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Case Report

Living with Spondylolisthesis with (Relative) Equanimity

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Abstract

Objectives: Living with any chronic pain condition is a challenge that can be met when one reduces reactivity to the sensory and evaluative aspects of it. The aim of this case study is to show how a clinical psychologist with expertise in chronic illness applied Buddhist principles to her own experience.

Methods: When one realizes that suffering is the combination of pain plus resistance then one can learn how to accept rather than exacerbate it. Applying the Four Noble Truths from Buddhist psychology to understand and cope with her condition, the author walks the reader along the Eightfold Path to living with stenosis and spondylolisthesis with (relative) equanimity.

Outcomes: Training the mind to be with pain signals as well as working closely with physicians who offered state-of-the-art pain management treatment resulted in good mental and physical functioning.

Conclusion: Spondylolisthesis has been an impromptu teacher that resulted in gratitude - not for the pain, but for the lessons learned.

Keywords
Spondylolisthesis; chronic pain; coping; mindfulness; Buddhist psychology

1. Evidence-base for Mindfulness, Meditation and Chronic Pain Management

Three decades ago Kabat-Zinn and his colleagues at the University of Massachusetts Medical School developed a program to assist patients with chronic pain and stress-related disorders. Currently Mindfulness-Based Stress Reduction (MBSR), an 8-week structured program, is taught around the world. Several reviews have examined efficacy [1] – for meditation, not specifically MBSR, including meta-analyses [2] – for clinical populations, not only chronic pain; Veehof et al. [3] for Acceptance-based therapies, including MBSR for chronic pain and chronic fatigue syndrome; Hilton et al [4] -mixed diagnoses of chronic pain. A recent review and meta-analysis of 11 randomized clinical trials [5] concluded that there is limited evidence for mindfulness-based interventions for patients with chronic pain, while calling for better quality studies with more appropriate outcomes.

Many studies included a mix of diagnoses regarding type of chronic pain patients. Kabat-Zinn [6] reported that 65% of patients showed a reduction of at least 33% in pain ratings and 50% showed a

reduction of at least 50%. In a subsequent publication, compared to patients who were undergoing medical treatments, patients who participated in MBSR showed improvement in present moment pain and less inhibition of activities due to pain, as well as reductions in medication use. [7] Importantly, these changes were stable 15 months later, except for present moment pain. Rosenzweig et al. [8] found improvements differed across patient subgroups. For example, patients with two or more pain conditions, arthritis, or neck/back pain benefited substantially in terms of decreased pain and improvements in pain-related functional activities. Other outcomes, such as quality of life differed across patient subgroups (e.g. patients with arthritis improved more than patients with fibromyalgia). Gardner-Nix et al. [9] compared outcomes for a mixed group of chronic pain patients; one group was given MBSR in hospital whereas the other received the course via videoconferencing. Improvements were found in both groups for pain, quality of life and catastrophizing, but the reductions in pain were better for those taking the course in hospital.

MBSR has been studied with patients with arthritis. Zautra et al. [10] conducted a 3-arm randomized clinical trial (RCT) comparing a variation of MBSR (no yoga, no retreat, with an emphasis on emotional regulation) to Cognitive Behavior Therapy, and an Education control group. While both therapy interventions were helpful across various measures (pain, coping with pain), the relative merits of each program were related to patients' history of depression. Patients with a positive history for depression in the MBSR group did better in terms of catastrophizing and coping with pain efficacy expectations. Moreover, rheumatologists found significant improvements in joint swelling and tenderness in the MBSR group. Davis et al. [11] examined diary data from Zautra et al. [10] study in 143 patients. Those in the mindfulness group showed the best results for: daily pain-related catastrophizing, morning disability, fatigue, and daily stress-related anxiety. In another RCT of MBSR for arthritis patients [12], patients in the MBSR group improved more than the control group on: duration of morning stiffness, joint tenderness, and pain scores post-MBSR, 4, and 6 months later.

Kaplan et al. [13] noted that 51% of the patients with fibromyalgia (FM) in an MBSR program were "responders", defined as showing 25% improvement on at least 50% of the 10 questionnaires; 65% improved on the VAS measure of pain. While pain scores were not reported in Weissbecker et al.'s RCT [14], there was an increase in sense of coherence (i.e. life viewed as being meaningful, manageable, and comprehensible) in the MBSR group compared to wait-list control. In another RCT, Astin et al. [15] combined MBSR with Qigong and found improvements for pain and other FM-related symptoms, but these results failed to differ from the Education Support group. Grossman et al. [16] conducted a quasi-experimental study comparing MBSR to a Support group whose patients engaged in relaxation and stretching exercises. The MBSR group had better results for pain post-treatment. Importantly, 26/39 patients in the MBSR group provided follow-up data 3 years later – most improvements were maintained. Vago and Nakamura [17], in a laboratory study, showed that women with FM who completed Mindful Meditation Training were less likely to avoid, more likely to engage, and were more efficient in disengagement from pain-related threat cues compared to women in the control group.

Another group of patients studied were those with low back pain or failed back surgery. Morone et al. [18] compared older adults (65 years or more) who took the MBSR course (n=19; 13 completed) to those randomly assigned to a wait-list control (n=18; 17 reassessed at post, 14 crossed over to MBSR,

1 died). Results showed that patients in MBSR group did better on pain acceptance and activity engagement. While changes in pain were not significant post-MBSR, they were at 3 months (once the control group was crossed over and assessed.) Moreover, nearly one-half reported reductions in the use of sleep medications. Most would agree that failed back surgery patients are difficult to treat. Esmer et al. [19] took up the challenge to offer MBSR to this group in a RCT with 19 and 21 patients allocated to the MBSR and control groups, respectively. The MBSR group showed statistically significant changes in all measures (pain acceptance, disability, VAS for pain, sleep quality) that were maintained from 12 to 40 weeks. Reductions in the use of analgesics were evident at the 12-week assessment. Nonetheless, in a recent systematic review and meta-analyses Anheyer et al. [20] concluded that while MBSR may be associated with short-term effects on pain intensity and physical functioning, long-term RCTs that compare MBSR versus active treatments are needed to best understand the role of MBSR in the management of low back pain.

For the interested reader, Zeidan and Vago [21] recently examined the neurological mechanisms underlying mindfulness mediation-based pain relief. Their review concludes that mindfulness meditation significantly attenuates pain through multiple, unique mechanisms and that these vary as a function of meditation training and years of practice. Specifically, adept meditators experience a decoupling between sensory and appraisal-related brain regions in the presence of noxious stimulation. Novice meditators show changes in the evaluation and meaning of pain as a function of self-referential processes.

2. Exploring How Buddhist Principles Can Alleviate Suffering

When mindfulness and meditation were first introduced by Kabat-Zinn and his colleagues in the early 1980s, care was taken to use secular language (e.g. stress reduction) to render the program suitable to medical settings. While MBSR was based on Buddhist principles and hatha yoga is an ancient Indian spiritual practice, this remained implicit. Since that time, more openness towards Eastern philosophies, alternative medical paradigms (e.g. Traditional Chinese Medicine) and complementary therapies has made it acceptable to examine how they are fundamental to processes contributing to favourable outcomes [22].

The Buddha maintained a pragmatic rather than dogmatic approach to alleviating suffering. He aimed to instill a felt sense of principles to help practitioners *independently* discern how to deal with any set of given circumstances; he shunned proclaiming religious rules that told people how to live [23]. Mindfulness practice emphasizes grounding awareness in the body as means of healing emotional difficulties. For example, two basic forms of resistance, fear and anger, can manifest as body tensions. These may be physical correlates of psychological pain and guardedness. When chronic, sometimes following acute severe trauma (e.g. breast cancer surgery), a vicious circle of mind-body discomfort can develop. Mindfulness encourages exploring and letting go of constrictions lodged in the body which were initially protective but have become maladaptive.

3. A Case Study

Buddhist psychology has guided how I live for two decades [24]. When I began to practice yoga and meditation I did not know to what extent this would rescue me as I aged. I am an Associate Professor in the Department of Medicine at McGill University, a clinical psychologist specialized in Mind-Body Medicine, who co-authored a Health Technology Assessment report for the Quebec government in Canada during my 2004 sabbatical year. I worked with a policy expert to write an evidence-based document on the management of non-malignant chronic pain. The finished product was published [25] and presented to an adjunct to the Health Minister [26]. For the past 12 years I have taught MBSR to patients with various illnesses, including chronic pain [27]. Thus, I know from the clinician's perspective how to research and treat chronic pain [28].

The Buddha has been described as the 'Doctor of the World.' This may be due to his central insight and framework cast in the classical formulation of an Indian medical diagnosis. It begins with the nature of the symptom, one that is associated with dissatisfaction; next a diagnosis is formulated based on an understanding of etiology. Third is the prognosis: there is hope for a cure. Finally, treatment is recommended. How these teachings enable me to live with spondylolisthesis and stenosis at L4-L5 in my spine with (relative) equanimity will be described herein. Specifically, the *Four Noble Truths*, with the *Eightfold Path* (being the fourth truth) will be highlighted herein.

The *First Noble Truth* is that dissatisfaction and suffering are part of the human condition. They can be triggered by a traumatic event such a natural disaster or accompany illness and losses that occur throughout one's life. Suffering is exacerbated by reactivity to the situation with emotions e.g. fear, anger, or envy; or thoughts such as, "This is terrible! I can't bear this a moment longer!" Furthermore, dissatisfaction is coloured by the fact that all things that arise will also pass away i.e. they are impermanent. If one believes or expects them to remain constant, then disappointment will follow. Importantly, suffering ensues when one identifies with unease as being integral to 'me, mine or I' (e.g. *I* am diabetic.). Self-centeredness compounds suffering.

Using my medical condition as an example, it causes me suffering if I fail to accept that my body has changed with age; that I have lost some aspects of physical functioning; and that 'I' am stiff in the morning. If I am overly focused on 'my' pain, rather than acknowledge it and carry on, then I will be caught up in it.

The *Second Noble Truth* considers the origins of suffering. Buddhists point to craving, desire, and attachment. What do we cling to? Three things: sense pleasures, existence, and nonexistence. The first domain is straight forward. Pleasant sights, smells, tastes, sounds and touch are desired. Unpleasant ones are avoided. To add fuel to the fire, the more we have the more we want. Cravings can become obsessive, as in addictions. We can be blinded by them. The second domain, the desire 'to be' can be understood when examining the contents of the mind. Examples are: planning for a positive future so one can be happier/richer/safer, etc.; having ambitions that will prop up one's self-esteem and status. The third domain, the desire for nonexistence may be transitory. For instance, a shy man may drink alcohol to avoid feeling social anxiety. A teenager may consume crack cocaine to numb memories childhood abuse. If misery seems too great, to end life itself becomes a desire.

My medical condition can be approached from a conventional Western medical point of view *and* understood more deeply via Buddhist psychology. Diagnostic tests (X-ray and MRI) show what is not right with my back. My doctors use a model of the spine to point out damaged facets and where space is compressed (stenosis). A prosthetist made shoe orthotics and back corset for me. But, these bio-mechanical approaches remain at the surface of the problem. The sensations I experience *are* unpleasant. I inadvertently exacerbate the discomfort when I resist. If I cannot simply *be with* the pain and observe sensations come and go, rather than wish it to end, I add a psychological component to the suffering equation. When 'I' identify with the problem, i.e. 'my' back, buttocks and the thighs hurt, a vicious circle ensues.

Yoga has taught me to slow down and to honour the body's limits – which vary from day to day. It fosters flexibility in both the body and mind. During one hatha yoga class while the angelic voice of Deva Primal singing Sanskrit mantras played in the background I had an experience in which intense body pain *dissolved* when I became conscious that 'my pain' was not 'mine'. While that experience was transitory, it made an impact on me. Yin yoga practice enables me to notice how afflictive emotions (e.g. regret) are lodged deeply within connective tissues, taxing energy. Holding and releasing poses helps me let them go.

The *Third Noble Truth* suggests that there is a Way to attenuate suffering. We can learn how to *let go of wanting things to be different from how they are*. We can gain *insight* into the conditioned nature of experiences. How is this accomplished? Via the *Fourth Noble Truth* i.e. the Eightfold Path. The steps fall into three groups of training: Morality (speech, action, livelihood); Concentration (effort, mindfulness, concentration); and Wisdom (view and thought). They are interactive, not linear. They can lead to an ethical, integrated life.

Let's start with the wisdom factors. Buddhists use the term 'right' to imply wise or complete. Right View herein means acknowledging the first three noble truths. It sets the direction and is tied to the notion of karma i.e. cause and effect [23]. Seeing with clarity means awakening to things as they really are.

In my case, I need to see not only the physical aspect of the pain but how the mind can be conditioned to perpetuate it. I will suffer more: If I fear disability and obsess about what will happen if I cannot work in the future; if I cling to the person I was (i.e. energetic and athletic); if I believe 'I' exist as an independent, solid, permanent entity.

During the body scan meditation, I observe that sensations are ephemeral. While the purpose of the body scan is to learn *to be aware of what is*, rather than change anything, often the parasympathetic nervous system is engaged and a feeling of alert relaxation results.

Right Thought is sometimes called intention or resolve. How one *perceives* the self, others and context is predicated on this. Being aware of one's thoughts enables one to make wise choices regarding how to act.

In terms of resolve, I aim to work in partnership with my doctors while adding to their interventions knowledge of how my mind may hinder or benefit the experience. When I receive facet injections I breathe consciously, feeling the needles, allowing the medications to enter my body. The first time this was done, I felt a pulsing in the area my yoga teacher would call the 'sacral chakra', in the solar plexus. I was pleasantly surprised when the doctor found this observation interesting, rather

than bizarre. Nonetheless, I must be vigilant lest I fall into old mental habits such as wishing for a cure. Rather, I cultivate *realistic hope* for being able to cope well with pain.

Right Speech entails speaking the truth and engaging in useful exchanges. (i.e. knowing the intention behind words). For instance, when I answer my doctor's questions I report on my recorded observations rather than rely on my memory. They appreciate having data to work with. I aim to speak kindly to them, showing appreciation for their care.

As for Right Action, I take responsibility for what I *can* do (e.g. swim, practice yoga, take medications, when indicated) and adhere to recommendations.

I am motivated to improve my health, in part, so that I may continue to work. My livelihood is based on teaching Mind-Body Medicine – with the intention to help others live healthier, happier lives. Thus, I wish to engage in Right Livelihood. Of course, there is an element of personal satisfaction because my work gives my life a sense of meaning. It enables me to be compassionate towards others who are suffering. My first-hand experience draws me closer to them.

The concentration aspect of the Eightfold Path includes: Right Effort, Right Mindfulness, and Right Concentration. The first is about what one channels energy into: wholesome or unwholesome thoughts and actions. Regarding spondylolisthesis this translates, in part, to pacing myself i.e. not trying to do too much on a 'good day' only to be depleted the next. Chronic pain results in fatigue. Rather than waste energy being frustrated about limitations, homing in on what remains possible and feeling grateful for this helps. Getting sufficient sleep is crucial. This has been a challenge for the past two years since it has been difficult to settle into a position. Recently a rheumatologist prescribed Gabapentin which made a remarkable difference in sleep, but not pain.

Much has been written about mindfulness which means being fully aware of what is transpiring in the present moment. It can be developed by formal meditation practices as well as weaving consciousness into daily activities. What can one be mindful of? The body, feelings, thoughts and actions.

What I am doing while writing this manuscript is an example. I am conscious, as sit here, that my back is stiff. Sensations in my buttocks and the back of my thighs are uncomfortable despite an ergonomic chair. Sounds of people working in the room next to mine are heard. The sun is shining through the slats in the blind. My breath is calm as I type. I note ideas as they arise; I trust they will express what I wish to transmit. This requires Right Concentration.

Two types of sitting meditation enhance concentration. One is focused attention on a single object, such as the breath. The other is called 'choiceless awareness' or, one-pointedness of mind on changing objects. Thus, when I wake, before getting out of bed, I simply feel the breath as it enters and leaves, naturally for about 10 minutes. While swimming I notice the water temperature, the sensations that accompany the breast stroke, or the thoughts that drift through the mind. These activities make 'space' for something more than physical discomfort.

The most important notion I have gradually learned is to let go (of what I cling to) and let be (what already is). Spondylolisthesis has been an impromptu teacher. It has changed my self-perception, my world-view and led me to a place where self-compassion resides. It has helped me be more connected to fellow human beings. I am grateful, not for the pain, but for the lessons.

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Author Contributions

The author wrote all parts of the manuscript.

Competing Interests

The authors have declared that no competing interests exist.

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