



# The Influence of Teleworking in a Pandemic Context on the Work Experience of Individuals with Physical Disabilities: A Quebec Qualitative Study

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## Abstract

The COVID-19 pandemic has led to numerous changes in work environments. Thousands of workers quickly found themselves having to telework without being prepared, which had consequences on their work experience and health. Authors proposed telework practices that promote the healthy work experience of workers in a pandemic context, but less attention has been paid to consider the realities and needs of individuals with physical disabilities. *Purpose* This study aimed to explore the influence of telework during the pandemic on the work experience of people with physical disabilities. *Methods* Following an interpretive descriptive research design, interviews were conducted with 16 workers with physical disabilities (i.e., motor, or sensory). The data were analyzed using a thematic analysis strategy. *Results* The results revealed 15 factors that influence the work experience of teleworkers with physical disabilities. These factors are related to interactions between three spheres of the worker's life: the individual, the organization, and the environment. Ten recommendations are proposed to consider the reality and needs of individuals with physical disabilities in the telework practices. *Conclusion* Given that telework has expanded since the onset of the COVID-19 pandemic and will likely continue to remain a widespread modality of work delivery, it becomes even more important to expand knowledge about it, to benefit the work experience of teleworkers with physical disabilities.

**Keywords** Disability · Telework · Organizational health · COVID-19 · Job Demand-Control-Support Model

## Introduction

On March 11, 2020, the World Health Organization (WHO) declared that the COVID-19 virus had become a global pandemic and a health emergency [1]. To save as many lives as possible, the WHO strongly suggested that countries adopt measures to prevent infections and reduce transmission.

Several countries, including Canada, implemented such specific measures as closing nonessential businesses and services. This unprecedented situation prompted many companies to turn to telework to deliver work while reducing physical contacts between individuals, thereby limiting the spread of the virus. As of June 2020, 39% of Canadians were teleworking, compared to only 17% prior to the declaration of the pandemic [2]. The rate of Canadian teleworkers has continued to increase since [3]. In addition, approximately one-quarter of Canadian companies have considered offering teleworking to more employees once the COVID-19 pandemic ends [3]. A similar phenomenon occurred in the United Kingdom, where the proportion of people teleworking increased from 5.7 in January 2020 to 43.1% in April 2020 [4]. Also, 74% of British business leaders mentioned they would continue to increase the number of workers teleworking after the pandemic [5]. Slightly more than half said their organization will consider reducing the long-term use of physical workplaces [5], and 44% called this reduction

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a response to the perceived greater efficiency of telework, compared to face-to-face work [5].

In 2011, 968,000 Canadians with impairments, including physical disabilities, were employed [6], a considerable proportion of the country's workforce. In these times of labor shortages, the contribution of all worker populations, including those with disabilities, is essential. In Europe, the literature reports that 64% of French workers with disabilities turned to telework during the pandemic, compared to 53% of the general working population [7]. Although the pandemic has caused the employment rate of people with disabilities to drop [8], teleworking remains an option for these workers to maintain their employment during this time, particularly because it has become a viable work delivery method and a means of accommodation for these workers since the 1990s [9, 10]. Employers who did not previously offer teleworking to their employees have had to adopt it due to the pandemic, a situation not without impacts on the work experience of teleworkers with physical disabilities.

### Teleworking and Workers with Disabilities

Authors can vary in conceptualizing telework [11]. Current knowledge supports defining telework as work for an organization that workers perform primarily outside of a shared office environment, which must include the use of information and communication technologies (i.e., computer, network, database) [12]. Telework has constituted a work accommodation for people with disabilities, especially physical disabilities, for over 20 years, and the scientific literature documents its influence on the work experience and health of this unique population of workers. For example, the flexibility that telework affords contributes to work-schedule adjustments, accommodation of disabilities, and performing work tasks from a variety of locations [13]. This flexibility can benefit teleworkers who live with pain, fatigue, or the need for regular breaks during the day [14]. According to Davis's study, teleworking also saves time by avoiding travel, a definite benefit to workers' quality of life, especially those with disabilities [15]. The ability to work in an environment that is familiar also favors this type of workers [16] because it eliminates architectural barriers in the workplace or in transportation [9, 14]. Their home usually already provides people with disabilities with the necessary accommodations to meet their needs, an added value to their work experience [17]. Because teleworking provides fewer occasions for other workers to encounter the worker's disabilities, equity with other workers and the opportunity to be more independent contribute to the inclusion of individuals with disabilities [13]. Studies show that the cost of living for teleworkers with disabilities decreases, particularly due to reduced transportation costs [13, 18]. Technological barriers remain an issue for people with disabilities who are teleworking, particularly

technological tools not adapted to workers' abilities [9]. Finally, feelings of isolation and decreased social contact may represent issues for the health of teleworkers with disabilities, as these individuals are already likely to experience more social isolation than the general population [15, 19]. Furthermore, teleworking can decrease the sense of "visibility" within the organization for people with disabilities, as they have a limited physical presence in the workplace [20, 21]. This decreased visibility may result in employers being unaware of their needs and challenges in the telework environment. Despite this knowledge regarding the experience of teleworkers with disabilities, the pandemic has imposed changes for this singular population.

### Teleworking in the Context of the Pandemic for Workers with Disabilities

The pandemic has brought many changes to the labor market, and they have affected the health of teleworkers with disabilities. Among French workers with disabilities, 37% reported having experienced a decline in their physical health, and 32% noted a decline in their mental health because of the pandemic [7]. Also, 69% of workers with disabilities report experiencing intense stress, anxiety, or nervousness during certain periods of the day once the start of the pandemic began to increase their concerns about their work and their future [7]. Finally, teleworkers with disabilities experience more depressive symptoms, fatigue, and isolation than the general population [7]. Among several reasons for this is that some accommodations (e.g., enlarged handwriting, changing handwriting colors to change contrast) are more visible to others, a factor that affects some teleworkers with disabilities, influencing facets of their identity [22]. This aspect of visibility has changed during the pandemic. Teleworkers with disabilities went from being invisible to being more visible, impacting their work experience.

To support organizations and workers in this alternative work-delivery environment, authors have recently identified favorable teleworking practices in the context of the pandemic [23–25]—for example, using technological means to maintain contacts with colleagues. However, these recommendations come from data concerning the general population of workers. Thus, current knowledge does not provide an understanding of how actual teleworking conditions influence the experience and health of workers with disabilities. Over the long term, the pandemic is likely to substantially impact the health of more vulnerable groups, including people with disabilities [26]. Further studies could aid in understanding the telework experience of people with disabilities during the pandemic and the influence on their health.

Considering (1) the significant number of workers with physical disabilities contributing to the economic life of society, (2) the certain influence of the shift to telework on

the work experience of this singular population of workers, (3) the scarcity of studies to understand the experience of teleworkers with disabilities during the pandemic, and (4) the lack of “best practices” accounting for their particular reality and needs, the purpose of this study *was to explore the influence of telework during the pandemic on the work experience of individuals with physical disabilities*.

## Theoretical Framework

This study mobilizes two main concepts, namely health and work experience. Since the literature review leads to the understanding that teleworking during the pandemic had mental (e.g., stress), physical (e.g., fatigue) and social (e.g., isolation) consequences on individuals with disabilities, we approach health according to the WHO definition: “a state of complete physical, mental and social well-being” [27]. This holistic definition of health involving mental, social, and physical dimensions often appears in work-related literature [28, 29] and structures the present study.

Over the years, several authors have proposed models to describe and explain work experience and its relation to worker’s health [e.g., 30, 31–33]. Work characteristics, such as demands, resources, or suffering, may influence workers’ healthy experience. To clearly identify how the various characteristics of telework during the pandemic influence the work experience of workers with physical disabilities, Karasek and Theorell’s job demand-latitude-support model [34] appears particularly relevant for structuring the present study. Indeed, current scientific knowledge supports that telework during the pandemic has characteristics that can contribute positively and negatively to the work experience of workers with disabilities, with respect to variables that relate to demands (e.g., workload modulation), latitude (e.g., schedule flexibility) and support (e.g., reduced social contact). Thus, the job demand-latitude-support model [34] makes it possible to integrate these characteristics and understand their interactions and influence on workers’ work experience and health. Other studies used this model to examine health and teleworking [35], even with workers with disabilities [36].

According to the model [34], *demand* refers to the employer’s requirements for work performance. Measuring this demand is possible using the factors of intensity, quantity, and complexity of the work, as well as the time available to accomplish it. *Latitude* comprises two important aspects: decision-making authority and skill development. Decision-making authority refers to the autonomy that the worker has to make decisions concerning the work. Skill development allows the worker to use their strengths as benefits or to develop new ones within the workplace. *Support* can come

from various actors, e.g., supervisors or colleagues, and can be emotional or social.

In a mechanism of interactions, these three components of the model combine to create different situations that the worker can experience, which influence work experience and health. For example, a worker who must deal with high demand can compensate if they have a high degree of latitude, thus preserving healthy work experience. Also, support can reduce the effects of high demand or low latitude. All in all, the interaction between demand, latitude, and support provides insight into how the characteristics of telework during the pandemic contribute to the work experience of individuals with physical disabilities.

## Method

### Design

Consistent with the purpose of the current study, an interpretive descriptive research design [37, 38] was appropriate, describing a phenomenon in terms of the experience of those it involves.

### Participants

Participants in the study met the following criteria: They (1) had a physical disability (i.e., motor or sensory), (2) had been employed part-time or full-time for at least 24 months, and (3) had teleworked during the COVID-19 pandemic. Participants were recruited using a convenience sampling strategy via social media ads. Several Quebec associations of people with physical disabilities agreed to run the ads on their media pages. The study reached the final number of participants at the point of reaching saturation and redundancy in the data collection. Given the specificity of the study, between 12 and 24 participants was the initial estimate [39, 40].

### Procedure

The researchers conducted phone and videoconference interviews with the participants to document their experience of teleworking during the pandemic and its influence on their health. Participants completed a socio-demographic questionnaire prior to the interviews, providing such information as age, gender, job type, type of disability, percentage of time teleworking, workload, and accommodations received at work. The interviews followed an interview guide containing six main sections: (1) field of work (e.g., “Tell me about your field of work.”); (2) conditions under which teleworking occurred (e.g., “Tell me about the conditions under which your teleworking experience occurred,

in terms of your home environment, home organization, and technology.”); (3) individual and organizational practices (e.g., “Tell me about your own ways of working, e.g., schedule management, routines, in the past few months.”); (4) positive moves and facilitators (e.g., “If you think back on your teleworking experience in the past few months, tell me about the thing that was most helpful.”); (5) challenges and obstacles (e.g., “If you think back on your teleworking experience over the past few months, tell me what was most detrimental.”); (6) improvement opportunities (e.g., “If another pandemic were to occur, how could the teleworking experience be improved to support workers’ health?”). Interviews, conducted in French, lasted an average of 43 min and were digitally recorded with participant consent.

## Analyses

The recordings were first transcribed verbatim and then analyzed using a thematic analysis strategy [41]. This was applied to the data corpus using a systematic five-step process: (1) repeated readings of the data corpus allowed the researchers to develop a sense of immersion; (2) initial coding was started (i.e., descriptive codes were assigned to the meaning units found in the corpus); (3) the meaning units were then transformed into expressions indicative of the participants’ experience; (4) the synthesis of the expressions made it possible to organize the data into a general structure [the codes (micro level) were grouped into categories (meso level) and/or themes (macro level)]; (5) “back-and-forth” views of the raw data and the general structure made it possible to clarify and interpret the data with respect to the participants’ experience. In keeping with the interpretive descriptive research design [37], an inductive posture characterized the analytical process.

Nvivo 1.5 software was used to support the analysis. Two individuals independently analyzed the first four interviews and then reviewed them as a pair, to compare, enhance, and standardize the coding process. A third person also reviewed the coding for these first four interviews. This step reduced the risk of bias by ensuring that the coding did not reflect the perception of a single individual. Two individuals jointly coded subsequent interviews. Regular team meetings ensured that the coding reflected the ideas the participants expressed. This iterative process of creating successive versions of an outcome structure based on participants’ experience continued until the research team agreed that the analysis it produced represented the data as accurately as possible.

## Results

### Description of Participants

Of the 16 participants, 11 were women (68.8%) and 5 were men (31.3%). The mean age of the participants was  $44.8 \pm 8.6$  years (31–56 years). Eleven participants had a sensory impairment, 80% of them visual and 20% a hearing impairment. Three participants had a motor impairment (i.e., muscular dystrophy, spina bifida, polio) and 2 participants had both motor and sensory impairments. At the time of the interview, these participants had an average of  $11.2 \pm 8.2$  years’ experience in their current job (0.5–27 years). During the period of the pandemic, 25% (4/16) of the teleworking participants experienced an increase in work accommodations, 6.3% (1/16) experienced a decrease in work accommodations, 62.5% (10/16) noted no change, and one participant did not respond. These accommodations included access to human assistance, computer equipment, or office equipment. For some, they included font enlargement software, text-to-speech devices, or note-takers with Braille displays. In their homes, 7 participants performed their work activities in a room dedicated to this purpose, while the majority (9/16) did not. Two participants (12.5%) experienced a work-related injury while teleworking due to the pandemic. These were all physical in nature (i.e., eye and muscle fatigue, aches, back pain). The descriptive characteristics of the participants appear in Table 1.

### Factors Influencing the Work Experience of Teleworkers with Physical Disabilities in the Context of the Pandemic

The analysis of the data collected from the participants revealed 15 factors over 7 categories that influenced the work experience of teleworkers with physical disabilities in the context of the pandemic.

#### Access to Equipment

Access to an appropriate computer, technology, and office equipment is a critical element in participants’ ability to telework. In fact, having access to disability-friendly *computer equipment* [factor 1,  $n = 13^1$ ] is very helpful for some participants. For example, technology equipped with screens, a Braille note-taker, or a headset makes it easier to accommodate visual or hearing disabilities and, thus, to telework properly while maintaining a satisfactory work experience. For example, one participant “invested in a huge screen...

<sup>1</sup> This number ( $n=$ ) refers to the number of participants who addressed this factor during their interview.

**Table 1** Characteristics of participants

Participants	Gender*	Age (years)	Type of disability**	Hours worked per week	Percentage of work time teleworked BEFORE the pandemic (%)	Percentage of work time teleworked DURING the pandemic (%)	Job title
01	M	41	MO	35	100	100	Office Agent
02	M	31	S	35	10	100	Case Manager
03	M	42	S	35	5	90	Assistant Manager
04	F	56	MO	35	0	99	Residence Coordinator
05	F	55	S	28	0	100	Executive Director
06	M	33	S	40	90	99	Technology Support
07	F	36	MO and S	35	100	75	Sign Language Teacher
08	F	41	MO	30	60	100	Drafting Technician
09	F	48	S	35	0	100	Employment Support Consultant
10	F	49	MO and S	5	40	100	Project Manager
11	F	56	S	35	0	100	Office Agent
12	F	34	S	35	10	100	Lawyer
13	M	52	S	35	0	100	IT Analyst
14	F	41	S	32	0	80	Braille Language Technician
15	F	54	S	28	0	100	Provincial Civil Servant
16	F	48	S	32	0	95	Vision Rehabilitation Specialist

\*F female, M male

\*\*MO motor, S sensory

a smart [vision] TV [which she] turned into a computer screen” [P10],<sup>2</sup> so she could see and do her work better, despite her visual impairment. Access to high-performance IT equipment, such as a computer, phone, and tablet, is also essential for the use of software and technology platforms required by telework. The *accessibility of these technology platforms* [factor 2,  $n = 11$ ] is also an element the participants raised as affecting their work experience. For example, some people with visual impairments often find it more difficult to access these technology platforms and retrieve documents. A participant reported, “[My work team uses a virtual communication platform] to share documents. [...] For me, it was an ordeal going in there to get documents” [P13]. Having access to an accessible platform allows workers to get work done more efficiently and contributes to their healthy work experience. Many participants require access to technology infrastructure, such as wi-fi, the organization’s VPN, or a phone system linked to the office. Without it,

some participants involuntarily had to stop working for a period of time, a difficult event for their work experience.

To connect, to do the work I needed to do, you had to log in, authenticate via a VPN [...]. To authenticate to the VPN, you need a numerical code. He [the employer] only knew one way to get that code, and that was through a little electronic token that everyone puts on their keyring. But I was unable to read it because I live alone. [...] Then, afterward, I contacted someone in IT security as well because [I didn’t] have a laptop. So, I couldn’t work. [P13]

Finally, having *access to ergonomic office equipment* [factor 3,  $n = 9$ ] is conducive to the comfort and safety of the teleworker, thus promoting their healthy work experience:

[I] bought myself [...] a desk and an ergonomic chair on purpose to be comfortable because I still spend my day reading on the computer, so I have to be really comfortable and well set-up. [P14]

The fit between various equipment can sometimes challenge the health of teleworkers with disabilities:

<sup>2</sup> Verbatim extracts from the participants’ interviews exemplify the factors. The extracts are a free translation from the original French transcripts. Numbers (1 to 16) in the brackets refer to the participant’s number.

When I talk [...] through the laptop speakers, [...] I hear directly through my hearing aids. But it gives me a headache. This is very difficult for me. [...] The more the meetings progress, the more I lower the sound. [...] I once had an all-day meeting, and by the end of it, [I] wanted to “hang my head” on the walls. [I couldn’t] stand it anymore. [P15]

In essence, accessibility to ergonomic and disability-adapted equipment, such as computers, technology, and office equipment, contributes to the healthy work experience of workers with physical disabilities.

### Social Contacts

Several participants mentioned feeling a decrease in the *quality of relationships with colleagues* [factor 4,  $n = 10$ ] during the pandemic telework experience, making them feel isolated and negatively affecting their health, as “that’s the hardest thing... in terms of morale” [P09]. Several participants mentioned that it is more difficult to “bond [...] a little bit more with some colleagues” [P06] while teleworking, which can sometimes compromise team building. Participants also noted that exchanges can be more difficult and “cold” [P01] via technology. Not having direct, face-to-face contacts bring a formality to the exchanges, according to the participants, and diminishes the possibility of having spontaneous and informal exchanges like those that face-to-face work enables. Although social contacts via technology are not optimal, according to the participants, they still appreciated having access to it, rather than having nothing at all. In fact, *maintaining oral (i.e., verbal or with signs) communication* [factor 5,  $n = 7$ ] with colleagues, beyond written communication, is beneficial for many participants because it allows them to maintain a link between employees. This also allows for better collaboration between colleagues, which can foster commitment to the work and, thus, improve their work experience. The following excerpt shows the influence on the work experience of a participant of maintaining a relationship between colleagues:

[Among] the practices that made me feel engaged at work, [I would say] being able to talk [orally] with the team and then collaborate with everyone, even while teleworking behind a screen. [P06]

Thus, participants brought up the quality of social relationships and oral communication as elements that influence their work experience and health.

### Support

*Having support from the manager* [factor 6,  $n = 12$ ] is helpful for teleworkers. Being supported, understood, and feeling

comfortable communicating their needs and fears to their manager is beneficial in maintaining a healthy work experience in telework, according to the participants. One participant expressed the idea as follows:

Well, if [I’m] stressed [and not] feeling well, [...] I talk to my boss about it as soon as possible. I get it out as soon as possible and then it’s fine. Because she’ll give me advice, she’ll give me ideas, then after that, it’s settled. [P07]

One element participants reported as facilitating their work experience was feeling their manager listened to them. The fact that they can talk about their problems or simply that their boss has an attentive ear, “that he [the boss] really takes the time to listen until the end, until [the teleworkers] are satisfied with the exchange they have had” [P07], even at a distance, allows teleworkers to feel more supported in this new reality. Having a manager who is adaptable to the reality of the disability is a helpful element in teleworking for many participants. One participant’s experience shows that her manager “adapts her presentations because she [the teleworker] can’t see; the manager reads everything in the PowerPoint and even more because she comments on it [...], so [the teleworker] doesn’t lose information” [P13]. On the contrary, a manager who does not adapt to this reality is a major obstacle for the work experience of some participants.

Also, the *support of colleagues* [factor 7,  $n = 8$ ] regarding the teleworker’s disability is an essential element in feeling that the team includes and supports them. Conversely, if co-workers are not aware of disability issues, it can create some frustration, as one participant mentioned when talking about the issues of connecting her headset in relation to her hearing loss:

Every time I call with [a virtual communication platform], every time I try to pair or unpair [my headphones], people [...] get tense and say, “It’s okay, [I can] hear you!” Well, yes, but ME, I cannot hear you well! [P13]

Thus, support from managers and co-workers is essential in promoting a healthy work experience of workers with physical disabilities in the context of the pandemic.

### Schedule Management

Personal schedule management is an element that participants named as a contributors to a healthy work experience. For many, the teleworking situation allowed for *schedule flexibility* [factor 8,  $n = 14$ ]. Control over the management of their schedule helps them feel good about teleworking and lets them organize themselves as they see fit:

Sometimes, if [I haven't] done all my hours in the day, [I] recover in the evening, working a little bit more in the evening. So, I organize myself like that. But I'm lucky because I have a job that's still pretty flexible . . . [P07]

Also, this mode of work delivery grants teleworkers greater freedom to take regular breaks and return to their work whenever they want. This provides more motivation and comfort in their work, respecting their personal limits:

[You know], sometimes [I] take little breaks, [I] go do something else, and then [...], I come back to the computer. That keeps me motivated. [P07]

Despite this flexibility, some participants felt the need to *set a routine* [factor 9,  $n = 11$ ] to be satisfied with their work. The following excerpt provides an example of a work routine that helps a participant feel good about teleworking:

I used to dress in joggers, but at some point, I realized that if I want to be [...] functional, [I] needed to have [a] routine as if I was going to work. So, in the morning, I get up, I do everything that I used to do to go to work. The only thing is I [don't] have to leave the house . . . [P09]

However, this routine may differ from what it was before starting to telework. Some participants reported being able to create routines that made them feel good during their workday and allowed them, for example, to get up at the time they wanted and, thus, reduce their daily stress level. One participant refers to this decrease in stress related to establishing his own routine: “[I] wake up at the time I want, get my things ready, go get settled in my office. That decreased a lot of stress for me.” [P07].

Thus, the flexibility and control offered to teleworkers with physical disabilities in the personal management of their schedules, as well as in the establishment of a work routine, contributes to their healthy work experience.

## Transportation

Each day, teleworking *saves participants transportation time* [factor 10,  $n = 15$ ]. This time can be reclaimed to accomplish more things in the day, both in personal life and in work. Some participants have returned to doing more of the activities they enjoy and that they did not have time to do before teleworking. This influences their health and quality of life, as one participant described:

I read a lot more, I do a lot more of my passions that [I] was doing before. And that has an impact on my work because when I settle down to work, I feel really available, I feel good, I feel happy to do this work because I [also do] something I'm passionate about.

I love astronomy, so I read a lot, I listen to astronomy lectures. I have time to do that. Before, I didn't have the time. [P04]

Finishing work and already being home allows one to be ready to do other tasks or activities and is a very positive benefit for many participants. One participant mentioned, “That's the big, big, big plus” [P02] of being a teleworker.

However, this time saved by not commuting can, in some cases, be recouped by doing more work. This has the effect of increasing the workload, which can negatively influence their work experience. The following excerpt illustrates the influence of reduced transportation time on workload: “The time I had recovered, from not taking adapted transport, I spent working for [employer's name].” [P04].

Some teleworkers with physical disabilities reported several times that paratransit is very burdensome, especially in terms of waiting time and scheduling, more so than regular public transportation:

By car, it would have taken maybe 30 minutes to get to my old [workplace]. With adapted transport, it was two hours each way. Sometimes I had to wait even three hours [for the transport to arrive]. It [didn't] make any sense, any sense at all. [P06]

Participants mentioned that using paratransit often takes them longer and causes them to lose a lot of time in their day, which can cause some frustration: “It's... AH! I HATE it. The worst of the worst of the worst” [P06]. Thus, there are benefits for health and work experience to not having to use this mode of transportation daily. The reduction in *stress related to the use of transportation* [factor 11,  $n = 7$ ] and its planning was mentioned several times as a positive aspect of teleworking. Indeed, “most of the stress is not the work to be done, it's the traveling. It's being able to get there for such and such a time and then [to] get back for such and such a time [...]” [P11]. So, not having to travel before going to work can take much pressure off the shoulders of people with physical disabilities.

Teleworking can have an impact on transportation time, along with the stress of using it.

## Workload

Several participants noted a *shift in their workload* [factor 12,  $n = 14$ ] as a result of the transition to telework during the pandemic; the situation “added to [the] workload” [P03]. Some described it as overload that they felt was affecting their work experience. Consequently, some mentioned that they did not have time to do everything in a day:

Then, the problem is that, in our case, the work never stops. I always have emails to deal with. I always have

too many meetings in a day, [so] I always feel like—or almost—[that] at the end of the day, [I haven't] managed [to do] everything that I would have liked to do in my day. [P02]

To maintain a healthy work experience despite this increased workload, several participants mentioned the importance of setting limits on their work hours. The following excerpt illustrates this idea:

In the sense that it's dangerous for mental health [...] During the first few months, I was very work-oriented: "I have to get the work done, I have to get my stuff done" [...]. Then, in December, I made the decision that it was too much, it [was] enough. No, [I'm] not going to be perfect. Yes [I] am going to have backlogged stuff, but I thought about my health first. If [it's] not done, [it's] okay. At 3 o'clock, [if I'm] not done, [I'll] go take my walk anyway. [P15]

Another participant explains that he has learned *to set boundaries* [factor 13,  $n = 6$ ] so that he can drop out of work and maintain his health:

At first, at night, if I happened to be connected [and] someone emailed me at 11:00 pm, I would respond. Eventually, I realized that [was] not a good idea, because it gets into people's heads that [you] are available, [which makes] them go on. [P02]

Workload modulation impacts the healthy work experience of individuals with physical disabilities. Defining and setting limits on workload is another essential element in maintaining healthy work experience.

### Home Environment

The *physical environment* [factor 14,  $n = 14$ ] in which participants telecommute can also affect their work experience. Working in a quiet environment reduces the distractions that were present when working in person, enabling teleworkers to be more focused and efficient. For example, they no longer must worry about unexpected disturbances from co-workers or uncontrollable outside noise; that contributes to healthy work experience while teleworking:

Doing our work in a much quieter environment where [you] don't hear other people talking, where [you] aren't afraid to disturb others by [talking to] yourself... [...] It's much better, much, much better, that's another big advantage. [P16]

Notably, participants mentioned that having a specific room in which to do their telework was facilitating:

I even have a room dedicated to my work, [so] that's wonderful too, an office space that I can close off. [So],

when [there are online] meetings, it's nice to be able to isolate yourself from the others. [P11]

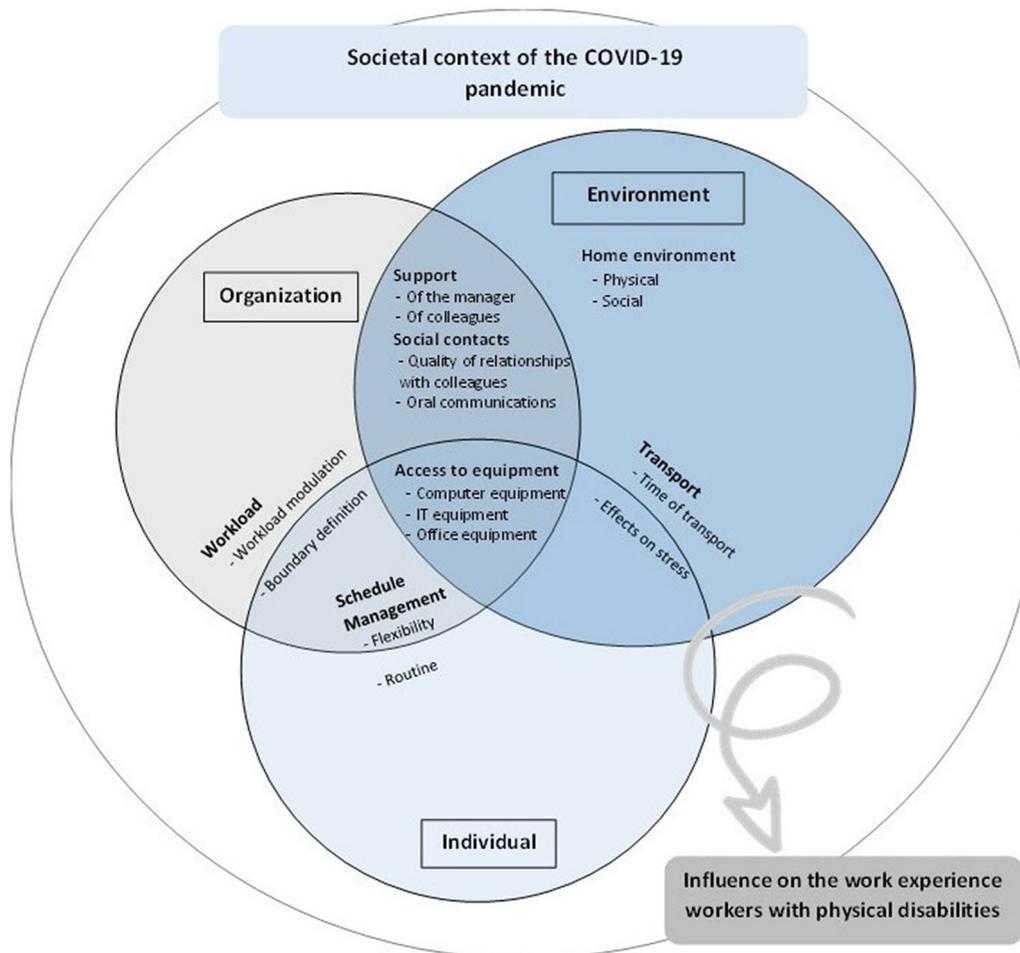
Yet, depending on the *social environment at home* [factor 15,  $n = 16$ ], it is not always possible to have this quiet workspace. For some participants, the environment at home has been difficult for their work experience while teleworking during the pandemic, especially for those with young children:

[There are] plenty of times when the daycare was closed because [there] were cases of COVID. [So], the two weeks of isolation at home with my daughter, [...] how do you [handle it] [...]? [...] With my partner it was really a puzzle sometimes: "Okay, you have a meeting at 4 o'clock and I have a meeting at 3 o'clock. Okay, we'll hand off [her daughter's name] at such and such a time. [You] don't want one's meeting to end too late [...]. [...] Right now, she's two years old, she's still too young to say, "Okay," she'll take care of herself. [I] [must] be next to her. [P12]

Teleworking can allow the worker to be in a quieter environment with fewer distractions, which facilitates concentration, efficiency, and hence, their work experience and health. However, some situations do not always allow for this optimal environment, especially for workers with young children.

### Interaction of Factors Influencing the Work Experience of Teleworkers with Physical Disabilities in the Context of the COVID-19 Pandemic

Analysis of the collected data revealed 15 factors that influence the work experience of teleworkers with physical disabilities, as Fig. 1 shows. These factors arise in the societal context of the COVID-19 pandemic and relate to interactions between three spheres of the worker's life: the individual, the organization, and the environment. First, the individual is an important actor in their work experience. They have the power to make decisions about the way to organize and carry out work, particularly through the establishment of routines and limits or by way of the installation of office equipment. The organization for which the individual works also has a role in maintaining a healthy work experience. Indeed, the organization can influence the work experience of teleworkers through workload modulation and by offering support, be it social or equipment-related. Finally, the work environment, whether physical (e.g., the location in the home where the telework takes place), social (e.g., the people with whom the teleworker shares his or her daily life at work or at home), or societal (e.g., transportation services), greatly influences the work experience of the teleworker with a physical disability, either by facilitating or complicating it.



**Fig. 1** Factors influencing the work experience of teleworkers with physical disabilities in the pandemic context

Understanding that the individual, the organization, and the environment cannot be appreciated individually is important. The factors that relate to these three spheres influence each other dynamically in their interactions, as the overlapping circles in Fig. 1 illustrate. For example, the factor of access to equipment is a function of both the environment, given its nature, and the organization, via the financial or technical support it offers to the worker with respect to this specific equipment. Finally, the worker influences access to the equipment, depending on the possibilities of his or her home and personal resources. Similarly, the quality of social relations and verbal communications is a matter for both the social environment (since the people in the worker's environment carry them out) but also for the organization that provides the processes to facilitate them (or not).

## Discussion

The purpose of this study was to explore the influence of telework during the pandemic on the work experience of individuals with physical disabilities. Analysis of qualitative data collected from 16 teleworkers revealed 15 factors grouped within 7 categories. The results of this study contribute to the advancement of knowledge along two main lines: (1) They shed light on how the theory of the demand-latitude-support model can help explain the contemporary phenomenon of the work experience of teleworkers with physical disabilities in the context of the pandemic; (2) They highlight the importance of the environment in supporting the healthy work experience of teleworkers with physical disabilities in the context of the pandemic. The study results lead to recommendations that organizations and workers can implement to support that unique work experience.

## The Influence of Demand, Latitude, and Support on the Work Experience of Teleworkers with Physical Disabilities

On a theoretical level, the results of this study highlight how Karasek and Theorell's demand-latitude-support model can help explain the contemporary phenomenon of the work experience of teleworkers with physical disabilities in the context of the pandemic. Results suggest several factors that relate to the telework environment during the pandemic and contribute to increased work *demands* on teleworkers with physical disabilities. For example, an increase in the amount of work to be done augmented the workload for many. Also, the complexity of work has increased for two main reasons: (1) inconsistent access to technological accommodations and (2) issues related to work-life balance. Indeed, the difficulty in accessing office or computer equipment as well as disability-friendly technological infrastructure makes work more complex for many workers. The interaction between work and family in the home environment also adds to the complexity of work, as the literature reports [35]. However, decreasing transportation usage was an important element that participants named as decreasing demands on them because it typically generates much stress. Thus, decreasing the headache that the use of transportation generates is a favorable element for the healthy work experience of teleworkers with physical disabilities, decreasing psychological strain. However, some participants felt compelled to recoup the time saved by the absence of transportation in their day, by increasing their amount of work, thus negating the full benefits of this factor for their health. Other authors report this pressure to increase the amount of work, to demonstrate effectiveness when teleworking [42]. Moreover, our results are in line with the study by Kelly and Moen [43], according to which teleworking would increase *latitude at work*, particularly schedule flexibility, which would have a particularly positive influence on workers' healthy work experience. This form of autonomy allows them to develop methods or strategies to adapt the work to their needs, giving them leeway to perform the work while preserving their health. For example, in our study, some participants created work routines adapted to their teleworking reality, which allowed them control over their situation. On the other hand, our results highlight the importance of *support* for the work experience of teleworkers with physical disabilities. First, those who participated in our study noticed an overall decrease in the quality of their relationships with their employers and colleagues. The difficulty in building relationships due to distance and the emotionlessness of digital exchanges affected the perception of teleworkers regarding the support they received in their workplace. The decrease in the quality of relationships also may have contributed to worker isolation and, in turn, decreased their health status. Nevertheless,

maintaining oral communication within the organizational environment was seen as beneficial to the work experience of teleworkers with physical disabilities. This practice promoted greater engagement at work and a greater sense of inclusion. Finally, in the results, the support of colleagues and managers emerged as a key factor in the healthy work experience of teleworkers with physical disabilities. Colleagues' and managers' understanding of the issues related to the teleworker's disability was a major factor in the support that these workers felt.

Since the different factors in Karasek and Theorell's demand-latitude-support model interact with each other and modulate the work experience of teleworkers with physical disabilities, it is important to consider all factors together rather than individually, to better understand certain situations affecting health [36]. In the context of the COVID-19 pandemic, certain elements of psychological demand and support affect health more negatively among teleworkers with disabilities. Our results, however, support implementing other strategies, such as maintaining oral communication in the organizational setting or allowing flexibility in work schedules, which can mitigate these impacts. Although each factor has a different influence on the work experience of teleworkers with physical disabilities, paying attention to their interactions to fully understand the dynamics that potentially lead to health is even more important.

## The Importance of the Environment for the Healthy Work Experience of Teleworkers with Physical Disabilities

The second contribution of this study is that several important elements in the work experience of teleworkers with physical disabilities revolve around their environment, whether physical, organizational, or social. Indeed, 11 of the factors that this study identifies concern the environment. This finding is consistent with Baker et al. [18], who suggest the importance of creating environments that are sensitive to the diverse needs and inclusion of teleworkers with disabilities.

First, the *physical environment* is important because it allows the teleworker to have a space that allows them to feel comfortable in the job and access to tools adapted to their specific needs. This study highlights the necessity for the worker to have access to an isolated or quiet space for work. This allows the worker to eliminate distractions from the home environment (i.e., noisy children, talking in the same room) and to work with maximum peace of mind. Moreover, other authors also report that indoor noise that roommates or family cause would have a significant impact on workers' ability to work [44]. Second, access to equipment (i.e., technology platforms, computer, and office equipment) also emerges in the results as a central factor in

**Table 2** Practical recommendations contributing to the work experience of teleworkers with physical disabilities

Type of environment	Practical recommendations	Factors of the Karasek and Theorell model
Physical environment	Access to technology and equipment appropriate to the needs of the teleworker with a physical disability Access to a workspace with minimal distractions	Demand
Organizational environment	Adapting the workload to the needs of the teleworker with a physical disability Allowing the teleworker to manage their work schedule and break times Support the expression of personal boundaries at work to the manager Provide training to the teleworker with a disability on telework organization, communication, isolation issues, etc Listen and follow up on teleworker's questions/concerns Allow the teleworker to work in the office a few hours a week	Latitude Support
Social environment	Maintain social contact with colleagues and manager to break isolation Encourage oral communication with colleagues and employer	

the work experience of workers with physical disabilities in telework settings. Accessibility of equipment adapted to the worker's condition allows them to not only avoid work-related injuries but also experience less stress in the face of the employer's demands, by feeling more confident of meeting expectations. In addition to having access to equipment adapted to their needs, obtaining technical assistance regarding the installation and operation of the various technologies is important. In a study by Montreuil and Lippel [45], more than half of the teleworkers (59.7%) did not have access to assistance when needed, and this would have negatively impacted their work experience.

The *organizational environment*, especially the attitude of the manager, seems to be a key element contributing to the healthy work experience of teleworkers with physical disabilities. A manager who listens to their needs and concerns and allows them to verbalize their limitations establishes honest, safe, and healthy relationships in the workplace. This fosters inclusiveness and transparency in the organization and promotes a sense of well-being at work. In addition, reduced social isolation among the teleworkers may result from support that the organization offers [46]. Nevertheless, a lack of consideration for the difficulties that teleworkers with disabilities experience significantly impacts their health and work experience. Moreover, other authors have raised this idea in situations where the teleworker must manage problematic situations without receiving help quickly and readily [45].

Finally, our results identify gaps in the *social environment* related to the pandemic context, which influence the work experience of teleworkers. For example, since distance reduces the quality of contacts and the support colleagues offer is less in some cases, the worker may feel that they do not have an adequate support network in case of difficulties. The feeling of loneliness the physical

distance between colleagues and the teleworker can cause also can count as a major disadvantage in the life of the latter [47]. Nevertheless, maintaining oral communication became a mitigating factor for these negative effects. This type of communication can then compensate for the social environment that is less present in the life of the teleworker with a physical disability in the context of a pandemic and, by the same token, increase their healthy work experience.

These results are consistent with theoretical models in occupational health that recognize the link between the environment and health [e.g., 30, 31–33].

## Recommendations

In light of these findings, it is possible to make some practical recommendations that contribute to the healthy experience of workers with physical disabilities. These recommendations relate to both the elements of the environment (i.e., physical, social, and organizational) and the factors of Karasek and Theorell's demand-latitude-support model, which Table 2 illustrates.

These recommendations align with those that have been issued to support the work experience and health of the general population of workers [e.g., 48–50]. However, it is important to consider that the challenges of adapting to this change in work delivery may be greater for people with disabilities and vary among the diverse realities and needs of individuals [7]. Thus, employers need to be aware of these challenges and take an individualized approach to supporting each of their workers [7]. Researchers highlighted this idea of the need for employers to be sensitive to the unique characteristics of their employees [51], to consider the different realities [7] and specific needs of workers [18], particularly those with disabilities. Research conducted during

the pandemic demonstrated that a one-size-fits-all approach would not be optimal to promote a healthy work experience for workers with disabilities; an equitable approach that takes into account individual realities and needs would be preferred [8, 52]. A concrete means to consider individual realities and needs would be to involve teleworkers in decisions [53] and to encourage their initiatives [52] towards the application of these recommendations.

### Strengths and Limitations of the Study

This study has some strengths in terms of the type of design chosen to address the objective. The qualitative study provided the unique perspectives of workers with physical disabilities on the elements that influence their work experience while teleworking during the pandemic. It makes available a better understanding of some of the complex and unique elements of telework and their impact on individuals with disabilities. The well-distributed study sample, in terms of age and gender, may improve representativeness. In addition, the methodology described in detail allows for replication. However, since the workers recruited were all from the province of Quebec (Canada), it is difficult to guarantee transferability to other contexts. An overrepresentation of visually impaired participants in our sample may also have oriented the results. In addition, this study focused on the work experience. In doing so, we may not have captured the influence of telework on other areas of people's lives, such as leisure time. Finally, it is also important to remember that this exploratory study is descriptive and, as such, does not make possible the establishment of causal links between the factors identified and the work experience of the individuals.

### Conclusion

The purpose of this study was to explore the influence of teleworking during the pandemic on the work experience of individuals with physical disabilities. Interviews with teleworkers identified 15 factors influencing their work experience. These results can be integrated with Karasek and Theorell's demand-latitude-support theoretical model. Moreover, they highlight the influence of the environment, whether physical, organizational, or social, on work experience. The influence of these different factors allows for the development of various practical recommendations applicable to promoting a healthy work experience among teleworkers with physical disabilities. Given that telework has expanded since the onset of the COVID-19 pandemic and will likely continue to remain a widespread modality of work delivery, it becomes even more important to expand knowledge about it, to benefit the work experience of individuals with physical disabilities. Finally, quantitative studies may

be of interest in the future to measure the links the results of our study suggest.

### Points of Interest

- The COVID-19 pandemic has had many impacts on workers' lives, work experience and health. This study concerns telework which is a work delivery modality that has drastically increased and will remain in the long term.
- Our study made it possible to better understand the factors that contribute to the work experience and health of a less studied population, namely teleworkers with physical disabilities.
- The qualitative design used promoted the unique perspectives of workers with disabilities on the elements that influence their work experience.
- The ten practical recommendations that emerged from this study represent concrete and applicable levers to consider the reality of people with physical disabilities in the telework practices. It is therefore important to apply these recommendations while taking into account individual realities and needs of workers with physical disabilities.

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**Data Availability** The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

### Declarations

**Conflict of interest** The authors have no conflict of interest to declare.

**Ethical Approval** All procedures performed in studies involving human participants were per the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. Ethical certification was obtained from the Research Ethics Committee of the Integrated University Health and Social Services Center of the Capitale-Nationale (CIUSSS-CN), no 2021-2239.

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