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Work Disability Management Communication Bottlenecks Within Large and Complex Public Service Organizations: A Sociotechnical Systems Study

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Abstract
Purpose Within large and complex organizations work disability (WD) communication bottlenecks emerge and contribute to avoidable disability days. Our study utilized soft systems methods to better understand communication problems in WD management. *Methods* Semi-structured interviews were conducted with disability case managers (n = 10), frontline supervisors (n = 15) and human resource/labor relations specialists (n = 5) within three public service organizations. Interview questions asked about organizational WD system structure and communication practices. Thematic analysis was conducted to examine system structure and emergent communication bottlenecks. *Results* WD communication took place across a number of internal and external stakeholders. Communication bottlenecks tended to concentrate within WD case manager and frontline supervisor activities. Inconsistent communication across organizations, challenges interacting with external stakeholders, mental health disability information exchange, lack of WD communication experience and previous worker performance represented communication bottlenecks that contributed to avoidable disability days. *Conclusions* To strengthen communication practices, systems-focused responses towards organizational WD management are required.

Keywords Communication · Work disability management · Return-to-work · Systems thinking · Soft systems methodology

Introduction

Communication is the hallmark of organizational work disability (WD) management programs which often involve the coordination of various stakeholders responsible for the return-to-work (RTW) of injured or sick workers. Within large and complex organizations communication gaps can emerge and affect the delivery of WD management programs and contribute to avoidable disability days (i.e., disability days that result from delays in return-to-work planning and implementation, accessing appropriate health care services and establishing suitable accommodations and modified work) [1]. Our study takes a sociotechnical systems thinking perspective to better understand the role of communication in WD management within several public service organizations in Ontario, Canada. Results offer important systems-based insights regarding the ways in which WD information is delivered within large and complex organizations and identify opportunities to improve communication practices and minimize avoidable disability days.

Diverse stakeholders, both internal (e.g., frontline supervisors, WD case managers) and external to an organization (e.g., health care providers, workers' compensation representatives), play important roles in the planning and implementation of equitable WD management programs that facilitate RTW [2–5]. Research indicates that effective communication has the potential to foster coordination of stakeholders responsible for WD and enhance RTW outcomes [2, 6]. Studies of frontline supervisors and WD case managers within organizations suggest that communicating positive messages (i.e., messages that convey instrumental, informational and emotional support) following a workplace injury and throughout sickness absence can facilitate access to health care and promote sustained RTW [7–10]. Similarly, research indicates that coordination between health care providers, workers' compensation representatives and

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organizational stakeholders is critical to the development and implementation of work reintegration plans [11, 12]. Despite the importance of effective communication between stakeholders responsible for WD management, few studies have examined the system of factors that may constrain or amplify WD communication.

Within large and complex organizations, multiple departments, a diverse body of employees and hierarchical management structures can each contribute to WD communication bottlenecks (i.e., gaps or delays in the transmission of details related to RTW). To better understand the source of WD communication bottlenecks within large and complex organizations, researchers and practitioners may take a sociotechnical systems thinking perspective [13, 14]. A Sociotechnical systems thinking perspective involves considering an organization as a complex system [15–18]. Within this framework, WD communication can be viewed as the product of the combined activities of personal, social/administrative, and process-related components that make up the organizational system. Sociotechnical systems thinking perspectives also provide insight into how specific subsystems may be nested within the overall organizational system. Utilizing a sociotechnical systems thinking perspective can provide researchers and practitioners greater insight into the root causes of WD communication bottlenecks and will identify potential leverage points where relatively small changes might lead to significantly improved systemic outcomes [15–18].

Emerging research has applied sociotechnical systems-based approaches to better understand RTW. For instance, one study of industrial service organizations in the United States, developed a system dynamics model (a sociotechnical systems methodology) of RTW [14]. Findings indicated that multiple interacting individual-(e.g., injury type), psychosocial-(e.g., supervisor social support) and policy-level components (e.g., RTW policies and procedures) were interrelated and made up organizational RTW systems. Key leverage points identified within the RTW system dynamics model included supervisor social support and quality of communication between frontline workers and supervisors [14]. In another study, interviews with injured workers and their family members were conducted to map linkages and inter-dependencies in the Australian injury compensation and rehabilitation systems [19]. Findings indicated that societal, governmental, organizational and individual-level factors all interacted and played a role in influencing recovery from work-related illness. Notably, the study found that within the rehabilitation system, effective supervisory communication practices (e.g., recognition of injury legitimacy) was an important component that facilitated RTW [19].

To date, no studies to our knowledge have applied sociotechnical systems-based research approaches to examine WD communication within organizations. In this study, we use a soft systems methodology (SSM). SSM is a specific sociotechnical systems thinking methodology which has been recommended to investigate system problems when they are poorly defined and where various stakeholder perspectives may exist regarding the nature of the problems [15, 20]. Through engagement with different stakeholders, SSM examines the multiple components and subsystems that make up the structure of an organizational system, and identifies emergent problems that stem from system structure [20]. SSM also contributes to the design of specific interventions that account for system structure when addressing emergent problems [15, 20].

Our study aims to examine the system structure of several public service organizations and examine WD communication bottlenecks. We address several specific study objectives which include to: (1) better understand WD system structure of large and complex public service organizations; (2) examine the role of communication in the management of occupational and non-occupational WD cases within large and complex organizations; and (3) to determine how system structure may contribute to WD communication bottlenecks and avoidable disability days.

Materials and Methods

To address study objectives, we conducted one-on-one interviews with stakeholders within three large and complex public service organizations in Ontario, Canada. All participating organizations described avoidable delays in their WD management system and agreed to be part of a larger research initiative to learn more about their WD management systems. Within each organization, disability case managers (n = 10), frontline supervisors (n = 15) and human resource and labor relations specialists (n = 5) were interviewed to gain insight into different perceptions regarding WD management practice. To be eligible, participants had to have some experience coordinating occupational and/or non-occupational WD cases, and be willing to speak about WD management and communication practices within their organization. Participants were recruited purposively through a representative from each organization. The representative provided the study team with a list of potential stakeholders who were interested in participating and met the eligibility criteria. A member of the study team then contacted potential participants to explain the purpose of the study and schedule an interview if they were interested in participating. All interviews lasted approximately 60 min and were conducted in private meetings rooms within the workplace. Participants were also offered the option to conduct interviews outside of their workplaces or over the phone. All interviews were audio-recorded and transcribed verbatim, with the exception of seven interviews in which

organizational policies prohibited audio recording. For interviews in which audio recordings were prohibited, detailed notes were taken. All study participants provided written informed consent and were assigned a pseudonym to protect confidentiality. Procedures were reviewed by University of Toronto Research Ethics Board (REB#33300).

Application of SSM to Study Procedures

As we describe in the following sections, SSM was integrated into all aspects of the study procedure including interview question design, analysis of qualitative data and interpretation of results. In particular, SSM was utilized to foster an examination of the structure of the WD management system, and determine how system structure could contribute to WD communication bottlenecks.

Interview Questions

Drawing from previous sociotechnical systems-based studies [13] and socioecological models of WD [21], all participants were asked to talk about the structure of their organizational WD system. This included asking questions about WD management policies and procedures within their organizations, key stakeholders and their roles and responsible, and communication practices. All participants were asked follow-up questions to understand WD management problems that may contribute to avoidable disability days. Lastly, participants were probed on potential communication gaps that may arise from the WD management system structure.

Data Analysis and Application of Soft Systems Methodology

A thematic analysis was conducted to examine system structure and the emergent problems that stemmed from the system structure [22]. Once interviews were completed, data was transcribed. A member of the research team checked all transcribed data for accuracy. Transcripts were reviewed and an initial codebook was developed collaboratively by all study team members and revised through iterative conversations. To determine its applicability, the initial coding framework was applied to two different transcripts by multiple independent coders. The codebook was refined through follow-up discussions and applied to the analysis of the remaining transcripts. A primary and secondary coder conducted line-by-line coding of each transcript. Following coding, prominent themes were extracted to understand system structure and to identify communication bottlenecks. Our analytical process paid special attention to how different stakeholders perceived system structure and gaps in communication [20]. Consistent with previous sociotechnical systems research applied to RTW, the WD communication was bounded at the organizational level [13]. When macro level components were discussed (e.g., community-, provincial or national-level factors), they were categorized as exogenous. Codes and themes emerging from the data were discussed in analytical meetings where inconsistencies in the data analysis were resolved and a conceptual understanding of the system was determined. A summary of findings was presented to organizational representatives to member-check results and address confirmability. Coding and thematic analysis were conducted using the software program NVivo [23].

Results

Description of WD Management System Structure and WD Communication

Utilizing SSM as a framework, participants were asked to describe the structure of their WD management system and the role communication played in facilitating RTW. We begin by presenting a description of the organizational WD system that were consistently described by study participants. Key themes included the role of standardized WD management procedures and optimal WD communication practices, exchange of information across internal and external stakeholders and communication across a large and diverse workplace. Corresponding quotes to support the participant descriptions of system structure and WD communication are presented in Table 1.

According to participants, the public service organizations in which they worked were all considered large and complex, and were characterized as having multiple departments. Each department was responsible for delivering a different public service (e.g., public transit, land use planning and development, long-term care, fire, emergency response, waste management, among others). Departments differed based on several system components including physical and psychological job demands, employee composition, geographical location and union representation.

All participants reported that within the context of their organizational system, communication was essential in the coordination of WD management efforts between different stakeholders and at all phases of the RTW process (e.g., at the time of injury/illness, during work reintegration and stay-at-work). Participants indicated that the organizations in which they worked had a policy of early contact with injured or sick-listed workers in combination with expedited, safe and equitable RTW procedures. WD policies represented important components within the large and complex organizations and aimed to standardize communication practices and deliver equitable WD management practices across diverse departments and stakeholders. Also, participants reported that communication regarding RTW took place

Table 1 Description of WD management system structure as it relates to WD communication

Theme	Component summary	Participant quote
Standardized procedure	Policies and programs which stipulate the frequency and content of communication regarding work injury/illness and return-to-work (RTW)	"The standard timelines are set out in our collective agreement… We're receiving medical information on the 5th day, the 15th calendar day, and then 30 days thereafter until they [injured worker] returns to work, back fit for full. So those are the set timelines, but if they're seeing a specialist and they're telling me I'm not seeing my doctor for 6 weeks, then I'll move that timeline, as long as I'm communicating with the employee"—Javier, WD case manager
Optimal communication practices	Communication with injured/ill worker that conveys instrumental, informational and emotional support and aligns with WD procedures Optimal communication practices will be consistent across the organization	"Good communication would be consistent messaging so that people feel they're being treated equitable and that the perception of the employees is that it's being addressed in some way. And it might be kind and compassionate or it might be come on now, you've been absent a lot. What are we going to do? Can we help you with something? And then the script does escalate …but you want to be able to make sure that it's [WD messages] consistent, that someone doesn't slip and say something that's incorrect"—Sherry, supervisor
Exchange of information across internal and external stakeholder	Requirement for multiple stakeholders within and external to organization to obtain and share information regarding WD to facilitate RTW	"The medical [information] comes from healthcare providers, whether the employee submits it to us directly or the doctors submit it to us. Health care providers could be family physicians, specialists, physiotherapists, occupational therapists, anybody who is a regulated healthcare professional… we try to mesh the receipt of information by the date in which they're being seen by their doctor. So, they're with their doctor, maybe they can get it [medical forms] done then and then they can leave with it or we'll send a fax to the physician's office requesting it…In very unique circumstances when we don't have the information despite our efforts, it can lead to benefit suspension."—Javier, WD case manager
Communication across a large and complex organization	Communication regarding WD management policies and programs occurs across a number of diverse departments that make up the large and complex organization	"Geographically I think yeah it could be an obstacle, but I think the [organization] does a lot to try to keep everyone united and get the same information out to everyone. When we have things that are needed to go out organizational-wide, like information, we're saying you need to post this for employees who don't have computerized desks, because we do have some staff that work out in the field, like with engineering and they're not on the computer every day so they're not going to see that email come up. We need to make sure the managers are getting that information out to everyone. We have the [intranet] which is our internet and it's our main source of communicating to everyone and if you aren't on a company computer at work you can get home access to log in so that you can check out what's going on and make sure."—Tricia, WD case manager

among a number of internal (e.g., workers, WD case managers, frontline supervisors, human resource managers, senior management, occupational health and safety staff, union representatives) and external stakeholders (e.g., physicians, worker's compensation representatives, insurers).

Lastly, when asked to describe communication practices within their WD system, participants indicated that RTW information exchanges differed across straightforward and complex cases. In straightforward WD cases, information from workers was directed to either WD case managers and/or frontline supervisors who were responsible for integrating information into the development and implementation of RTW plans which were ultimately communicated to a work disabled employee. However, in more complex cases communication occurred across a greater number of internal and external stakeholder, which contributed to communication bottlenecks and avoidable disability days.

Identification of WD Communication Bottlenecks

Participants described several salient communication bottlenecks within the WD management system. Although we talked to a range of different stakeholders (e.g., WD case managers, frontline supervisors, human resource managers and labour relations representatives), communication bottlenecks tended to concentrate within the activities of two notable subsystems: WD case managers and frontline supervisors. The following sections elaborate on these subsystems and related communication bottlenecks.

WD Case Manager Subsystem and WD Communication Bottlenecks

Within each participating organization, a small number of WD case managers were responsible for developing, implementing and evaluating RTW plans for workers with injury or illness. As part of RTW coordination and organizational policies, WD case managers were required to communicate with a number of different stakeholders including injured/sick workers, frontline supervisors, physicians and workers' compensation representatives. Communication with multiple stakeholders represented a process-related component of the WD management system that posed unique challenges.

Many WD case managers described communication with frontline supervisors as being critical to generating and implementing RTW plans. A commonly reported communication bottleneck stemmed from inconsistency in the frequency and content of communication that characterized discussions between WD case managers and frontline supervisors. Bottlenecks were amplified when WD managers were tasked with communicating with a large number of frontline supervisors across the multiple departments. One participant, Anil, a WD case manager, described the difficulties associated with communicating with multiple frontline supervisors in the management of prolonged disability absences.

> Ones [work injuries] that are longer than two weeks, or one's where we know they're going to be off work for longer than that, that's where we need to know [information on disability absence]. But, we don't get that consistently [from frontline supervisors]. Some supervisors who have more people off work and are more accustomed to the process, they know who to go to and they'll tell us fairly quickly… But, it's certainly not consistent across all management. Sometimes, we don't know until the person runs out of sick time.—Anil, WD case manager

As indicated by WD case managers like Anil, within large and complex organizations, inconsistent information exchanges can emerge when communication processes require coordination with a larger number of frontline supervisors who may not all possess the same level of competency with regards to WD management. In situations where inconsistent information was exchanged, WD case managers often only found out about a sickness absence in situations when a worker was already out of work for a prolonged period. The result was increased challenges with early RTW intervention and follow-up.

WD case manager—external stakeholder communication also represented an important component and challenge within the organizational WD system. External stakeholders including health care providers, insurers and workers' compensation representatives often possessed details regarding an injured worker's health impairment, functional capacity and prognosis. For instance, in their interaction with health care providers, some participants talked about challenges including delays in receiving information and information gaps. The use of standardized work limitation forms was a component of the WD management subsystem that participants described as creating barriers to asking follow-up questions and sustaining communication. Kerry, a WD case manager described the use of forms as being a key limitation associated with communication with health care providers.

> Based on the collective bargaining agreement, this is [participant shows work limitation forms] what we can ask in terms of, is this person coming back to full duties, modified duties, or no disabilities at all, in terms of what their specialist, medication, prognosis. And the second page, as you can see, it's just about limitations in regards to physical, some psychological… This is supposed to be completed by their healthcare professional, most often it's their physician…The employee goes to their physician, talks to them in regards to what they're able to do, what they're

not able to do, and either this sometimes is filled out or it's not filled out at all." – Kerry, WD case manager

Similarly, WD case manager described the bottlenecks associated with accessing information from long-term disability insurers and workers' compensation representatives who conducted independent medical examinations regarding fitness for work.

The challenges, well, the medical goes straight to the insurance company, and what they've been collecting up to this point doesn't give you a lot of information. Then it's frustrating when the employee is presenting as being quite ill, and the information that's coming into us seems to support that they're quite ill, and yet the insurance company is saying, no, they're not, and they're denying the claims. You're kind of stuck between a rock and a hard place. Because, you know, we're not entitled to a lot of information for privacy purposes, and that's fine, but then the insurance company has that information and it's like, okay, well, explain to us why."—Vanita, WD case manager

In combination with the challenges associated with communicating with external stakeholders, WD case managers indicated that direct communication with injured or sick workers could also be a roadblock to planning RTW strategies. Participants frequently pointed to collective bargaining agreements and privacy legislations as policy-level components within the organizational WD system which had the potential to restrict health-related information they could request from a worker to facilitate RTW. One WD case manager, Vikram, described limitations to directly asking questions about injury or illness.

Legally, I don't have any grounds to ask those questions, and it's not in my comfort zone to ask, even though I'm not supposed to have that information or I'm not required to have that information. I always try to put the ball in the employee's court and say I understand you were in an accident. I'd like to be able to return you to work. What does your doctor say you can and cannot do, in order to make that happen?"—Vikram, WD case manager

Most organizational stakeholders acknowledged that privacy policies offered a level of protection to the worker, but also represented elements of their organizational WD system that constrained information exchange necessary to plan appropriate RTW strategies.

Another key component of the subsystem was the characteristics of the worker and their injury type. WD case managers often indicated that WD communication challenges were exacerbated by the type of health condition in which a work disabled employee was facing. In particular, WD case managers indicated having limited experience with coordinating and communicating regarding a mental health disability. For instance, one WD case manager noted:

Some people don't want their psychologist responding. They don't want to admit that they're seeing a psychologist or psychiatrist… They just want it [work limitations form] from the family doctor so we don't know who is treating them because who is treating them gives you an idea of the nature of the [illness] … So people sometimes don't want us to know the nature of the treatment they get or the source of the treatment they're getting because it kind of reveals something about their condition. If we're going to help them in the workplace we need that information."—Bonnie, WD case manager

As was the case for Bonnie, many other WD case managers noted that limited information exchange with both workers and external stakeholders regarding mental health disabilities represented a particularly salient communication bottleneck that minimized the available information to make RTW plans and, as a result, delayed work reintegration.

Frontline Supervisor Subsystem and WD Communication Bottlenecks

Frontline supervisors also represented a significant subsystem when examining WD communication bottlenecks. Within the framework of a large and complex organization, frontline supervisors were described as being best situated to initiate and sustain dialogue with an injured or ill worker and obtain information necessary for absence management. George, a WD case manager, articulated the role of frontline supervisors in communicating with employees who report sickness absence:

…if it's something that they [frontline supervisors] assess as being in need of a follow up they'll [frontline supervisors] call them and ask how the person is doing, ask if they're okay to come to work, if they've seen their doctor, if there's an injury do they need modified work—sort of starting that discussion as soon as they can once the incident report has been received.—George, WD case manager

Within organizational WD systems, the supervisor-worker relationship represented an important component that could promote information sharing following injury or illness in order to plan RTW. At the same time, some frontline supervisors reported being unprepared to initiate and sustain communication with an injured or sick worker and unaware of specific organizational communication policies. Similar to WD case managers, uncertainties regarding communication were especially salient when managing a mental

health disability. One frontline supervisor, Arial, indicated that:

> …the mental health piece is very challenging. Because you never really understand the full scope of what's happening. And here if somebody is off on a short-term disability and they get the attending physician form, I know nothing about what the specific issue is, so it's hard to comment on that. I can speculate but that's a dangerous thing when you're getting into that because well [Arial] said this…."—Arial, frontline supervisor.

The lack of awareness of administrative communication procedures represented a significant bottleneck within the system that constrained information sharing between frontline supervisors and injured workers.

Interestingly, work performance history represented a psychosocial component within the WD system that could facilitate or constrain communication between a frontline supervisor and injured or sick worker. For instance, when there was a history of poor work performance, frontline supervisors described being apprehensive about talking to workers about their injury or illness. George, a WD case manager, commented on the hesitation he has observed among frontline supervisors when communicating with a poor work performer.

> It also depends on the employee, like if there's a history of challenges and performance issues with the employee, some managers are even more hesitant to break down those [communication] barriers. I think it's just natural."—George, WD case manager.

As was reflected by George, and other participants, work performance history represented a key component within WD systems that can impact the relationship between a worker and frontline supervisor and can also affect communication following injury or illness. A lack of clarity with regards to the role of frontline supervisors in the WD management process that consisted of many different stakeholders also tended to be associated with communication bottlenecks. For instance, Larry, a frontline supervisor noted:

> I think most managers who are successful at it [WD management] over time are able to be clear about what roles are what, to take consistent approaches with different people over time that do stick to a process and follow up process, that send out consistent messages about that, that you don't have a manager who's spilling the beans about someone's cancer diagnosis one day but then on another case clams up and sends those mixed messages, or where creative accommodations are made for one person but for another person you seem to say tough, do it.—Larry, frontline supervisor

Across large and complex organizations, participants, like Larry, described varying levels of knowledge among frontline supervisors, which contributed to inconsistent communication regarding WD. Participants noted that communication inconsistencies were amplified by the size and diversity of departments within organizations that participated in our study.

Interconnecting Subsystems and WD Communication Bottlenecks

Our application of SSM to examining WD communication bottlenecks also highlighted that the WD case manager and frontline supervisor subsystems, which made up the larger overall organization WD system, were interconnected. When accounting for the relationship between the two subsystems, findings tended to indicate that the activities of frontline supervisors affected WD case manager activities, and vise-versa. Direct supervisors talked about not receiving all of the health-related information necessary from WD case managers. As a result, they were unable to plan for RTW. For instance, Arial, a frontline supervisor, described her experience implementing an RTW plan without specific insights from the WD case manager:

> "When the [injured] staff returns I don't really know what the specific medical health issue is. I just continue to go by what that person is saying and where their comfort level is because I have no way of saying no you should be doing that, or why not try this? Because I've just got to go on what they say and I don't get any more information from [WD case manager], it's confidential so I can't get it."—Arial, frontline supervisor

Arial helps to highlight the connection between the frontline supervisor and WD case manager subsystems. In particular, participants like Arial tended to note that a supervisor's ability to obtain the information necessary to manage WD was often limited by the amount of information that was shared with them by WD case managers. Of significance, the interrelationship between both frontline supervisors and WD managers communication meant that bottlenecks in one subsystem can create or exacerbate communication bottlenecks in the other subsystem.

Discussion

Within large and complex organizations, communication plays an key role in coordinating the activities of multiple stakeholders responsible for WD management. Our study highlights several salient communication bottlenecks that exist and have the potential to contribute to avoidable

disability days. Using SSM, a sociotechnical systems-based methodological approach, we highlight the various stakeholders who are involved in exchanging information to facilitate RTW and identify several salient WD communication bottlenecks. Notably, based on the findings from stakeholder interviews, communication bottlenecks tended to concentrate within WD case managers and supervisor subsystems that made up the WD system. Our research underscores the need to examine specific organizational strategies that consider the broader system of factors as well as target frontline supervisors and WD case managers to improve communication channels and coordination of stakeholders responsible for WD management.

Our study is novel in its sociotechnical systems approach to conceptualizing the role of communication in WD. SSM was an appropriate systems-based methodology as it enabled us to investigate the multiple perspectives within a system and identify prominent communication bottlenecks [15, 20]. Using SSM, our study highlights the range of stakeholders and organizational processes that may facilitate or constrain informational exchange regarding RTW [2–4, 6]. Consistent with previous research, WD case managers and frontline supervisor represented two specific subsystems which were focal points of organizational WD management [6, 14]. Within the context of a system, a communication bottleneck occurring between one set of stakeholders has the potential to cause a ripple effect across the WD management system and contribute to avoidable disability days. Conversely, the coordination between both frontline supervisors and WD case managers can significantly improve communication channels and minimize avoidable disability days [2]. To enhance WD management, our findings point to the need for large and complex organizations to think about RTW more broadly from the perspective of a system as a way to identify how the combined activities of various components and subsystems may contribute to communication gaps between stakeholders responsible for RTW and to develop strategies that enhance information exchange.

Our examination of the WD case manager subsystem highlighted salient communication bottlenecks associated with interaction between WD managers and external stakeholders such as physicians, insurers or workers' compensation representatives. These communication gaps have the potential to limit the information available to a WD case manager as they develop RTW plans. Our findings align with recent research, which has also found that poor coordination between WD case managers and external stakeholders can be a significant source of delays in the work reintegration of workers facing occupational or non-occupation injury or illness [11, 12, 24]. According to these previous studies, external stakeholders often lack knowledge regarding the workplace context or company-specific RTW policies, and also possess priorities and practices which are incongruent to those of WD case managers [6, 24]. Indeed, the need to improve coordination with external stakeholders can be an important strategy to address avoidable disability days. More research is needed to examine how large and complex organizations can optimize communication channels between WD case managers and external stakeholders to improve information sharing. Potential opportunities may include leveraging information technology management systems or implementing interventions that foster communication [8].

Representing another communication bottleneck, WD case managers relied on workers as a conduit of information regarding their injury/illness absence. Findings indicated that in some cases injured/sick workers did not share information regarding their health condition. Communication bottlenecks between workers and WD case manager tended to be exacerbated in mental health cases. Several factors could account for WD case manager-worker communication bottlenecks. It may be that injured/sick workers are reluctant to disclose the details of their injury or illness while also being protected by privacy policies [25]. Injured/sick workers could also lack specific knowledge of clinical details or functional restrictions necessary for WD management [4, 24]. Steps should be taken enhance communication with injured or sick workers and address potential apprehension in sharing details regarding work limitation. Some studies suggest that to improve communication between a WD case manager and injured/sick worker, organizations may focus on interventions that foster goodwill and trust prior to injury in order to facilitate information exchange following a disability absence [6]. Fostering goodwill and trust could have specific benefits for the management of mental health-related WD cases where information sharing is particularly constrained and where there exists more uncertainty regarding disability management.

Our study also described the frontline supervisor subsystem as significant to WD management. Within the participating public service organizations, WD management was centralized among a handful of WD case managers. Frontline supervisors were often responsible for implementing RTW plans and directly communicating with workers. However, across the large and complex organizational contexts, inconsistent supervisor WD practices and a lack of clarity regarding RTW roles and responsibilities were sources of communication bottlenecks that contributed to avoidable disability days. As was the case for WD case managers, communication bottlenecks were amplified for frontline supervisors managing mental health absences. Organizations should aim to ensure that training is uniformly offered to supervisors to increase awareness regarding their roles and responsibilities in the RTW of employees experiencing physical and mental health conditions.

Interestingly, findings also highlighted an important relationship between work performance history and WD communication. Some supervisors faced difficulties initiating and sustaining communication with injured or sick workers who had a history of poor performance. Results highlight the balance that frontline supervisors are required to strike between maintaining workplace outputs (e.g., production quotas or deadlines) and managing WD [4, 26, 27]. There may be potential benefits of supervisors taking a proactive performance management approach that fosters communication regarding workplace output and may be helpful in preventing potential communication breakdowns that can occur following worker injury or illness. Further studies are required to understand the various roles and responsibilities of frontline supervisors to better tailor the design of organizational WD prevention strategies and to optimize the psychosocial work environment to minimize avoidable disability days.

A strength of this study is the inclusion of participants representing various organizational stakeholders within three large public service organizations in Ontario, Canada. Through interviews with a diversity of organizational stakeholders (e.g., direct supervisors, human resource representatives, WD case manager and union representatives), we were able to capture salient themes regarding the role of communication in WD management. To further develop a picture of the WD system and understand communication bottlenecks, research should also aim to include workers and external stakeholders to elaborate on the role of a broader range of stakeholders who may participate in the coordination of RTW. Our use of SSM, represented another study strength. SSM enabled us to delve into communication bottlenecks through the framework of a sociotechnical system, and examine the various components and multiple subsystems that impact WD communication. Moving forward we plan to engage with each organization to complete remaining SSM steps which include conceptual model development and generation of actionable solutions [20]. Finally, many of the WD communication bottlenecks we identify could be specific to the context in which organizations were located and could be affected by socioeconomic factors and workers' compensation and/or privacy policies. Future studies of WD communication should be conducted within differing contexts to determine the transferability of the themes.

Communication is a central aspect of WD practices within large and complex organizations and can impact avoidable disability days. Our study highlights several salient communication bottlenecks that emerge within three public service organizations. Findings underscore the need to take a more systematic response to organizational WD management and to strengthen communication practices and coordinate the activities among various stakeholders. Special attention should be placed towards understanding and enhancing communication practices among both WD case managers and direct supervisors who play a central role in planning and implementation of RTW. Organizational policies and programs which address communication bottlenecks have the potential to strengthen the planning and implementation of WD management and support RTW.

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Compliance with Ethical Standards

Conflict of interest The authors declare no conflicts of interest.

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