Remote Work Opportunities for the Persons with Disabilities: A Literature Review

Marcelle de la Roche1 | Vladimir Simovic2

1 Australian University in Kuwait, College of Business, Marketing Department, Mubarak Al-Abdullah Al-Jaber Area, Kuwait
2 Institute of Economic Sciences, Belgrade, Serbia
Scientific Research Center, Australian University, 72 GX+6.X5 West Mishref Mubarak Al-Abdullah Al-Jaber Area, Kuwait

ABSTRACT
This research represents one of the first literature reviews of remote work opportunities for persons with disabilities. Given the fact that persons with disabilities represent almost 15% of the total world population and that this category of people is facing huge challenges in terms of employment inclusion and risk of poverty, it is obvious that remote work arrangements provide excellent employment opportunities for persons with disabilities. This argument, in combination with the enormous growth of remote work platforms and digital entrepreneurship, represents a key reason for the rising interest of the research community in this topic. The aim of this research was to identify the current state of the academic literature in the area of remote work opportunities and persons with disabilities and to identify gaps in the current body of knowledge as a basis for future research recommendations. Insight, critique, and transformative redefinition of the current academic literature on remote work and persons with disabilities were applied to analyze and synthesize the literature. In total, around 80 articles were analyzed by theoretical focus, methodology, time, and geography. Google Scholar search was conducted during December 2022 using a comprehensive search strategy built around the following major topics: 1. persons with disabilities in the labor market, 2. remote work and the persons with disabilities, and 3. remote work capacity of the persons with disabilities. The results of this research show that the research on the remote work capacity of persons with disabilities is fragmented and that more studies covering different aspects of remote work opportunities for persons with disabilities are needed, especially those that will be quantitative in their nature and more integrative. This research has contributed towards a better understanding of the literature gaps in regard to remote work opportunities for persons with disabilities and points to some future research directions such as skills and competencies of persons with disabilities for remote work, the challenges of remote work for persons with disabilities, and the requirements of the remote work platforms and other remote work opportunities.

Keywords: remote work, persons with disabilities, capacity for remote work, employment inclusion

JEL Classification: J14; E24; F66; I24

INTRODUCTION

According to the World Health Organization (World Health Organization, 2022), persons with disabilities (PwD) represent the world’s largest minority, making up 15% of the total world population. Some PwD acquire disabilities through injury or chronic conditions, while others were...
born with a disability (Krahn et al., 2015). Many sources (Mitra et al., 2013; World Health Organization, 2022; Kadijevich et al., 2020) are showing that PwD are at much higher risk of long-term unemployment and consequently, poverty due to their health condition. The Internet, with its enormous offering of remote work positions and digital entrepreneurship, generates a huge potential for PwD to take part in a virtual labor market and generate stable income. Remote work opportunities existing on the Internet and created thanks to the continuous development of ICT and the advances in emerging technologies such as the Internet of Things, cloud computing, virtual reality, augmented reality, blockchain, machine learning, etc., provide almost equal opportunities to PwD and persons without disabilities to participate and compete on the basis of their skills and competences.

The research community showed initial interest in remote work opportunities for PwD in 1995 when (Hesse, 1995) investigated the rationale for telework application for PwD. Ever since that time, the authors have been investigating different aspects of remote work opportunities for PwD. Some authors investigated the readiness of PwD to work remotely (Schur et al., 2020), whilst others focused on self-employment and entrepreneurial opportunities for PwD generated by ICT (Raja et al., 2014). One research direction was oriented toward the virtual identity of PwD in remote work arrangements (Davis and Chansiri, 2019), whilst the other was focused on the digital divide that prevents PwD from entering the virtual labor market (Cho and Kim, 2022).

This research represents one of the first broad literature reviews of the remote work opportunities for the PwD. The aim of this research was to identify the current state of the academic literature in the area of remote work opportunities for PwD and to identify gaps in the current body of knowledge as a basis for future research recommendations. The research on the remote work opportunities for PwD obviously covers many different perspectives outside economics, such as psychological, social, health, etc. This research is primarily focused on the economic aspects of the remote work opportunities for the PwD, and in addition, the focus of the literature review was gathered around the following topics: 1. persons with disabilities in the labor market, 2. remote work and the persons with disabilities, and 3. remote work capacity of the persons with disabilities.

Insight, critique and transformative redefinition of the current academic literature on remote work and PwD were applied to analyze and synthesize the literature.

DATA AND METHODOLOGY

The purpose of the literature review as the methodological tool is to provide answers to certain research questions. The approach can be very specific, such as investigating the relationship between the two variables, or broader, such as investigating collective evidence in a certain research area (Snyder, 2019). Our approach was to use a literature review to investigate collective evidence in three research areas relevant to remote work opportunities for PwD. The investigated areas are as follows: 1. persons with disabilities in the labor market, 2. remote work and persons with disabilities, and 3. remote work capacity of persons with disabilities. Each of the relevant research areas was investigated to identify the state-of-the-art gaps in collective knowledge of the relevant research areas and to provide recommendations for some future research that will enable advances beyond the state of the art and shed some new light on our understanding of remote work opportunities for PwD.

The search was conducted in December 2022 using Google Scholar database. Articles from 1995 onwards were searched since the first article on telework opportunities of the PwD was published that year (Hesse, 1995).

Search strategies employed for identifying the relevant literature sources are presented in Table 1.
Table 1. Search Strategies used to identify relevant literature sources

<table>
<thead>
<tr>
<th>Name of database</th>
<th>Google Scholar</th>
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<tbody>
<tr>
<td>Search keywords employed</td>
<td>(“Persons with disabilities”) OR (“Disabled persons”) OR (“Disabled people”) AND (“labor market”)</td>
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<tr>
<td></td>
<td>(&quot;Persons with disabilities&quot;) OR (&quot;Disabled persons&quot;) OR (&quot;Disabled people&quot;) AND (&quot;remote work&quot;) OR (&quot;remote platforms&quot;) OR (&quot;digital entrepreneurship&quot;)</td>
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<td></td>
<td>(&quot;Persons with disabilities&quot;) OR (&quot;Disabled persons&quot;) OR (&quot;Disabled people&quot;) AND (&quot;remote work skills&quot;) OR (&quot;remote work competencies&quot;) OR (&quot;digital entrepreneurship competencies&quot;)</td>
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| Inclusion criteria | The study aims to investigate remote work opportunities for the PwD in the labor market Quantitative studies, qualitative studies and mixed-methods studies Full-text articles - open access |
| Exclusion criteria | The report language is not English Abstracts - restricted access to a full-text article |

| The total number of articles displayed after using the search keywords | 78 |
| The total number of articles identified after using inclusion and exclusion criteria | 38 |
| The total number of articles extracted after reading | 34 |

Source: Authors

The search strategy used to identify relevant sources was based on the use of relevant search terms (keywords) and inclusion and exclusion criteria as per the specifications provided in Table 1. After all selection criteria were applied, the final sample of 34 articles was analyzed and relevant conclusions and future research recommendations were provided.

RESULTS AND DISCUSSION

The employment of PwD has been a topic of great interest in the field of disability studies in the labor market. This literature review aims to provide an overview of the common themes that exist in the research on PwD and employment, including the barriers to employment for PwD, the importance of support for PwD in the workplace, the impact of government policies and public interventions, and the relationship between disability, employability and workplace environment. The literature will also examine the impact of age, financial incentives and the need for early detection and diagnosis to support special accommodations and requirements. The research also sheds light on differences between employed PwD and those without disabilities, while providing a comprehensive understanding of the issues and challenges faced by PwD in the labor market and ways in which these can be addressed. Working from home and telework as opportunities for PwD is also investigated with common themes related to the advantages and disadvantages of remote work, as well as the changes in employers’ perceptions of remote work since the COVID-19 pandemic. Finally, the study addresses the lack of literature and research on remote work capacities and skills required for future remote work for PwD.
The entire results and discussion part of this paper is organized around topics, which were identified as relevant for remote work opportunities existing in a virtual labor market for PwD and in line with the specified methodology.

**Persons with Disabilities in the Labor Market**

In several studies conducted in different countries, the participation of PwD in the labor market was found to be a prevalent issue. Toldrá and Santos (2013) and Castro et al. (2020) established that in Brazil and Spain, the lack of education and training, discriminatory attitudes, and unbalanced job opportunities were the universal barriers faced by PwD. Aoki et al. (2018), also in Brazil, discovered that while laws were in place to support PwD employment, they still faced discrimination and exclusion due to a lack of societal awareness and public policy enforcement. In Poland, Jabłońska-Porzuczek and Kalinowski (2018) observed similar prejudice and exclusion with an activity rate of only 17% for PwD compared to 55.9% for non-disabled individuals. These findings were also echoed in Thailand by Cheausuwantavee and Keeratiphanthawong (2021), with only 8% of PwD employed in the labor market. Strindlund et al. (2019) learned in Sweden that positive outcomes and attitudes towards PwD were achieved when employers viewed employability as independent of disability. In Romania, Angela (2015) established a disparity of 55 percentage points between PwD and those without disabilities in the employment rates. A later study by Hurjui and Hurjui (2018), also in Romania, shed light on the fact that early detection and diagnosis of disabilities as well as government-imposed financial penalties for not employing PwD helped with participation in the workforce. Birau et al. (2019) discovered that Romanian candidate age and unemployment allowances had a significant impact on employment duration, while the study by Halimatussadiah and Nuryakin (2017) in Indonesia established that grass root education and enforcement of laws related to PwD could lead to more integration and participation in the workforce.

The findings of research conducted on PwD in the labor force reveal a number of common themes, namely:

1. Barriers to employment, such as inadequate education and training, discriminatory attitudes, limited job opportunities and a lack of support from employers and society. Tang (2021), Jabłońska-Porzuczek and Kalinowski (2018), Cheausuwantavee and Keeratiphanthawong (2021), Castro et al. (2020), Acharya and Yang (2022).
4. The impact of factors such as education, financial incentives and support on employment rates of PwD. Castro et al. (2020), Acharya and Yang (2022).
7. The importance of early detection and diagnosis for identifying support needed for PwD. Halimatussadiah and Nuryakin (2017).
8. The impact of age, unemployment allowances and discrimination on employment duration for PwD. Birau et al. (2019)

Notwithstanding the extensive research conducted on PwD in the labor market, the topics in Table 2 below warrant further investigation.
Table 2. Future research recommendations – PwD in the labor market.

<table>
<thead>
<tr>
<th>Research topic</th>
<th>Future Research Questions</th>
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<tbody>
<tr>
<td>Persons with disabilities in the labor market</td>
<td>What are the global similarities related to strategies for supporting PwD in the workplace, including family support, individual support and community support? Aoki et al. (2018), Gröschl (2013), Acharya and Yang (2022).</td>
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<td></td>
<td>Discover the most successful strategies for increasing the capacity of PwD and providing better environments to allow them to be capable and competitive in the labor force. Birau et al. (2019), Gröschl (2013), Acharya and Yang (2022), Hao and Li (2020).</td>
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<td>Identifying the status characteristics that intersect with disabilities and surpass legislative boundaries to influence economic inequalities. Pettinicchio and Maroto (2017), Hao and Li (2020).</td>
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<td></td>
<td>Exploring the impact of how partnership-building between employers and rehabilitation specialists can be constructed to support the inclusion of PwD in the workplace. Strindlund et al. (2019), Aoki et al. (2018).</td>
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<tr>
<td></td>
<td>Determine the causal impact of education on the employability of PwD. Castro et al. (2020), Acharya and Yang (2022).</td>
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<td></td>
<td>Ascertain the heterogeneous effects on employability based on the type of disability. Acharya and Yang (2022).</td>
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Source: Authors

Remote Work and Persons with Disabilities

Understanding challenges faced by PwD in the workplace led to further research on the mode of work offered to PwD and subsequent studies on post-Covid-19 to identify opportunities for remote/telework. Telework has become prevalent in the 21st century and provides numerous benefits for PwD, including increasing employment opportunities, lessening commute timing and costs, improved work-life balance and better task completion. However, it also poses many challenges, such as disparities in telework opportunities and career development, particularly for those in blue-collar jobs. Furthermore, telework’s impact on job satisfaction, productivity and absenteeism varies depending on factors such as age, education level, type of job and company size. Technology plays a crucial role in telework and requires better training and education, especially for PwD. The COVID-19 pandemic has intensified the need for telework and has made it more accepted by employers and managers, but it requires further enhancement in technology and innovation. The hope is that this innovation will alleviate some of the difficulties faced by PwD, such as video calls, accessibility, and general technology usage, which results in social isolation and imbalances in work-life equilibrium.
Baker et al. (2006) identified the potential for telework to increase employment opportunities for PwD, but also noted the need for policies to ensure their inclusion in the workplace and minimize social isolation. McNaughton et al. (2014) noted problems with telework, such as blurring lines between work and home life and social isolation, but also the benefits of reducing commute time. Linden and Milchus (2014) found that telework was prevalent in white-collar jobs and was seen as a fundamental accommodation for PwD, but the rationale for telework was complicated and calls for better strategies to make it easier for PwD to work remotely were made.

In a report developed for The World Health Organization, Raja (2016) published a study on utilizing technology to bridge the gap for PwD and discovered that further innovation is required by technology vendors to make technology more accessible. The study by Buchholz et al. (2020) noted that the development of assisted technologies (ATs) lagged behind mainstream programs and relied on outdated operating systems, thereby limiting online collaboration while working remotely. Giovanis and Ozdamar (2019) studied the impact of flexible work arrangements on job satisfaction and found that, in most cases, it improved. Schur et al. (2020) learned that PwD were more likely to work from home due to the flexibility it offered, but faced challenges with work-life balance and visibility in the workplace. A study by Kruse et al. (2022) established that the COVID-19 pandemic may have improved conditions for PwD, but the impact was lower for blue-collar workers due to their jobs not being conducive to telework. Tang (2021) documented the advantages of telework for PwD, including flexibility, but also highlighted the challenges with technology accessibility. Accessibility to technology, as well as the economic impact of technology, were also identified as barriers to usage by Aleksandrova and Nenakhova in their Russian study (Aleksandrova and Nenakhova, 2019).

Exploration of remote work and PwD uncovered a number of common themes, such as:

1. The benefits and challenges of telework for people with disabilities (PWD), including increased employment opportunities, reduced commute time and cost, improved work-life balance and better task completion. Schur et al., 2020, Igeltjørn and Habib (2020), Moon et al. (2014), Baker et al. (2006), McNaughton et al. (2014).

2. The impact of telework on job satisfaction, productivity, and lessened absenteeism, which varies depending on factors such as age, education level, type of job, and company size. Linden and Milchus (2014), Giovanis and Ozdamar (2019), Moon et al. (2014), McNaughton et al. (2014).

3. The role of technology in telework and the need for better training and education in its use, especially for PwD. Tang (2021), Buchholz et al. (2020), Raja (2016), Shaw et al. (2021), Morris (2021).


5. The disparities in telework opportunities and career advancement for PwD, particularly those in blue-collar jobs. Kruse et al. (2022), Schur et al., 2020.

6. The social isolation, work-life balance, and disability-specific challenges faced by PwD while teleworking, such as difficulties with video calls, technology usage, and accessibility. Shaw et al. (2021), Aleksandrova and Nenakhova (2019), Das et al. (2021).

Based on the results of the investigation related to PwD and remote work, the authors of the papers reviewed concur that several aspects of the subject matter need further exploration and these topics are highlighted in Table 3.
Table 3. Future research topics – Remote work and PwD.

<table>
<thead>
<tr>
<th>Research topic</th>
<th>Future Research Questions</th>
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Source: Authors

Remote Work Capacity of Persons with Disabilities

Understanding how PwD fit into the labor force and how remote work can offer both benefits and challenges, the final part of the literature research was to identify the capacities and skills required for PwD when working remotely. Surprisingly, not much research has been conducted in this field of study. There has been a growing interest in the role of Information and Communication Technology (ICT) and Assisted Technology (AT) in the lives of PwD. A study conducted by Raja et al. (2014) explored the impact of ICT-AT training on PwD and found that the majority of respondents felt that these tools greatly improved productivity. Additionally, those seeking employment felt these technologies provided them with more opportunities and choices. The study recommended that policymakers and employers should provide access to these technologies, but with caution in matching the technology and the disability.

The research of Johannson et al. (2021) in Sweden on the Digital divide between PwD and those without found significant differences based on type of disability, gender and inclusive policies. Their study found that technological advancements for those with visual impairments had narrowed the gap in technology usage and that women with disabilities use both social media and the internet more than men with disabilities. The research also found that PwD who had been integrated into mainstream education and employment had more access to devices and were more willing to use technology compared to those who received special education.

Finally, König et al. (2022) conducted research in 15 European languages to explore the willingness of PWD to adopt emerging, assisted technologies such as robots, wearables, augmented reality, and location-based alerts. The results showed that the willingness to adopt these technologies differed based on the type of disability, with women showing a preference for robots. Surprisingly, there was no preference for technology usage based on respondent’s age and visually impaired individuals showed preferences for augmented reality tools. The study also found that people with mental health issues and multiple impairments were less willing to use technologies compared to those with mobility, hearing or visual impairments. Overall, the literature suggests that ICT-AT can have a positive impact on productivity, but the use of these technologies is influenced by a variety of factors. Further research is required, firstly categorizing each disability and then identifying the capacities and skills required to utilize the latest technological advancements.

Despite the growing trend of remote work, limited research has been conducted on the capacity of PwD to work remotely. The few existing studies highlight the need for further investigation, particularly with regard to technology, assisted technology and the digital divide depicted in the future research themes in Table 4.
Table 4. Future research topics – Remote work capacity of the persons with disabilities.

<table>
<thead>
<tr>
<th>Research topic</th>
<th>Future Research Questions</th>
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</thead>
<tbody>
<tr>
<td>Remote work capacity of persons with disabilities</td>
<td>Global studies on Assisted technologies, their classification, effectiveness and customization for each disability. Shaw et al. (2021), McNaughton et al. (2014), Morris (2021), Das et al. (2021), König et al. (2022), Johannson et al. (2021), Raja et al. (2014). Identify the impact of government intervention on innovation in the development of Assisted Technologies for PwD to work remotely. Raja (2016), König et al. (2022), Raja et al. (2014). What causes inclusion/exclusion in the digital society for PwD? Johannson et al. (2021).</td>
</tr>
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Source: Authors

CONCLUSION

The primary goal of this research was to provide a summary of the current literature on PwD remote work opportunities, point to research gaps and provide a summary of critical areas for future research. The research was gathered around three specific research areas, which were identified as important for a better understanding of the remote opportunities existing in the labor market as a viable employment inclusion strategy for PwD.

In regards to PwD position in the labor market, the following topics were identified as the most prevalent: barriers to employment, prejudices and exclusion of PwD, governmental policies and the impact of various socio-demographic and contextual factors on different aspects of employment intentions, possibilities and arrangements of PwD. A clear need for future research related to creating the strategies for a greater employment inclusion of the PwD was identified and a summary of the future research directions in this regard was provided.

Our investigation of state of the art in the area of remote work and PwD revealed several research directions, starting from technological aspects of remote work for PwD, the benefits and challenges of remote work for PwD, to the impact of the COVID-19 pandemic on remote work opportunities for PwD. The lack of research tackling remote work arrangements for PwD from a country perspective as well as post-COVID-19 experiences of the PwD engaged in remote work arrangements, were identified and the relevant recommendations for future research were specified.

Our research proved that in the area of PwD remote work capacity, the current literature is very obscure and limited and focused mainly on PwD competencies to use different ICT, thus providing a huge research potential to fulfill this gap by conducting research oriented towards developing mechanisms to assess and build remote work capacity of the PwD.

The key limitation of this literature review is its approach. The complex topic of remote work opportunities for PwD must be investigated using a more methodological advanced approach to literature review, such as a systematic literature review based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) approach. The PRISMA approach to scientific research was developed as an evidence-based tool to improve transparency when conducting scoping and systematic reviews (PRISMA, 2023). It is rigorous and consists of a twenty-seven-item checklist. The PRISMA approach has been endorsed by many journals and adopted in their guidelines to authors. In addition, future research must be more focused on different aspects of remote work opportunities for PwD and less on the general position of PwD in the labor market.
ACKNOWLEDGMENTS

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<td>Accepted: 24.9.2023</td>
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