

A Model of Supervisor Decision-Making in the Accommodation of Workers with Low Back Pain

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Abstract *Purpose* To explore supervisors' perspectives and decision-making processes in the accommodation of back injured workers. *Methods* Twenty-three semi-structured, in-depth interviews were conducted with supervisors from eleven Canadian organizations about their role in providing job accommodations. Supervisors were identified through an on-line survey and interviews were recorded, transcribed and entered into NVivo software. The initial analyses identified common units of meaning, which were used to develop a coding guide. Interviews were coded, and a model of supervisor decision-making was developed based on the themes, categories and connecting ideas identified in the data. *Results* The decision-making model includes a *process* element that is described as iterative "trial and error" decision-making. Medical restrictions are

compared to job demands, employee abilities and available alternatives. A feasible modification is identified through brainstorming and then implemented by the supervisor. Resources used for brainstorming include information, supervisor experience and autonomy, and organizational supports. The model also incorporates the *experience* of accommodation as a job demand that causes strain for the supervisor. Accommodation demands affect the supervisor's attitude, brainstorming and monitoring effort, and communication with returning employees. Resources and demands have a combined effect on accommodation decision complexity, which in turn affects the quality of the accommodation option selected. If the employee is unable to complete the tasks or is reinjured during the accommodation, the decision cycle repeats. More frequent iteration through the trial and error process reduces the likelihood of return to work success. *Conclusion* A series of propositions is developed to illustrate the relationships among categories in the model. The model and propositions show: (a) the iterative, problem solving nature of the RTW process; (b) decision resources necessary for accommodation planning, and (c) the impact accommodation demands may have on supervisors and RTW quality.

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Introduction

Characteristics of the workplace and lack of employer support during the return-to-work (RTW) process are important psychosocial predictors of long term disability [1–3]. More specifically, research suggests that supervisors of returning workers play a key role in the success or

failure of disability accommodation [4, 5]. For example, Krause et al. [6] found that lower levels of supervisor support were associated with an 18 % lower RTW rate for 433 workers' compensation claimants with low back pain (LBP). In a study assessing supervisor support for soldiers at a high risk for low back disability, Feuerstein et al. [7] found that higher levels of support were associated with lower levels of sick absence. Similarly, Halford and Cohen [8] identified a significant negative correlation between managerial support and musculoskeletal symptoms in call-centre workers.

Canadian law, like that of many other jurisdictions, requires that employers accommodate employees with disabilities up to the point where it causes the employer "undue hardship" [9]. However, supervisors retain a substantial level of discretion over the accommodation itself and RTW process. Supervisors may be required to interpret medical restrictions in order to make decisions about how to modify job tasks and hours of work. They may create or assign alternate duties where appropriate modifications to the worker's original job are not possible. Supervisors may also have to bear the cost of accommodations within their department budgets, and may participate in determining whether or not those costs exceed the legal "undue hardship" threshold.

Researchers have identified supervisor behaviors and key competencies [10] that are perceived as helpful. Interventions have been developed to encourage more effective communication between the supervisor and the injured worker. In general, workers require that supervisors offer meaningful, non-punitive job modifications, and provide personal guidance, and support [1]. Aas et al. [11] identified leadership qualities valued by employees in the RTW process. These included making contact with the employee, being considerate, understanding, empathetic and appreciative. Schreuder et al. [12] conducted a natural experiment by taking advantage of a hospital reorganization that reassigned supervisors. They compared sick absence, in the same ward but under different supervisors, for 1091 Dutch hospital employees. They found that supportive supervisors had less sick absence and higher RTW rates among their employees. Research suggests that training supervisors to engage in these supportive communication techniques with returning workers can reduce disability costs [5].

Despite this growing body of knowledge regarding effective supervisor communications in RTW, very little is known about other factors that might influence supervisor behavior or accommodation decision-making. For example, research by Florey and Harrison [13] found that perceived disability onset controllability (e.g. hearing impairment caused by playing in a rock band without hearing protection compared to congenital impairment),

past job performance, and the magnitude of a requested accommodation may affect the attitudes and intentions of supervisors. Williams-Whitt and Taras [14] suggest that peer relations or the worker's disciplinary history may affect the supervisor's efforts. It also seems likely that employer policies and procedures, best practice guides for RTW, or beliefs about pain and the need for accommodation may influence behavior. However, there seems to be little research in this area. We were unable to find any studies that specifically seek to identify factors affecting a supervisor's judgment quality, effort, or ability to offer appropriate accommodation.

It also seems likely that supervisors may approach the accommodation of physical conditions differently than they would for mental health conditions. Musculoskeletal disorders (MSD) are common health conditions requiring accommodation, and are a significant cause of disability and work absence [15]. LBP is particularly problematic with 25.2 % of American adults aged 18–44 and 32.4 % aged 45–64 experiencing LBP [16]. For those working in occupations with high physical job demands, the prevalence of LBP can exceed 60 % [17]. While some workers with back pain may recover with minimal interruption to employment, others experience prolonged periods of disability or recurring episodes [18] which have a negative impact on their employment status and financial stability [19]. Since reintegrating workers with LBP is a common, and ongoing challenge faced by supervisors, and supervisors may accommodate different health conditions in unique ways, this study specifically explores how supervisors experience and make decisions about accommodating workers with LBP.

Methods

This research is part of a larger mixed-methods study investigating supervisors' perspectives on the accommodation of back injured workers. The qualitative portion of the study provides a detailed telling of individual supervisor circumstances, thoughts, and behaviors and only the qualitative results are reported in this paper. The study was funded by the Canadian Institutes of Health Research and all procedures were approved by research ethics boards from Lakehead University, the University of Toronto, and the University of Lethbridge. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 [5]. Informed consent was obtained from all participants included in the study.

Participants for the mixed-methods study were recruited through their employers. Supervisors received an email

invitation to participate in a web survey. The invitation included a consent form and a computer link that provided access to the survey. At the end of the web-based survey, participants were invited to take part in the qualitative interview portion of the study. Supervisors interested in participating were asked to provide contact information and were subsequently telephoned to arrange an interview time and to confirm they had experience with accommodation supervision, by indicating they had been:

1. An immediate supervisor of a back-injured worker, and participated in decision-making from the start of the accommodation process,
2. An immediate supervisor of an employee with some other musculoskeletal injury, and participated in decision-making from the start of the accommodation process,
3. An immediate supervisor in the ongoing accommodation of a back-injured employee, but stepped in after initial accommodation planning had already occurred, or
4. Someone who participated in the decision-making of an accommodation for a back-injured employee, but participated in some capacity other than immediate supervisor.

The methodological approach in this research is constructivist grounded theory [20], which recognizes that researchers and participants co-create the data and ensuing analysis through their discussion. Both the researcher and participant frame the interaction and establish meaning together. The process of data collection and analysis occur concurrently, and interviews cease when new information or themes are no longer emerging [21, 22]. Ideally, interviews are added one-by-one as analysis progresses. In this study the location of the participants and primary qualitative researcher necessitated a bifurcated approach. Therefore the interviews were conducted at two separate points in time, approximately 18 months apart, allowing for analysis to occur in between. The interviews were conducted in person by researchers experienced in qualitative techniques.

Ten interviews were conducted at Time 1. These interviews were jointly conducted by the primary researcher and a research assistant. The initial sample focused on the health care industry, where back injury rates are high [23]. The supervisors in this group were purposefully selected to ensure broad representation across health care occupations, and included nursing, administration, maintenance and laboratory research. A second set of 13 participants were interviewed at Time 2. Participants in the second set of interviews were selected to broaden gender, industry and occupational representation (see “Appendix 2”). No additional interviews were conducted after Time 2, as no new

or unique concepts were arising from the interviews (saturation had been reached).

A semi-structured interview protocol was used to guide the interviews, which were held at a location convenient for the participant, but sufficiently private to enable frank disclosure. Each interview lasted from 30 to 90 minutes. Supervisors were asked what factors they consider when finding accommodations for back-injured workers, which factors are most important, what processes they follow, and what makes it easier or more difficult to accommodate (see “Appendix 1” for the initial interview guide). Consistent with qualitative methods, the interview questions evolved over the course of the research. Interviewers also probed for details in order to provide rich descriptive content, and used summarizing statements to confirm mutual understanding. While the concepts of reliability and validity are more suited to quantitative/positivist traditions, “validation” in qualitative research occurs throughout the interview process, with the researcher checking with participants regarding emerging themes, categories and relationships (co-construction through member checks). Researchers also took notes during the interview to record non-verbal cues such as intonation or emotional reaction. Interviews were later transcribed and entered into NVivo software for analysis.

The primary researcher developed a preliminary coding guide after Time 1 collection. The guide was based on discussions with the research assistant and the initial analysis of two cases by the primary and another researcher on the project. Using the guide, the primary researcher conducted the line by line coding for units of meaning. Coding for units of meaning, rather than individual words, is utilized in order to ensure themes and categories capture contextual information that influences interpretation of the data. The number of references (units of meaning) coded to each theme and category were recorded and catalogued to reflect density of the category. References could be coded to more than one category.

In qualitative research, coding and analysis is not linear or mechanically applied [21]. Rather, coding is a process of repeated analysis of the data at increasing levels of abstraction [22]. Themes and categories are developed through repeated exposure to the data. Categories are refined over time as the researcher considers confirming and disconfirming incidents, properties of the categories, relationships between the categories (axial coding), and integration of extant theory [21]. The quality of the coding and analysis is determined by the credibility of the findings and resulting model. In this study the qualitative lead was responsible for initial coding, analysis and theoretical integration. Colleagues on the research team supported credibility by participating in development and refinement of the interview guide, jointly conducting interviews,

discussing initial categories and supporting quotes, reviewing the analysis and working with the primary researcher to refine the resulting model.

Results

A total of 240 Canadian supervisors participated in the web-based survey. Fifty-five of these participants indicated they would be willing to take part in the qualitative interview and also met the inclusion criteria. Twenty-three supervisors from eleven Canadian organizations were interviewed. Thirteen participants were female, ten were male. Eighteen were from public sector organizations, five were from the private sector. The organizations were from health services [11], education [3], research [2], industrial [3], social assistance [2] and retail [2]. “Appendix 2” contains a table of participants by gender, sector and occupational category. All participants had supervised employees accommodated for some type of musculoskeletal injury within the past year. They also had supervised employees with other types of illnesses or injuries. Seventeen participants estimated that they supervised back injured workers between one and five times per year. Three estimated that they supervised 20 or more back injured workers per year. Three stated that back injury accommodation occurred fewer than 3 times per year, and it had been more than 1 year since they last supervised a back injured worker.

Overview of the Emergent Model

Figure 1 provides an overview of the accommodation decision-making model that emerged from our research. Consistent with a constructivist approach, the model reflects the discussions with participants as well as the researcher’s a priori knowledge of existing theoretical frameworks. The left side (resources) and centre (beginning with brainstorming) of the diagram represent a trial and error process that was consistently described by the supervisors. The right side (demands) represents the experience of accommodation and the influence this has on the trial and error process. We begin with an explanation of the overall model followed by a detailed exploration of the categories associated with the two dominant themes (process and experience). Illustrative quotes, reference densities and the number of participants who refer to each category are included as an indication of category saturation.

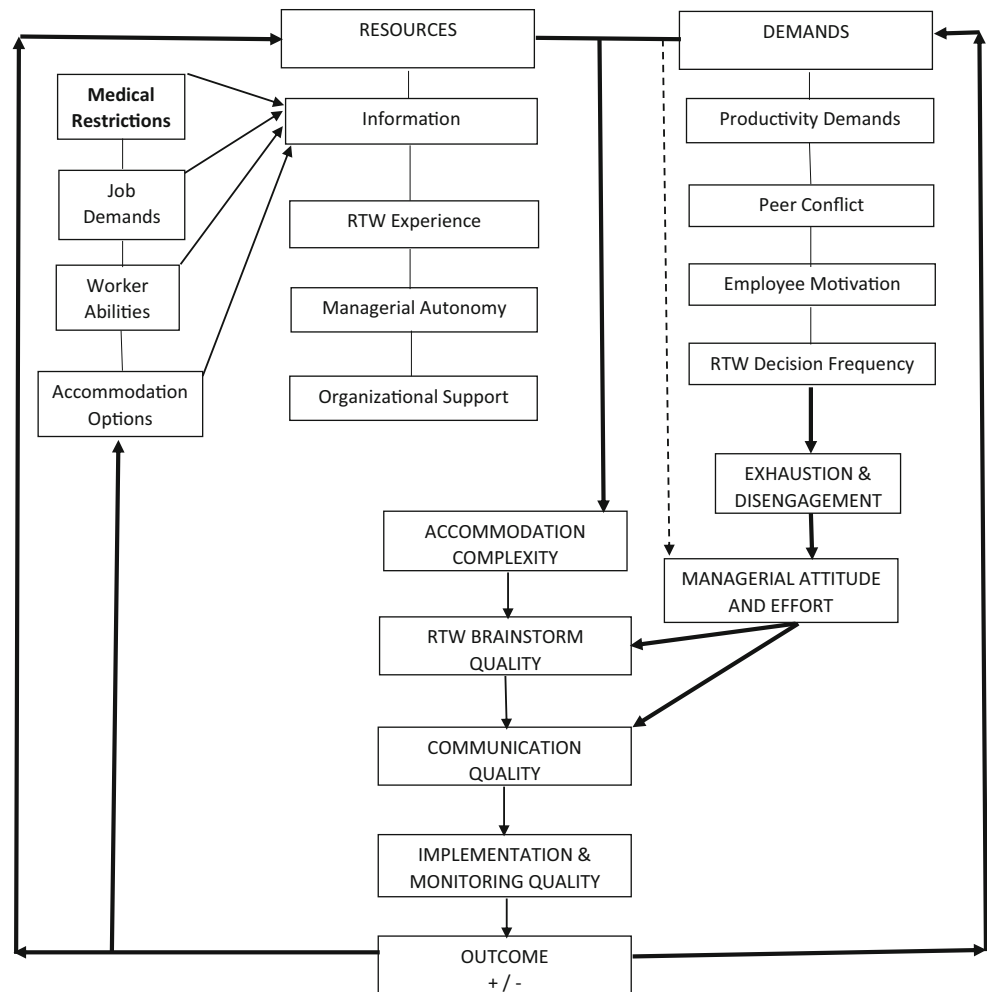
The first dominant theme “trial and error”, describes the *process* of accommodation from the supervisor’s perspective. The term “trial and error” is a descriptor developed by the primary researcher through initial data analysis, and

subsequently confirmed through member checks with participants. It refers to a repetitive cycle of brainstorming to identify viable alternatives, selecting an option, implementing it and monitoring the outcome. If the accommodation fails, the supervisor returns to the brainstorming stage and works through the decision again. Participants identified resources that are important to identifying an appropriate accommodation. These include information (medical, employee skill and ability, job demands, accommodation alternatives), supervisor experience with RTW, supervisor autonomy, and organizational support. Adequate resources do not necessarily make an accommodation decision less difficult or complicated, but they do enable the supervisor to make higher quality decisions. Where these resources are inadequate, any particular accommodation attempt is less likely to be successful.

The second theme, shown on the demand side of the diagram is “squeezing the balloon”. It is an *in vivo* term used by Supervisor 20 to describe the *experience* of managing accommodation. Accommodation itself creates demands that must be managed by the supervisor. But managing the accommodation may create other demands that require the supervisor’s time and attention. For example, if a viable accommodation alternative is likely to reduce productivity, the manager will need to divert attention to budgeting for, and locating, a temporary worker to fill the gap. The demands associated with accommodation that were identified in this study are maintaining productivity, peer conflict, employee motivation and RTW decision frequency. In particular, decision frequency caused by repetition through the decision-making process for a single employee, increases managerial stress. This results in supervisor exhaustion and disengagement, so accommodation decision frequency becomes a demand-side factor in and of itself. As demands associated with the accommodation increase, so does the stress and strain on the supervisor.

High demands combined with inadequate resources increase accommodation complexity as well as the level of stress experienced by the supervisor. This may result in poorer brainstorming quality and less effective communication with accommodation stakeholders. These, in turn, can affect the quality of the implementation, monitoring and RTW outcomes, which may result in the need to repeat the cycle. The more often the manager is required to cycle through the trial and error process, the less likely it is the employee will remain in the workforce. This may be because the accommodation planning and implementation were flawed, or it may be because the employee’s medical restrictions simply cannot be appropriately accommodated in that workplace. Although the two themes and their related categories are described separately below, they are interdependent and iterative as shown in the model.

Fig. 1 Model of supervisor accommodation decision-making



Theme 1: Trial and Error

The trial and error process for all participants in this study begins with brainstorming. All 23 participants described the same process, and there were 196 references to it in total. Brainstorming could be an activity the supervisor engaged in alone, or it might occur in the initial RTW meetings among stakeholders. Meetings normally include the supervisor, occupational health and/or human resources. The employee might attend, but this was less common in the brainstorming phase. In a unionized environment, the employee's union representative may also be present. More individuals are involved for more complex accommodation decisions. Complex accommodations are those where: (a) there are a large number of medical restrictions, (b) there is uncertainty about the medical condition or prognosis, (c) the accommodation is likely to be longer term, (d) where job tasks cannot be easily modified, or (e) it is necessary to involve other departments in the organization.

The objective of brainstorming is to identify tasks the employee can engage in that are believed to be safe, based on medical information available about the employee's abilities and restrictions. Supervisors prefer the tasks to be productive and some indicated that the work should also be "meaningful" for the accommodated employee. However, productivity and meaningfulness are perceived as less important than getting the accommodated employee back to work in some capacity. Supervisors are willing to assign what they describe as "menial" labour in order to get the process of RTW started. Where doubt exists regarding the ability of the employee to engage in the tasks, supervisors generally prefer the alternative that appears less risky:

Supervisor 12: If we are drawing a chart as to what they can do - the very easiest thing they can do and the most difficult thing they can do - and we agree on that, then I would start at the very easiest thing no matter what, and then it's easy to move forward. We don't want to go to the top end of their ability and then realize they can't.

When more than one person is involved in brainstorming (e.g. human resources personnel), the stakeholders review the information available, identify viable alternatives and then attempt to reach consensus on a preferred option. Identifying viable alternatives and choosing the best path forward can be difficult, particularly in complex cases. It is not uncommon for supervisors to feel the process is flawed and they are ill-prepared to make accommodation decisions:

Supervisor 16: They were just kind of guessing. They said, ‘Well, how about this?’ And I would say, ‘Well, I’m happy with that.’ And then they’d say, ‘Well, how about this?’ ‘I’m happy with that too.’

Supervisor 19: Ninety-nine times out of one hundred that’s the first time I’ve heard of it other than the fact that he’s injured, but they [occupational health] are saying that there is a lifting restriction, there’s a walking restriction. Here’s what we’re dealing with, here’s the amount of time we’re dealing with. Can you accommodate that? So then I’m kind of put on the spot, ‘Oh, you know, I don’t know. Like I think so.’

Brainstorming concludes with the selection of a particular accommodation option and contacting the employee to inform him/her of the decision. Once the employee is back in the workplace, the trial and error process continues. The supervisor is responsible for communicating with the employee, monitoring performance and progress. Monitoring frequency is based on the supervisor’s perception of need and opportunity. If the employee is located proximally and the LBP injury perceived as more severe, most supervisors check in every few hours during the first week of the accommodation, and with each change or increase in workload. Some supervisors did not check on their employees at all, but relied on the employee to report to them if they were experiencing difficulty.

Supervisors indicated they could cycle through brainstorming and implementation once, in relatively uncomplicated cases, or many times for more complex accommodations (16 supervisors, 66 references). The more often the accommodation experiment fails (the employee is reinjured or unable to do the work assigned), the less likely the RTW will be successful. As Supervisor 8 regretfully noted: “for some of these people you just hope that they get accepted for long term disability and just disappear.” To improve the quality of the accommodation decision-making, and reduce the need for multiple accommodation attempts supervisors relied on four brainstorming resources, information, RTW experience, autonomy, and organizational support. Each is described below.

Information

The first resource is accurate and complete information regarding the medical restrictions, skills and abilities of the returning employee, job demands and accommodation options. These information categories are not given the same weight in brainstorming. Medical restrictions are given the most weight and anchor the analysis. Supervisors (and other brainstorm participants) attempt to match the restrictions with the tasks and job demands of the employee’s original position. Alternatives for modifying the tasks are discussed and the option that best meets the medical restrictions is selected. If the employee’s original position cannot be modified, the brainstorming is extended to consider the employee’s abilities and other tasks within the organization.

Medical Restrictions All supervisors referred to medical information detailing the employee’s activity limitations (23 supervisors, 207 references) as the most important piece of information they use in their accommodation decision-making. It is the anchor, or starting point of the brainstorming process and other types of information are only added as required in subsequent steps. Fewer medical restrictions increase accommodation options and decrease accommodation/decision complexity.

Medical information typically comes from internal occupational health (OH) or human resource (HR) management departments. They receive the restrictions and prognosis from physicians and then act as medical information gatekeepers on behalf of the organization to ensure employee privacy is maintained as much as possible. Only as much or as little information is released to the supervisor as OH/HR personnel feel is necessary.

For LBP workers, supervisors prefer very specific guidelines with respect to lifting, bending, repetitive movements, sitting, and expected recovery progression. A consistently expressed concern was that the quality of the medical information received was often insufficient (18 supervisors, 72 references), which compounded fears of assigning inappropriate duties:

Supervisor 1: ... physicians are not clear around the limitations and that’s one of the biggest challenges for us actually. You know, they’ll come back with a report that says this employee cannot perform this specific duty. Well, a duty is not a limitation. What I need to understand is no bending, no lifting, no lifting ‘x’ number of pounds, no stretching, no squat.

Furthermore, most managers indicated that the medical information they received need not include the employee’s diagnosis. The type of illness or injury mattered only to the extent that it influenced the employee’s medical restrictions:

Supervisor 1: it doesn't matter to me if they have a back injury or something else, whether it occurs at work or somewhere else...that's how I like to view it because it keeps me out of all that messy stuff. I want no part of that.

Since medical restrictions are relied upon as the anchor of accommodation decision-making, inaccurate or insufficient detail can have a large impact on the quality of the brainstorming, which may increase repetition through the trial and error process.

Job Demands Information about job demands is added to the information regarding restrictions to assess the possibility of a match. Supervisors rely on their own informal inventory of tasks performed on their work unit, to determine whether those tasks involved repetitive movements, bending or lifting (21 supervisors, 103 references). Knowledge of job demands was based on personal experience, or observation. Objective, documented data regarding task repetition frequency, lifting requirements, cognitive demands, etc. was rarely used. In some cases ergonomic assessments of employee work stations would be requested by the supervisor or other coordinating departments. Supervisors determined how the tasks on their units could be modified or reassigned, how to implement modifications, and bore any costs including equipment and staff replacement.

Since job demand information is the second most important source for brainstorming, inaccurate or unavailable information regarding demands is likely to decrease the quality of the accommodation plan. Where medical restrictions conflict with core job demands, the number of viable accommodation alternatives decreases and the complexity of the decision-making increases as brainstorming participants must consider positions (tasks and associated demands) outside of the employee's job, or work unit.

Accommodation Options As noted earlier, the starting point for identifying job modifications is normally the employee's original position. If there are relatively few medical limitations, and the employee is able to perform at least some of his or her original duties, supervisors "imagine" ways to modify the tasks, work station or schedule to suit the employee's restrictions. Some supervisors developed mental lists of tasks suitable for LBP restrictions, that are regularly available on their units, and that can be easily modified for an employee's unique needs. Supervisors consider how much time each task takes and whether it might be appropriate to bundle several tasks together. Where the nature of the job allows the employee greater control over when and how tasks are completed, supervisors may re-bundle duties, because this allows employees to adjust their pace to manage back pain:

Supervisor 10: ...if you feel that you need to get up and stretch nobody is going to be cracking a whip. It's not like a factory. You have the flexibility to get up and walk around, go to the bathroom, come back and finish.

Supervisors with no previously developed list of potentially suitable tasks, mentally canvas clerical or other less physically demanding tasks normally performed by someone else, or that have been left unattended. If there is no suitable work, but sufficient financial resources, an entirely new position might be created on a temporary basis. For example, supervisors 5 and 8 developed the position of a "client greeter" and assigned this task to returning employees. Supervisors also indicated they are more cautious in a unionized environment because job descriptions are embedded in collective agreements. Therefore any proposed task modifications, employee relocations or re-bundling of duties may require collaboration with the union before implementation.

Supervisors also compare the length of the accommodation with how long alternative duties might be available. For lengthy accommodations the only alternative may be to canvas options in another part of the organization. The employee's direct supervisor may participate in making that decision, or may only be notified of the relocation. In some organizations, the original and new supervisor share responsibility for monitoring temporarily relocated employees' performance and recovery. In other cases, involvement of the original supervisor is substantially reduced until employees are returned to their home unit. Either approach can make brainstorming, monitoring, and implementing more complicated for the supervisor because accountability is less clear, and because contact with accommodated employees is reduced.

The size of the organization, breadth of occupational groupings, and nature of the work also influences brainstorming deliberations. More alternatives are available in large organizations with a wide range of job types. Some supervisors reported they accommodate LBP employees from other units. This occurs if work on their unit is less physically demanding. Temporarily accommodating employees from outside units is less burdensome because it is likely to be common and therefore familiar, does not require significant modification to existing tasks, and supervisors are not responsible for associated costs. Employees from other units are supernumerary, which reduces scheduling difficulty, helping meet productivity and budgetary objectives. It also reduces the need to manage difficult team dynamics because accommodated employees are perceived as "an extra set of hands" rather than the cause of increased workload. Other supervisors did not accommodate employees from outside of their own

departments because the work was technical, requiring specialized skills.

A large number of accommodation options thus makes accommodation decision-making more complex, but increases the likelihood that an effective and appropriate accommodation can eventually be identified within the department or the organization. If information regarding tasks performed across the organization is unavailable, this will decrease the quality of accommodation option that is chosen.

Employee Abilities A final source of information used during brainstorming is the employee's level of skill and experience (18 supervisors, 83 references). This becomes most important if there is a mismatch between medical restrictions and the demands/tasks of the employee's original position. It is also a consideration for occupations requiring a high level of knowledge or ability, such as nursing or research, where a lengthy absence could mean a deterioration in required skills. If skill deterioration is a factor, the supervisor may have to arrange for retraining during or prior to the RTW, which will affect the length of the accommodation. Some supervisors noted it is sometimes easier to return employees with versatile skills and experiences because they can be accommodated in other roles or locations.

Supervisor 15: We don't really train people but, you know, we can do certain amounts. So if they're in the office, are they good, you know, at computers? Because we can use them that way, or are they just going to be filing for a while.

Supervisors are aware of employee skill and experience through daily interactions, none indicated they had access to a skills database in their organizations. Inaccurate or insufficient information regarding employee skills and abilities can negatively influence decision quality, particularly where the employee cannot be accommodated in his/her pre-injury position. A more versatile employee skillset increases accommodation options, though not necessarily accommodation complexity.

RTW Experience

The second resource helpful for high quality brainstorming and implementation is the supervisor's past experience with accommodation. Twenty-two participants (128 references) referred to the importance of learning through exposure to accommodation management. Training is not common and is perceived as less important than experience. Those who supervise more accommodations, or who have the opportunity to job shadow another supervisor, feel

they are better prepared to navigate the issues. Experienced supervisors know more about organizational supports and where to find helpful information. They know potential budgeting pitfalls, carefully monitor returning employees, and are able to identify job modifications that were successful in the past:

Supervisor 18: The more you do something the better you are at it, so it is a little easier for sure.

A second facet of experience that influences supervisor deliberations and implementation tactics is familiarity with the accommodated employee and work team. Supervisors deny that an employee's history of discipline or poor performance change accommodation plans. However, a lengthier work history may improve decision quality because knowledge of the employee's past behavior and personality help guide supervisors in the awkward personal discussions surrounding accommodation. This improves information quality, allowing for more accurate assessment of progress:

Participant 14: I sometimes use past history to try to resolve something or try to – I use past history to see how to approach someone.

Past experience accommodating employees is therefore a resource that reduces decision complexity because supervisors create "rules of thumb" based on past success with accommodation. It is important to distinguish experience with many unique accommodations from repeated experience with the same accommodation. Where multiple unique experiences result in at least some successes, the supervisor gains confidence and learns to repeat those decisions and behaviors. Where exposure is from a single case, on a repeated basis, the potential benefits of learning are reduced or eliminated over the course of multiple failed accommodations.

Managerial Autonomy

The degree of autonomy or discretion that supervisors have (15 supervisors, 100 references) is another resource that may support identification of accommodation alternatives as well as successful implementation of the accommodation plan. Supervisors indicated that it facilitates creativity in the design of work modifications because the manager is able to re-bundle tasks, change schedules, and pay for additional resources without the need to consult with others in the organization.

However, many supervisors feel their discretion is actually quite limited because they do not control the flow of accommodation information or resources and cannot ensure activities are coordinated between departments involved in the RTW:

Supervisor 18: I actually cannot manage the system, I cannot make it respond as fast as I would like to, I cannot guarantee the financial thing will follow through, that there will not be some effect on them. I – you know, I just do not have that same clout.

More specifically supervisors identified a problem with limited autonomy over, and access to, accommodation funding. Supervisors are expected to stay within specified budgetary targets that do not fluctuate with accommodation requirements. Unanticipated expenses necessitate spending reductions in other areas. For example, supervisors must pay for supernumerary staff or equipment necessary to facilitate the accommodation options they are considering. Most have no access to additional funds to support accommodations, and since accommodations are difficult to anticipate the costs are rarely built into departmental budgets:

Supervisor 7: We certainly don't budget for anything like work accommodation. That would be considered a variant because it happens or it doesn't happen. There is no predictability to it.

Supervisor 22 further indicated that if the injury occurs in the workplace, and is being managed through a workers' compensation scheme, there is more pressure to get the employee back to work as quickly as possible to reduce insurance costs. The expenses associated with the accommodation, and budget limitations may therefore encourage the supervisor to choose the most cost-efficient, rather than most effective accommodation option.

Increasing supervisor autonomy, particularly with respect to budgeting, may therefore improve accommodation decision-making and decrease complexity by reducing the need for extensive collaboration or consultation with other units.

Organizational Support

Organizational supports, such as clear accommodation policies and procedures, are also important resources that aid decision-making. Although organizational supports influence accommodation decision quality, it was suggested they are imperfect mechanisms because not all supervisors know about them or recognize when they need to ask questions. Furthermore, the organizations in our research provided little feedback, accountability or reward systems that indicate to supervisors whether they are doing everything they ought to be doing, in the way they ought to be doing it:

Supervisor 16: We've got an excellent HR Department too and they'll provide any assistance that's required. So if the manager isn't sure and they ask,

they'll definitely be told the right answers, but some of them don't ask.

Supervisor 1: Everyone has their own approach. We think we are following hospital policy but you know what, we all interpret it differently and we all don't do this because we are so big. So it would be nice to have sort of a standard method whereby we all knew we were following sort of the right course.

An equally important feature of organizational support are colleagues who step into reduce the cognitive workload for a supervisor overwhelmed by complex accommodations:

Supervisor 14: Your peers themselves will try to take things from your plate to lessen your workload, so you are able to deal with the time – the full attention that that accommodation may need.

Organizational supports therefore reduce decision complexity, and are likely to increase the quality of accommodation decisions, by providing concrete policies and processes, and by reducing the cognitive load associated with the supervisor's other responsibilities.

Theme 2: Squeezing the Balloon

Supervisor 20: It's like a balloon though. Whenever you squeeze a balloon to say, 'Oh I'm going to trap it here,' it starts bulging somewhere else.

Accommodation Demands

Interacting with the trial and error decision process is the way that supervisors experience accommodation planning and implementation. The majority of supervisors in this study consider accommodation planning in and of itself an additional job demand. Time, resources and cognitive effort utilized to manage RTW cannot be used elsewhere, creating pressure in other parts of the workplace system. Though both resources and demands influence decision complexity and the quality of an accommodation, demands are distinct from resources. Resources are necessary to plan and implement accommodations, demands are managerial challenges that arise as a result of the need to accommodate. Accommodation management is perceived as a considerable addition to supervisors' regular duties, for which they feel ill-prepared, even where guidance is provided by others with the requisite expertise:

Supervisor 11: But he sent me the stuff and said, this is what she needs, I suggest this...you choose. It was like going shopping. It was like he gave me the catalogue and said you choose. I had to order it, I had to

have it delivered... It was like, what am I? Moving woman? Like I mean it was just nuts.

Furthermore, demands on the supervisor escalate where LBP accommodation is complicated or lengthy and supervisors must cycle through the brainstorming, implementation and monitoring process several times for the same employee. The more protracted the accommodation, the more the supervisor is required expend cognitive effort and the more drained and frustrated the supervisors feel:

Supervisor 11: That long one was a killer because I had no clue. What am I doing? I didn't know what was going to happen next. I never knew. Is she coming back? Isn't she coming? How long am I living with this?

Accommodation decisions and RTW management are also considered more stressful than other decisions or activities supervisors regularly undertake because they are unpredictable, require knowledge supervisors may not possess, deal with the most personal aspects of an employee's life, and are perceived as high risk. Most supervisors are quite concerned about the possibility of assigning duties that will exacerbate the worker's condition.

Supervisor 3: To me the most important factor is the safety of the staff. We definitely don't want them to regress so that is the first thing when I am thinking about what they can do and looking at the restrictions that is the first thing that I think of is the safety of the staff member and also the safety of the others working with them

In addition to the demands associated with frequent or repetitive RTW decision-making, accommodations create three other challenges for supervisors: managing productivity, peer conflict, and injured worker motivation. Each of the three is described below. An explanation of their impact on managerial attitude and effort, communication quality, and the trial and error process follows.

Workplace Productivity For all supervisors interviewed, organizational productivity demands (23 supervisors, 180 references) remain the same regardless of the number of employees being accommodated at any one time or the complexity of any one accommodation. This increases the time supervisors spend on scheduling. It may mean locating temporary replacements or supernumerary employees to meet productivity requirements during the accommodation. Shifting the burden to coworkers is not a preferred option because it can have a domino effect, creating stress for the workers, resulting in more sick absences, and increasing error rates. Scheduling is particularly demanding when the accommodation or RTW is sporadic or

unpredictable. Some supervisors expressed concern that the number of accommodations seem to be escalating, which decreases available options when a new accommodation need arises. In order to maintain productivity and avoid creating problems elsewhere, supervisors consider how each additional accommodation impacts unit costs, scheduling, hiring and the workload of other employees:

Supervisor 10: So that is always a challenge having enough staff to cover the illness and the second challenge is when they are working half a day you can't call somebody else into work only half a day.

Supervisor 17: If you push other workers to kind of fill in that gap, you are only asking for trouble. The more you push someone, the more likely you are going to have errors, and in this industry you cannot have errors.

Peer Conflict Study participants were specifically asked to discuss the impact of co-worker or peer relations on their decision-making. There were 168 references to this category, with 22 supervisors suggesting it is not a factor they initially consider. They do not avoid placing back injured workers where there is potential for conflict, nor do they look for opportunities to place them with supportive coworkers, although it is recognized this could influence RTW outcomes:

Supervisor 10: I think when you have a large organization you have lots of people working together and you are going to have interpersonal conflicts no matter where you are. So given that, we are not scheduling, or at least I am not scheduling based on who they are working with.

While supervisors do not plan accommodations around peer relationships, interpersonal conflict or lack of support from coworkers is a "bulge in the balloon" that requires more time to manage. In extreme cases, poor peer relations negatively impact accommodation enough that the employee needs to be reassigned, forcing supervisors to cycle back through the decision-making process:

Supervisor 1: When I know there is some tension there I do a lot more monitoring. I check in with the group, I check in with the individual, I make sure that everything is fine and if things aren't okay, so where do we have an issue? And we look at what the issues are and work at, together, coming up with solutions to that because otherwise you are just throwing the person out to the dogs.

A common source of conflict is the perception that an accommodation is unfair because the worker with LBP has lighter duties, while coworkers are required to take on additional heavier work. Resentment increases over time.

Supervisor 2: There is a lot of judgment that goes on and the longer someone stays modified then the more judgment there tends to be.

The nature, or origin, of disability may also create conflict and affect peer behaviors. In one case, coworkers preferred the LBP employee's temporary replacement and made that clear to the employee when he returned. Coworkers who are suspicious about the legitimacy or severity of a back injury, can make work life unpleasant through social isolation:

Supervisor 5: I think that back injuries are one of the harder ones for the other staff to appreciate rather than something like a tendonitis or a shoulder ... I don't know why that is but I think that it is. I think that it is perceived a little bit more dubiously by other employees.

Supervisor 1: There's a lot of finger pointing and a lot of nastiness that sometimes can happen within the peer groups. So if they think that it was done at home or that they should have prevented it somehow. Or that it's deliberate or they had some minor injury and it's an excuse for them to get out of work or it's an excuse for them not to work with certain individuals or it's, you know, not as bad as they make it out to be; it's just an excuse because they're lazy.

Despite recognizing the impact disability origin can have on peer behavior, supervisors deny it directly influences accommodation decision-making or implementation. Where LBP injuries are a common occurrence, supervisors do not feel peer preparation for an incoming accommodation is necessary because the process is well-understood. Even where LBP or accommodations are infrequent, supervisors do not prepare coworkers. Instead they see peer conflict as a demand-side issue that requires management only once it becomes a problem. It is unclear whether including peer coaching or preparation efforts in accommodation planning would affect RTW outcomes. Though it is clear that when peer conflict erupts around accommodations, many supervisors find it difficult to manage.

Supervisor 6: The most challenging part is the soft science of trying to assuage prickly feelings about the whole thing.

Employee Motivation Supervisors also identified employee motivation (22 supervisors, 183 references) as a factor that affects their management of RTW. As with peer conflict, most deny it affects the accommodation they assign, rather they suggest it may affect RTW success, or how they interact with the employee. Although Supervisor 3 suggested that giving less motivated employees tasks they dislike may encourage a more speedy return to full

duties. Reluctant employees also require different support or encouragement:

Supervisor 17: Even if you make the accommodations you cannot just assume that they are willing to take that. There are so many factors that I have seen, they are suspicious, embarrassed.

Employee reluctance or accommodation refusal is a demand factor because it is time-consuming. The supervisor must investigate the reason for the employee's reaction. Formal requests for additional medical information may also be required. This necessitates revisiting the ability/task matching cycle to adjust accommodation planning and address any previously unidentified issues.

Supervisors feel it is more difficult to accommodate less motivated employees, or those who do not enjoy their jobs. However, highly motivated workers can also be difficult to manage because they fail to report back pain until it is more serious, or because they are more likely to RTW prematurely or exceed medical restrictions:

Supervisor 18: Any kind of time away from work, beyond a couple of days – does not meet their own personal standards and so they do not do it. And asking for help does not meet their own personal standards.

This is also time-consuming because supervisors must monitor these employees more frequently to ensure they are working within their medical restrictions.

Managerial Attitude and Effort

The extra demands associated with accommodation, particularly repetitive accommodation, affect the attitude and effort of managers. The most direct impact is on the time the supervisor has available, and the cognitive "room" they have to fully participate in high quality brainstorming to identify good accommodation options. Supervisor attitude was referenced by 18 participants on 116 different occasions. It influences judgment and communications during an accommodation. Participants suggested that a supervisor's attitude is influenced by personal experience with LBP, beliefs about employee motivation and behavior, and workload. Participants who had experienced back pain in the past were often, though not always, more empathetic:

Supervisor 5: I think they blame people less and realize that stuff does happen and it doesn't feel that great to sit there and talk about your accommodations with people. I don't think it has ever made them harder. I think it makes them more understanding of the employee.

Supervisor 8: I came back with pain. I have watched people come back to work and push through it and ask for help appropriately and so I have seen people go through it and I know it can be done. So I think that probably impacts my thinking a little bit. It probably makes me want to kick people's asses a little more when they are in this process because I have seen people do this.

Concern was expressed that supervisors who are not empathetic can be “a little too punchy and rammy with their leadership style” (Supervisor 16). This may lead to errors in accommodation judgment, where the supervisor pushes the employee back to full duties too quickly, resulting in re-injury. However, participants from health-related occupations recognize that empathy may be a double-edged sword. Overly empathetic supervisors, fearful of causing the employee pain, may inadvertently sabotage LBP recovery by over-accommodating and setting inappropriately low performance expectations.

Supervisors who are less experienced, or feel overwhelmed, sometimes blame the employee for the added workload and expect the employee to express gratitude for the accommodation:

Supervisor 11: I guess I am expecting them to act a certain way, like thank you – thank you for allowing me to come back to work. Instead I get, you owe me this.

Ingratiating behaviors on the part of accommodated employees may thus influence supervisor attitude (see Colella and Varma, 2001 for a similar finding) [24]. Supervisors who feel accommodated employees are grateful may be more supportive in their communications, put forth more effort or monitor more carefully.

Communication Quality

Managerial attitude and effort also appear to have a direct influence on the quality of RTW communications, which impacts the quality of monitoring, implementation and ultimately repetition through the trial and error cycle. There were 192 references by 21 participants regarding the quality of communication between the supervisor and the returning employee. Poor communication may limit the information exchange necessary for effective decision-making.

Supervisor 5: It's a funny thing how much people will keep doing something that isn't working and not ever say anything.

The communication style of the supervisor has been covered well in other research on this topic [5, 11, 12],

and the supervisors interviewed in this study echo the importance of using a supportive style. However, some points raised by the participants are unique and worth noting. First, communication between the supervisor and the employee prior to their return can be quite delicate and needs to be tailored to the employee. Cultural factors such as trust and ethnic diversity may influence how initial contact is perceived by the employee.

Supervisor 17: It gets very tricky when you have such a diverse workforce. It is true, you have to interact with people a little differently depending on who you are talking to.

Some supervisors are reluctant to initiate contact fearing it might be poorly received:

Supervisor 21: Some people want that connection and other people feel that you're invading their privacy and harassing them.

It was suggested that first contact should be earlier in the employee's absence, should be to express concern, and should not touch on the subject of RTW. A trusting supervisor-employee relationship (prior to illness or injury) benefits the RTW process because employees are more likely to notify the supervisor of any difficulty.

The importance of communication throughout RTW was highlighted. Supervisors feel it is crucial to set expectations with employees about how often they can expect to see their supervisor and what to do if they experience pain:

Supervisor 22: Communication. Constant. And that's not once or twice a week, that's three or four times a day, and communicating exactly what your expectations are all the time. I say to guys who are involved in these things, 'Let's go with these half dozen things. You feel comfortable doing them?' 'Yes.' 'Well, I want you to tell me if any one of them start bothering you at any time for any reason. And not that I'm always going to be checking up on you to make sure you're working but expect to see me down here over the course of the day,'.

Supervisor 8: There's going to be pain or there's going to be discomfort and when you get that, here's what you do.

Supervisor 18: But you would, as the manager, imply that it is normal to have to meet and that is not something that they should have to agree on because they are needy, but that that is just part of the process. So set it up that it is – the onus is not on the worker, but on the manager to put that structure in place.

Discussion and Conclusion

The purpose of this study was to explore supervisor's perspectives and decision-making processes in the accommodation of workers with LBP. It makes a contribution to the literature by developing a model showing: (a) the iterative, problem solving nature of the RTW process; (b) decision resources necessary for accommodation planning, and (c) the impact accommodation demands may have on supervisors and RTW quality.

As noted earlier, the model is influenced by the interviews with supervisors as well as the researcher's knowledge of extant theory. The Job Demands Resources model (JD-R) [25], provided a particularly helpful initial framework. The JD-R describes the negative impact of high job demands and low resources on employee motivation, strain and organizational outcomes [25]. The JD-R is an extension of the Job Demand and Control (JDC) model first proposed by Karasek [26] to explain health outcomes in the workplace. Job demands are "physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs (e.g. exhaustion)" [27]. Resources are aspects of the job or individual that may help the person achieve work goals, reduce job demands, or that stimulate personal growth and development. In both the JD-R and JDC models, low levels of resources when combined with high job demands, are stressors leading to strain, which has a significant impact on the health and well-being of workers.

The JD-R model suggests mental, emotional and physical tasks create job demands that require sustained effort on the part of an employee [25]. Our model specifies demands that arise in the context of accommodation. We suggest that accommodation decision-making, planning and implementation add to the cognitive workload and time pressures placed on supervisors. Cognitive workload increases where: (a) accommodation causes peer conflict, (b) the employee is under- or over-motivated, and (c) unsuccessful accommodations require repetition through the decision-making and implementation cycle.

Furthermore, our research indicates that accommodation demands have a particular impact on the supervisor and the quality of RTW. First, problems perceived to be risky, uncertain, new or complex, deplete resources more than problems that are routine, well-learned, or based on standard procedures [23]. Many supervisors reported they had little training in RTW. They relied on personal experience and recall to assess job demands and identify potential job modifications. All were very concerned about the risk of re-injury. Second, supervisors who are frustrated and exhausted by the process may not be as engaged in

brainstorming, and may not communicate as frequently or as effectively with the returning employee.

The JD-R model also suggests that resources may be external (organizational/social) or internal (cognitive), and that they have "motivational potential" [19] because they foster learning and development, and are instrumental in achieving work goals. General resources proposed in the JD-R model include support, autonomy, feedback, etc. [26]. In the context of accommodations, supervisors identified accurate information regarding medical restrictions, employee abilities, job demands and accommodation alternatives as a particularly important resource. We would suggest that, as in the JD-R model, adequate resources motivate and better enable supervisors to manage demands associated with accommodations. They enable supervisors to devote the necessary time and cognitive focus to accommodation brainstorming, which increases the likelihood that an appropriate accommodation will be identified and selected.

We therefore make the following propositions:

Proposition 1 RTW decision-making, planning and implementation is a high demand activity, requiring greater cognitive effort than routine, less risky managerial activities.

Proposition 2 Adequate resources in the form of accurate information, past RTW experience, supervisor autonomy and organizational support are necessary for effective accommodation, and motivate supervisors to attend to accommodation decision-making and RTW.

Proposition 3 High accommodation demands combined with insufficient resources cause stress and strain which impact managerial accommodation attitude and effort.

Proposition 4 Managerial attitude and effort impact brainstorming and RTW communication quality.

Proposition 5 Brainstorming quality and RTW communication quality influence the likelihood of accommodation success, and decision-cycle repetition.

Decision-making theories also inform our model, and suggest that individual or small group decisions, although not necessarily sequential, begin with problem identification and definition (framing). Problem framing influences where the decision-maker searches for information, which information garners the greatest attention, and how important the problem is to the decision-maker [27]. Since supervisors identify accommodation as a medical problem, the information search they engage in for RTW focuses heavily on medical restrictions provided by a physician. Additional information about job demands, and employee abilities are added in a stepwise manner.

This has much in common with step-by-step decision processing [20]. In step-by-step decision processing, one

piece of information anchors or dominates the decision process, and additional information is added as it becomes salient. Research suggests that as task complexity increases, the use of step-by-step processing increases [21]. In LBP accommodation task complexity may be high due to: (a) the novelty of the event, (b) the number of accommodation alternatives available, (c) the number of factors to consider per alternative (e.g. medical restrictions, job demands, employee motivation, peer reactions), and (d) poor information clarity (e.g. medical information quality, recovery progress). We therefore make the following propositions:

Proposition 6 Supervisor's use of step-by-step decision processing in accommodation and RTW planning increases as accommodation complexity increases.

Proposition 7 Accommodation complexity increases with increased demands including frequent or repetitive accommodations, high productivity demands, peer conflict, or supervisor concern about the employee's RTW motivation.

Proposition 8 Accommodation complexity decreases with accurate and complete information, increased supervisor autonomy, supervisor experience with RTW, and increased organizational support.

Proposition 9 The quality of RTW brainstorming and judgment decrease as accommodation complexity increases.

It should be noted that our research does not suggest that step-by-step processing necessarily results in poor quality accommodation plans. It does require less effort than other types of decision-making, which help supervisors manage cognitive demands. However, step-by-step processing is also associated with cognitive biases such as recency, stereotyping and attribution error [20]. Research comparing step-by-step decision quality in RTW with other decision-making approaches would be beneficial. For example, in end-of-sequence decision-making, all information is gathered prior to brainstorming and is considered at the same time, rather than in an additive way.

Furthermore, some research has suggested that accountability increases cognitive effort in decision-making [21]. Judgment performance suffers if the decision-maker does not wish to exert additional effort or attention because the effort is not perceived as worthwhile [21]. We would encourage research assessing whether performance evaluations and reward systems that include accommodation have an impact on RTW outcomes and the quality of supervisor-decision making.

Limitations This research is limited by its qualitative nature. The interviews provide rich data, but do not offer proof that the decision processes used by supervisors are

necessarily flawed, or that they can be modified given that each case involves unique circumstances. Furthermore, the model is based on factors known by the participants only after reflection. It is unlikely they are able to fully access or articulate their cognitive processes. Decision-making is a particularly complex process, therefore, it is important that other decision-making models be considered and investigated in the accommodation context. We also note that, judgment quality is distinct from outcome quality. Even where a supervisor's judgment and accommodation planning is excellent, the RTW of an employee with LBP may still be unsuccessful due to factors beyond the control of the supervisor or the workplace. This study is further limited by its sample, which excluded industries such as construction and manufacturing, and by its focus on LBP. The factors considered by supervisors when planning job modifications for other health conditions, and in other work contexts may be quite different than those articulated in our research.

In conclusion, supervisors described a number of factors and inherent challenges influencing their accommodation decisions and outcomes for employees with disabilities. Future efforts to improve accommodation decision-making should: (a) recognize the iterative nature of job accommodation strategies; and (b) support accommodation decision quality by developing tools and resources that enable supervisors to effectively manage accommodation demands.

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Compliance with Ethical Standards

Conflict of interest Kelly Williams-Whitt, Vicki Kristman, William S. Shaw, Sophie Soklaridis and Paula Reguly declare that they have no conflict of interest.

Appendix 1

The following questions are intended as a general guide for the interviewer and to ensure that each area of interest is captured at some point during the discussion. Questions one through eight must be asked, however the interviewer is encouraged to probe the responses to those questions to clarify responses, elicit additional detail and to explore intriguing/unusual comments. Examples of probing questions are included below the main questions (a, b, c, etc.).

As data analysis and collection occur concurrently, it may be necessary to add to or revise the questions to better capture emerging themes. Participants may be contacted

for a second brief telephone interview to answer any additional questions that have been added to the protocol.

1. Can you describe the work done in this unit and what your role entails?
 - (a) How often have you been the immediate supervisor of an employee who requires accommodation for a back injury or some other musculoskeletal condition?
2. What factors do you consider when it comes to finding modified jobs for back injured workers?
 - (a) How might productivity demands (i.e. how busy your unit is) affect your accommodation planning?
 - (b) What role would the employee's work history (e.g. performance, disciplinary history, attendance, seniority) play in your decisions about accommodation?
 - (c) How might the social connections among employees affect your planning?
 - (d) In what way might the length or cost of the accommodation influence you?
3. Which of the factors you've talked about play the most important role in your accommodation planning?
 - (a) Why are these the most important factors?
 - (b) What aspects of the factors make it difficult to provide modified work?
 - (c) What aspects make it easy to provide modified work?
4. What is the process that you normally follow when you are accommodating an injured employee?
 - (a) What steps do you take?
 - (b) What is the difference between how an effective supervisor would accommodate and how a less effective supervisor would accommodate?
5. Who is normally involved in the accommodation planning process?
 - (a) What role does each person play?
 - (b) Who has the greatest influence on the outcome of an accommodation?
6. What do you see as the most important function of the immediate supervisor in a back-injury accommodation?
7. Think of a time when you were involved in the accommodation of a back injured employee.
 - (a) What were the most challenging aspects of the accommodation process?
 - (b) What were the easiest things to deal with?
 - (c) What factors do you think contributed the most to a positive or negative outcome?

8. How might your decisions and accommodation planning process be different if the injury or illness was different?

Appendix 2

Participant	Sex	Industry	Job category	Sector
S1	F	Health Services	Nursing	Public
S2	F	Health Services	Nursing	Public
S3	F	Health Services	Nursing	Public
S4	F	Health Services	Administration	Public
S5	F	Research	Laboratory	Public
S6	M	Health Services	Surgical Support	Public
S7	F	Health Services	Nursing	Public
S8	F	Health Services	Nursing	Public
S9	M	Health Services	Maintenance	Public
S10	F	Health Services	Laboratory	Public
S11	F	Education	Student Services	Public
S12	M	Retail	Sales	Private
S13	M	Health Services	Paramedical	Public
S14	F	Social Assistance	Housing Services	Public
S15	F	Social Assistance	Transportation	Private
S16	M	Retail	Maintenance	Private
S17	M	Research	Laboratory	Private
S18	F	Education	Student Services	Public
S19	M	Industrial	Road Services	Public
S20	M	Industrial	Operations	Private
S21	F	Education	Administration	Public
S22	M	Industrial	Operations	Private
S23	M	Health Services	Paramedical	Public

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