Topical Review

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System-level efforts to address pain-related workplace challenges

Chris J. Main[a], William S. Shaw[b,*], Michael K. Nicholas[c], Steven J. Linton[d]

1. Introduction

Painful musculoskeletal disorders represent an enormous burden at the individual, organizational, and societal levels.[72] In the workplace context, disabling effects of pain are influenced by a wide range of psychosocial factors, including pain beliefs, psychological distress, social support, self-efficacy, and perceptions of organizational support.[26,49,52,53,66] Moreover, a patient's ability to return to work (RTW) or maintain employment can be affected by multiple overlapping systems outside of the clinic. Improving occupational outcomes for patients with pain may require that we intervene with these external systems to improve treatment choices, coping, functional and social support, organizational communication, accommodation, and reinforcement.[5,53,75] This topical review provides a summary of research and rationale supporting system-level interventions to reduce the lifestyle impacts of pain, with a focus on work disability prevention.

Broadly speaking, systems are entities with interrelated and interdependent parts that work together to produce synergistic patterns of behavior.[60] In a pain and disability context, systems include workplace, healthcare, personal, and legislative and insurance systems (**Fig. 1**).[37,48] These systems occur at the societal (macro) level, at an organizational or group (meso) level, and at the individual decision-making (micro) level. The contrasting characteristics of these systems are summarized in **Table 1**. System-level influences can be seen, for example, from national and jurisdictional differences in the prevalence of claims for disability benefits related to back pain,[92,93] the length of claims between fault and no-fault systems,[14,25] and the influence of compensation rates.[2,16]

Policies that affect pain-associated disability include those related to employment, employer compliance, insurance regulation, labor market controls, welfare systems, and healthcare delivery.[8] The effectiveness of these policies depends on local organization-specific barriers and successful implementation, especially for people with fluctuating, invisible, and painful health conditions, where substantiating objective evidence may be lacking. A variety of disability protection systems[10,36,68] strive to address these issues with provider input and patient/worker participation, but challenges remain, and even best evidence-based pain care can result in poor occupational outcomes if disability prevention efforts are not coordinated across systems. We describe significant system-level influences on pain-related disability further.

2. Employment systems

The workplace can be characterized by both organizational culture (values)[73] and organizational climate (policies and procedures).[23,73] The management of work disability due to pain is influenced by not only organizational culture and climate but also the challenges of diversity (in individual work capability) and the need for flexibility.[24] Commonly, clinicians are consulted for 3 types of work-related tasks: (1) authorizing the need for sickness absence; (2) managing the RTW process after an acute illness or injury; and (3) authorizing accommodations to retain employment for those with chronic pain. In all cases, interventions may need to address workplace and individual issues[82] and prognostic factors that vary by pain duration.[12,40,89] The effective management of pain-associated limitations in the workplace therefore requires consideration of both physical and psychosocial factors as well as overall management planning.[76]

2.1. Organizational interventions

Kristman et al.[42] distinguished 4 levels of organizational intervention to reduce pain-associated disability. At the worker level, efforts can be made to provide helpful information and address individual concerns.[66,78] At the workforce level, employers can strive for better education and awareness of disability challenges. At the line manager/supervisor level, organizations can instruct supervisors to facilitate appropriate accommodations and communicate effectively with workers. At the employer level, organizations can develop RTW programs, disability prevention and retention policies, and their integration with wellness initiatives. Managerial decision-making and knowledge translation are at the heart of the process, where organizational and individual preferences are vetted.[6]

Interventions targeting worker-centered risk factors suggest that treatment-related reductions in psychosocial risk factors are important determinants of RTW, independent of reductions in pain.[65,83] Return to work rates can be improved by interventions

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[a] Primary Care and Health Sciences, Keele University, Keele, Staffordshire, United Kingdom, [b] Department of Medicine, University of Connecticut School of Medicine, Farmington, CT, United States, [c] Pain Management Research Institute, University of Sydney, Sydney, New South Wales, Australia, [d] Department of Law, Psychology, and Social Work, Orebro University, Orebro, Sweden

**Corresponding author. Address: Department of Medicine, University of Connecticut School of Medicine, 263 Farmington Ave, Farmington, CT 06030, United States. Tel.: (860) 679-8946; fax: (860) 679-1349. E-mail address: wshaw@uchc.edu (W. S. Shaw).*

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targeting workplace-centered risk factors such as supervisor attitudes and coworker support,[77] especially when rehabilitation treatment is provided within the work milieu.[15,54] Cognitive-behavioral approaches to work disability are associated with more positive RTW outcomes than usual medical care alone,[46] particularly if implemented early,[56] but longer absences may require more intensive approaches.[32,46] Matching interventions to specific risk profiles[27,34,86] and developing community-based programs[83] also seem promising.

2.2. Organizational policies

Although a strong and detailed disability policy can improve outcomes,[61] employers can struggle to manage intermittent work absences that occur with chronic pain, and most policies tend to focus on maintaining medical certifications for lost time, not helping workers address RTW barriers.[55] While written procedures are usually available for medically sanctioned illness absence, managers may be unsympathetic towards days off for minor pain complaints and harbor suspicions that short-term absences may not be genuine.[38,51,81]

2.3. The influence of supervisors

Supervisors' capacity to support returning workers is related to individual, communication, organizational, and policy factors,[19,45,81] and they play a significant role in successful RTW.[47,51,91] Line managers' attitudes, actions, and leadership style can produce positive changes in self-rated health and work ability,[50] and middle managers may have an even greater impact on company performance than almost any other part of the organization.[90] Successful disability management and reintegration of workers requires a range of supervisor competencies[38] including good communication with the absent employee,[22,79] although pressure exerted by supervisors for an early RTW can be an added stressor for the employee.[1]

2.4. Improving psychosocial support within organizations

This is an equally important but less well-recognized component to the provision of social support, whether on an individual level, within a working group, or organizational level. Social support (from coworkers and employers/supervisors) is a moderator of job-related stress,[59] and social groups in the workplace are important in accommodating or mitigating the impact of disabling health conditions.[84] However, the extent and nature of support varies across studies, and the mechanisms are not clear and dependent on the source.[11,39,57] Many countries are experiencing rapid changes in the workplace, including new technologies, alternative working arrangements, more widespread telecommuting, changing employment contracts and relationships, and globalization,[9,70] and these may present both challenges and opportunities for workers with subacute or chronic pain to receive social and organizational support.

Two systematic reviews[13,80] have concluded that lower levels of coworker support, but not supervisor support, are associated with longer duration of sickness absence. However, when a broader definition of workplace support is applied, reviewers report a consistent effect of lower levels of workplace support in increasing time until RTW. This finding is consistent with the literature supporting employers' efforts to offer modified duty work, maintain contact with ill workers, and adopt more proactive RTW programs.[19] Social support is a significant independent predictor of RTW after long-term absence, with coworker social support as important as manager support or task satisfaction.[59] In a recent systematic review of online counseling interventions, a subanalysis showed evidence for peer social support and social networking as elements that led to improved pain and function.[7]

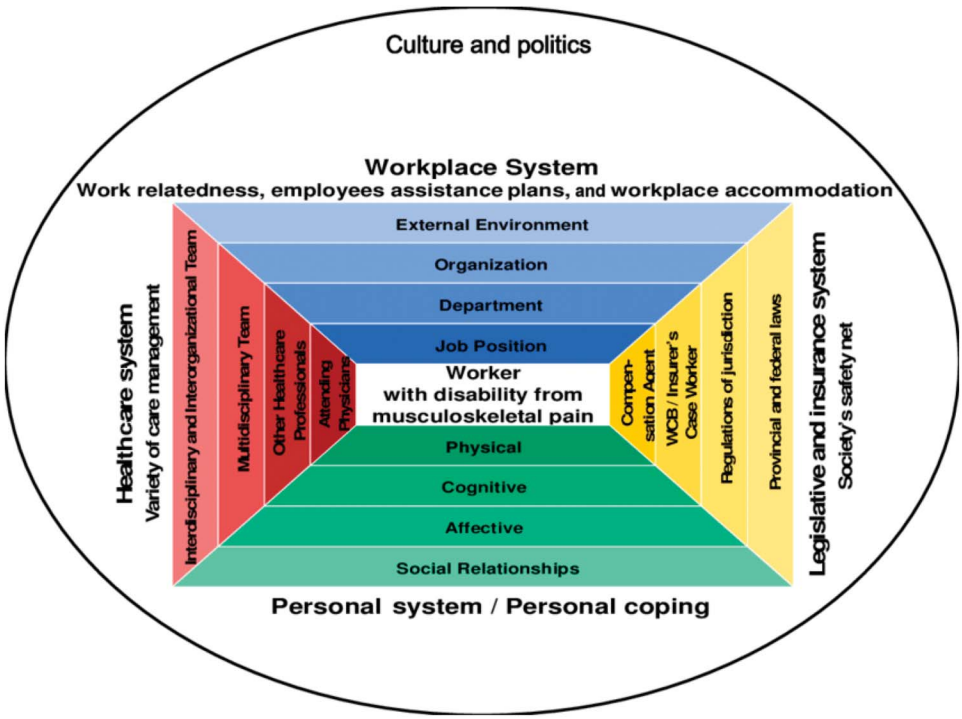

Figure 1. Systems affecting work disability prevention efforts for patients with pain (reprinted with permission from Loisel et al.[48]). WCB, Workers' Compensation Board.

Table 1

Characteristics of systems influencing pain-related disability.

System level	Type of systems	System governance	Role to prevent disability	Possible system-level interventions	System-level constraints	System-level opportunities
Macro (societal)	Legal and regulatory frameworks	Legislative bodies, lobbyists, public, administrators, case law, voters, and union leaders	Provide legal standard for job protection, wage replacement, healthcare access, and accommodation	Changes to laws and regulations to support and strengthen behavioral strategies to prevent disability	Strenuous lobby efforts, low level of public awareness, other priorities, and short electoral cycles	Potential for broad and far-reaching changes to standards of care across multiple systems
Macro (societal)	Disability insurance systems	Insurance boards and commissions, legislation, regulations, and market forces	Provide wage replacement during recovery period; facilitate RTW planning	Screen for long-term disability risk, and improve access to behavioral pain and RTW strategies	Lack of integration with healthcare services; emphasis on cost containment may limit new approaches	Reduce disability-related costs; can influence practices on a large scale
Meso (organizational)	Workplace system	Managers, shareholders, labor unions, written policies, and market forces	Provide fair and reasonable accommodation; identify and address workplace hazards or risks	Accommodation, supervisor training, risk reduction, ergonomic improvements, and hiring practices	Competing operational demands, efficiency uniformity; time constraints of supervisors	Potential to retain skilled workers; reduce disability-related costs, promote workforce diversity
Meso (organizational)	Local workforce, rehabilitation, and disability programs	Funding legislation, agency budgets, needs, and priorities	Provide alternative vocational training and employment opportunities	Improve communication with employers and clinicians; explore alternate career paths	Program reach and financial resources often limited; services unknown to general practitioners	Broaden job search beyond current occupation; independent advice and counseling.
Meso (organizational)	Healthcare systems	Managers, shareholders (private), national health service (public) practice and licensing boards, standards of care	Provide timely assessment, treatment, and patient education to reduce pain and the functional impacts of pain	Integrate work disability concerns into routine care, dissuade low-quality or high-risk treatment, and improve patient education	Limited consult time and burgeoning demands on general practitioners; workplace outcomes not a typical functional metric for quality care	Access for patient education and counseling; medical determinations for disability insurance; and role in promoting evidence-based treatment

RTW, return to work.

Understanding social workplace influences on pain coping and work disability continues to be an area ripe for research synthesis and intervention development.[74]

2.5. Workplace accommodation

One of the most important forms of social and material organizational support to workers with pain is the provision of temporary or permanent work accommodation (eg, changes in rotation and workstation reorganization) or graduated RTW (eg, modified hours, duties, or both). Accommodations can be provided to facilitate RTW or provide accommodation to employees with long-term disabilities.[29] Thus, accommodation efforts can be positioned along a disability continuum from temporary deficits in work productivity, presenteeism, and absenteeism to long-term disability.[17,44] Supervisors, typically involved in determining a suitable work accommodation offers, can also lend legitimacy to a reentering worker's challenges and smooth work-related social interactions.[19] Job tenure, performance history, and coworker relationships can also affect whether accommodations are implemented.[94] It is important to ensure that supervisors are confident in identifying and developing work accommodations for employees with disabilities and have the authority to secure them.[85]

2.6. Stakeholder involvement

Finally, a more integrated approach, involving all relevant stakeholders is needed for successful implementation, but complex high-risk patients still represent a challenge that may require specialized tertiary care rehabilitation.[58] Generally, stakeholder cooperation is effective if the individuals involved exercise trust and establish credibility by following through with formalized programs.[43,51] The RTW process requires a coordinated and integrated approach involving all interested parties,[61] with shared decision-making,[18] particularly within work teams,[64] but this level of coordination and communication can be difficult to manage until time off work accumulates to months or years or the level of disability is extreme. The value of implementing an agreed protocol promoting active collaboration between key stakeholders to address identified psychological and workplace factors for delayed RTW has been clearly demonstrated.[65]

3. The healthcare system

Although policy and regulatory issues can overlap significantly in the management of work disabilities, there are distinct features of healthcare systems, which merit comment. Some of these characteristics are listed in **Table 1**. The lack of work-focused health care is an obstacle to work participation,[3,18,67] and healthcare professionals may not regard work issues as falling within their remit.[18,31] However, sickness certification is influenced by the professional patient relationship, and there is robust evidence that lack of communication and cooperation from healthcare providers is an obstacle to work participation.[19,41,69] Furthermore, some providers rely heavily on biomedical diagnoses and test results to guide sickness certifications rather

Table 2

Conclusions and recommendations.

Implications for individual pain management
Pain assessment should include questions about workplace and other systems.
Assessment of occupational factors requires trust and rapport.
Addressing work disability factors may require ancillary support and referral.
System-level factors may be primary drivers of pain and behavior change.
Review of occupational context may improve pain outcomes.
Ability to self-manage pain may depend on environmental and system factors.
Implications for working within systems
Clinicians can incorporate work outcomes into routine pain treatment protocols.
Clinicians can work within organizations to address pain treatment barriers.
Communication is a key aspect of work disability prevention.
Disability management should be aligned with other workplace injury protection and health promotion programs.
Program evaluations and research studies to evaluate innovative pain management can be facilitated through collaborations with organizational systems.
Understanding system-level and organizational factors can improve implementation of new pain management and disability prevention strategies.
Improving communication between healthcare providers and employment settings is a necessary element for reducing pain-related work disability.

than to assess individual RTW barriers and working conditions.[21] Action at early stages of sickness absence and involvement of the family, where appropriate, have also been recommended, but this has been rarely studied. We recommend that system-level supports for patients with pain (both at home and at work) to prevent disability should be assessed as a part of routine care and follow-up among pain practitioners. Future studies should build on studies examining perspectives beyond the clinician–patient dyad and further consider the role of organizational and system-level factors.

Healthcare systems vary considerably within and across countries and jurisdictions, but governance, funding arrangements, and healthcare delivery have been identified as major features of healthcare systems.[85] Perhaps the biggest factor is how health care is sanctioned and funded. Fee-for-service systems,[30] which generally have higher numbers of contacts, specialist referrals, and diagnostics than capitation systems, in which clinicians receive a fixed salary to provide care for those enrolled have been criticized. However, capitation funding may also have undesirable effects, encouraging clinicians to provide the most time-efficient rather than the most effective care.[62,63]

Challenges within healthcare systems include not only access to but availability of treatment options, particularly for complex conditions. Systems designed to solve these issues, such as pay-for-performance systems and quality-based contingency payments, may not reward clinicians fairly for all the complexities involved in treating people with pain. A detailed analysis of healthcare system barriers to guideline adherence for low back pain by Traeger and colleagues[85] supports more incentives be provided for high-value care. Providing more attention to workplace outcomes and challenges may require not only operational alterations to healthcare systems but also changes to health policy frameworks in governments, workplaces, legislative systems, consumers, and professional bodies.

4. Recent examples of system-level interventions

One example of system-level changes to prevent disability is the Individual Placement and Support model to prevent disability that has overwhelming efficacy support to improve employment outcomes for patients with severe mental illness, an effect that is doubled with sufficient policy and stakeholder support.[11,28] This approach has recently been adapted to patients with chronic pain in Norway and the United Kingdom with promise,[35,71] but implementation will require significant cooperation and coordination of multiple stakeholders.

An example from the United States is the Retaining Employment and Talent after Injury/Illness Network program.[88] This is a demonstration program by the US Department of Labor to develop and test system-level interventions to help workers stay at or return to the workforce after an illness or injury. The program strives to build stronger linkages between healthcare providers, employers, and government workforce systems. Results of the program are pending, but it provides a relevant example of a national effort to improve systems coordination for work disability prevention.

In the United Kingdom, the addition of a vocational advice service to the best current primary care for patients consulting with musculoskeletal pain has led to reduced absence and cost savings,[95] and a new workforce of 20,000 First Contact Practitioners[33] (typically physiotherapists able to assess, diagnose, manage, and discharge patients with musculoskeletal pain and provide brief vocational advice without the need for an initial general practitioner consultation) is being established.[62,63] In addition, as part of a 10-year strategy to improve employment outcomes, Public Health England, as part of healthcare provision, has recommended the introduction of supportive conversations about work.[4]

Finally, in an Australian study of sick-listed workers with acute, work-related musculoskeletal problems, brief psychological risk factor screening, combined with an agreed-upon protocol for active collaboration between key stakeholders, to address identified psychological and workplace factors for delayed RTW was more effective than usual (stepped) care.[65] A key factor in its success was the engagement of insurance case managers, employer representatives, and healthcare providers in the project, which has served as a pathfinder for an integrated approach to injury management and led to policy changes and general implementation of the protocol for the statewide employer (the state health department). The approach adopted in the study was consistent with the implementation model described by Damschroder et al.[20] in specifically engaging with the key organizational stakeholders, training for case managers in employing the screening tool, training for the workplace rehabilitation coordinators in implementing the protocol, and close monitoring of the psychologists and physiotherapists to ensure their adherence to the protocol. Such demonstration projects with research evaluations that are built around existing systems may improve

feasibility for expansion and application to real-world employment, insurance, and healthcare settings.

5. Conclusion

The purpose of this review has been to offer an introduction to the impact of systems on work disability and its management. Overall, we conclude that system-level factors have a substantial influence on treatment efficacy and disability outcomes of pain. Optimal pain management to prevent work disability will require full engagement of healthcare providers, professionals, and organizational leaders and policy makers (**Table 2**). System-level interventions can add to efficacy trials by locating pain-related challenges in a social context. In our view, there is a real opportunity to improve the management of pain-associated limitations and the facilitation of RTW. Although disability management systems vary across countries and heath jurisdictions, we are optimistic that a specific but integrated focus on psychosocial and occupational obstacles to employment after pain onset can improve relevant outcomes for all interested parties.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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