covering Optimism, Perceived Social Support, Depression, Religious Denominations, Religiousness Involvement, Spiritual Experiences, Medical Comorbidities, Demographics, and Reverence, both Religious and Secular.

Secular reverence -- its conceptual background and nature -- is explicated quite well in an introductory section [pp. 532-534] but may be defined generally as a "feeling or attitude of deep respect, love, and awe, as for something sacred" [p. 532, abstract], or "a form of spiritual emotion that concerns deep respect, love, sublime, or awe for something sacred " [p. 533]. The operational understanding of the concept rests in its measure:

> Reverence was assessed with sum of answers to a question "Under what conditions do you feel reverent?" on a checklist of eight contexts, developed by a team of multidisciplinary investigators [Ai, et al., "Prayer and reverence...," 2009]. Patients responded with Yes or No to each of the eight contexts and, in addition, could list additional contexts under the “other” category. The contexts included both religious and non-religious settings: (a) attending religious services, (b) reading the Bible or watching religious programs, (c) private prayer, (d) meditation, (e) sight-seeing or being in nature, (f) enjoying music or art, (g) being loved or supported, and (h) serving others. Principal axis factoring supported the hypothesized two-factor solution (eigenvalues > 1.0): religious reverence (attending religious services, reading the Bible or watching religious programs, private prayer, meditation; M = 2.67, SD = 1.38, α = .75), and secular reverence (sight-seeing or being in nature,

> enjoying music or art, being loved or supported, and serving others; M = 2.76, SD = 1.31, α = .70). [p. 535]

Among the findings:

> [In a four-step hierarchical regression model,] among all of the religious/spiritual variables, only secular reverence was inversely related to hospital length of stay. [p. 537] ...The model indicated that female gender, older age, more medical comorbidities, low hemodynamic information scores, longer perfusion time, and CABG predicted longer hospital length of stay. Yet, after controlling for all of these factors, patients who experienced reverence in secular contexts had shorter hospitalization. [pp. 537-538] ...In the present study the salutary effect of faith factors on hospital length of stay was driven by the participants' ability to experience a sense of deep respect, love, and the sublime in their relationships with others, nature, and/or artistic setting. In contrast, reverence experienced in religious settings and traditional religious beliefs and practices did not have the same salutary effect unless they were accompanied by secular reverence. [p. 538] ... The present study thus suggests independent protection of secular reverence for cardiac patients, though it does not find a similar role of traditional faith factors. [p. 538]

The effect size, however, was "moderate" [p. 538] in the final regression equation. The authors speculate on possible mechanisms and comment on the "the potential influence of reverence as a positive affect exercised through biophysiological pathways" [p. 539].

The practical implications of the findings are that they...

- ...invite health researchers to include reverence in different contexts into research on multidimensional spirituality to reflect the increasingly diversified religious landscape [p. 538]
- ...suggest that a meaningful connection based on reverence or deep respect for the sublime of a non-traditionally religious or even non-religious nature might enhance health outcomes equally well as more traditional forms of religious beliefs and practices [p. 538]
- ...[i]f replicated by future research, ...point to important health benefits that can be derived from elevating experiences of the sacred in secular contexts [p. 539].

The article offers a number of suggestions for future study, including better measurement of reverence. The authors emphasize the limits of the Yes/No checklist for reverence, but for this reader, other limits come to mind: prompting patients' responses with the admittedly complex term *reverent* itself, and approaching the concept as a function of settings rather than the qualities by which the concept has been defined. Perhaps chaplain researchers could help develop other methods to capture the phenomenon generally and secular reverence in particular. Still, the idea that patients might be able to address an explicit question about reverent feelings, and the contexts for those feelings, may be useful for pastoral interaction and spiritual assessment.

Suggestions for the Use of the Article for Discussion in CPE:

The sophistication of this study's statistical analysis would likely be stumbling block for all but the most advanced students, so supervisors might want to suggest that the article be read in the following order of sections: 1) introductory material [pp. 532-534], 2) Discussion [pp. 538-539], 3) Method [pp. 534-535], and Results [pp. 534-538]. The most engaging focus for discussion would probably be the concept of *reverence* and its division into *secular* and *religious* aspects. The intellectual roots of the conceptualization, as outlined on p. 533, deserve close attention. In light of this, students may want to debate the items in the measure of reverence on p. 535. Also, students should consider the proposition that secular reverence can be at play even when religious reverence is a salient phenomenon for a person -- and may be the crucial factor for certain health effects.

Related Items of Interest:

I. For previous studies using the same measure of *reverence* used in our featured article, see:

Ai, A. L. and Hall, D. E. "**Divine love and deep connections: a long-term followup of patients surviving cardiac surgery**." *Journal of Aging Research* (2011): online journal article ID 841061, available from the journal website. [(Abstract:) We examined experiencing divine love as an indicator of affective spiritual growth in a prospective cohort of 200 patients surviving cardiac surgery. These patients previously completed two-wave preoperative interviews when standardized cardiac surgery data were also collected. The information included left ventricular ejection fraction, New York Heart Association Classification, baseline health (physical and mental), optimism, hope, religiousness, prayer coping, religious/spiritual coping, and demographics. We then measured divine love at 900 days postoperatively. Hierarchical linear regression indicated the direct effect of positive religious coping on experiences of divine love, controlling for other key variables. Postoperatively perceived spiritual support was entered at the final step as an explanatory factor, which appeared to mediate the coping effect. None of the other faith factors predicted divine love. Further research regarding divine love and spiritual support may eventually guide clinical attempts to support patients' spiritual growth as an independently relevant outcome of cardiac surgery.]

Ai, A. L., Ladd, K. L., Peterson, C., Cook, C., Shearer, M. and Koenig, H. G. "**Long-term adjustment after surviving open-heart surgery: the effect of using prayer for coping replicated in a prospective design**." *Gerontologist* 50, no. 6 (December 2010): 798-809. [(Abstract:) Purpose: Despite the growing evidence for effects of religious factors on cardiac health in general populations, findings are not always consistent in sicker and older populations. We previously demonstrated that short-term negative outcomes (depression and anxiety) among older adults following open heart surgery are partially alleviated when patients employ prayer as part of their coping strategy. The present study examines multifaceted effects of religious factors on long-term postoperative adjustment, extending our previous findings concerning prayer and coping with cardiac disease. Design and Methods: Analyses capitalized on a preoperative survey and medical variables from the Society of Thoracic Surgeons' National Database of patients undergoing open heart surgery. The current participants completed a mailed survey 30 months after surgery. Two hierarchical regressions were performed to evaluate the extent to which religious factors predicted depression and anxiety, after controlling for key demographics, medical indices, and mental health. Results: Predicting lower levels of depression at the follow-up were preoperative use of prayer for coping, optimism, and hope. Predicting lower levels of anxiety at the follow-up were subjective religiousness, marital status, and hope. Predicting poorer adjustment were reverence in religious contexts, preoperative mental health symptoms, and medical comorbidity. Including optimism and hope in the model did not eliminate effects of religious factors. Several other religious factors had no long-term influences. Implications: The influence of religious factors on the long-term postoperative adjustment is independent and complex, with mediating factors yet to be determined. Future research should investigate mechanisms underlying religion–health relations.]

Ai, A. L., Park, C. and Shearer, M. "**Spiritual or religious involvement related to end-of-life decision in patients undergoing coronary artery bypass surgery**." *International Journal of Psychiatry in Medicine* 38, no. 1 (2008): 111-130. [(Abstract:) Settling one's end-of-life affairs in the face of coronary artery bypass graft surgery (CABG) can be both distressing and beneficial for individuals who are facing imminent threat of death. Religious thoughts, common in this context, may offer some comfort and support for facing this process. However, few empirical studies have addressed the role of religious or spiritual involvement in the settling of one's end-of-life affairs in cardiac patients. This prospective study investigated the effect of religious and spiritual factors on

whether decisions regarding end-of-life had been made in a sample of middle-aged and older patients undergoing CABG. In particular, we expected faith factors of an intrinsic nature would promote this decision. Two weeks pre-operatively, patients (mean age = 65 years) were recruited for interviews. One hundred seventy-seven CABG patients completed the pre-operative and post-operative follow-up one month after surgery, while 96 offered information regarding their engagement in settling end-of-life affairs. Cardiac indicators were obtained from the computerized Society of Thoracic Surgeons' Adult Cardiac Database (STS). Multiple regression analyses revealed that private religiousness increased the likelihood of having engaged in end-of-life decision planning by nearly half again (OR = .1.47, 95% CI = 1.10, 1.96, $p < .05$) and that experiencing reverence in secular contexts nearly doubled the likelihood (OR = .1.99, 95% CI = 1.16, 3.44, $p < .05$). The reduced likelihood of having made plans was observed among those who scored higher on experiencing reverence in religious contexts (OR = .44, 95% CI = .23, .87, $p < .05$) and among patients using petitionary prayer (OR = .21, 95% CI = .04, .98, $p < .05$). These effects manifested after controlling for age, impacted functioning, and number of diseased arteries. Therefore, faith factors appear to have independent but complex effects on end-of-life decision making in middle-aged and older cardiac patients.]

Ai, A. L., Wink, P., Tice, T. N., Bolling, S. F., Wasin, A. and Shearer, M. "**Prayer and reverence in naturalistic, aesthetic, and socio-moral contexts predicted fewer complications following coronary artery bypass**." *Journal of Behavioral Medicine* 32, no. 6 (December 2009): 570-581. [(Abstract:) This prospective study explores prayer, reverence, and other aspects of faith in postoperative complications and hospital length of stay of patients undergoing coronary artery bypass graft surgery. Alongside traditional religiousness measures, we examined sense of reverence in religious and secular contexts. Face-to-face interviews were conducted with 177 patients 2 weeks before surgery at a medical center. Medical variables were retrieved from the national Society of Thoracic Surgeons' Database. Logistic and multiple regression models were performed to predict outcomes. Prayer frequencies were associated with reduced complications but not hospitalization. Sense of reverence in secular contexts predicted fewer complications and shorter hospitalization. Controlling for complications reduced the initial influence of reverence on hospitalization, suggesting the potential mediation of complications. No interaction between demographics and faith factors was evident. The role of faith in medicine is complex and context-dependent. Future studies are needed on mediating factors.]

II. In the discussion of the background and nature of reverence, Ai and her co-authors note that *awe* is a "relevant component of reverence" though "unlike awe which can produce both a sense of elation and fright, reverence tends to invoke primarily positive emotions" [p. 533]. For more on this related concept, see:

Keltner, D. and Haidt, J "**Approaching awe, a moral, spiritual, and aesthetic emotion**." *Cognition and Emotion* 17, no. 2 (March 2003): 297–314. [In this paper we present a prototype approach to awe. We suggest that two appraisals are central and are present in all clear cases of awe: perceived vastness, and a need for accommodation, defined as an inability to assimilate an experience into current mental structures. Five additional appraisals account for variation in the hedonic tone of awe experiences: threat, beauty, exceptional ability, virtue, and the supernatural. We derive this perspective from a review of what has been written about awe in religion, philosophy, sociology, and psychology, and then we apply this perspective to an analysis of awe and related states such as admiration, elevation, and the epiphanic experience.]

III. This month's article is part of a special theme issue of the *The Journal of Behavioral Medicine*, on Spirituality in Behavioral Medicine Research. A table of contents of the issue is available from the journal website. Dr. Ai is one of the guest editors.

If you have suggestions about the form and/or content of the site, e-mail Chaplain John Ehman (Network Convener) at john.ehman@uphs.upenn.edu .