Work 76 (2023) 437–451
DOI:10.3233/WOR-220622
IOS Press

"*Is this a new dawn for accessibility?*" A qualitative interview study assessing remote working experiences in adults with physical disabilities post COVID-19

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Received 31 October 2022
Accepted 17 February 2023

Abstract.
BACKGROUND: While employers plan how to restructure working practices after the initial response to the COVID-19 pandemic, it is essential that the disability community are represented in research addressing remote working (or telework); their expertise is invaluable for ensuring equity from the outset.
OBJECTIVE: The current study qualitatively investigated how people with physical disabilities negotiate telework in a post-COVID era.
METHODS: Ten participants with a range of physical disabilities were recruited and interviewed. Themes were generated from the data utilising an established method of reflexive inductive thematic analysis.
RESULTS: Increased flexibility as well as control over work schedules and the environment facilitated by teleworking, improved participants' disability management, health, work performance, and personal opportunities. However, the importance of choice to work in-office, of implementing additional physical and virtual work adjustments, and of flexible work patterns to remove barriers to accessibility when homeworking was emphasised. Active efforts by employers to create an inclusive and flexible work culture were identified as crucial to ensure that integration and professional development of employees with disabilities, understanding of disability experience, and normalisation of accessibility needs are not diminished by the decreased visibility incurred by teleworking.
CONCLUSION: Teleworking is not a panacea for resolving the disability employment disadvantage. Rather, teleworking could be a springboard upon which further flexibility and choice can be built to shift organisational practices to better accommodate individual employees, with and without disabilities, post-COVID. It is imperative to act on such insights to create accessible workplaces to facilitate more inclusive workforces.

Keywords: Assistive technology, COVID-19 pandemic, physically disabled, telework, work-life balance

1. Introduction

Since the 1990s, disability activists have campaigned for teleworking, advocating its advantages in supporting increased accessibility of employment and work retention for people with disabilities [1]. Telework can be defined as any work practice that substitutes travel to and working from a central office with computer technology [2]. Nevertheless, employers have largely denied employees with disabilities teleworking opportunities, insisting

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that on-site attendance is an essential job function [3]. Indeed, homeworking was the most refused reasonable adjustment prior to the COVID-19 pandemic [4]. Such organisational inflexibility and potentially discriminatory attitudes present substantial barriers to entering and remaining in employment for the estimated one billion people with disabilities globally [1, 5]. Consequently, of the 14.1 million people with disabilities in the United Kingdom (UK) (21% of the population), only 53.5% are employed compared to 81.6% of people without disabilities [6, 7]. The resulting disability employment gap presents an ongoing social and economic concern.

The COVID-19 pandemic has radically transformed traditional work practices, with those exclusively homeworking increasing from 5.7% to 43.1% in 2020 in the UK [8]. This work-from-home revolution has arguably reinvented telework as a new norm rather than an exception, challenging the potential misconception that jobs are location-dependent, and that teleworking reduces productivity [3, 9]. Critically, the increase in acceptance and availability of teleworking presents a rare opportunity to redefine the workplace and create more inclusive work cultures and practices for people with disabilities, a pool of diverse talent that has been systematically excluded for decades due to the lack of such accommodations. Ensuring a diverse and inclusive workforce is a principal concern of our time, especially considering the higher projected prevalence of disability resulting from longer lifespans and increasing incidence of chronic medical conditions, as well as Long-COVID [10, 11]. However, it is crucial not to assume that teleworking is automatically accessible and inclusive. Appropriate reasonable adjustments are needed to overcome organisational norms that favour people without disabilities and can effectively integrate teleworkers with disabilities, especially as teleworking policies implemented hastily during COVID-19 may have overlooked accessibility needs [4, 9]. While employers plan how to restructure work post-COVID, and with predictions that a hybrid model of work (i.e., a combination of workplace and remote working) is likely the future, it is essential that the disability community are consulted and represented in research and task forces addressing telework; their expertise is the most valuable resource for ensuring equity and inclusion from the outset [10, 12].

Telework has many important implications for the workplace, with much previous research focusing on the advantages and issues of teleworking for employees without disabilities [9]. A recent review concluded that there is a paucity of research understanding the experience of teleworkers with disabilities [13]. Igeltjørn and Habib [13] identified only 17 studies conducted from 2000 addressing telework and disability, of which most provided reviews of potential benefits and barriers faced without generating new empirical data. Among studies that have employed survey-based methods, a vast range of disabilities have been investigated simultaneously, including learning, sensory, and physical, as well as chronic and mental health conditions [4, 14, 15]. Schur and colleagues [15], for instance, analysed data collected prior to COVID-19 in the United States of America (USA), finding that workers with disabilities were more likely to work from home, suggesting increased availability of home-based work may create more employment opportunities for people with disabilities. They recommended that future research explore how homeworking may enable employees to better manage their disability. In contrast, findings from UK-based research indicates that employees with disabilities are less likely to work from home than workers without disabilities due to disproportionate exclusion from managerial and white-collar roles more suited to teleworking [14]. Furthermore, Hoque and Bacon [14] found that, despite employees with disabilities who worked from home reporting better experiences of work than those working in-office, homeworking did not reduce in-work disadvantage. This highlights the need to investigate additional adjustments to address persisting barriers faced by teleworkers with disabilities. Furthermore, new insights gained from a study conducted during the UK's first lockdown due to COVID-19 revealed that legal professionals with disabilities welcomed homeworking due to increased flexibility and elimination of commuting, improving their health and energy levels [4]. However, the importance of also having the choice to work in-office was emphasised.

In addition to survey-based evidence, several USA-based qualitative studies have aimed to gain more in-depth insight into the experiences of teleworkers with disabilities pre-pandemic, as well as during initial COVID-19 lockdowns. For example, Das and colleagues [9] interviewed neurodivergent teleworkers during the first month of the pandemic response, detailing the cognitive and emotional labour that participants performed beyond their work practices to make homeworking accessible. Such practices are not yet normalised and still leave some needs unmet, with highly conflicting access needs identified across participants, perpetuating exclusion. Simi-

larly, McNaughton et al. [16] found that participants with autism or cerebral palsy who use augmentative or alternative communication identified removal of commuting and flexible work schedules as major positives of telework, while expressing concerns about social isolation and the blurring of home and work. Additionally, Tang [17] found that participants with chronic health conditions, as well as developmental, sensory, and physical disabilities face digital and social representation issues that prevent them from reaping the full benefits that telework provides of increased flexibility and control over the work environment. Despite this, the participants reported high satisfaction with their telework experience during the initial months of the pandemic response in the USA. Such a focus on the accessibility of technology when teleworking by previous research has largely neglected exploration of the physical workspace that may also require adaptation to suit accessibility needs, which is likely especially pertinent for teleworkers with physical disabilities. Moreover, all research has been conducted prior to or during the initial response to the pandemic. The experiences of teleworking post-COVID also warrant scrutiny due to the changing attitudes and exposure of colleagues and employers to remote working practices.

Taken together, there is a scarcity of evidence exclusively exploring the experiences of teleworkers with physical disabilities, especially those in the UK. Further work would benefit from a deeper focus on people with physical disabilities to increase understanding of how they may be impacted differently by telework than those without disabilities, particularly post-COVID [18]. On this basis, the current study qualitatively investigated the implications of teleworking for people with physical disabilities. Namely, we explored the differences in telework experience post-COVID to unpack access needs and accommodation strategies. As stated by Das and colleagues [9], we can be led by professionals with disabilities concerning best practices for creating accessible workplaces. Thus, the findings could offer practical insights for inclusive teleworking practices to support integration and better employment outcomes of people with physical disabilities [19].

2. Method

The methods are reported in accordance with the Standards for Reporting Qualitative Research [20].

2.1. Qualitative approach and research paradigm

Based on the notion that phenomena are socially constructed and subjective, with meaning made through interaction with the world and others, the current study intended to gain holistic understanding and insightful accounts of subjective experiences (benefits, disadvantages, facilitators, barriers, needs, etc.) of teleworking in employees with physical disabilities [21]. Aiming, in part, to identify the cultural and physical barriers of teleworking, this research was located within the social model of disability, which states that disability is constructed and reinforced by social norms and the building of physical spaces, excluding people with disabilities from full participation in society [22].

2.2. Researcher characteristics and reflexivity

Qualitative data collection and analysis were undertaken by the first author who had previously worked at a think-tank centred on disability employment disadvantage and the opportunity that COVID-19 represents toward revolutionising telework. This subsequently shaped the first-author's motivation to explore how people with disabilities experience telework. Nevertheless, as a person without a disability, the first-author followed an emancipatory research perspective, whereby the researcher lays their skills at the disposal of participants with disabilities, recognised as active expert-knowers and co-researchers who verify interpretations and offer alternative explanations [23, 24]. Consequently, each participant was emailed their transcript to promote clarification, collaboration, and elaboration before data analysis, reversing the power relations of research production accentuated by societal ableism [25]. The first author reviewed hand-written field notes containing reflexive and subjective comments about participant responses after each interview. Reflexivity was further maintained through discussing and challenging the interpretations and conclusions present in the data analysis and written report with the second-author as a critical friend [26].

2.3. Context

Due to COVID-19, one-to-one interviews were conducted via Microsoft Teams at a mutually convenient time for the first author and the participant

in a comfortable location chosen by each party. Prior to each interview, the first author ensured that participants were familiar with and comfortable using Microsoft Teams. Online interviews have many reported benefits, including minimising the time, financial, and physical mobility constraints of face-to-face interviews, thus increasing participation, convenience, and geographical dispersion of participants [27]. Furthermore, sufficient interviewer-interviewee rapport can still be established to facilitate discussion of sensitive topics [28].

2.4. Sampling strategy

Between November 2021 and January 2022, candidates were recruited by contacting three disability activists, 95 charities and organisations (e.g., Back Up), and posting on 26 online forums and social media platforms (e.g., Scope, Disabled Workers Facebook group). The inclusion criteria were: (i) aged $\geq$18; (ii) UK-based; (iii) physically disabled; and (iv) currently working full- or part-time (self-employed or employed) in a job with a full- or part-time teleworking status.

Individuals were recruited using maximum variation sampling, a sub-type of purposive sampling, to increase variability of participant characteristics, including gender identity, age, type of physical disability, and occupation, to gain a comprehensive understanding and diverse insights of the research topic [29].

As recommended by Sim and colleagues [30], the final sample size of 10 participants was judged during the analytical process as sufficient to comprehensively address the research aim. This decision was made by assessing each interview upon completion according to the concept of information power [31], which recognises data adequacy, relevance, and quality as more important than number of participants.

2.5. Ethical issues pertaining to human subjects

Full ethical approval was granted by Loughborough University's Ethics Review (Human Participants) Sub-Committee (Ref. 6707) on November 11th, 2021. All research activities adhered to the principles outlined in the Declaration of Helsinki of 1964 and its later amendments. Participants were emailed a comprehensive participant information sheet and provided written informed consent. The interviews were completed on a secure videoconferencing platform. All data was stored on a secure Internet server, with each participant assigned a unique identifier (e.g., P1, P2) to maintain anonymity.

2.6. Data collection methods

Semi-structured interviews (SSIs) are considered an optimal approach to collect in-depth, diverse data on an underexplored research area, providing flexibility to improvise with follow-up probes to participant responses [32]. SSIs also encourage participants to discuss their experiences in an empowering, open, and comprehensive way, facilitating a holistic understanding of participants' experiences [33]. One-to-one interviews, lasting between 40 and 110 minutes, were audio recorded. Although no specific accommodations were required/utilized, participants were advised that they could take regular breaks if needed. Following pilot testing of the interview guide, the first author ensured the questions were clearly linked to disability experiences and defined teleworking at the start of each interview.

2.7. Data collection instruments and technologies

Data was collected using a SSI schedule designed by the first-author according to a rigorous development process [32]. The flexible guide included six principal areas with additional open-ended questions and probes, which explored: (1) positives and facilitators of participants' teleworking experiences; (2) negatives and barriers of teleworking; (3) adjustments and needs during telework; (4) navigating technological tools; (5) changes in telework experience post-COVID; and (6) future work preferences (Appendix).

2.8. Participants

Ten participants met the eligibility criteria and gave consent to participate in an online interview (Table 1). Five participants identified as female, with a mean age of 39.1 years ($SD = 17.8$). Most (90%) participants identified as White British, with 50% teleworking full-time and the remaining hybrid working.

2.9. Data processing

Audio files were transcribed verbatim within 24-hours of completion with the assistance of Descript software. To ensure immersion and familiarisation with the data and to verify accuracy, the first author

Table 1
Background information and characteristics of each participant included in the study

Participant	Gender	Age	Ethnicity	Described physical disability	Occupation	Work status	Telework status (% per week)
P1	Male	36	White British	Agenesis corpus callosum, Scoliosis, Left hemisphere cyst, Hypertonia	Support worker	Part-time, employed	20
P2	Female	83	White British	Post-polio problems	Journalist	Part-time, self-employed	100
P3	Female	35	White British	Fibromyalgia, Vasovagal syncope, Chronic fatigue syndrome	Pre-travel services advisor, Macrame business	Part-time employed, part-time self-employed	100
P4	Female	34	White British	Cerebral palsy	Marketing coordinator	Part-time, employed	100
P5	Female	33	White British	Spinal cord injury	Vocational coordinator	Part-time, employed	95
P6	Male	57	White British	Cerebral palsy	Policy and strategy manager	Part-time employed, part-time self-employed	90
P7	Male	26	White British	Cerebral palsy	Public sector	Full-time, employed	100
P8	Female	25	White British	Spinal muscular atrophy	Corporate responsibility manager	Full-time, employed	40
P9	Male	32	White British	Spinal cord injury	Senior manager of diversity, Equity, Inclusion client solutions	Full-time, employed	100
P10	Male	30	Mixed	Spinal cord injury	Founder and CEO of an accessibility platform	Full-time, employed	40 (variable)

simultaneously listened to and read the transcripts, making any necessary edits. The transcripts were anonymised, and subsequently analysed with the support of NVivo (QSR International) version 20 software.

2.10. Data analysis

Reflexive inductive thematic analysis (TA) was utilised following an established procedure [34]. This six-step recursive process began with data familiarisation through verbatim transcription after each interview, listening of the recording, and re-reading of the transcripts while noting initial ideas to search for meaning. Next, all data extracts were systematically coded line by line. From this list, codes that formed the basis of repeated patterns of shared meaning underpinned by a central concept were collated to generate initial themes. Candidate themes were then discussed with the second author and iteratively reviewed against the initial codes to ensure no more themes could be generated, and that they accurately represented each transcript and the data set as a whole. A thematic map was also created to further develop each theme and analyse the boundaries and relationships between themes. Subsequently, all themes were refined, defined in terms of the story and data they captured, and named. The most pertinent and compelling extracts were selected to illustrate each theme with sufficient evidence, alongside references to previous literature and the current research question. From this analysis, the final report was produced.

2.11. Techniques to enhance trustworthiness

The second-author acted as a critical friend by meeting with the first-author on eight occasions throughout the research process to discuss reflexive notes of the first-author's decisions and analysis [26]. This dialogue enabled concurrence with decision trails at each stage [35], challenging of interpretations and assumptions present in the data analysis to reflexively acknowledge multiple perspectives in the research process, and to assist in refining the themes, ensuring accurate representation of participant responses [26]. The interview guide was field-tested with the first two study participants to assess and refine relevance, question order and wording, and effectiveness in eliciting varied perceptions, as well as remove ambiguity and leading questions [32]. Transcripts and follow-up questions were submitted to participants. Such member reflections promote robust and enriched understanding through generating further dialogue and insights [25], increasing reflexivity, accuracy, validity, and credibility of findings [36]. All contributors were satisfied, and any amendments were integrated into the final transcripts. Furthermore, the first author utilised verbatim transcripts, outlined in-depth stage-by-stage analysis procedures, and selected rich participant quotes to further enhance authenticity, dependability, naturalistic generalisability, transferability, and replication [37, 38].

To ensure confirmability, the data underwent iterative review and negative case analysis to explore alternative explanations and ensure themes were consistent across, and derived directly from, the dataset [35].

3. Results and discussion

Overall, three themes, each with several subthemes, were generated: (i) *Flexibility over work routine and environment*, (ii) *Teleworking is not a panacea for resolving the disability employment disadvantage*, and (iii) *The Teleworking Norm as* "*A New Dawn for Accessibility*". While many participants expressed experiences likely shared by teleworkers without disabilities (e.g., blurred work and home boundaries), in accordance with previous research [18] and the study aim, we report the telework experiences specific to teleworkers with disabilities.

3.1. Flexibility over work routine and environment

Participants expressed that homeworking enabled greater flexibility and autonomy in creating a work schedule and environment tailored to their accessibility needs. This was applicable to teleworking experiences before, during, and after the pandemic.

3.1.1. Better management of "disability life admin"

Participants explained that, around their employment, much time is consumed by managing "*disability life admin*" (P8), making life inherently more tiring and difficult to schedule:

One thing I actually really appreciated was flexibility around what I call disability life admin. . . from trying to get care funding, to managing personal assistants, recruiting them, training them, getting funding for wheelchairs. . . It's a full-time job being

disabled sometimes. . . I was no longer commuting, so I had a couple more hours in the day.

Eliminating the commute also removed the difficulties associated with navigating inaccessible public transport, which previously exacerbated fatigue already felt from living with a disability. For example, P9 stated, "*you do get a bit more fatigued with everything else that you have going on in life with a disability, and then it's just something else that you're putting onto the list*". By conserving time and energy, participants were better able to take care of their disability life admin with minimal disruption to work, improving their health and performance. This enhanced flexibility over time enabled participants to proactively adapt work schedules to accommodate unpredictable flare-ups of their disability, with P5 noting, "*if I'm suffering with pain and fatigue, I can be very reactive to that rather than struggle through the day*". This promoted faster recovery and fewer absences as participants could work at their own pace in proximity to relevant support resources during their workday, such as medication or personal assistants. Consequently, P3 expressed, "*my health is more stable for it because I'm not having to do things independently*". This replicates findings from previous research of teleworkers with a range of disabilities, where it has also been shown that removal of travel and flexible work schedules are key benefits of telework, supporting improved energy and health [4, 16, 17].

Furthermore, participants felt empowered by being in a home environment over which they had control, "*at home, I'm in charge. I set the rules*" (P2), enabling them to flexibly accommodate their disability in privacy without having to consider others. In comparison, management strategies could be suppressed in an office where participants were wary of standing out or experiencing judgement from their colleagues and feeling pressure to conform, thus exacerbating health difficulties: "*I'm always very conscious that I don't want to take advantage of my disability. . . because 'oh [P2] needs this'. . . so I try to fit in*" (P2). Therefore, homeworking minimises both environmental and cultural barriers that impede disabled people's access to and experience of work as proposed by the social model of disability [14].

3.1.2. Improving professional and personal opportunities

Some participants stated the option to telework enabled them to continue working, since in-person work was no longer feasible for disability reasons. This was not only recognised as a professional opportunity, but the value from contributing to society through teleworking fulfilled participants' perceived responsibility to prove their capabilities and created a buffer for their self-esteem in a society that stereotypes people with disabilities as "*useless*" (P4):

> *It's not just about earning a living, but being able to feel useful as a disabled person. . . I think so many people in society sadly still believe that because you're disabled, it also means you're useless. . . I have a hard enough time trying to prove to other people. . . it isn't true.*

This ineffectual bias has been documented by Haque and Stein [39], where people with disabilities are regarded as having lower competence. The pressure expressed by some participants in the current study to prove the competency of the disability community paired with the hyper-flexibility in work schedules and environments of telework elevated overcompensation and burnout, as seen with P4, "*they'll say it's a one-pager, I would always go like two and a half just to prove*". To demarcate boundaries between work and personal time inherent in an office but absent when homeworking, many participants described active efforts requiring "*self-discipline*" (P8) to enforce regular breaks, turn off devices and notifications after office hours, or set up a dedicated home workspace if they had the room to properly "*switch off*" (P9) from work.

Most participants, however, emphasised an improved work-life balance. Homeworking provided the flexibility to pursue meaningful personal opportunities previously unimaginable around in-person work due to the time and recovery demanded by commuting. Such opportunities subsequently encouraged personal growth and well-being benefits. For example, P8 stated that the opportunity to take up a voluntary role in the disability rights space was "*hugely beneficial for my personal development, my career development, pursuing something that I've cared about for such a long time*". This conflicts with the quantitative findings of Hoque and Bacon [14], who identified decreased work-life balance for teleworkers with disabilities. However, differences between studies could be explained by the survey-based quantitative measures employed by previous research, which lacked differentiation between type or severity of disability, and hybrid and teleworking arrangements of respondents, all of which could lead

to differing implications for employees with disabilities.

3.1.3. Work better tailored to individual needs

Many participants highlighted the additional flexibility provided by having both options of in-person and teleworking available. This hybrid model afforded higher autonomy to tailor the method of work to better accommodate fluctuating pain, fatigue, and access needs. For example, P4 commented:

> *Having that option to go, 'I can come in' or 'Do you mind if I stay at home, but still participate?', it makes you feel valued as an employee to know you might not be able to actually join face-to-face, but that doesn't mean your voice isn't valuable.*

Being presented with both options engenders an inclusive culture, making participants feel understood and respected in terms of both their needs and contributions. However, some participants stated that hybrid working was not feasible due to transport challenges, highlighting the importance of individual choice over the extent of homeworking. Participants also expressed the struggle of contributing during hybrid meetings, especially prior to COVID-19, unless there was conscious effort by colleagues in the office to ensure those joining virtually are included and heard: "*We wouldn't hear what anyone else has said and our ability to contribute was really quite difficult*" (P5). With hybrid working likely the future, extensive investment and training are necessary for these different contexts to effectively manage accessibility issues raised by a combination of in-person and virtual presence [40].

Additionally, it remains important not to mistake hybrid working for fully flexible working, which empowers employees to control when and how they work [4]. Foster and Hirst [4] highlighted flexitime as important for further accommodating fluctuating pain and management of disability, echoed by P7, "*what does help more than teleworking is the flexitime in the organisation generally... it allows me to go to the doctors*". Participants could, however, easily supplement homeworking with additional work adjustments they required, which was previously less feasible alongside the rigid nature of office work, "*because you have to work around who's in the office*" (P8). In addition to flexitime, P3 described split shifts that enable them to "*rest and recover*" during a workday and phased returns after absence that allow re-acclimatisation to working hours. This supports the proposal by Anand and Sevak [41] that expanding the choice of available adjustments may support retention of employees with disabilities through enabling customisation of work experience to suit individual needs.

3.2. Teleworking is not a panacea for resolving the disability employment disadvantage

Teleworking is widely assumed to be automatically accessible, neglecting the physical, virtual, and social barriers teleworkers with disabilities face [17].

3.2.1. Creating an accessible physical environment

Participants were often responsible for identifying, requesting, and implementing adjustments for their work environment and equipment to meet their accessibility needs when homeworking: "*I don't think enough thought was given to people in situations like mine initially*" (P7). This supports previous research findings that neurodivergent teleworkers commit considerable time and effort to configuring a home workspace conducive to their wellbeing and productivity, such as limiting surrounding noise and controlling light sources [9]. The current study extends the literature by detailing the differing adjustments employed by teleworkers with physical disabilities, such as through-floor lifts and grab-handles to aid mobility, adjustable desks and chairs, screen raisers and wrist rests to alleviate pain, and specially designed earpieces, keyboards and mousepads to conserve energy and enhance efficiency. For example, according to P5:

> *I don't have any use to my fingers. So, in my rehabilitation, that's how I learned to type and therefore, I can type very quickly that way [with an Apple keyboard]. And if I'm using a traditional keyboard, it takes me ages.*

These findings lend further support to the social model of disability, whereby society is largely designed for people without disabilities, physically and technologically excluding otherwise skilled and motivated people [42].

Participants also discussed conflicting needs; P6, whose manual dexterity is affected by cerebral palsy, required a keyguard to prevent unintentionally pressing keys, while P8, whose voluntary muscles are weaker from spinal muscular atrophy, needed a light touch keyboard to minimise strain, acknowledging that "*what works for me wouldn't necessarily work for someone else*". This demonstrates the importance

of consulting and considering all individual needs, as blanket rules are insufficient.

Problems arose when home adaptations were not possible, with participants having to move house or endure an inaccessible home arrangement. Overcoming this 'architectural discrimination' [43] came at great financial and/or emotional costs, including loss of autonomy for P8, who cannot open manual doors independently, "*None of the doors are automatic. I'm in rented property, so I can't make any adaptations to that... You kind of feel like you're trapped*". The need to redesign appropriate housing to increase independence and enable people with disabilities to participate fully in working life has also been highlighted by Martel and colleagues [44].

Many of the adjustments were provided by employers as reasonable work adjustments or were publicly funded. This was a key facilitator in participants' ability to create an accessible homeworking environment during and beyond the pandemic. However, participants noted that access to governmental grants are inequitable, meaning some people with disabilities cannot obtain aids to make homeworking accessible depending on their location and financial situation:

> *When I moved here three years ago, it cost me £ 400 just to buy grab handles, which helped me to get around my home, which Mrs. Average might not be able to do. Whereas in London, I got them all for free.* (P2)

3.2.2. Accessibility in the virtual environment

Participants actively researched and independently implemented creative strategies to improve accessibility of digital spaces and hence work performance, driving technical innovation [9]. For example, P6 shared:

> *I read on AbilityNet years ago that I can use autocorrect and expand it in Word to speed up typing. I have a whole personal shorthand system with hundreds of abbreviations that I use, so when I type, I type in shorthand, and it corrects it as I go along.*

Other strategies required collaboration and awareness of accessibility practices among colleagues without disabilities to be successful, highlighting that access is not solely created by technological features but also through interaction between people and technology [45]. For example, P6, whose speech is affected by cerebral palsy, stated "*it can also be liberating to drop things into the chat feature without needing to speak as long as the meeting is being run accessibly and someone is monitoring and reading out comments*". As such, where accessibility practices are not yet normalised, colleagues without disabilities play a crucial part in actively creating more inclusive and equitable workplaces, replicating findings by Das and colleagues [9] in their study of USA-based neurodivergent homeworkers.

Participants stated that company software and systems were often not introduced with accessibility in mind, requiring a large shift in protocol and attitude to rectify this. Consequently, P10 recommended that:

> *All major video conferencing software needs to have as standard as many custom combinations as possible. Things like captioning and the ability for people to put transcripts and recordings... I think sometimes it's a bit of variation between the platforms.*

The normalisation and standardisation of a spectrum of accessibility features can improve videoconferencing platforms by ensuring inclusivity and flexibility in supporting conflicting access needs without disclosure of one's disability. This is consistent with the concept of 'universal design' [46], where technology is designed to be compatible with all users from the beginning, rendering accommodations or assistive technologies redundant as users can independently customise the platform to suit their needs.

3.2.3. Disabled teleworkers as "second-class workers"

Participants feared the new norms of hybrid and teleworking triggered by COVID-19 could create a less inclusive future that exacerbates discrimination against employees with disabilities. Employers could exploit telework as an excuse not to invest in making offices accessible, forcing employees with disabilities to telework permanently, and excluding them from the work culture:

> *I do think for disabled teleworkers there is a danger that they become a little bit of second-class workers... when there are in-person things or things happening in the office, rather than wanting to make those spaces accessible as well, I think there's a danger that people will say like, 'oh, but you're fine at home'*. (P10)

In support, a study involving UK-based legal professionals with disabilities also highlighted the

importance of having the choice to work remotely and in-office [4]. Therefore, Foster and Hirst [4] concluded that it is crucial to avoid creating new exclusionary practices by limiting and assuming where people should work.

Participants were concerned over the segregation and exclusion from many employees without disabilities returning to in-person work as restrictions imposed by COVID-19 lessen, while some employees with disabilities remain exclusively teleworking: "*it felt very 'them and us'. . . like we were othered from the people in the office*" (P8). Despite research showing that many homeworkers feel socially isolated [14], this is compounded for people with disabilities by the greater ostracism they experience in society [15], with P1 stating that "*you get into like kind of a shell*" due to the lack of interaction and limited participation afforded by teleworking.

Participants also discussed the professional implications, whereby the lack of proximity and visibility with managers may be detrimental to work relationships, training, and progression. This may lead to a hierarchy that favours in-person workers over teleworkers, which could compound discriminatory employment outcomes where a disproportionate number of teleworkers are disabled. Participants noted this would be exacerbated for less experienced employees: "*if you're a relatively junior employee, which I am, it's hard to be seen by managers because you're not physically there*" (P7). This echoes the notion of social stigmatisation, where diminished social capital and professional advancement results from the limited physical presence when homeworking [18]. This highlights the pitfall with governments assuming that teleworking is the panacea for resolving the disability employment disadvantage.

Therefore, participants emphasised the importance of commitment from employers to integrate homeworkers into the work culture and actively create an environment that values all employees:

> *You have to make sure that the employer understands that reasonable adjustment isn't just you can work from home, it's you can work at home, and I will put in the effort to build rapport. . . to train you. . . to make sure that your wellbeing and working environment is suitable*. (P5)

This supports previous findings that company climate has a large influence on employees with disabilities [47], where a culture of inclusion involves flexible, supportive, and innovative approaches to maximise productive outcomes for all employees [19].

3.3. The teleworking norm as "a new dawn for accessibility"

With the pandemic causing a teleworking revolution, participants discussed various potential implications for workplace accessibility and stigma of teleworking and disability post-COVID.

3.3.1. Normalisation of telework by COVID-19

Participants consistently reported that COVID-19 has made telework more commonplace, challenging long-held stigma and unproven assumptions of diminished productivity: "*it's removed the stigma that if you are doing teleworking, you're not working properly. So, I think it's definitely made it much more palatable*" (P10). Many participants appreciated the opportunity to prove that homeworking is an effective work practice, and, in some cases, more productive than in-person working due to fewer distractions from colleagues, enabling better concentration: "*I can sit very quietly and get on with my work and plough my way through it*" (P4).

Already conscious of being othered because of their disability, some participants discussed not wishing to exacerbate this by requesting to telework before COVID-19 when it was still a stigmatised exception requiring "*justification*" (P8). To avoid reinforcing negative stereotypes of people with disabilities as incapable, P9 felt forced to forgo honest conversations with employers about work adjustments at the expense of managing their disability:

> *Pre-COVID and everyone working virtually, I wouldn't have pushed to work virtually, even though it's way better for me and managing my disability, because of the preconceptions attached to it... that classic like asking for something and not being able to do my job because of my disability. . . So, it allows me to do my job to a better ability.*

By establishing a pro-telework culture where employers are accustomed to teleworking as a routine work practice for all workers [48], the pandemic socially levelled and destigmatised homeworking [17]. Therefore, participants felt able to be open with employers about their need to telework, improving their health while optimising their work performance. Participants valued these emerging safe spaces born from the shared "*trauma*" (P9) of COVID-19,

enabling them to disclose access needs previously suppressed by organisational culture. Consequently, participants appreciated the significant increase in awareness and workplace support surrounding the isolation of teleworking: "*there was no thought about a person's physical or mental health whatsoever, where now they have a whole wellbeing hub*" (P3).

However, some participants stated that "*it's hard not to feel resentful*" (P7) that the shift to telework only transpired to accommodate everyone during the pandemic, when people with disabilities have been campaigning for teleworking for decades but were denied. As COVID-19 recedes, a privileged and ableist push to return to the norm is prevalent, as expressed by P4, "*I was thinking, 'is this a new dawn for accessibility?', and actually, as soon as we were allowed back in the office, 'no we can't do it from home anymore, come into the office*"', threatening the greater economic and social equality that began to emerge from teleworking opportunities. If telework returns to being a special benefit, participants question whether the recent surge in acceptance and wellbeing support will "*taper off*" (P8) for those that remain homeworking permanently. Saia and colleagues [12] advocate for the new flexible, where a cultural shift to widespread teleworking that can address the inequities laid bare by the pandemic should be the preferred outcome.

3.3.2. Visibility of disability

Some participants emphasised the increased availability of teleworking enables more people with disabilities the opportunity and confidence to become employed. The greater integration and visibility of employees with disabilities in the workplace could start to "*change those preconceptions that have been ingrained*" (P9), decreasing stigma and exclusion of people with disabilities in wider society. In contrast, other participants were concerned that the new pervasiveness of telework will be detrimental to the visibility and normalisation of people with disabilities. For example, P7 commented, "*they're not interacting and visualising people with disabilities as much. It can make disability a more alien concept*". Subsequently, the lack of in-person interaction between disabled and non-disabled colleagues may decrease familiarisation and solidarity, heightening stigmatisation of disability.

Participants also highlighted that their disability is less visible when teleworking, thus making for more equitable work dynamics with their disability removed from being a salient issue with colleagues:

> *When I'm sat in front of a computer screen, you can't see my wheelchair. So, it was levelling the playing field. I would often for the very first time ever say…'I just think it's fair I should tell you that I'm in a wheelchair', everybody just went, 'okay, all right then'…people are focused on my ability rather than my cerebral palsy.* (P4)

Participants benefited from being judged on their expertise and work rather than on negative disability stereotypes, supporting predictions by Schur and colleagues [15] in their survey-based study sampling homeworkers with disabilities in the USA. Participants in the current study felt empowered to choose if and how they wish to disclose their usually visible disability, extending findings from USA-based teleworkers with disabilities who chose not to use some videoconferencing tools, such as screen sharing, to avoid leaking cues that disclose their disabilities without their consent [17].

However, as teleworking can hide disability, participants suggested that it could also hinder awareness and understanding regarding accessibility needs and disability experience. Not only due to the limited visibility offered by screens, but options on videoconferencing platforms, such as 'mute' or 'video off', which mean people with disabilities can conceal the strategies they employ to manage their disability:

> "*You can mute yourself, like I do, if I'm giving instructions to the personal assistants. So, it's whether that masking is good for society or whether actually we should be celebrating the fact that people are different*". (P7)

Relatedly, Zolyomi and colleagues [49] found that participants on the autism spectrum consistently reported masking their autism by striving to adopt neurotypical norms and behaviours when videocalling. Therefore, employees living with a disability can fit norms of how a worker without a disability might behave by strategically masking differences during virtual meetings, potentially preventing diversity from being accepted and embraced.

This diminished visibility and interaction, paired with the high productivity afforded by telework, can undermine the impact of being disabled to others, consistent with reports of decreased workplace support from employers and colleagues by employees with less visible disabilities [50]. Consequences included refusal of vital work adjustments unless participants "*fight*" (P3) for what they need to be able to continue working, or even disciplinary action:

They don't see my struggles day in and day out. Therefore, my sickness isn't taken maybe as seriously as it should be. HR took me from no warning to a formal warning... because they felt like my absence wasn't real.

Therefore, Foster and Hirst [4] recommend that organisations implement disability awareness initiatives and appoint a dedicated disability officer to prevent teleworking from perpetuating disadvantage due to the various barriers disabled employees experience being overlooked.

3.4. Final reflections

This study represents a unique contribution to the literature as the first to focus on how people with physical disabilities engage with teleworking and the impacts of the pandemic. Practical insights for inclusive work practices and accessibility improvements for the physical, virtual, and organisational environments are presented. Not only relevant for employers wishing to recruit and maintain a diverse and talented workforce, such recommendations, which ultimately aim to shape an inclusive work culture, could also improve teleworking more generally. Afterall, true accessibility and flexibility benefit all [9]. With the opportunity to build back better from the pandemic, the findings support that a permanent cultural shift to a new flexible [12], where teleworking is commonplace, could support employment and retention of workers with disabilities by circumventing some of the physical and cultural barriers they face. However, similar to previous work [1, 14], the current study highlights the pitfalls with assuming that teleworking guarantees positive employment outcomes for people with disabilities. Therefore, the teleworking revolution should not replace the additional substantial action required to address persisting barriers faced by workers with disabilities.

3.5. Limitations and future work

As the study aimed to address the limited understanding of the experiences of teleworkers with physical disabilities based in the UK, the findings cannot account for cultural factors in other countries that may influence (tele)work practices. While the sample had reasonable diversity in terms of the types of physical disabilities, gender, age, occupation, and work status (i.e., full- or part-time), the 10 participants cannot cover the full range of physical disabilities, experiences, and practices of this community. Future studies would benefit from focusing on each physical disability in turn to identify nuances in teleworking experience, especially as conflicting accessibility needs were identified. Furthermore, the sample was not ethnically diverse, so findings cannot address whether teleworkers with physical disabilities across ethnic minority groups have similar experiences. Such consideration of intersectional experiences in future research has been recommended by Schur and colleagues [15]. While the current study focused on teleworking experiences of people with physical disabilities in employment, a recent review by Harpur and Blanck [42] proposed self-employed full- or part-time work, including contracting and freelancing, is increasingly popular among workers with disabilities, enabling greater control and flexibility over work schedules, but also presenting unique challenges. Thus, future research could elucidate how teleworking experiences may differ for self-employed people with disabilities, as well as explore whether any differences or similarities exist between those working full- or part-time.

While the study has generated some novel insights into the teleworking experiences of employees with physical disabilities post-COVID, many of the reported experiences were also applicable to those before and during the initial pandemic response. However, technologies and policies to support work are constantly developing. It is important to continue investigating the teleworking experiences and practices of employees with physical disabilities over time, with consideration to whether such workplace support remains a long-term organisational change [9]. In addition, participants in the current study who were hybrid working identified new challenges and prospects accompanying this model of work, with the visibility and integration of teleworkers with disabilities a particular concern. With hybrid working likely the future, research should focus on how hybrid workers with disabilities, and employees with disabilities that exclusively telework in a hybrid workplace, negotiate access.

4. Conclusion

The present study focuses on the underexplored experiences of teleworkers with physical disabilities, deepening understanding of the nuanced and conflicting effects that teleworking can have on workplace accessibility and inclusivity. Participants in the

current study embraced the higher flexibility over work schedules to improve disability management, health, and work performance. However, the importance of choice to work in-office and supplement teleworking with additional work adjustments, such as flexitime, to better tailor workdays to individual needs and improve inclusion, was emphasised. Furthermore, while participants appreciated the greater control over their home workspace, they were burdened with requesting and implementing various physical and virtual adjustments to remove barriers to accessibility and feared that employers would subsequently resist making office spaces accessible. In addition, while the pandemic arguably achieved great strides in normalising teleworking, participants questioned the endurance of such acceptance and support for those that remain homeworking as many return to the office. The potential for widespread teleworking to increase integration and reduce stigma of people with disabilities was clouded by concerns over the limited visibility of teleworkers. Active efforts by employers to create an inclusive work culture were identified as crucial to ensure that understanding of disability experience, normalisation of accessibility needs, and the professional development of employees with disabilities are not diminished by the decreased interaction incurred by teleworking. Consequently, teleworking is not a panacea for resolving the disability employment disadvantage, but as a springboard upon which further flexibility and choice can be built to shift rigid organisational practices to those that better accommodate individual employees in a post-COVID era.

Ethical approval

Full ethical approval was granted by Loughborough University's Ethics Review (Human Participants) Sub-Committee (Ref. 6707) on November 11th, 2021. All research activities adhered to the principles outlined in the Declaration of Helsinki of 1964 and its later amendments.

Informed consent

All participants provided written informed consent prior to entering the study, with each participant assigned a unique identifier (e.g., P1, P2) to maintain anonymity.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgments

The authors would like to thank each participant of this study, whose patience, trust, and generosity in sharing their time, knowledge, and experiences invaluably enriched the research. Further thanks to all organisations, charities, and disability activists who supported the recruitment and execution of the study.

Funding

The authors report no funding.

Supplementary material

The appendix is available in the electronic version of this article: https://dx.doi.org/10.3233/WOR-220622.

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