

## **Chronic Pain and Spirituality**

Before the advent of modern pain management interventions, pain was seen as a natural part of life, carrying a variety of religious, cultural, and societal meanings. It has been argued that when ether and chloroform were introduced into obstetrics in the 19th century, pain became a medical matter that lost much of its spiritual meaning in the medical community. The connection between pain management and spirituality emphasizes how faith can reduce anxiety, stress, and negative thoughts and aid in pain practitioners' attempts to relieve and eliminate pain. But recent scholarship and research have rediscovered a relationship between spirituality and pain that has been widely misunderstood and is more difficult to address—when people voluntarily endure pain, even refuse pain medications—for religious or spiritual reasons (Glucklich, 1999, 2001). On the surface, patients' refusal of pain interventions may appear linked to medical misinformation or concerns about addiction and/or psychopathology. But their refusal may reflect deeper spiritual and religious beliefs that need to be properly assessed and included in the patient's plan of care.

## **The Spiritual Meaning of Pain**

As recently as the 19th century, James Young Simpson, the founder of obstetric anesthesia, unknowingly fell into religious territory as people of faith debated whether pain relief was a sign of God's grace or modern man's attempt to avoid the natural consequences of original sin (which is intended to draw us closer to God). Those interested in character development argued pain was a door to spiritual and moral growth. Women's rights advocates, while in favor of obstetric pain relief, feared narcotics and sedation would add to the already patriarchal power structures of the medical establishment. And the growing religious temperance movement promoted the first "Just Say No" movement against any substance that would alter one's sense of reality (Caton, 1999).

In the end, mainstream religious thought overwhelmingly promoted pain relief with strong theological and religious support. Anesthesia and other approaches to pain management have flourished, especially in Western medicine, but the seeds of doubt, questioning of scientific promises, and deep religious convictions still remain strong, especially among more conservative people of faith. In fact, some have even questioned whether the advent of pain management has given a new, even extreme spiritual meaning to pain—that it is "evil and must be eliminated" (Mander, 2000).

The American Pain Society has outlined five spiritual components of pain as follows: Five Spiritual Interpretations of Pain<sup>1</sup> Is pain evil? Is it inherently bad? Can anything good come from pain? And is that potential good worth enduring the pain? In my work as a hospital chaplain and member of a pain management committee, I have worked with religious people who refuse pain medications for spiritual reasons. They find deep religious significance in their pain. I have found their understanding of pain generally falls into one or more of the following categories that have been considered "normal" throughout religious history:

### **Pain as Punishment**

Pain as a form of divine punishment is perhaps the first place of our minds go in our attempt to reconcile physical pain and religious imagery. The connection is not without theological precedent. Theologians and spiritual caregivers regularly acknowledge "God's punishment" as one of the ways the presence of pain has been traditionally understood by religious adherents (Moss, 1996; Conwill,

1986). People of Eastern faiths such as Hinduism have long believed pain and suffering in this life are a result of sin and misdeeds in previous lives. And though modern scholarship downplays the connection between punishment, sin, and physical pain, traditional Islam, Judaism, and Christianity have always understood some direct relationship between pain and punishment. This is clearly seen in debates about whether anesthesia should be used for laboring women, since pain was perceived to be the curse for Eve's disobedience recorded in Genesis 3:15-16. (Cohen, 1996) But punishment is not always punitive. Many Christians, citing Hebrews 11:7-11, see pain and suffering as potentially educational. "Divine discipline" or "divine chastisement" sees the infliction of pain, suffering, or "hardship" (as the text reads) as God's desire to train a person, similar to the traditional parental discipline of spanking. John, a 58-year-old diabetic patient, lay in pain caused by a necrotic toe, which he believed was the result of his "backslidden" relationship with God. Quoting Deuteronomy, Chapter 26, which refers to the blessings of obedience and the curses of disobedience, John spoke of how he felt the flare-up of his diabetes was connected to his "spiritual disobedience" and his noncompliance. John saw his hospitalization as a corrective punishment for sin that brought him into closer fellowship with his God.

### **Pain as an Opportunity for Transcendence**

I asked a friend, an elder of a large Evangelical church, about his prolonged recovery from knee surgery. He said he was fine, but admitted he was not taking all the pain medications he had been prescribed. He said, "A little pain is good for the soul." While most mainline religious faiths advise against suffering and encourage the use of pain medications when needed, they also recognize the potential for spiritual transformation through pain. In a 1984 papal address at St. Peter's Basilica in Rome, Pope John Paul II said, "Suffering seems to belong to man's transcendence: It is one of those points in which man is in a certain sense 'destined' to go beyond himself, and he is called to this in a mysterious way." Monks, mystics, and martyrs have long seen pain as a way of breaking from this life to experience another. It is not odd that some people in the modern world might still use pain for such purposes. The best example of the use of pain in modern health care is in our labor and delivery rooms. A new mother writes, "I am no masochist; I have been known to cry over cuts, menstrual cramps, and even spilt milk. Childbirth is pain like none of those, nor is it like any other pain I have had...I had no need or desire to end or diminish the sensations of birth. It was exhilaration to be part of a primal experience. I was caught up in the desire to know each moment; to discover the unique progression of events leading to the entrance of a new being—or is it 'exit'? Not only me, but no one else can have that time again. It was an opportunity" (Caldwell, 1981).

### **Pain as Test or Competition**

Marie, a 28-year-old Vietnamese-American woman, chose natural childbirth to give birth to her son. While intending to give birth "as God intended" (meaning without medical intervention) and later viewing the experience as an opportunity for transcendence, her primary motivation for voluntarily enduring the pain of labor was more to test her own limits and prove to herself and to others that she was not a weak-willed person. "I want to see what I can handle," she said, speaking of the modern world's overemphasis on personal comfort and convenience. For those who choose it, voluntarily enduring pain becomes an opportunity to discover one's own limits and potential and connect with one's self on the most intimate level.

## **Pain as Atonement**

While the strongest image of pain as atonement comes from the Christian tradition of Jesus' painful crucifixion for the atonement of humanity's sin, other religions and cultures also believe in the redemptive value of pain and suffering. Suki, a 62-year-old Sri Lankan woman recovering from abdominal surgery, told me she believed her pain was helping many deceased friends and family pass into the next life. And we only need go back 100 years to the Native American sun dance to see an indigenous example of pain as atonement. Before being outlawed in 1904, those practicing this ritual attached themselves to large poles with hooks or eagle talons, and, symbolizing death and rebirth, captivity and freedom, and illness and healing, painfully pulled themselves from the hooks' flesh-piercing grip. Manny Twofeathers wrote, "I prayed to the Creator to give me strength, to give me courage. I was doing it for my children. When I stood up, I did feel pain. I felt pain, but I also felt that closeness with the Creator. I felt like crying for all the people who needed my prayers. I prayed they could get enough to eat. I prayed for all the people who are sick in the world. It brought tears to my eyes...the pain did not compare to what I was receiving from this sacred experience..." (Glucklich, 2001).

## **Pain as Gaining or Retaining Control**

Physical pain and themes of control and power are intimately connected. Buddhist monks practiced self-immolation in Vietnam for social protest; Filipino Catholics of Pampanga engage in self-crucifixions reflecting historical fights for social and religious control; and a cursory survey of psychological literature reveals the relationship between self-hurting and young American girls. Martha, a 53-year-old Christian Scientist patient, was admitted to the oncology unit of a hospital. While visibly in pain, she refused morphine and other medications that would relieve the pain caused by the tumor growing inside her. She struggled to hold onto the faith of her youth, which taught her that matter is an illusion and that illness and pain are products of the mind. She recalled the words of Mary Baker Eddy, founder of the Christian Science Church and author of "Science and Health with Key to the Scriptures," which proposes a spiritual approach to healing without modern medicine and is essential reading for followers of Christian Science. In 1996, Eddy wrote, "When your belief in pain ceases, the pain stops; for matter has no intelligence of its own. The full understanding that God is Mind, and that matter is but a belief, enables you to control pain." For Martha, to treat her pain with medications would be to acknowledge that the pain (and illness) exists. Such a belief would be a renouncing of her faith. For this devout, conflicted woman, enduring pain and refusing its elimination through medical means was a way to regain control and preserve her faith.

## **The Idea of Voluntary Pain**

Why would someone want to be in pain when they don't have to be? The idea of voluntarily enduring pain for religious or spiritual reasons should not alarm us. We need only reflect for a moment to consider the times we all have voluntarily engaged in an activity we knew would be painful—from getting tattoos to running marathons, from childbirth to the voluntary emotional pain of psychotherapy. Ultimately, pain is not the goal of those who refuse pain medications or engage in voluntary pain. There are higher goals—goals that may be unattainable without pain. It is odd to think there could be goals higher than painlessness. Even in the labor and delivery units, one of the last acceptable healthcare venues of voluntary pain, the idea of accepting pain rather than relieving it is often viewed with confusion. Perhaps this shows how far we have come as a society in which the absence of pain is the chief good or ultimate value to us. As Donald Caton (1999) records

in his historical treatment of the rise of anesthesia and modern pain medications, the social meaning of pain has changed. When patients refuse pain medications in healthcare settings, a dialogue about the meaning of pain that allows us to respond in meaningful, thoughtful, and compassionate ways should stir within us. As healers, we are compelled to do all we can while valuing individual faith, patient autonomy, and choice. Our professional response to people in pain should create in us a desire to care for patients' bodies and spirits. We must question our own "theology of pain" and recognize the value of struggle, sorrow, and pain in a culture that places such an emphasis on comfort, happiness, and painlessness. In a climate so open to spiritual growth, we will do well to acknowledge and explore the potentially disturbing circumstances under which spiritual growth may occur—pain being one such circumstance. Thus John Cusik reviewed the literature to date and portrayed the state of the art of pain practice.<sup>2</sup> I would like to explore further the ways in which pain might act as a stimulant to spiritual growth and thus afford our patients ways in seeing pain in a more positive manner. Nathan Kollar articulated in his work a spirituality of pain as follows:<sup>3</sup> "No sane person desires pain, yet we cannot do without pain. Pain can turn us into mock images of ourselves, yet we need the warning signs of pain to prevent us from further harm to ourselves. No one lives without some pain. Many, especially the frail elderly, live a life of incarnate pain. Until this century people had no choice about how much and how long they had to endure pain. Today, in the industrialized West, we do have a choice because we have developed a significant amount of pain control. Our Christian traditions and spiritualities come from a time when there were few choices about pain. These spiritualities took for granted not only that we could not do without pain but that we could do nothing about the pain we experienced except pray. Is it possible today to have a pain-free spirituality? Must our spirituality generally choose pain over non-pain? What is the role of pain in our spiritual life? How do we deal with expected as well as unexpected pain? Before answering these questions we must recognize the nature of pain.

## **THE EXPERIENCE AND LANGUAGE OF PAIN**

"Pain is more than a physical reaction to a physical stimulus. It is the body's response to our involvement with significant change. The change may be physical -- a rampaging cancer or stubbed toe; emotional -- an inability to love or be loved; social -- a sense of alienation from one's friends; mental -- an inability to understand what is happening. Pain is the way our body warns us that significant change is occurring. We know that this change may be for the better a new tooth, friend, involvement, idea; or for the worse -- our last tooth, the death of a dear friend, or an idea resulting in the destruction of the environment. Pain is never neutral. It announces the advent of the good and/or the bad. Sometimes it is not a clear declarative announcement but a question that leaves us burdened with the anxiety of not knowing what is happening. Contemporary pain control focuses on acute pain. Acute pain occurs in short bursts, its end expected. We have developed many ways to control it. Chronic pain, however, is only now gaining attention as the battle against acute pain is being won. Chronic pain is predictable, extended, and many times debilitating. It is arthritic pain, sinus pain, and pain associated with certain seasons or situations. Just as acute pain dominated the past, chronic pain dominates the present. But pain, whether acute or chronic, is dependent upon our social and personal environment. We respond to pain differently depending upon our past experience with it. If, as a child, for instance, we were encouraged to elaborate on our pain and consequently, become the center of attention, as an adult we will probably talk more about our pain and seek out those who will listen and respond. If, on the other hand, our pain was cared for while we were expected to continue with our daily tasks, we will accept most ordinary pain as part of our life style. It is also well recognized that people in different cultures experience pain differently. Pain, then, has its own language. And, as with any language, it differs as to who is speaking and what language is spoken.

## **PAIN AS SACRAMENT; PAIN AS SACRAMENTING**

“A language is real only when it is spoken and heard, not in a dictionary or grammar book. A language is more than spoken and heard words; it is also the gestures of face, hands, and body. Languages are bridges which bind speakers and listeners together in shared meaning and belonging. Sacraments and language have much in common. They express a complex reality in a very condensed fashion while initiating a new dynamic into their surrounding environment. “When we speak we express our "selves." But "self" is never simple. We have a past, a present and a future resulting from a confluence of other pasts, presents, and futures. When we speak, our words do not hang there in the air, without effect. No, they encounter those around us -- to be experienced anew by the listeners. The sacrament of baptism is much the same as our words. “Baptism is a combination of words, people, music, and pouring water. It links Christians of the past, present, and future. Yet it results in specific changes among everyone present. In the language of the medieval texts, it causes what it signifies. Pain is a sacrament -- a sensible reality expressing and causing something unique, a bridge between change and our conscious self. Pain sacramentalizes significant change in self, society, and world.

“The change is evident when we know the cause of the pain. For example, the pain -ouch!- occurs because of the change my finger's cut; the hunger pain occurs because I have no food (change: money to buy food to no money to buy food); the pain of alienation happens because I am not accepted where I work (change: accepted where I work to not accepted). The sacramentalization of pain is more difficult to sense as the cause becomes more unknown. We may be pain-filled, and know that change is occurring, but not know the specificity of change. Thus pain is the sacrament of change which is many times unknown.

“When the cause is unknown we face pain as mysterious, A awesome, and overwhelming. Pain without a known cause plunges us deep into fear of the future and binds us to an eternal quest to resolve both cause and fear. In such an experience, pain touches the sacred which is also both fearful and attractive. Whenever we touch the sacred we realize our limitation. Alone we stretch out our hands to gain balance. But balance can come only by grasping the hands of those around us. Bound to them we can face that which is overpowering us. No matter how modern we are, unknown pain touches the primitive within -- we howl and beat the air in our vain attempt to control what is essentially uncontrollable. “In "unknown" pain we sense change but not direction. We know that change can be for good or ill. Unknown pain leaves the direction of change unknown. But so does known pain. The example of the tooth makes my point: a new tooth may come out for the young child but it may be lodged at the wrong angle or in such a way that thirty years later it wears the tooth next to it, thus causing undue decay. Some known pain, with seemingly devastating consequences, results in re-directing one's life -- a young man who is hurt in such a way that he can never play football, now gives more time to academics and goes on to be a famous teacher. We may think we know the direction and intensity of the change announced by pain, but we can never be completely sure of the direction.

“Pain in the abstract, however, is never the sacrament. Pain-filled people are: many elderly people filled with pain throughout the day and into the night; people who pain without end. These are the sacraments, and their pain is never ending -- it is always sacramenting. As sacrament and sacramenting the person expresses and bridges the worlds of change and consciousness as they respond to and are responded to as human beings. It is in these responses that we witness choice, love, justice, meaning, belonging, and a spirituality of pain.

## **FROM PAIN TO SUFFERING**

We human beings are complex realities. Because we are complex, we experience freedom. We can never be reduced to one causality, one reason why we act or do not act. We face choice in all of our complexity and all the complexity of choosing. We experience pain with this same complexity. Pain is only one aspect of our life and our living, no matter how overwhelming it may be at times. Pain is the physical aspect of our life. The change that it marks is part of a larger whole -- the whole of suffering. Suffering is a way of experiencing ourselves and our world. "Suffering is the painful consciousness of that within our world which is not what we expect it to be."<sup>(1)</sup> The human person manifests him or herself in many ways: physically, emotionally, socially, and mentally. Human pain is the physical marker of that suffering. Pain is always part of suffering but it is never equal to suffering because it is possible to accept a certain level of pain in order to reduce one's or society's suffering. A person in great pain, for instance, may be willing to put up with the pain in order to talk to those around them; or, a football player may endure great pain in order to score a touchdown; or, a parent to care for his or her children. Pain is not always equal to suffering but when suffering is present so is pain. Our choice of pain is tied up with our choice of suffering. Sometimes we face the pain of a situation in order to reduce the suffering present in it.

## **CHOOSING PAIN IN A WORLD OF PAIN CONTROL**

A pain-free spirituality is impossible. As long as we are humans we will experience pain. Any spirituality which offers an escape from pain is offering an escape from our humanity and its responsibilities. This does not mean that we should accept or live with all pain. Bad pain is bad pain. To suggest that it is not bad is to close our eyes to social and personal evil. The pain of rape, of cancer, of malnutrition is wrong. To suggest that it is somehow good, some type of lemon from which the sufferers are to make lemonade, is to close our eyes to evil. To suggest that we accept these and similar pains as gifts from God is to make both God and the recipient into masochists. Bad pain, evil pain must be dealt with as we deal with any evil. The role of pain in one's spirituality is both a question of choice and of representation. Let us first look at our possible choice of pain. The answers to the following questions aid in that choice. Pain is many times associated with the suffering involved in rebuilding the human family. Does our pain-filled life form, or deform, community? Does our pain-filled suffering improve our ability to live creatively with ambiguity, uncertainty, even chaos? After all, these are parts of life, so we must be able to live and work in their midst even though there are no criteria for judging with certainty that we are responding properly to them.

Does our choice contribute to our growth in the Spirit? Does the choice result in a growth of love that is selfgiving? Does the choice result in a deeper awareness of God's presence in our own life and the life of the world? After all, ours is a suffering God and the world does groan in agony awaiting its completion. Does the pain-filled suffering give promise of reaching its goal? Pain-filled suffering without a goal would be a life without a goal or direction. If we are not aware of the Christ-omega in our life, our pain loses its humanity. Is our acceptance of pain-filled suffering faithful to gospel values and historical realities, for instance, the gospel value of justice for all and the historical realities of the Christian tradition to help the needy? Are we willing to abandon our pain-filled suffering and what causes it? If the original reasons for accepting the pain into our life are not present, we must be willing to move on if we can." Simone Weil has also shaped my attitude towards pain in my patients and the distinction between anguish of pain suffering and her term for being "nailed to the cross" or affliction:<sup>4</sup> In her *Gravity and Grace* Weil's concept of affliction

("malheur") goes beyond simple suffering, though it certainly includes it. Only some souls are capable of truly experiencing affliction; these are precisely those souls which are least deserving of it—that are most prone or open to spiritual realization. Affliction is a sort of suffering plus, which transcends both body and mind; such physical and mental anguish scourges the very soul. War and oppression were the most intense cases of affliction within her reach; to experience it she turned to the life of a factory worker, while to understand it she turned to Homer's Iliad. (Her essay *The Iliad or the Poem of Force*, first translated by Mary McCarthy, is a uniquely powerful piece of Homeric literary criticism, and of persistent interest to students of ancient literature.) Affliction was associated both with necessity and with chance—it was fraught with necessity because it was hardwired into existence itself, and thus imposed itself upon the sufferer with the full force of the inescapable, but it was also subject to chance inasmuch as chance, too, is an inescapable part of the nature of existence. The element of chance was essential to the unjust character of affliction; in other words, my affliction should not usually—let alone always—follow from my sin, as per traditional Christian theodicy, but should be visited upon me for no special reason.

The man who has known pure joy, if only for a moment...is the only man for whom affliction is something devastating. At the same time he is the only man who has not deserved the punishment. But, after all, for him it is no punishment; it is God holding his hand and pressing rather hard. For, if he remains constant, what he will discover buried deep under the sound of his own lamentations is the pearl of the silence of God. In my research I would like to address these theoretical issues and bring them down to a possible measurable method by examining the architecture of pain and suffering in my patients. It is my experience albeit anecdotal, that those patients who come equipped to the physician with a cultural and theological perspective, suffer less when confronted with severe chronic pain. My practice includes neurological disease of a chronic and degenerative nature most of which include an element of pain and suffering. More than cancer which seems to have an end point the chronic nature of the suffering lends itself to long term follow up and study. The methods in this study will be to develop a spiritual road map by which we can follow over time the progress on a physical psychological as well spiritual level, patients who have entered the study. Purpose of a potential study might help us determine the scientific validity of including spirituality within mainstream medical practice. To determine spiritual coping mechanisms under stress and chronic pain in self professed religious persons versus non-religious. This qualitative study examines the experiences of individuals with chronic pain in their attempt to find meaning in the presence of continual pain. The study will interview a group of patients who have been diagnosed with chronic incurable pain disorders of a non cancer type. the study will compare and contrast coping mechanisms among different subtypes of patients according to their belief systems. It is hoped to demonstrate the following: Meaning is initially defined as the ability to engage in productive activities and positive relationships both on a horizontal axis meaning family friends and spouses as well as a vertical axis meaning a Higher Power as defined by the patient. Chronic pain is perceived as the element that removes meaning from the lives of its sufferers. It is hoped that this study will demonstrate on a quantitative level that the presence of a relationship with a Higher Power significantly alters the ability of the patient to cope with chronic pain using measurable scales. Medications are used to cope with both physical and emotional pain leading to addiction. We will measure addiction scores in both groups to determine whether one or the other had higher levels of medication dependence. Rediscovering meaning takes place through a more complex understanding of self. This occurs through the treatment process making it possible to explain the interrelation of pain, emotion, and relationship to Higher Power.

## References

- The Intersection Between Chronic Pain and Spirituality: Andersson, Gerhard. "Chronic Pain and Praying to a Higher Power: Useful or Useless?" *Journal of Religion and Health* 47.2 (Jun. 2008): 176-187.
- Ang, Dennis C., Said A. Ibrahim, Chris J. Burant, Laura A. Siminoff and C. Kent Kwok. "Ethnic Differences in the Perception of Prayer and Consideration of Joint Arthroplasty." *Medical Care* 40.6 (Jun. 2002): 471-476.
- Baetz, Marilyn, and Rudy Bowen. "Chronic pain and fatigue: Associations with religion and spirituality." *Pain Research & Management* 13.5 (Sept.-Oct. 2008): 383-388.
- Bloom, Frederick R. "Searching for Meaning in Everyday Life: Gay Men Negotiating Selves in the HIV Spectrum." *Ethos* 25.4 (Dec. 1997): 454-479.
- Cooper-Effa, Melanie, Wayne Blount, Nadine Kaslow, Richard Rothenberg, and James Eckman. "Role of Spirituality in Patients with Sickle Cell Disease." *Journal of the American Board of Family Medicine* 14 (Mar. 2001): 116-122.
- Dane, Barbara. "Thai Women: Meditation as a Way to Cope with AIDS." *Journal of Religion and Health* 39.1 (Spring 2000): 5-21.
- Dezutter, Jessie, Koen Luyckx, Hanneke Schaap-Jonker, Arndt Bussing, Jozef Corveleyn, Dirk Hutsebaut. "God Image and Happiness in Chronic Pain Patients: The Mediating Role of Disease Interpretation." *Pain Medicine* 11.5 (May 2010): 765-773.
- Gall, Terry Lynn. "Integrating Religious Resources within a General Model of Stress and Coping: Long-Term Adjustment to Breast Cancer." *Journal of Religion and Health* 39.2 (Summer 2000): 167-182.
- Haley, Katherine C., Harold G. Koenig and Bruce M. Bruchett. "Relationship between Private Religious Activity and Physical Functioning in Older Adults." *Journal of Religion and Health* 40.2 (Summer 2001): 305-312.
- Kaye, Judy, and Senthil Kumar Raghavan. "Spirituality in Disability and Illness." *Journal of Religion and Health* 41.3 (Fall 2002): 231-242.
- Lawler, Kathleen A., and Jarred W. Younger. "Theobiology: An Analysis of Spirituality, Cardiovascular Responses, Stress, Mood, and Physical Health." *Journal of Religion and Health* 41.4 (Winter 2002): 347-362.
- Moreira-Almeida, Alexander, and Harold G. Koenig. "Religiousness and Spirituality in Fibromyalgia and Chronic Pain Patients." *Current Pain and Headache Reports* 14(2008): 327-332.
- Ng, Ho-Yee, and Daniel T. L. Shek. "Religion and Therapy: Religious Conversion and the Mental Health of Chronic Heroin-Addicted Persons." *Journal of Religion and Health* 40.4 (Winter 2001): 399-410.
- Siegel, Karolynn, and Eric W. Schrimshaw. "The Perceived Benefits of Religious and Spiritual Coping among Older Adults Living with HIV/AIDS." *Journal for the Scientific Study of Religion* 41.1 (Mar. 2002): 91-102.
- Thompson Jr., Edward H., Leslie Killgore and Heather Connors. "'Heart Trouble' and Religious Involvement among Older White Men and Women." *Journal of Religion and Health* 48.3 (Sept. 2009): 317-331. Wachholtz, Amy B., Michelle J. Pearce and Harold Koenig. "Exploring the Relationship between Spirituality, Coping, and Pain." *Journal of Behavioral Medicine* 30.4 (Jun. 2007): 311-318. Zullig, Keith J., Rose Marie Ward and Thelma Horn. "The Association between Perceived Spirituality, Religiosity, and Life Satisfaction: The Mediating Role of Self-Rated Health." *Social Indicators Research* 79.2 (Nov. 2006): 255-274.



### **Other Pain references:**

- Caldwell, L. (1981). An essay on the labor of childbirth. Unpublished manuscript. Caton, D. (1999). What a blessing she had chloroform: The medical and social response to the pain of childbirth from 1800 to the present (pp. 209-213). New Haven, CT: Yale University Press.
- Cohen, J. (1996). After office hours: Doctor James Young Simpson, Rabbi Abraham De Sola, and Genesis chapter 3, verse 16. *Obstetrics & Gynecology*, 88(5), 895-898.
- Conwill, W. L. (1986). Chronic pain conceptualization and religious interpretation. *Journal of Religion and Health*, 25(1), 46-50.
- Cusick, J. (2000). Four days in the school of pain. *Journal of Pastoral Care*, 54(2), 201-202.
- Eddy, M.B. (1996). *Miscellaneous Writings 188– 1896*. Boston: First Church of Christ Scientist Publications.
- Glucklich, A. (1999). Self and sacrifice: A phenomenological psychology of sacred pain. *Harvard Theological Review*, 92, 479-506.
- Glucklich, A. (2001). *Sacred pain: Hurting the body for the sake of the soul*. Oxford, NY: Oxford University Press.
- Mander, R. (2000). The meanings of labour pain or the layers of an onion? A woman-oriented view. *Journal of Reproductive and Infant Psychology*, 18(2), 133-141.
- Moss, S. (1996). Pain and suffering in the Jewish tradition. *Journal of Psychology and Judaism*, 20, 68-71.
- United States Catholic Conference, Inc. (2001). *Ethical and Religious Directives for Catholic Health Care Services (Part 5, No. 61, p. 32)*. Washington, DC: Author.

### **Suggested Reading**

- Kumasaka, L. & Miles, A. (1996). My pain is God's will. *American Journal of Nursing*, 96( 6), 45-47.
- Low, J.F. (1997). Religious orientation and pain management. *American Journal of Occupational Therapy* 51(3), 215-219.
- Stott, J.R.W. (1987). God on the gallows: How could I worship a god immune to pain? *Christianity Today*, 31, 28-30.
- Villarruel, A. M. & Ortiz de Montellano, B. (1992). Culture and pain: A Mesoamerican perspective. *Advances in Nursing Science*, 15(1), 21-32.
- The Work Of Rense Lange Selected PAPERS AND PRESENTATIONS
- Daftari Fard, P., and Lange, R. (2008). Theoretical complexity vs. Rasch item difficulty in reading tests. *Rasch Measurement Transactions*, 2009, 23:2, p. 1212-1213.
- Fishbein, M., & Lange, R. (1990). The effects of crossing the midpoint on belief change: A replication and extension. *Personality and Social Psychology Bulletin*, 16, 189-199.
- Harandi, M.T. & Lange, R. (1990). Model Based Knowledge Acquisition. In: Adeli (Ed.). *Knowledge Engineering*. New York, NY: Addison-Wesley.
- Houran, J., Lange, R., Rentfrow, P. J., & Bruckner, K. H. (2004). Do online matchmaking tests work? An assessment of preliminary evidence for a publicized 'predictive model of marital success.' *North American Journal of Psychology*, 6, 507-526.
- Illinois TIMSS Task Force (1997). An initial analysis of the Illinois results from the Third International Mathematics and Science Study (TIMSS). Illinois State Board of Education, Springfield, Illinois, September 17, 1997. (Coauthor).
- Kazuaki, U. and Lange, R. (2000, April 24-28). An International Perspective on Eight Grade Mathematics in Rural, Urban, and Suburban Schools: The United States vs. Korea. Paper presented at the 81st Annual Meeting of the American Educational Research Association, New Orleans.
- Lange, R. (2010, June 6 – 9). An adaptive scheme for the dynamic Rasch calibration of pilot items. Poster presented at the first IACAT, Arnhem, the Netherlands.

- Lange, R. (2008). Binary Items and Beyond: Simulation of Computer Adaptive Testing Using the Rasch Partial Credit Model. *Journal of Applied Measurement*, Vol. 9.
- Lange, R. (2007, Feb 15-20). Technical Demands on the Large Scale Implementation of Student Assessments. I Biental da Aprendizagem da Matemática e do Português (ISCTEM). Maputo, Mozambique.
- Lange, R. (2007). Binary Items and Beyond: A Simulation of Computer Adaptive Testing Using the Rasch Partial Credit Model. In: Smith, E. and Smith, R. (Eds.) *Rasch Measurement: Advanced and Specialized Applications*. Pp. 148-180, Maple Grove, MN: JAM Press.
- Lange, R. (2003, April 25-27). RASCHLAB: Using Computer Simulation to Teach Objective Measurement. Presentation at the FESTSCHRIFT in honor of Ben Wright: Access, Provocation, and the Development of Professional Identity: Celebrating the Careers of Benjamin D. Wright. Chicago, IL.
- Lange, R. (1999). A cusp catastrophe approach to the prediction of temporal patterns in the kill dates of individual serial murderers. *Nonlinear Dynamics, Psychology, and Life Sciences*, 3, 143-159.
- Lange, R. (1996). An empirical test of the weighted effect approach to generalized prediction using recursive neural nets. In: E. Simoudis, J. Han, & U. Fayyad. *Proceedings of the Second International Conference on Knowledge Discovery and Data Mining*. Menlo Park: AAAI Press. Pp. 183-188.
- Lange, R., and Houran, J. (2006, April 5-7). Perceived importance of employees' traits and abilities for performance in hospitality jobs. Paper presented at IOMW 2006, Berkeley, CA.
- Lange, R. (2005, June 19-22). Issues in vertical scaling: Three simulation studies. Paper presented at the 35-th Annual National Conference on Large-Scale Assessment. San Antonio, TX.
- Lange, R. (1999, October 18). Modeling catastrophes with latent variables in GEMCAT II: Applications to serial murder, paranormal delusions, and organizational product adoption. Presentation to the Chicago Chapter of the American Statistical Association. Chicago, IL.
- Lange, R., Jerabek, I., & Houran, J. (2005). Psychometric description of the TRUE Compatibility Test™ – a proprietary online matchmaking system. *Dynamical Psychology*.
- Lange, R., Wilson, G. D., Cousins, J., & Houran, J. (2005). Redefining compatibility: gender differences in the building blocks of relationship satisfaction. Presentation at the 17th Ann. APS Convention. May 26-29, Los Angeles, CA.
- Lange, R., Jerabeck, I., & Houran, J. (2004, April 11–12). Building Blocks for Satisfaction in Long-Term Romantic Relationships: Evidence for the Complementarity Hypothesis of Romantic Compatibility. Paper presented at the 2004 Annual meeting of the AERA. San Diego, CA.
- Lange, R., Greiff, W. R., Moran, J., and Ferro, L. (2004, May 2-7). A probabilistic Rasch analysis of question answering evaluations. Human Language Technology conference / North American chapter of the Association for Computational Linguistics (NLT/NAACL). Boston, MA.
- Lange, R., Greyson, B., & Houran, J. (2004). A Rasch scaling validation of a “core” near-death experience. *British Journal of Psychology*, 95, 161-177.
- Lange, R., McDade, S., and Oliva, T. (2004). The Estimation of a Catastrophe Model of a Cusp Model to Describe the Adoption of Word for Windows. *Journal of Product Innovation Management*, 21: 15-32.
- Lange, R., and Metcalf, L. (2008, June 12-21). Organizers of: Large-Scale Formative Assessment: Reporting Test Results that Are BOTH Psychometrically Sound and Instructionally-Sensitive. Discussant: Prof. James Popham (U of Calif). Session held at the 38th Annual National Conference on Student Assessment, Orlando, FL.
- Lange, R., & Hughes, L. (2004, June 23-25). A computer adaptive Version of the Pennsylvania Smell Identification Test (UPSIT). *Advances in Health Outcomes Measurement: Exploring the Current State and the Future Applications of Item Response Theory, Item Banks, and Computer-Adaptive Testing*. Bethesda, MD.

- Lange, R., Thalbourne, M.A., Houran, J., & Lester, D. (2002). Depressive response sets due to gender and culture-based differential item functioning. *Personality and Individual Differences*, 33, 937-954.
- Lange, R., Donathan, C.L., & Hughes, L.F. (2002). Assessing olfactory abilities with the University of Pennsylvania smell identification test: A Rasch scaling approach. *Journal of Alzheimer's Disease*, 4, 77-91.
- Lange, R. & Houran, J. (2000). Belief vs. fear: Modeling Maher's attribution theory of delusions as a cusp catastrophe using GEMCAT II, *Journal of Nonlinear Dynamics in Psychology and the Life Sciences*, 4, 235-254
- Lange, R., McDade, S., & Oliva, T.A. (2001). Technological choice and network externalities: A catastrophe model analysis of firm software adoption for competing operating systems. *Structural Change and Economic Dynamics*, 12, 39-57.
- Lange, R., Oliva, T.A., & McDade, S. (2001). An algorithm for estimating multivariate catastrophe models: GEMCAT II. *Studies in Nonlinear Dynamics and Econometrics*, 4(3), 137-168. Also appears at <http://www.bepress.com/snnde/vol4/iss3/algorithm1>.
- Lange, R., & Hughes, L.F. (2001, October 20). Rasch Scaling the UPSIT: Using Smell Recognition to Identify Alzheimer's Disease, Paper presented on the International Conference on Objective Measurement: Focus on Health Care (ICOM 2001), University of Illinois at Chicago, Chicago, IL
- Lange, R., Thalbourne, M. A., Houran, J., & Storm, L. (2000). The revised Transliminality scale: Reliability and validity data from a Rasch Top-Down Purification procedure. *Consciousness and Cognition*, 9, 591-617.
- Lange, R., Oliva, T.A., & McDade, S. (1999, June 13-16). Multivariate catastrophe modeling with GEMCAT II: An organizational product adoption example. Paper presented at the AMA ART Forum. Santa Fe, NM.
- Lange, R. & Houran, J. (1999). Scaling the AT-20 using item response theory. *Personality and Individual Differences*, 26, 467-475.
- Lange, R. & Harandi, M.T. (1986). The elements of a distributed knowledge acquisition system. *Proceedings of the Sixth International Workshop on Expert Systems and Their Applications*. Avignon, France.
- Lange, R., Hearn, L., & Kearney, F.W. (1986). The use of knowledge engineering teams as a method for the development of expert systems. In: Sriram, D. and Adey, R. (Eds.). *Applications of Artificial Intelligence in Engineering Problems*. Boston, MA: Computational Mechanics Publications, pp. 45-54.
- Lange, R., & Fishbein, M. (1983). The effects of category differences on belief change and agreement with the source of a persuasive communication. *Journal of Personality and Social Psychology*, 44, 933-941.
- McCutcheon, L.E., Lange, R., & Houran, J. (2002). Conceptualization and measurement of celebrity worship. *British Journal of Psychology*, 93, 67-87.
- Wolfe F., MacIntosh, R., Kreiner, S., Lange, R., Graves, R., Linacre, J.M. (2006) Multiple Significance Tests ... *Rasch Measurement Transactions*, 19:3 p. 1033-44.
- Software Lange, R. (1998-Present). GEMCAT II, V1.0 - V1.3. Delphi 6.0 software for estimating multivariate catastrophe models. Features: Jackknife and bootstrap tests for indicator weights, Pseudo-R2 and Pseudo-F tests for model comparison. A fully operational version of the program and a manual can be downloaded from: <http://astro.temple.edu/~oliva/cat-theory.htm>.