Psychol. Inj. and Law (2013) 6:250–257
DOI 10.1007/s12207-013-9171-x

A Psychosocial Risk-Targeted Intervention to Reduce Work Disability: Development, Evolution, and Implementation Challenges

Michael J. L. Sullivan · Heather Adams · Tamra Ellis

Received: 23 July 2013 / Accepted: 4 August 2013 / Published online: 3 September 2013

Abstract Research has been consistent in showing that certain psychosocial variables can increase the risk for prolonged work disability. Four psychosocial variables have emerged as robust predictors of disability across a wide range of debilitating health and mental health conditions. These include catastrophic thinking, symptom exacerbation fears, disability beliefs, and perceived injustice. The Progressive Goal Attainment Program (PGAP) is a psychosocial risk-targeted intervention that was developed to reduce psychosocial barriers to work resumption in individuals with debilitating health or mental health conditions. This paper describes the conception, developmental process, and the evolution of the PGAP. Research studies are summarized that have played a significant role in the developmental trajectory of the PGAP. Some of the legal and legislation-relevant challenges that were faced in the development and implementation the PGAP are discussed.

Keywords Work disability · Catastrophizing · Fear · Perceived injustice · Disability beliefs · PGAP

Psychosocial Contributions to Pain and Disability

Twenty years ago, heated debates would arise during discussions about the influence of psychological factors in the development and maintenance of disability. Today, there is little room for debate. Indeed, research has been consistent in showing that certain psychosocial variables can increase the risk for pronounced and prolonged disability (Leeuw et al. 2007; Pincus et al. 2002; Sullivan 2003; Sullivan et al. 2005).

Although the bulk of research in this area has been conducted on samples of individuals with pain-related disability, research is beginning to accumulate suggesting that the same psychosocial risk factors might contribute to disability, regardless of the nature of an individual's debilitating health or mental health condition (Feuerstein 2007; Sullivan et al. 2006; Sullivan et al. 2006; Tinetti et al. 1990; Tomassen et al. 2000).

Four psychosocial variables have emerged as consistent and robust predictors of disability across a wide range of debilitating health and mental health conditions. These include catastrophic thinking, symptom exacerbation fears, perceived injustice, and disability beliefs (Sullivan et al. 2008; Sullivan et al. 2011; Vlaeyen and Linton 2000). Numerous investigations suggest that individuals who engage in catastrophic or alarmist thinking about their symptoms, who are fearful of engaging in activity that might exacerbate their symptoms, who believe themselves to be completely disabled, and who feel that they are suffering unjustly are individuals at high risk for pronounced and prolonged disability (Sullivan et al. 2005; Turk 2002; Vlaeyen and Linton 2000). Research is also beginning to accumulate suggesting that the most effective rehabilitation programs will be those that specifically target these psychosocial risk factors (Spinhoven et al. 2004; Sullivan et al. 2006; Vlaeyen et al. 2002).

This paper describes the developmental process, the evolution, and the implementation challenges associated with the Progressive Goal Attainment Program (PGAP). The PGAP is a psychosocial risk-targeted intervention that was developed to reduce psychosocial barriers to work resumption in individuals with debilitating health or mental health conditions. A number of research studies will be briefly summarized that have played a significant role in the development of the

M. J. L. Sullivan (✉)
Department of Psychology, McGill University, 1205 Docteur Penfield, Montreal, QC H3A 1B1, Canada
e-mail: michael.sullivan@mcgill.ca

H. Adams
McGill University Health Center, Montreal, QC, Canada

T. Ellis
Center for Rehabilitation and Health, Toronto, ON, Canada

PGAP. The review of research in this paper is intended to be illustrative rather than exhaustive. As well, we will highlight some of the legal and policy-relevant challenges that we have faced in our development and implementation work.

This paper's focus on psychosocial risk factors for pronounced and prolonged disability should not be interpreted as a neglect of the medical, physical, social, and organizational influences on disability. It is clear that psychosocial influences on disability represent only one dimension of the barriers or obstacles to rehabilitation and recovery that will be faced by the individual with a debilitating health or mental health condition (Sullivan et al. 2005). However, an in-depth discussion of all the medical and physical barriers to rehabilitation progress and recovery is beyond the scope of this paper.

Developing a Psychosocial Risk-Targeted Intervention

The PGAP is a risk-targeted intervention that was designed to reduce pain catastrophizing, symptom exacerbation fears, disability beliefs, and perceived injustice (Sullivan et al. 2006). Proceeding from research highlighting the role of psychosocial factors in the development and maintenance of disability, we reasoned that an intervention specifically targeting disability-relevant psychosocial risk factors might yield positive outcomes for individuals who were work disabled due to a debilitating health or mental health condition (Sullivan 2003).

Although the PGAP was originally developed to target psychosocial risk factors associated with pain-related disability, ongoing research revealed that the determinants of disability showed striking similarity across a wide range of debilitating health and mental health conditions (Millward et al. 2005; Sullivan et al. 2006; Emptage et al. 2005; Kronstrom et al. 2011; Sullivan et al. 2005). In 2008, the PGAP underwent important modifications in order to broaden the range of health and mental health conditions for which it could be used. One of the changes was the modification of the screening measures used to assess a client's appropriateness for the intervention. The instructional set and the item content of the measures were modified such that they could be applicable to any debilitating health or mental health condition, as opposed to being specific to pain. The intervention techniques of the PGAP were also modified to make them relevant to the life participation challenges associated with different health and mental health conditions. To date, the PGAP has evolved into an intervention for targeting determinants of disability in five different disability groups: (1) pain and musculoskeletal conditions, (2) depression, (3) post-traumatic stress disorder, (4) cancer survivors, and (5) other chronic illnesses.

Prior to the development of the PGAP, our center had developed and tested the Pain–Disability Prevention (PDP) program (Sullivan and Stanish 2003). In structure and in content, the PDP program was very similar to the PGAP, with the exception that it was delivered only by mental health professionals (e.g., psychologists and social workers). The PDP program had been developed in the context of a population health approach to the management of pain-related disability in Nova Scotia, Canada. In collaboration with the Workers' Compensation Board of Nova Scotia and with funding from the Canadian Institutes for Health Research, we trained approximately 100 psychologists and social workers as PDP providers. We were able to establish a network of PDP providers across various regions of the province, and these psychologists became the providers of the PDP program for a province-wide clinical trial (Sullivan and Stanish 2003).

The success of population health approaches to intervention depends in large measure on the collaboration and support of multiple stakeholders. We realized that we needed to have the support of the injury insurer, we needed a community of clinicians that was willing to provide the intervention, and we needed an intervention that clients were willing to participate in. We also realized that a key component of the involvement of the insurer required the collaboration of the case managers. In many insurer systems, case managers play an important role in decisions concerning the types of interventions to which clients will be referred. We held a number of training sessions with case managers to orient them to the philosophy of the PDP program, and to familiarize them with the "signs" (e.g., yellow flags) that might make a client an appropriate referral to the PDP program. Case managers were also coached on how the PDP program could be presented to prospective clients. Without the complete endorsement and support of the case managers, the trial would not have succeeded.

Some of the questions addressed in the clinical trial of the PDP program went beyond issues related to treatment effectiveness. A key factor in the utility and sustainability of a population health approach to intervention concerns the degree to which the intervention is acceptable to the client population. This is a particular concern in rehabilitation interventions because rehabilitation interventions are not very attractive to individuals with debilitating health or mental health conditions. In essence, clients do not want to be rehabilitated, they want to be cured. Disability insurers report that as many as 70 % of their clients refuse referrals to rehabilitation interventions. If only 30 % of potential candidates for an intervention agree to participate, the intervention outcomes will hardly be meaningful.

In the first study of the PDP program, we found that over 77 % of clients, to whom participation in the PDP program was offered, agreed to enroll. We considered this to be a very positive enrolment rate, given that the enrolment rate for clients referred to physiotherapy was only 66 %. The return-to-work outcomes following participation in the PDP program were also very promising. A sample of 104 WCB claimants completed the PDP program and 60 % returned to work (Sullivan and Stanish 2003). Given that the majority of claimants were already in the chronic phase of recovery (mean duration of work absence=5 months), the 60 % return to work rate at treatment termination was considered very promising. The return-to-work rate for a comparable sample of WCB claimants the year prior to the implementation of the PDP program was 18 %. The positive outcomes associated with participation in the PDP program have been documented in a number of research publications (Gauthier et al. 2006; Sullivan et al. 2006; Wideman et al. 2009).

Legal and Policy Issues in the Implementation of the PDP Program

In the implementation of the PDP program, case managers of the WCB would identify clients they considered to be candidates for the PDP program and then would identify a PDP-trained psychologist in the client's community of residence. The client would then be referred to the PDP-trained psychologist. Psychologists questioned whether PDP was the only intervention that could be offered to the client. The WCB initially insisted that when a case manager considered a client to be a PDP candidate, the psychologist could only provide PDP. The concern of the WCB was that if psychologists were free to offer any intervention they wished, clients might be offered long-term psychotherapy for issues that were not necessarily relevant to their work injury.

It became apparent that not all psychologists were familiar with the insurance legislation that governed benefit allocation for clients of the WCB. Like other injury insurers, the WCB of Nova Scotia had a mandate to provide resources that would either compensate the client for losses incurred or assist the client in his or her recovery and rehabilitation. Problems outside of this realm were not the mandate of the insurer. This situation required that we communicate with psychologists to inform them about the nature of psychological problems that would be considered with the funding mandate of the insurer and the nature of psychological problems that would be considered to fall outside the funding mandate of the insurer.

A related issue raised by some PDP-trained psychologists concerned the consequences of a client refusing to participate in the treatment offered by the psychologist. This was a more challenging issue to navigate. In many insurance systems, claimants have a responsibility to participate in interventions that will mitigate their losses. The consequences for the client who refuses all treatments offered are fairly clear; they typically result in discontinuation of benefits. However, the consequences of a client refusing a specific treatment were less clear. An example would be a client who accepted to be treated in physiotherapy, but did not accept to be treated by a psychologist. For the purposes of the implementation of the PDP program, the WCB agreed that clients could refuse to participate in treatment with a psychologist, without having a negative impact on their claim status, as long as they were willing to accept other treatments designed to mitigate their losses.

It was also necessary to make the WCB aware that a case manager could not make the decision about what psychological intervention was most appropriate for a given client. Most regions of North America have some form of act of law that stipulates that health professionals must have autonomy in choosing the treatment they will offer to a client. Given that the treating clinician is held accountable for the outcomes of his or her intervention, the treating clinician must have some control over the type of treatment that is offered to a client. As such, the decision was made that the role of the case manager would not be to identify candidates for the PDP program, but rather the case manager would identify "potential candidates." The "potential candidates" would then be assessed by the psychologist for the appropriateness for the PDP program. If the psychologist considered that the client was not an appropriate candidate for the PDP program, and an alternate approach to treatment would be more appropriate, the psychologist was asked to justify his or her choice of alternate treatment, and had to receive approval for funding prior to commencing treatment. This approach seemed to satisfy professional autonomy for the psychologists, and allay the concerns of the WCB about the provision of treatment that lay outside its mandate.

Increasing the Accessibility of a Psychosocial Risk-Targeted Intervention

In our work with the PDP program, we were able to demonstrate that the skill set required to target psychosocial risk factors could be brought to a broad community of clinicians. In addition, we were able to show that the availability of this intervention led to meaningful reductions in work disability. However, our work with the PDP program also highlighted some accessibility challenges. Given the limited number of psychologists available to provide services to the work-injured population, particularly in rural or remote areas, the PDP program had limited geographic accessibility.

The accessibility challenge was one of the driving forces behind the development of the PGAP. Our objective was to modify the PDP program in such a manner that it could be delivered by rehabilitation professionals that did not necessarily have a background in mental health. The PGAP retained the same structure and objectives as the PDP program; namely, a 10-week standardized, community-based intervention that aimed to reduce psychosocial risk factors for prolonged work disability.

A Description of the PGAP

Now in its third edition, the PGAP consists of 10-weekly meetings between a trained PGAP provider and a client. An educational video is used to orient the client to the procedures of the intervention as well as to foster positive outcome expectancies. A client workbook is provided to the client and serves as the platform for the intervention techniques that will be used. The primary goals of the PGAP are to reduce psychosocial barriers to rehabilitation progress, promote reintegration into life-role activities, and facilitate return-to-work. These goals are achieved through targeted treatment of psychosocial risk factors, structured activity scheduling, graded activity involvement, activity exposure, thought monitoring, goal setting, and motivational enhancement (Sullivan et al. 2006).

In the initial weeks of the program, the focus is on the establishment of a strong working relationship through the use of disclosure and validation techniques. The focus then shifts to the development of a structured activity schedule in order to facilitate resumption of pre-injury/illness activities. Each session begins with a review of the client's activity log and ends with a discussion of planned activities for the coming week. Activity goals are established in order to promote resumption of family, social, and occupational roles. Additional intervention techniques are invoked to target-specific obstacles to rehabilitation progress. In the final stages of the program, the intervention focuses on activities that will facilitate reintegration into the workplace.

Briefly, the focus of each PGAP session is as follows:

Session 1	Use of disclosure and validation techniques to establish therapeutic relationship, instruction on the use of the Client Workbook
Session 2	Introduction to activity planning, reestablishing pre-injury activity structure, and walking routine
Session 3	Goal setting, planning activity involvement in relation to goals
Session 4	Techniques targeting disability beliefs, mid-treatment evaluation
Session 5	Evaluation feedback, introduction to thought monitoring to target catastrophic thinking
Session 6	Exposure techniques to facilitate re-engagement in previously avoided activities
Session 7	Continued application of techniques introduced in sessions 5 and 6
Session 8	Applying task decomposition techniques to feared activities of the workplace
Session 9	Problem-solving challenges to resumption of occupational activities, final evaluation
Session 10	Evaluation feedback and discharge planning

The PGAP differs from many other rehabilitation interventions in that the techniques included in the intervention have the reduction of disability, as opposed to symptom-reduction, as their primary objective. There were several reasons for developing a program that focuses more on disability reduction than on symptom reduction. First, research in other areas of rehabilitation indicates clearly that symptom reduction was not a precondition to successful return to work (Loisel et al. 1997; Waddell 2004). Second, symptom-reduction techniques, whether pharmacological or psychological tend to be passive in nature and passive techniques have been shown to be detrimental to return-to-work outcomes (Waddell et al. 2002). Finally, a focus on symptom reduction might inadvertently reinforce individuals' beliefs that symptoms must be eradicated before occupational activities can be resumed.

Although the PGAP is described as a 10-week program, the intent is to emphasize that the program extends over a maximum of ten sessions. Since the goal of the PGAP is to promote return-to-work, the program terminates when the client is ready to return to work. Clients will vary in terms of their rate of improvement through the program. Some clients will be ready to transition back to the workplace after 4 weeks of treatment; others will require all ten sessions of the program. The PGAP never extends beyond 10 weeks.

In order to further increase the accessibility of the PGAP, the program was modified for telephonic delivery. The telephonic version of the PGAP, referred to as PGAP-Tel, contains all elements of the PGAP, but there is no face-to-face contact with the clinician. All aspects of the program are delivered by telephone. With respect to accessibility, PGAP-Tel can ostensibly be offered to anyone who owns a telephone.

The effectiveness of PGAP-Tel has been evaluated in two clinical trials. One trial was conducted with recipients of disability insurance with the Social Security Administration of the United States (Michalopoulos et al. 2011). Recipients of disability insurance were offered health care insurance, PGAP-Tel, and benefits counseling. This group was compared to a group who only received health care insurance, and a group who received no additional services. The study sample was heterogeneous, including individuals with a variety of chronic debilitating chronic health and mental conditions. Results of the trial showed a re-employment advantage of PGAP that was maintained at 2-year follow-up (Michalopoulos et al. 2011).

In a second trial, PGAP-Tel was compared to PGAP delivered face-to-face (Sullivan and Simon 2012). With respect to return-to-work outcomes, the face-to-face delivery of PGAP proved to be more effective than PGAP-Tel. Taken together, the results of research conducted to date suggest that PGAP-Tel can be an effective intervention for increasing occupational involvement, but that in regions where both the face-to-face delivery and telephonic delivery are available, the face-to-face delivery will likely be associated with superior outcomes.

Legal and Policy Issues Concerning the Clinical Background of PGAP Providers

At present, a number of different professional disciplines are represented as PGAP providers. These include occupational therapy, physiotherapy, kinesiology, nursing, psychology, social work, and medicine. To become PGAP providers, clinicians enroll in a 2-day training workshop to acquire the skill set necessary to deliver the intervention. As noted earlier, clients with a variety of health and mental health diagnoses might be considered candidates for the PGAP. At times, questions have been raised about the degree to which these different disciplines have the background necessary to work with these different populations. For example, should a physiotherapist be treating a client who is work-disabled due to PTSD?

In some rehabilitation interventions, individuals receive treatment for the symptoms of their health or mental health condition. Under such circumstances, it is paramount that the clinician belongs to a discipline in which such symptomatic treatment would be considered a domain of expertise. In other words, psychologists would treat PTSD and physiotherapists would treat back sprain.

We chose to make PGAP training open to a number of rehabilitation disciplines because "work disability" is not discipline specific. The intervention techniques contained within the PGAP are not intended to treat the client's underlying health or mental health problem, they are intended to treat the disability associated with the client's health or mental health condition. In the PGAP, disability is construed as a reduction in participation in important life activities; disability reduction then becomes a process of reengaging the client in important life activities. Reducing disability and promoting reintegration in important life activities are objectives that are common to many rehabilitation disciplines. As such, it seemed unnecessary to restrict PGAP training to only a subgroup of rehabilitation disciplines.

Since the PGAP is an intervention that treats disability as opposed to treating the symptoms of the client's presenting health or mental health problems, PGAP providers are made aware of the importance of ensuring that there is another treating professional involved who is responsible for treating or monitoring the symptoms of the client's condition. In the case of a pain problem, the other treating professional might be the primary care physician; in the case of a client with PTSD, the other treating professional might be a psychologist.

Another legal issue of concern that was made apparent, particularly in the context of PGAP-Tel, was the term that would be used to refer to someone who was delivering the PGAP. Regions differ in the criteria that must be met to be considered a "clinician." In the case of PGAP-Tel, where the treating professional might reside in a region (e.g., state/province) different from that of the client, the professional might meet criteria to be considered a clinician is his or her region of residence, but not in the client's region of residence. The issue was resolved when legal counsel suggested that the term "PGAP provider" should be used to indicate that someone has been PGAP trained. The term "provider" is not a protected title in any region, and is not discipline specific.

Determinants of Return to Work Outcomes Associated with Participation in the PGAP

In the PGAP, as with other rehabilitation interventions, the probability of successful return to work outcomes decreases as the period of work disability extends over time, and decreases as well in relation to the complexity (e.g., extent of comorbidities) of the client's presenting condition (Sullivan et al. 2007; 2006). Chronicity also impacts on the rate of improvement through the course of treatment. Recently injured individuals will tend to recover at a faster rate than individuals who have been work-disabled for several years. In a study of individuals with recent onset (i.e., less than 12 weeks) work injuries, the mean number of sessions of the PGAP required to achieve successful return to work was five (Sullivan and Adams 2010). By contrast, in a clinical trial of the PGAP with individuals who had been work-disabled for 2 years or more due to a pain condition, the majority of participants required all ten sessions (Sullivan et al. 2012). Studies addressing the process of change through participation in the PGAP suggest that reduction in catastrophizing is the best predictor of return to work (Sullivan and Adams 2010; Sullivan et al. 2006).

Although we have yet to publish a paper on the subject, there also appears to be a relation between the presence of litigation, high scores on perceived injustice, and prolonged work disability. Legal representatives for injured individuals have a vested interest in ensuring that a client's perceptions of injustice remain high. Numerous investigations have revealed that high scores on perceived injustice are prognostic indicators for poor recovery outcomes following injury (Sullivan et al. 2011). Whether intentionally or unintentionally, legal representatives might be contributing to the psychosocial risk factors that ultimately impede a client's recovery potential. These reflections invite consideration of the possibility that while some psychosocial risk factors might be part of the nature of the injured individual, other psychosocial risk factors might emerge as a function of the client's interactions or experiences with the systems (e.g., insurance, legal) that are involved in the compensation and management of injury.

Recommendations for Forensic Psychologists

1. Client appropriateness for treatment

   It is becoming clearer that there are advantages to matching treatment to a client's problem or risk profile. The PGAP is a part of a growing trend where interventions are being developed that are designed to target specific risk factors for problematic outcomes (Sullivan et al. 2006; Thorn et al. 2007; Vlaeyen et al. 2002).

   It is becoming more and more commonplace for insurers to conduct some form of psychosocial risk assessment on their clients. Insurers have also taken on an increasingly directive role in determining the type of treatment that will be offered to their client, and it is possible that a clinician might be specifically asked to provide the PGAP. While initial screening for psychosocial risk factors by an insurer can be an important first step in ensuring that a client receives appropriate treatment, it is imperative that the treating clinician verify that the PGAP is indeed the most appropriate treatment for a given client. Since the clinician will ultimately be accountable for outcomes associated with his or her intervention, the choice of intervention offered must be one that the clinician fully endorses.
2. What risk-factors to assess?

   Clients are considered candidates for participation in the PGAP only if they show evidence of elevated scores on measures of risk factors targeted by the PGAP. Client appropriateness for participation in the PGAP can be determined by a screening evaluation that would contain measures of pain catastrophizing, pain-related fear, disability beliefs, and perceived injustice. Clients who fall in the risk range on at least one of the following measures could be considered suitable candidates for the PGAP: Pain catastrophizing scale (PCS; raw score >20) (Sullivan et al. 1995), the Tampa scale for Kinesiophobia (TSK; raw score >40) (Kori et al. 1990), the Injustice Experience Questionnaire (IEQ, raw score >20) (Sullivan et al. 2008), and the pain disability index (PDI; raw score >38).

   All the screening measures used in the PGAP are public domain instruments such that there is no cost associated with their use, and no special permission is required. Electronic copies of the PCS and the IEQ (and accompanying user manuals) can be downloaded at no cost from the following site:

   http://sullivan-painresearch.mcgill.ca

   Electronic copies of the TSK and the PDI can be accessed at no cost from a number of sites. An internet search on the scale acronyms (i.e., TSK, PDI) will yield several sites from which electronic copies of these measures can be downloaded.
3. Timing of treatment

   Psychosocial interventions are now more likely to be considered in the treatment of a work-injured client than they were 10 years ago. Previously, claim admissibility was often determined by very conservative criteria such as the degree to which an "organic lesion" could be objectively discerned. Psychosocial issues were considered to be far removed from the "lesion" and such, were considered beyond the mandate of the insurer. For many insurers, there was also a type of dichomotous Cartesian orientation to the classification of injury, where problems were seen either as being "of the body" or "of the mind," and only matters of the body were considered compensable. However, it soon became clear that problems of the body and the mind frequently coexisted, and that ignoring the psychosocial dimensions of the injury experience could lead to unnecessarily long periods of work disability. Over time, insurers realized that appropriate psychosocial interventions could augment the rate of recovery of injury, and shorten the work-disability period.

   Although many insurers will consider referrals for psychosocial interventions for work-injured clients, referrals for psychosocial interventions tend to be offered only once the transition to chronicity has occurred. In many cases, a referral to a psychosocial intervention will only be made once all medical avenues of assessment and treatment have been attempted and have failed. This approach unfortunately ensures that a client will have been work-disabled for an extended period of time, and will have become completely demoralized by repeated failure by the time he or she is offered a psychosocial intervention.

   Resources still need to be invested in educating insurer representatives (e.g., case managers) on the negative consequences of exposure to unnecessary medical assessments or involvement in medical interventions with low probability of success. Clients exposed to repeated failures in medical treatments ultimately develop negative expectancies for recovery that further compromise their recovery potential.

   Psychosocial screening should occur as early as possible in the rehabilitation process. For musculoskeletal conditions, the most cost-effective period in which to offer a psychosocial intervention such as the PGAP is probably between 4 and 12 weeks post-injury (Sullivan and Adams 2010). Individuals who have been work-disabled for several years still show benefit from participation in the PGAP, but the return-to-work outcomes are more modest (Sullivan et al. 2012).
4. Duration of treatment

   Despite increased recognition of the role of psychosocial factors as determinants of disability in work-injured clients, psychologists are still underutilized in early interventions for work disability. One of the factors that contribute to the underutilization of psychological services in the early stages of recovery is that insurers have concerns about the duration of psychosocially oriented treatment.

The experience of numerous insurers has been that referrals to psychologists can be associated with long-term interventions that have minimal impact on return-to-work outcomes.

The structure and content of the PGAP was conceived to address both of these concerns. A client's participation in the PGAP never extends beyond 10 weeks, and will frequently be discontinued prior to 10 weeks if the client progresses through the program at a rapid pace. Making the PGAP a time-limited intervention was a critical factor in fostering its acceptability to injury insurers.

Another factor that was critical in fostering the acceptability of the PGAP to the injury insurer was that return to work was the stated objective of the program. Psychologists are often used for symptom management of mental health conditions consequent to injury, or in pain management programs. However, neither the treatment of mental health problems nor the management of pain necessarily improves the likelihood that a client will return to work. Return to work outcomes are most likely when an intervention is specifically designed to achieve return to work.

Outcomes of a Psychosocial Risk-Targeted Approach to Work Disability

Overall, the results of several clinical trials point to a number of advantages of the PGAP. The PGAP has consistently been associated with high enrolment rates, indicating that the majority of individuals to whom the program is offered agree to participate (Sullivan and Adams 2010; Sullivan and Simon 2012). When compared to other rehabilitation interventions such as physical therapy, participation in PGAP has been shown to increase successful resumption of occupational activities in individuals with low-back pain (Sullivan and Adams 2010), individuals with whiplash injuries (Sullivan et al. 2006), and individuals with fibromyalgia (Sullivan et al. 2012). Randomized clinical trials have also supported the effectiveness of the PGAP for work-disabled clients who are suffering from a wide range of debilitating health and mental health conditions (Hossain et al. 2013; Michalopoulos et al. 2011). Gains achieved through the PGAP have been maintained even when assessed 12 months following termination of treatment (Sullivan and Adams 2010). In 2013, the Official Disability Guidelines for Workers' Compensation Boards listed the PGAP as an evidence-based intervention for the treatment of work disability (Denniston and Kennedy 2013).

The more that psychologists are able to offer time-limited and risk-targeted interventions that have return to work as a stated objective, the more insurers are likely to seek out psychological services in their efforts to promote successful recovery in their work-disabled clients. As outcome studies continue to support the benefits of such interventions, the more likely it is that psychologists will come to be viewed as interventionists whose expertise lies in the prevention of chronic disability, as opposed to interventionists whose expertise lies only in the management of the complications of disability once a health or mental health condition has become chronic.

Acknowledgments Research reported in this paper was partially supported by the Workers' Compensation Board of Nova Scotia and the Canadian Institutes of Health Research. The authors thank Wendy Waller, Nicole Davidson, and Beatrice Garfinkiel for their assistance with data collection and data entry.

Conflict of Interest

The lead author receives royalties from the sale of the treatment manual associated with the intervention described in this paper.

References

Denniston, P. L., & Kennedy, C. W. (2013). *Official Disability Guidelines* (18th ed.). Encinistas, CA: Work Loss Data Institute.

Emptage, N. P., Sturm, R., & Robinson, R. L. (2005). Depression and comorbid pain as predictors of disability, employment, insurance status, and health care costs. *Psychiatric Services, 56*(4), 468–474.

Feuerstein, M. (2007). *Handbook of Cancer Survivorship*. New York, NY.: Springer.

Gauthier, N., Sullivan, M. J. L., Adams, H., Stanish, W. D., & Thibault, P. (2006). Investigating risk factors for chronicity: the importance of distinguishing between return-to-work status and self-report measures of disability. *Journal of Occupational and Environmental Medicine, 48*(3), 312–318.

Hossain, F., Baird, P., & Pardoe, R. (2013). Improving employment outcomes and community integration for veterans with disabilities. *MDRC*: *Building knowledge to improve social policy*., (April 2013).doi:http://www.mdrc.org/sites/default/files/improving_employment_pgap.pdf

Kori, SH, Miller, RP, & Todd, DD. (1990). Kinesiophobia: A new view of chronic pain behavior. *Pain Management*(Jan), 35–43.

Kronstrom, K., Karlsson, H., Nabi, H., Oksanen, T., Salo, P., Sjosten, N., & Vahtera, J. (2011). Optimism and pessimism as predictors of work disability with a diagnosis of depression: a prospective cohort study of onset and recovery. *Journal of Affective Disorders, 130*(1–2), 294–299.

Leeuw, M., Goossens, M. E., Linton, S. J., Crombez, G., Boersma, K., & Vlaeyen, J. W. (2007). The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. *Journal of Behavioral Medicine, 30*(1), 77–94.

Loisel, P., Abenhaim, L., Durand, M. J., & Esdaile, J. M. (1997). A population-based randomized clinical trial on back pain management. *Spine, 22,* 2911–2918.

Michalopoulos, C., Wittenburg, D., Israel, D., Schore, J., Warren, A., Zutshi, A., Schwartz, L. (2011). *The accelerated benefits demonstration and evaluation project*: *Health and employment at 12 months*. Retrieved from http://www.ssa.gov/disabilityresearch/documents/AB Vol 1_508 comply.pdf

Millward, L. J., Lutte, A., & Purvis, R. G. (2005). Depression and the perpetuation of an incapacitated identity as an inhibitor of return to work. *Journal of Psychiatry and Mental Health Nursing, 12*(5), 565–573.

Pincus, T., Burton, A. K., Vogel, S., & Field, A. P. (2002). A systematic review of psychological factors as predictors of chronicity/disability in prospective cohorts of low back pain. *Spine, 27*(5), E109–120.

Spinhoven, P., Ter Kuile, M., Kole-Snijders, A. M., Hutten Mansfeld, M., Den Ouden, D. J., & Vlaeyen, J. W. (2004). Catastrophizing and internal pain control as mediators of outcome in the multidisciplinary treatment of chronic low back pain. *European Journal of Pain, 8*(3), 211–219.

Sullivan, M. J. L. (2003). Emerging trends in secondary prevention of pain-related disability. *The Clinical Journal of Pain, 19,* 77–79.

Sullivan, M. J. L., & Adams, H. (2010). Psychosocial treatment techniques to augment the impact of physiotherapy interventions for low back pain. *Physiotherapy Canada, 62*(3), 180–189.

Sullivan, M. J. L., Adams, H., & Ellis, T. (2012). Targeting catastrophic thinking to promote return to work in individuals with fibromyalgia. *Journal of Cognitive Psychotherapy, 26,* 130–142.

Sullivan, M. J. L., Adams, H., Horan, S., Maher, D., Boland, D., & Gross, R. (2008). The role of perceived injustice in the experience of chronic pain and disability: scale development and validation. *Journal of Occupational Rehabilitation, 18*(3), 249–261.

Sullivan, M. J. L., Adams, H., Martel, M. O., Scott, W., & Wideman, T. (2011). Catastrophizing and perceived injustice: Risk factors for the transition to chronicity after whiplash injury. *Spine, 36*(25 Suppl), S244–249.

Sullivan, M. J. L., Adams, H., Rhodenizer, T., & Stanish, W. D. (2006a). A psychosocial risk factor-targeted intervention for the prevention of chronic pain and disability following whiplash injury. *Physical Therapy, 86*(1), 8–18.

Sullivan, M. J. L., Adams, H., Thibault, P., Corbiere, M., & Stanish, W. D. (2006b). Initial depression severity and the trajectory of recovery following cognitive–behavioral intervention for work disability. *Journal of Occupational Rehabilitation, 16*(1), 63–74.

Sullivan, M. J. L., Adams, A., Tripp, D., & Stanish, W. (2007). Stage of chronicity and treatment response in patients with musculoskeletal injuries and concurrent symptoms of depression. *Pain, 135,* 151–159.

Sullivan, M. J. L., Bishop, S., & Pivik, J. (1995). The pain catastrophizing scale: development and validation. *Psychological Assessment, 7,* 524–532.

Sullivan, M. J. L., Feuerstein, M., Gatchel, R., Linton, S. J., & Pransky, G. (2005). Integrating psychosocial and behavioral interventions to achieve optimal rehabilitation outcomes. *Journal of Occupational Rehabilitation, 15*(4), 475–489.

Sullivan, M. J. L., & Simon, G. (2012). A telephonic intervention for promoting occupational re-integration in work-disabled individuals with muscuoloskeletal pain. *Translational Behavioral Medicine, 2,* 22–32.

Sullivan, M. J. L., & Stanish, W. D. (2003). Psychologically-based occupational rehabilitation: the pain-disability prevention program. *The Clinical Journal of Pain, 19*(2), 97–104.

Sullivan, M. J. L., Thibault, P., Savard, A., & Velly, A. (2006c). Pain and function: a psychosocial perspective. In M. Feuerstein (Ed.), *Handbook of Cancer Survivorship*. New York, NY: Springer.

Thorn, B. E., Pence, L. B., Ward, L. C., Kilgo, G., Clements, K. L., Cross, T. H., & Tsui, P. W. (2007). A randomized clinical trial of targeted cognitive behavioral treatment to reduce catastrophizing in chronic headache sufferers. *The Journal of Pain, 8*(12), 938–949.

Tinetti, M. E., Richman, D., & Powell, L. (1990). Falls efficacy as a measure of fear of falling. *Journal of Gerontology, 45,* P239–P243.

Tomassen, P. D., Post, M. W., & van Asbeck, F. W. (2000). Return to work after spinal cord injury. *Spinal Cord, 38,* 51–55.

Turk, D. C. (2002). A diathesis-stress model of chronic pain and disability. *Pain Research and Management, 7,* 9–19.

Vlaeyen, J. W., De Jong, J. R., Onghena, P., Kerckhoffs-Hanssen, M., & Kole-Snijders, A. M. (2002). Can pain-related fear be reduced? The application of cognitive-behavioral exposure in vivo. *Pain Research and Management, 7*(3), 144–153.

Vlaeyen, J. W., & Linton, S. J. (2000). Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain, 85*(3), 317–332.

Waddell, G. (2004). *The Back Pain Revolution* (2nd ed.). Edinburgh.: Churchill Livingstone.

Waddell, G., Aylward, M., & Sawney, P. (2002). *Back pain, incapacity for work and social security benefits: An international literature review and analysis*. London: Royal Society of Medicine Press.

Wideman, T. H., Adams, H., & Sullivan, M. J. L. (2009). A prospective sequential analysis of the fear-avoidance model of pain. *Pain, 145*(1–2), 45–51.