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The Newsletter of the University Centre for Research on Pain and Disability

Message from the Scientific Director :

There have been many new exciting developments since the last newsletter. In this Newsletter, we describe some of the recent research that we have conducted on the influence of perceived injustice and depression on recovery trajectories following musculoskeletal injury. We feature the research of Ms. Whitney Scott who is currently completing her doctoral studies in Psychology at McGill University. We also feature the work of Dr. Timothy Wideman, a former graduate student in the Department of Psychology at McGill University who is currently completing a post-doctoral fellowship at Johns Hopkins University.

There are two ongoing clinical trials of the effectiveness of the Progressive Goal Attainment Program (PGAP). One is being conducted with work-injured clients by the Department of Labor and Industry in Washington State. Another is being conducted with military veterans with Post-Traumatic Stress Disorder by MDRC, a social policy organization based in New York. The trial currently has two sites, (Connecticut and Texas). A press release regarding this trial can be found at: http://www.mdrc.org/project/progressive-goal-attainment-program-pgap-veterans#featured_content

We hope to be able to report on the findings of these clinical trials in the next Newsletter.

In collaboration with the Centre for Rehabilitation and Health, we have recently completed a study examining the effectiveness of the PGAP with individuals who are work disabled due to major depression. The results of that study are currently being prepared for publications and will be described in the next Newsletter.

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Depression, Anger and Perceived Injustice

In 2008, we published a paper describing the development of the Injustice Experiences Questionnaire (IEQ; Sullivan et al., 2008). In that paper, we also described the results of two studies showing that high scores on the IEQ predicted prolonged work absence following musculoskeletal injury.

Over the past few years, additional reports have been published showing that high levels of perceived injustice contribute to problematic recovery and poor rehabilitation progress. To date, the relation between perceived injustice and problematic recovery has been studied

in individuals who have sustained workplace injuries, individuals with whiplash injuries and individuals with fibromyalgia. The pattern of findings has been consistent across studies, namely, high scores on perceived injustice contribute to more severe pain, and more prolonged disability.

The research that has been conducted to date has also revealed relations between perceived injustice, depression and anger. Whitney Scott, who is a graduate student of Dr. Sullivan's in the Department of Psychology at McGill University, has been involved in research aimed at bringing greater clarity to our understanding of the emotional correlates or consequence of perceived injustice. In one study (Scott et al, 2012), Ms. Scott conducted analyses on a sample of individuals with chronic musculoskeletal pain. Of particular interest in this study was to explore the role that perceived injustice played in the relation between pain severity and depression.

In previous research, it has been shown that pain severity contributes to depressive symptoms. In other words, as pain severity increases, so does the probability of

experiencing depressive symptoms. However, this relation has not been as reliable as one might intuitively infer. Numerous studies have reported no significant relation between pain severity and depressive symptoms. Ms. Scott's study examined whether variations in perceived injustice might determine whether a relation between pain severity and depressive symptoms would be observed.

The results of the study revealed that pain severity and depressive symptoms were significantly correlated only when scores on perceived injustice were elevated. When scores on perceived injustice were low, the relation between pain severity and depressive symptoms was not significant. The findings of the study suggest that perceived injustice augments the negative impact of pain severity on

emotional distress. The findings of this paper appears in Volume 17 of the Journal Pain Research and Management.

In another study, Ms. Scott examined the role of anger as a vehicle through which perceived injustice impacts of pain. Previous research had shown that anger was the most likely emotion to be elicited in response to a situation that was appraised as unjust. Anger has also been shown to trigger a cascade of physiological and neuro-physiological processes that ultimately contribute to an increase in the intensity of pain experience.

In the anger study, Ms. Scott recruited a sample of 113 chronic pain patients from the Quebec Pain Registry. Participants were asked to complete measures of perceived injustice, anger and pain severity. Analyses were conducted

Perceived injustice gave rise to heightened anger reactions, and in turn, anger led to more intense pain experience.

on these data to address whether anger was the vehicle through which perceived injustice impacts on pain severity. The analyses confirmed the study hypothesis, namely that perceived injustice gave rise to heightened anger reactions, and in turn, anger led to more intense pain experience.

The results of the study suggest that intervention techniques that target perceptions of injustice could be coupled with anger-management techniques to reduce the negative impact of perceived injustice on pain experience. The findings of this study will be published in an upcoming issue of the journal, Pain.

Recovery from Depression in Physical Therapy

Research suggests that 20% - 50% of individuals with persistent pain conditions will also suffer from clinically significant depressive symptoms. Individuals with musculoskeletal symptoms who consult a primary care physician are likely to be referred to physical therapy.

What this suggests is that a substantive proportion of clients with pain conditions referred to physical therapy are also depressed. Clinical practice guidelines for physical therapists recommend routine screening for depression, however, practice

guidelines are generally ambiguous about how the physical therapist should proceed if a client scores in the clinical range on a measure of depressive symptom severity.

A former doctoral student, who is also a physiotherapist, Dr. Timothy Wideman,

at McGill University examined the response of depressive symptoms to a physical therapy intervention. In this study, Dr. Wideman enrolled 106 work-injured individuals who were being treated in physical therapy; participants in the study sample reported

Depression can be expected to resolve with physical therapy alone in approximately 40% of cases.

musculoskeletal pain and scored in the depressed range on the Beck Depression Inventory-II. Participants were tested three times; at admission, after 4 weeks of treatment, and after 7 weeks of treatment. Participants received no other treatment during the 7- week physical therapy program.

Of interest in this study was to document the course of depressive symptoms in individuals with pain receiving physical therapy. For the purposes of the study, individuals with BDI-II scores greater than 14 were classified as depressed; individuals with BDI-II scores of 14 or less were classified as non-depressed. The results showed that 43 of 106 initially depressed participants were no longer depressed after 7 weeks of treatment. In other words, depression can be expected to resolve with physical therapy alone in approximately 40% of cases.

The next important question concerned was whether it was possible to predict which clients were likely to have depressive symptoms that would be resolved in physical therapy, and which clients were likely to have depressive symptoms that would persist.

When examining only assessment results at admission, analyses revealed that individuals with elevated scores on the BDI-II

who also scored in the risk range on the Pain Catastrophizing Scale (i.e., > 23) were particularly likely to have depressive symptoms that would remain elevated through the course of physical therapy.

Additional analyses revealed that initially depressed individuals whose BDI-II scores remained in the clinically depressed range at mid-treatment, were also particularly likely to have depressive symptoms that would persist through the course of the physical therapy treatment.

Given that approximately 40% of depressed individuals with persistent pain will recover (e.g, depression scores will fall below clinical threshold by then end of treatment), it is not reasonable to recommend that all clients with high depression scores at admission be referred to a mental health service. The results of Dr. Wideman's study suggest that when clients with pain conditions also show evidence of clinically significant, a 'watchful waiting' approach should be used. In other words, the clients who, at admission, obtain elevated scores on measures of depression and pain catastrophizing should be watched most closely.

Four weeks following the initiation of physical therapy treatment, depression should be reassessed; clients whose depression scores remain elevated after 4 weeks of physical therapy should be considered for more formal assessment of mental health needs because their depressive symptoms are unlikely to resolve if treated through physical therapy alone.

The results of this study provide important information that can assist the physical therapist in his or her decision-making process as it pertains to treating clients with pain and co-morbid depressive symptoms. Systematic approaches to clinical decision-making represent the first step in the effective management of a clinical condition. Given that depression is a powerful prognostic indicator of the persistence of pain symptoms and prolonged work absence, it is clear that gains still need to be made in the development of systematic approaches to the management of co-morbid pain and depression. The next question that begs answering is what type of treatment for depression, pharmacological or psychological, will yield the best rehabilitation outcomes for the client with co-morbid pain and depression.

PGAP and Trauma-Related Conditions

Road accidents, occupationally-related traumatic events, or crime incidents or combat situations can expose individuals to stresses that are so severe as to overwhelm their coping resources and leave them struggling to keep their emotional world intact [1]. Incidents characterized by high levels of threat or exposure to horrific or disturbing circumstances can lead to symptoms of post-traumatic stress disorder (PTSD).

In spite of receiving appropriate symptomatic treatment, a significant proportion of individuals with PTSD will follow a chronic course. The persistence of PTSD symptoms is often associated with occupational disability. Over the past several years, PGAP has been used increasingly to reduce the disability associated with mental health problems.

A case study is presented below describing the use of PGAP for a work-disabled military veteran with PTSD. In the case presented below, the PGAP provider was a physiotherapist, Craig Sully of Kootenay Health Services in British Columbia.

A Case Study - A Work-Disabled Client with PTSD

The following case study illustrates some of the elements of the PGAP. The case study describes the participation of John P in the PGAP. Details of the actual case have been changed in order to protect the anonymity of the actual client.

John P. was a military veteran who had been discharged due to ongoing symptoms of post-traumatic stress disorder (PTSD). He had been involved in a roadside blast that resulted in several casualties. Ongoing PTSD symptoms such as recurrent nightmares, heightened anxiety and depression interfered with John P.'s ability to carry out his military duties and he was medically discharged. In addition to his symptoms of PTSD, John P. also experienced significant pain in his ankle and knee due to multiple fractures that had also occurred following the roadside blast.

John P. was referred by a case manager associated the Veterans' Affairs Canada (VAC) as she was aware that the services at the clinic included PGAP. Although it might seem counterintuitive that a physical therapist would be considered in the treatment with an individual with PTSD-related disability, it is important to note that the PGAP is intended to treat the 'disability' associated with a client's presenting health or mental health problem, the PGAP is not intended as a treatment for the actual health or mental health condition. As such, the PGAP would be used in a very similar way, whether the client's disability was the result of medical condition (e.g., pain) or a mental health condition (e.g., PTSD).

Initial screening revealed that John P. was a suitable candidate for PGAP. He had obtained elevated scores on measures of catastrophic thinking, perceived injustice and disability beliefs. Individuals are only offered the PGAP if they show evidence of a psychosocial risk profile (i.e., elevated scores on risk factor measures).

John P.'s activity log revealed a very sedentary lifestyle characterized by considerable passivity where his days consisted mainly of resting or watching television. In the second week of the PGAP, John P. was introduced to activity planning. The first planned activities included resuming a morning routine that would ultimately facilitate a return to occupational activities. The objective of this initial activity planning is to gradually increase the degree to which John P. behaved 'as if' he were getting ready to go to work. Behaving in this way is incompatible with disability beliefs. Throughout PGAP, engaging the client in activities incompatible with disability beliefs is used as the primary belief change strategy.

In the third week of the program, John P. was encouraged to consider activity goals that would become the focus of activity planning for subsequent weeks. Some of the goals chosen by John P. included cleaning and organizing the storage area of his basement, and engaging in recreational activities such as fishing and camping. Repeated exposure to activity within his tolerance limits was intended to reduce his fears of activity participation. In the same way that repeated exposure to a feared object is used as a treatment of phobias, in the PGAP repeated exposure to activity is used to reduce fear, and in turn, reduce disability.

Activity participation also requires attention. While individuals are engaged in activities that demand their attention, they are less likely to engage in negative or pessimistic thinking. As such, activity involvement also becomes an important tool for reducing catastrophic thinking and perceived injustice.

During the fourth week of the PGAP, the mid-treatment evaluation was conducted. John P. reported increases in the household, family, social and recreational activities. Evaluation revealed significant reductions in depressive symptoms, disability beliefs and catastrophic thinking.

By the fifth week of the PGAP, John P. was following a scheduled plan of activities as he proceeded through each day. Given the progress that he had made, the topic of return to work was addressed. John P. had worked primarily as a driver/mechanic in the military and he was encouraged to consider employment opportunities that capitalized on his strengths. Working with his case manager at VAC, John P. began to explore employment opportunities in his community that were related to his skills as a driver or mechanic.

In the sixth and seventh weeks, session discussions focused more and more on employment-relevant activities. These included job preparation and job search activities. In the eighth week of the program, John P. announced that he had been offered a position as a driver for a local courier company. Through the course of the program, John P. had shown significant (> 20%) reductions in depressive symptoms, fatigue, catastrophic thinking, perceived injustice and disability beliefs. At one month follow-up, John P. was still working.

Synthesis and conclusion

The case of John P. illustrates how activity involvement can be used strategically to target psychosocial barriers to rehabilitation progress. Through his involvement in attention demanding activities, the frequency of self-defeating thoughts associated with catastrophizing or perceived injustice were reduced in frequency. Repeated exposure to previously discontinued activities reduced John P.'s fear of symptom exacerbation, and in turn, fear reduction led to symptom reduction. John P.'s gradual resumption of life-role activities challenged his disability beliefs and ultimately he was able to consider return to work as a feasible treatment objective.

In rehabilitation, the boundaries of practice domains across various disciplines are becoming less distinct. A decade ago, it would have been atypical for a physical therapist to deliver an intervention designed to target psychosocial risk factors. Now research is emerging showing that psychosocial interventions delivered by frontline rehabilitation professionals, such as physiotherapists, can have a clinically meaningful impact on psychosocial risk factors such as catastrophic thinking and fear of movement, even on mental health variables such as depression and PTSD. As research continues to elucidate risk factors for problematic recovery, the key to clinical success will lie in the ability to develop risk factor targeted interventions that can be incorporated into the skill repertoire of primary care physical therapists. Such interventions hold promise of preventing chronic disability in individuals who experience debilitating health or mental health conditions.

[1] Asmundson G, Norton G, Allardings M, Norton P, Larsen K. Post-traumatic stress disorder and work-related injury. *Journal of Anxiety Disorder* 1998;12:57-69.

Information Updates:

PGAP® has been added to the Official Disability Guidelines .

We were recently contacted to be informed that PGAP has been added to the Official Disability Guidelines (ODG). At the time of this writing, the ODG description of PGAP has been limited to the criteria of the Washinton State Labour and Industry PGAP trial. A recommendation has been submitted to the ODG to modify the treatment guidelines to reflect a more accurate description of all the health and mental health conditions for which the PGAP has been shown to be beneficial. In addition, the ODG does not currently list all the disciplines that PGAP providers are drawn from. We will keep you up-to-date on any modifications and clarifications that may be made to the Guidelines.

The Work Loss Data Institute (WLDI) is an independent database development company focused on workplace health and productivity, with offices in California, Texas and Montana. WLDI products include Official Disability Guidelines (ODG), now in its 18th edition, which provides evidence-based disability duration guidelines and benchmarking data for every reportable condition. New medical treatment guidelines for work-related conditions are also available with ODG in a complete integrated product, ODG Treatment, currently in its 11th annual edition. Both put evidence-based medicine to work for those involved in workers' comp and non-occupational disability, including insurers, TPA's, health care providers, case managers, employers, benefits administrators, risk managers and claims attorneys in the management of return-to-work and utilization of medical services following illness and injury. For more information visit : www.worklossdata.com

The following Resources are now available in French

Visit the french portion of the PGAP website : www.pdp-pgap.com for more information.

DVD – PGAP pour les personnes souffrant de douleur © 2013

DVD – PGAP pour les survivants du cancer © 2013

DVD – PGAP pour les personnes avec états de santé chroniques © 2013

DVD – PGAP pour les personnes avec états de santé mentale © 2013

The following Resources are now available in Spanish

Programa de Gestión de Actividades Progresivas (PGAP) - Cuaderno de Ejercicios del Cliente

Coming soon:

Spanish version of the PGAP DVD – for Persons with Pain

PGAP® Workshops Scheduled for 2013 - 2014

Our 2-day PGAP workshops will be scheduled in Toronto, Ontario on November 22 & 23 2013 (English) and on March 28 & 29, 2014 in Montreal, Quebec (French)

Unfortunately, simultaneous translation is not available in either workshop.

Information and registration forms for the Toronto workshop are now available to download on our website:

<http://www.pdp-pgap.com/pgap/en/workshops.html>

Information and registration forms for the Montreal workshop will be available to download on our website after August 30th

OFFICE VACATION DATES

The University Centre for Research on Pain and Disability will be closed from September 1 – September 16 inclusive. Telephone calls, faxed messages, emails and orders for materials and registration forms for workshops will not be monitored during this time. Please feel free to leave messages that will be responded to after September 16.



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Selected activities and publications since our last Newsletter

Accepted/ In Press Refereed Papers

- Mankovsky-Arnold, T., Wideman, T.H., Larivière, C., Sullivan, M.J.L. TENS attenuates repetition-induced summation of activity-related pain following experimentally induced muscle soreness. *Journal of Pain*, in press.
- Trost, Z., Scott, W., Lange, J.M., Manganelli, L., Bernier, E., Sullivan, M.J.L. An experimental investigation of the effect of a justice violation on pain experience and expression among individuals with high and low Just World Beliefs. *European Journal of Pain*, in press.
- Scott, W., Trost, Z., Bernier, E., Sullivan, M.J.L. Anger differentially mediates the relationship between perceived injustice and chronic pain outcomes. *Pain*, in press.
- Scott, W., Wideman, T., Sullivan, M.J.L. Clinically meaningful scores on pain catastrophizing prior to and following multidisciplinary rehabilitation: A prospective study of individuals with subacute pain following whiplash injury. *Clinical Journal of Pain*, in press.
- Scott, W., Wideman, T.H., Sullivan, M.J.L. Further validation of a measure of injury-related injustice perceptions to identify risk for occupational disability: A prospective study of individuals with whiplash injury. *Journal of Occupational Rehabilitation*, in press.
- Larivière, C., Butler, H., Sullivan, M.J.L., Fung J. An exploratory study on the effect of pain interference and attentional interference on neuromuscular responses during rapid arm flexion movements. *Clinical Journal of Pain*, in press.
- Vachon-Presseau, E., Martel, M-O., Roy, M., Albouy, G., Sullivan, M.J.L., Jackson, P., Rainville, P. The two sides of pain communication: effects of pain expressiveness on vicarious brain responses revealed in chronic back pain patients. *Brain*, in press.
- Vachon-Presseau, E., Martel, M-O, Roy, M., Caron, E., Albouy, G., Marin, M-F., Plante, I., Sullivan, M.J.L., Lupien, S., Rainville, P. (2013). Acute stress contributes to individual differences in pain-related brain activity in healthy and chronic pain patients. *Journal of Neuroscience*, in press.
- Slepian, P., Bernier, E., Scott, W., Niederstrasser, N.G., Wideman, T., Sullivan, M.J.L. Changes in Pain Catastrophizing Associated with Participation in a Physical Therapy Intervention for Musculoskeletal Injury: The Influence of Depressive and Post-Traumatic Stress Symptoms. *Journal of Occupational Rehabilitation*, in press.

Published Refereed Papers

- Wideman T.H., Scott, W., Martel, M.O., Sullivan, M.J.L. (2012). Recovery from depressive symptoms over the course of physical therapy: A prospective cohort study of individuals with work-related, orthopaedic injuries and symptoms of depression. *Journal of Orthopaedic and Sport Physical Therapy*, 42, 957 - 967.
- Wideman, T.H., Main, C.J., Lewis, M., Sullivan, M.J.L., Hill, J.C. (2012). Comparing the responsiveness of a brief, multidimensional risk screening tool for back pain to its unidimensional reference standards: The whole is greater than the sum of its parts. *Pain*, 153, 2182 - 2191.
- Morris, L.D., Grimmer-Somers, K.A., Louw, Q.A., Sullivan, M.J.L. (2012). Cross-cultural adaptation and validation of the South African Pain Catastrophizing Scale (SA-PCS) among patients with fibromyalgia. *Health and Quality of Life Outcomes*, 10:137-145.
- Vachon-Presseau, E., Roy, M., Martel, M.O., Albouy, G., Chen, J., Budell, L., Sullivan, M.J.L., Jackson, P.L., Rainville, P. (2012). Neural processing of sensory and emotional-communicative information associated with the perception of vicarious pain. *Neuroimage*, 63: 54 - 62.

- Scott, W., Sullivan, M.J.L. (2012). Perceived injustice moderates the relationship between pain and depression among individuals with persistent musculoskeletal pain. *Pain Research and Management*, 17: 335 - 340.
- Martel, M-O, Wideman, T., Sullivan, M.J.L. (2012). Pain patients who display pain behavior are perceived as less likable, less dependable and less likely to return to work. *Pain*, 153: 843 - 849.
- Martel, M-O, Trost, Z., Sullivan, M.J.L. (2012). The expression of pain behaviors in high catastrophizers: The role of automatic and controlled processes. *Journal of Pain*, 18, 808 - 815.

Invited Plenary Presentations and Keynote Addresses

- Sullivan, M.J.L. Perceived Injustice as a Risk Factor for Problematic Recovery Following Musculoskeletal Injury. Pain Management Programmes Special Interest Group 14th National Conference. St Helier, Jersey, UK Channel Islands. September 2013
- Sullivan, M.J.L. Psychological Risk Factors for Delayed Recovery: Assessment and Intervention. 33rd Annual National Workers' Compensation and Occupational Medicine Conference. Hyannis, MA. July 2013.
- Sullivan, M.J.L. Targeting Risk Factors for Delayed Recovery. WorkSafeBC 9th Annual Healthcare Conference. Vancouver, BC, June 2013.
- Sullivan, M.J.L. Catastrophizing as a Risk Factor for Problematic Recovery Following Musculoskeletal Injury. Dutch International Congress on Insurance Medicine, Almere, The Netherlands. November, 2012.
- Sullivan, M.J.L. Determinants of Perceived Injustice Following Motor Vehicle Accidents. Dutch International Congress on Insurance Medicine, Almere, The Netherlands. November, 2012.
- Sullivan, M.J.L. Pain-related Psychosocial Risk Factors: Assessment and Intervention in Primary Care. 13th Annual WorkSafeBC Physician Education Conference. WorkSafeBC. Nanaimo, BC. October 2012.

Scientific Presentations

- Using the Progressive Goal Attainment Program (PGAP) for the Management of Work-Disability Associated with Health and Mental Health Problems. WorkSafeBC 9th Annual Healthcare Conference. Vancouver, BC, June 2013.
- Sullivan, M.J.L. The psychology of pain sensitization. 4th International Congress on Neuropathic Pain. Toronto, Ontario, May 2013.
- Sullivan, M.J.L. Interpersonal processes in chronic pain: The role of the spouse in chronic pain management. Annual Meeting of the Canadian Pain Society, Winnipeg, Manitoba. May, 2013.
- Sullivan, M.J.L. Perceived injustice and adverse pain outcomes. Annual Meeting of the Canadian Pain Society, Winnipeg, Manitoba. May, 2013.
- Sullivan, M.J.L. Challenges in the implementation of a risk-factor targeted intervention for the prevention of long-term disability. American Occupational Health Conference (AOHC). Orlando, Florida, April, 2013.

Colloquia and Invited Clinical Presentations

- Depression and Post-Traumatic Stress Disorder Following Musculoskeletal Injury. Physio Actif, Laval, Quebec, April 2013.

Working with Veterans with PTSD.

Uniformed Services University of the Health Sciences, Baltimore, Maryland, February 2013.

Using the Progressive Goal Attainment Program (PGAP) for the Management of Work-Disability Associated with Health and Mental Health Problems.

Behavioral Medical Interventions, Edina, Minneapolis, January 2013

Catastrophic thinking as a risk factor for problematic mental health outcomes associated with pain.

Institute of Community and Family Psychiatry, Sir Mortimer B. Davis - Jewish General Hospital, Montreal, QC, December 2012.

La contribution du sentiment d'injustice perçu par le travailleur sur sa réadaptation.

Physioextra, Montreal, QC, November 2012.

Psychosocial Challenges to Building Effective Working Relationships.

WorkSafeBC, Surrey, BC, October 2012.

Psychosocial Challenges to Building Effective Working Relationships.

WorkSafeBC, Parksville, BC, October 2012.

Psychosocial Challenges to Building Effective Working Relationships.

WorkSafeBC, Langley, BC, October 2012.

Psychosocial Challenges to Building Effective Working Relationships.

WorkSafeBC, Richmond, BC, October 2012.

Psychosocial interventions for the prevention of occupational-related disability.

LifeTEAM. Chicago, Illinois, October 2012.