December 2005 Article of the Month

This month's article selection is by Chaplain John Ehman,
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Wachholtz, A. B. and Pargament, K. I. "**Is spirituality a critical ingredient of meditation? Comparing the effects of spiritual meditation, secular meditation, and relaxation on spiritual, psychological, cardiac, and pain outcomes**." *Journal of Behavioral Medicine* 28, no. 4 (August 2005): 369-384.

PREFATORY COMMENT: This reader became interested in research connecting prayer with pain management in 1998, when a study of hospital inpatient satisfaction asked about "pain control methods…you have used since you were admitted" [--see pp. 34-35 and 40 of McNeill, J. A., Sherwood, G. D., Starck, P. L. and Thompson, C. J., "Assessing clinical outcomes: patient satisfaction with pain management," *Journal of Pain and Symptom Management* 16, no. 1 (July 1998): 29-40]. Of the 157 patients in the sample, 62% selected *prayer* out of the middle of a list of seventeen choices on a questionnaire--more than for any other option than *pain pills* (67%). That prayer had been included in the questionnaire in the first place struck me as remarkable, but that so many people selected it seemed to dumbfound the researchers who noted it with very little comment. My own experience suggests that prayer is a strong and common response to pain, but to what effect? Does prayer in any way lessen the intensity of pain, does it in some way alter the context of meaning through which pain may be better tolerated, is it merely an activity that provides a degree of distraction, or is it an action that has some substantial value to the person praying but affects neither pain intensity nor toleration? Research on the finer connections between pain and religion/spirituality has yielded a mixture of results [--see Related Items of Interest, below], but this month's featured study is a significant contribution to thought on the subject, particularly in terms of prayer.

SUMMARY and COMMENT: This month's featured study not only considers connections between spirituality and pain but addresses a long-standing issue in spirituality & health research: namely, whether a spiritual intervention is more effective than a similar but non-spiritual intervention. Wachholtz and Pargament recruited 68 college age students and divided them into three groups: a Spiritual Meditation group that was taught a meditative technique of focusing for 20 minutes a day on a spiritual phrase (i.e., "God is good," "God is peace," "God is joy," or "God is love"), a Secular Meditation group that was taught the same technique but centered around non-theistic personal phrases (i.e., "I am content," "I am joyful," "I am good," or "I am happy"), and a Relaxation control group that was given similar instructions as the Mediation groups except that the meditation periods did not incorporate the use of a phrase as focus of thought. The participants practiced their techniques for two weeks and completed a variety of psychological and spiritual measures and a test for pain tolerance that involved placing one's hand in cold water--"the cold pressor (CP) task." [See pp. 371 and 374-375.]

Results showed:

> Participants using Spiritual Meditation reported greater reduction of anxiety from pre- to post test than those using the Secular Meditation and Relaxation techniques. Similarly, the Spiritual Meditation group reported a greater increase in spiritual experiences and more closeness to God over the course of the study than did members of the other two groups. [pp. 380-381]

However, the "most noteworthy finding" was with regard to pain.

> Interestingly, pain perception did not appear to be altered by the use of the spiritual meditation technique…. However, pain tolerance was affected. The Spiritual Meditation group was able to endure the pain level [of the cold pressor task] almost twice as long as the other two groups. Thus, the spiritual focus of meditation appears [to] be able to affect, not how much pain the practitioner feels, but how well the practitioner copes with the pain. [p. 380]

The authors believe that these findings show "there may be something unique about spiritual meditation that is not experienced in the course of practicing secular techniques" [p. 381], and they speculate about how "[s]piritual meditation may support an increased tolerance of pain through pathways that include both psychological variables (decreased anxiety, improved mood) and spiritual variables (spiritual experiences, relationship with God, feelings of spiritual support)" [p. 381]. They also muse about the possibility that even secular meditation may be effective in part because it has an implicitly spiritual nature: "some processes, like meditation and forgiveness, have an inherent spirituality that can arise even within secular contexts" [p. 382].

The article concludes with thoughts about the practical application of the spiritual meditation intervention in the health care setting--how it may help reduce patients' use of pain medications (with the accompanying costs and side effects), improve their mood, and decrease their anxiety. "Additionally, all three meditation/relaxation techniques could be easily adapted for use in a standard medical or mental health setting without prohibitively extensive and expensive training by either the clinician or the client" [p. 383]. Such practical and economic implications of this interventional research help make an argument for institutional support and funding for replication studies.

Wachholtz and Pargament offer a wealth of insight into how their work fits into a larger picture of research in the field, and how it suggests further questions for study. However, it is a difficult article to read. The syntactical structure is in places rough, some words seem to have been omitted in the final printing, and abbreviations are used without explanation (e.g., "CR" for *cardiac reactivity*). Still, the article should be of great interest to serious researchers, and its general findings on the efficacy of a simple but spiritually-based intervention should intrigue even a casual audience.

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

The use of this article with CPE students presents a bit of a problem: on the one hand, the article is difficult to read, and most students may lose interest through the course of the presentation; but on the other hand, its findings should lead students to a lively discussion of whether interventions with spiritual/religious qualities are uniquely beneficial for patients (compared to similar interventions that do not have spiritual/religious qualities) and how patients use and view prayer in response to their pain. Perhaps the CPE supervisor could summarize the Procedure section of the paper [pp. 374-375] and assign only the Discussion section [pp. 378 and 380-382]. Or, the supervisor could lead students briefly through the paper as a whole, highlighting certain passages that speak to findings. Of course, the paper could be used purely as a background source *after* a discussion of, say, whether prayer helps to lessen the intensity of pain or increases capacity to tolerate it. This, after all, is a topic about which most students can speak from personal experience of their use of prayer as well as from professional experience in their encounters with patients. Discussion could also extend to how prayer or religion/spirituality may relate not only to acute pain but to chronic pain (and for more on chronic pain, see Rippentrop, A. E., "A review of the role of religion and spirituality in chronic pain populations," in Related Items of Interest, below).

Related Items of Interest:

I. The bibliography in the Wachholtz and Pargament article is a good source for additional reading, but the following recent articles, touching on the relation of religion/spirituality to pain, may also be of interest.

Aukst-Margetic, B., Jakovljevic, M., Margetic, B., Biscan, M. and Samija, M. "**Religiosity, depression and pain in patients with breast cancer**." *General Hospital Psychiatry* 27, no. 4 (July-August 2005): 250-255. [This Croatian study of 115 breast cancer patients being treated at a major teaching hospital found that religiosity, as assessed by the Santa Clara Strength of Religious Faith Questionnaire, was not related to intensity of pain perception.]

[Added 8/13/14] Dezutter, J., Wachholtz, A. and Corveleyn, J. [Department of Psychology, Catholic University of Leuven, Belgium]. "**Prayer and pain: the mediating role of positive re-appraisal**." *Journal of Behavioral Medicine* 34, no. 6 (Dec 2011): 542-549. [(Abstract:) The present study explored in a sample of Flemish pain patients the role of prayer as a possible individual factor in pain management. The focus on prayer as a personal religious factor fits with the current religious landscape in Western-Europe where personal religious factors are more important than organizational dimensions of religion. Our study is framed in the transactional theory of stress and coping by testing first, whether prayer was related with pain severity and pain tolerance and second, whether cognitive positive re-appraisal was a mediating mechanism in the association between prayer and pain. We expected that prayer would be related to pain tolerance in reducing the impact of the pain on patient's daily life, but not necessarily to pain severity. A cross-sectional questionnaire design was adopted in order to measure demographics, prayer, pain outcomes (i.e., pain severity and pain tolerance), and cognitive positive re-appraisal. Two hundred and two chronic pain (CP) patients, all members of a Flemish national patients association, completed the questionnaires. Correlational analyses showed that prayer was significantly related with pain tolerance, but not with pain severity. However, ancillary analyses revealed a moderational effect of religious affiliation in the relationship between prayer and pain severity as well as pain tolerance. Furthermore, mediation analysis revealed that cognitive positive re-appraisal was indeed an underlying mechanism in the relationship between prayer and pain tolerance. This study affirms the importance to distinguish between pain severity and pain tolerance, and indicates that prayer can play a role in pain management, especially for religious pain patients. Further, the findings can be framed within the transactional theory of stress and coping as the results indicate that positive re-appraisal might be an important underlying mechanism in the association between prayer and pain. (NOTE: This article is part of a theme issue of the journal on spirituality & health.)]

Dobratz, M. C. "**A comparative study of life-closing spirituality in home hospice patients**." *Research & Theory for Nursing Practice* 19, no. 3 (2005): 243-256. [This secondary analysis of data from 97 home hospice patients "indicated higher pain reports as significant indicators of nonexpressed spirituality" (--from the abstract).]

Harrison, M. O., Edwards, C. L., Koenig, H. G., Bosworth, H. B., Decastro, L. and Wood, M. "**Religiosity/spirituality and pain in patients with sickle cell disease**." *Journal of Nervous & Mental Disease* 193, no. 4 (April 2005): 250-257. [This Duke University Medical Center study of 50 consecutive Sickle Cell Disease outpatients looked at relations between pain and church attendance, prayer/Bible study, and intrinsic religiosity. Of the spirituality variables, only church attendance was related to pain, with participants who attended church once or more per week scoring lowest on pain measures.]

[Added 8/13/14] Jegindo, E. M., Vase, L., Skewes, J. C., Terkelsen, A. J., Hansen, J., Geertz, A. W., Roepstorff, A. and Jensen, T. S. [Danish Pain Research Center, Aarhus University Hospital, Aarhus, Denmark]. "**Expectations contribute to reduced pain levels during prayer in highly**

religious participants." *Journal of Behavioral Medicine* 36, no. 4 (Aug 2013): 413-426. [(Abstract:) Although the use of prayer as a religious coping strategy is widespread and often claimed to have positive effects on physical disorders including pain, it has never been tested in a controlled experimental setting whether prayer has a pain relieving effect. Religious beliefs and practices are complex phenomena and the use of prayer may be mediated by general psychological factors known to be related to the pain experience, such as expectations, desire for pain relief, and anxiety. Twenty religious and twenty non-religious healthy volunteers were exposed to painful electrical stimulation during internal prayer to God, a secular contrast condition, and a pain-only control condition. Subjects rated expected pain intensity levels, desire for pain relief, and anxiety before each trial and pain intensity and pain unpleasantness immediately after on mechanical visual analogue scales. Autonomic and cardiovascular measures provided continuous non-invasive objective means for assessing the potential analgesic effects of prayer. Prayer reduced pain intensity by 34 % and pain unpleasantness by 38 % for religious participants, but not for non-religious participants. For religious participants, expectancy and desire predicted 56-64 % of the variance in pain intensity scores, but for non-religious participants, only expectancy was significantly predictive of pain intensity (65-73 %). Conversely, prayer-induced reduction in pain intensity and pain unpleasantness were not followed by autonomic and cardiovascular changes.]

[ADDED 11/7/07]: Mako, C., Galek, K. and Poppito, S. R. "**Spiritual pain among patients with advanced cancer in palliative care**." *Journal of Palliative Medicine* 9, no. 5 (October 2006): 1106-1113. [The authors note other research indicating that "spiritual pain often manifests itself in physical...symptoms" (p. 1107), but in their study of 57 patients with advanced cancer in a palliative care hospital, "Neither the presence of spiritual pain, nor its intensity were significantly correlated with either physical pain or perceived seriousness of illness" (p. 1109). Nevertheless, they affirm that for some, "the sense of spiritual pain is inextricably linked with the physical," and "one person indicated that he could not tell the difference between physical and spiritual pain," while others "described their spiritual pain in bodily terms" (p. 1110).]

Rippentrop, A. E. "**A review of the role of religion and spirituality in chronic pain populations**." *Rehabilitation Psychology* 50, no. 3 (August 2005): 278-284. [This is a good overview of studies of the relationship between religion/spirituality and chronic pain. Note especially the bibliography.]

Rippentrop, E. A., Altmaier, E. M., Chen, J. J., Found, E. M. and Keffala, V. J. "**The relationship between religion/spirituality and physical health, mental health, and pain in a chronic pain population**." *Pain* 116, no. 3 (August 2005): 311-321. [Among the findings of this study from the University of Iowa of 122 patients with chronic musculoskeletal pain was no relation between religion/spirituality and pain intensity or life interference due to pain. Other findings included: compared to data about the general population, these pain patients indicated feeling more abandoned by God and having less desire to reduce pain the world.]

[ADDED 11/7/07]: Snedeker, A. A., Yowler, C. J. and Fratianne, R. B. "**The impact of guided imagery on pain and anxiety levels of burn patients**." *Journal of Burn Care and Research* 27, no. 2, Supplement (March 2006): S151. [This is a brief report of a poster presentation at the 2006 annual meeting of the American Burn Association, describing ongoing research at the MetroHealth Medical Center/Case Western Reserve University, Cleveland, OH, where Fr. Art Snedeker has led an intervention to help burn patients manage pain and anxiety. The abstract is as follows: "Introduction: Guided imagery uses various relaxation techniques, such as rhythmic breathing and visualization of a relaxing and pleasurable experience, to minimize the anxiety of a stressful situation. We have used guided imagery for 5 years as an adjunctive therapy in the control of pain and anxiety associated with inpatient burn care. A prospective study was completed to determine the efficacy of this technique in our patients. Methods: During his initial visits, our burn chaplain would introduce the concept of visual imagery to inpatients in our burn center. If patients requested instruction in the technique, prospective data was collected. Using the Likert Visual Analogue

Scale, data were collected on pain and anxiety levels before and after each guided imagery session. These sessions were usually held immediately prior to wound care and dressing changes. All data was obtained within 5 minutes of starting and finishing the session. Results: Significant decreases were noted in anxiety levels with the use of guided imagery. On the 1-10 scale of the Likert Scale, mean anxiety levels decreased from 6.8 to 3.3 (p_0.05) while pain levels decreased from 5.7 to 3.9 (NS). Conclusions: Guided imagery is a useful adjunct in control of the anxiety that accompanies inpatient burn care. Future studies need to determine how long the effect lasts and the optimal timing and number of sessions required for optimal anxiety relief."]

[ADDED 7/10/08]: Teixeira, M. E. "**Meditation as an intervention for chronic pain: an integrative review**." *Holistic Nursing Practice* 22, no. 4 (July-August 2008): 225-234. [Reviewing eight published studies and two dissertations, "findings suggest that meditation programs may help ease the burden of chronic pain with both short- and long-term effects but more work needs to be done to explore the effectiveness of these programs in diverse chronic pain populations" [p. 233]. However, the authors identify two key gaps in the research: first, key pain conditions (such as fibromyalgia and chronic low back pain) have not been studied; and second, "no studies have been conducted utilizing meditation as the sole intervention" [p. 232]. Directions for future research are considered.]

[Added 8/13/14] Wachholtz, A. B. and Pearce, M. J. [Dept. of Psychiatry, UMass Memorial Medical Center, Worcester, MA]. "**Does spirituality as a coping mechanism help or hinder coping with chronic pain?**." *Current Pain and Headache Reports* 13, no. 2 (Apr 2009): 127-132. [(Abstract:) Chronic pain is a complex experience stemming from the interrelationship among biological, psychological, social, and spiritual factors. Many chronic pain patients use religious/spiritual forms of coping, such as prayer and spiritual support, to cope with their pain. This article explores empirical research that illustrates how religion/spirituality may impact the experience of pain and may help or hinder the coping process. This article also provides practical suggestions for health care professionals to aid in the exploration of spiritual issues that may contribute to the pain experience.]

[ADDED 11/7/07]: Wachholtz, A. B., Pearce, M. J. and Koenig, H. "**Exploring the relationship between spirituality, coping, and pain**." *Journal of Behavioral Medicine* 30, no. 4 (August 2007): 311-318. [(Abstract:) There is growing recognition that persistent pain is a complex and multidimensional experience stemming from the interrelationship among biological, psychological, social, and spiritual factors. Chronic pain patients use a number of cognitive and behavioral strategies to cope with their pain, including religious/spiritual forms of coping, such as prayer, and seeking spiritual support to manage their pain. This article will explore the relationship between the experience of pain and religion/spirituality with the aim of understanding not only why some people rely on their faith to cope with pain, but also how religion/spirituality may impact the experience of pain and help or hinder the coping process. We will also identify future research priorities that may provide fruitful research in illuminating the relationship between religion/spirituality and pain. (References: 52)]

[Added 8/13/14] Wiech, K., Farias, M., Kahane, G., Shackel, N., Tiede, W. and Tracey, I. [Nuffield Department of Anaesthetics, University of Oxford, John Radcliffe Hospital, Oxford, UK]. "**An fMRI study measuring analgesia enhanced by religion as a belief system**." *Pain* 139, no. 2 (Oct 15, 2008): 467-476. [(Abstract:) Although religious belief is often claimed to help with physical ailments including pain, it is unclear what psychological and neural mechanisms underlie the influence of religious belief on pain. By analogy to other top-down processes of pain modulation we hypothesized that religious belief helps believers reinterpret the emotional significance of pain, leading to emotional detachment from it. Recent findings on emotion regulation support a role for the right ventrolateral prefrontal cortex (VLPFC), a region also important for driving top-down pain inhibitory circuits. Using functional magnetic resonance imaging in practicing Catholics and avowed atheists and agnostics during painful stimulation, here we show the existence of a context-

dependent form of analgesia that was triggered by the presentation of an image with a religious content but not by the presentation of a non-religious image. As confirmed by behavioral data, contemplation of the religious image enabled the religious group to detach themselves from the experience of pain. Critically, this context-dependent modulation of pain specifically engaged the right VLPFC, whereas group-specific preferential liking of one of the pictures was associated with activation in the ventral midbrain. We suggest that religious belief might provide a framework that allows individuals to engage known pain-regulatory brain processes.]

II. One of the articles featured as part of the March 2004 Article-of-the-Month page was: Cooper-Effa, M., Blount, W., Kaslow, N., Rothenberg, R. and Eckman, J., "**Role of spirituality in patients with Sickle Cell disease**," *Journal of the American Board of Family Practice* 14, no. 2 (March-April 2001): 116-122. This study of 71 adults with Sickle Cell disease found that patients with strong scores on the Paloutzian and Ellison Spiritual Well-Being Scale--and especially on its Existential Well-Being subscale--appeared to show enhanced capacity to cope with Sickle Cell pain, but they seemed to continue to experience fully the pain itself.

III. Another option for further reading is Harold Koenig's ***Chronic Pain: Biomedical and Spiritual Approaches*** (New York: Routledge, 2003).

IV. For more on SPIRITUALITY & PHYSICAL PAIN,see also the January 2007 Article of the Month page. And for the related topic of SPIRITUAL/EXISTENTIAL PAIN, see the June 2004 Article of the Month page.

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 .