Review Article

Operationalizing workplace accommodations for individuals with disabilities: A scoping review

Vidya Sundar

OTR/L Occupational Therapy Department, University of New Hampshire, 4 Library Way, Durham, NH-03824, USA
Tel.: +1 603 862 0284; Fax: +1 603 862 0154; E-mail: vidya.sundar@unh.edu

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Abstract

BACKGROUND: The provision of workplace accommodations is a proven strategy in supporting individuals with disabilities at work. Accommodations include a wide range of supports and strategies that are not very well defined beyond the Americans with Disabilities Act in the United States. Understanding the landscape of accommodations is important to measure the impact of programs that support employment of individuals with disabilities.

OBJECTIVE: To conduct a scoping review and thematic analysis of research literature to identify how workplace accommodations are operationalized and to identify knowledge gaps in its conceptualization.

METHODS: Keywords searches were conducted in seven electronic databases. Title, abstract, and full text screening was conducted followed by a thematic analysis of the content to identify how workplace accommodations are operationalized.

RESULTS: Overall, 47 studies were selected for review. 433 different types of accommodations were identified, of which assistive technology and specialized equipment represented the most frequently reported type of accommodation (40%). A very small percentage of studies included policy changes (9%) and human assistance (5%) as an accommodation strategy.

CONCLUSIONS: This scoping review aims to clarify how accommodations are operationalized in the research literature. Key knowledge gaps identified include the systematic exclusion of certain types of supports or disability types.

Keywords: Job accommodations, work adjustment, employment, disability, work, ADA

1. Introduction

Work provides us with a sense of fulfillment, purpose, and enrichment beyond economic benefits. This is especially true for individuals with disabilities since employment meets several of their psychological, economic, and cultural needs [1, 2]. Being employed facilitates a perception of oneself that is less disabled and a greater sense of autonomy over his or her own life [3]. People with disabilities may need additional accommodations, supports, and services at their workplace to sustain their employment. Such accommodations include a wide range of supports such as personal assistance, technology (communication devices, ergonomic workstations), or changes in the built environment (ramps, accessible bathrooms and policy related solutions (flexible work schedules, teleworking) [4–6], and informal supports which are determined through the overall workplace culture and tacit norms.
Informal supports play a vital role in sustaining employment for persons with disabilities, but often go unnoticed or are under-represented in the accommodations literature. For example, communicating more directly and explicitly, performing frequent check-ins, creating a workplace environment that is welcoming and inviting of individuals with disabilities are ways in which an employee with a disability is not only “accommodated” but also valued in the workplace. While a wide range of supports are necessary to address the diverse needs of individuals with disabilities, the presence of a range of supports creates challenges in measuring the impact of accommodations in the workplace. Beyond the Americans with Disabilities Act (ADA), which mandates the provision of “reasonable accommodations” in the workplace, there are no parameters and no consensus around what constitutes workplace accommodations for individuals with disabilities. Reasonable accommodations as defined by the ADA and ADA as amended (ADAA) [7, 8] includes a wide range of supports so as to be applicable to large section of workers and job seekers with disabilities. In contrast, the research literature on workplace accommodations tends to be limited or fragmented by the type of accommodation provided or disability addressed [6, 9–13]. A clear understanding of how workplace accommodations are operationalized in current research literature is necessary before we begin to assess the effectiveness of workplace accommodations or measure the impact of federal and state programs and policies that support the provision of such accommodations.

1.1. Legislation in the U.S. supporting the provision of workplace accommodations

In the United States, the use of workplace accommodations gained prominence after the passing of the Americans with Disabilities Act in 1990 [7]. The concept of “reasonable accommodation” was emphasized in the 1990s by ADA Title I, which deals with discrimination against people with disabilities. Reasonable accommodations are necessary for a person with a disability to perform essential job functions (as opposed to marginal job functions) and provision of such accommodation should not cause “undue hardship” to the employer [7]. The ADAA further states that the use of mitigating measures such as technology and accommodations will not preclude any individual from being considered as having a disability [8].

There are several references to workplace accommodations in U.S. federal legislation ranging from assistive technology, reorganization of job tasks, and reorganization of the physical environment but none of the legislation provides an exact listing of all the various technologies and supports that can be considered as workplace accommodation. Under the ADA, reasonable accommodations are determined on a case-by-case basis, depending on the type of limitation the employee experiences and the resources available to the employer. A recent scoping review of the ADA highlights the virtually nonexistent research on workplace accommodations and the subsequent inability to draw conclusions on the impact on ADA-related workplace accommodations [14]. To complicate the situation further, not all accommodations are provided under the purview of the ADA. Employers and vocational rehabilitation professionals have implemented strategies like supported employment, natural supports, diversity inclusion, or affirmative action in hiring [15, 16]. These strategies are clearly beyond the scope of the ADA but benefit certain groups of marginalized employees including employees with disabilities. Another challenge in identifying what constitutes workplace accommodations is that there are widespread discrepancies in how employees and employers perceive accommodations; limited awareness and knowledge of accommodations, stigma associated with accommodations, and cost related concerns that weigh into the provision of accommodations in the workplace [17–20].

Given that workplace accommodations are a strategy to improve employment outcomes for individuals with disabilities and United States legislation supports the provision of a wide range of accommodations and supports for employees with disabilities, it is important to understand how accommodations are operationalized by employers and researchers in the U.S. Such an understanding is necessary before we can fully understand the impact of programs and policies that support workplace accommodations.

The primary purpose of this paper is to conduct a scoping review to examine the extent to which workplace accommodations is represented in research literature in the United States and to conduct a thematic analysis to identify the types of accommodations represented. The scoping review will be guided by the following three questions:

1. How are workplace accommodations for individuals with disabilities represented in the research literature based in the United States?
2. What are the different types of accommodations reported in research literature?
3. How does the provision of workplace accommodations vary among individuals with different types of disabilities?

This scoping review will serve as a preliminary assessment of the size and scope of published research related to operationalizing workplace accommodations for individuals with disabilities. While there are few other literature reviews and meta-analyses on the effectiveness of specific types of workplace accommodations (e.g., computer workstations, assistive technology) or the provision of workplace accommodations for specific impairment groups such as arthritis or mental illness [6, 21–24], what is lacking is a general understanding of the types and nature of accommodations provided across these studies. This paper examines the different types of accommodations as represented in research literature and further categorizes the accommodations based on their type. In doing so, this paper identifies knowledge gaps in research literature regarding how workplace accommodations are operationalized in the United States.

2. Methodology for literature review

Subject heading searches were performed in electronic databases including Medline, CINAHL, Psychinfo, ERIC, Academic Search Premier, Business Search Premier and Google Scholar. The search strategy used varied slightly depending on the database used. The primary search included subject headings such as “job accommodation”, “employment of the disabled”, “assistive technology”, “supported employment”, “architectural accessibility,” and “legislation”. Where available, the subject heading “explode” feature was used. This allows the search strategy to include all references indexed using narrower terms that are related to that particular subject heading. Where possible, the search criteria was limited to articles that were published in English language, in the United States, for adults over the age of 18, and published between 2001 and 2014 in peer-reviewed journals. The search strategy varied slightly depending in the options available in the database. The search strategy identified several articles in fields of vocational rehabilitation, rehabilitation counseling, mental health, and assistive technology. The initial search yielded 3357 articles including duplicates. Additional keyword searches were conducted in journals such as Work, Journal of Occupational Rehabilitation, and Journal of Vocational Rehabilitation to include 17 articles not included in the previous search. After deleting duplicate references 2457 articles were retained. Title and abstract screening was conducted to exclude non-relevant articles, especially opinion-based articles, and editorials. A total of 405 articles were retained following the title and abstract screening. Full-text review was conducted for the 405 articles and 197 were included in the initial review. The next step was content analysis to identify the primary theme of the articles required further screening. Only research articles that referenced workplace accommodations as a primary and recurring theme and not those that simply allude to accommodations in the text were included. Forty seven articles were selected for the final review. For this review, the definition of research was broad and included qualitative research, focus groups, case studies, surveys, experimental studies, and literature reviews. Narrative-based articles that were simply describing guidelines or ideas for providing workplace accommodations were not included because they did not meet the criteria for research and the accommodation was not actually provided in a real life setting. Similarly, articles describing lawsuits based on the ADA were not included for review since it did not meet the inclusion criteria for research. Reference list of key articles were scanned and studies that fit the review criteria were included. Forty-seven articles were chosen to be included in the final review. The citations were managed using Endnote Software Version X5. A flow chart explicating the search strategy is presented in Fig. 1.

One limitation of the above mentioned search strategy is that the search results are restricted to articles indexed under a particular subject heading in the database. In the absence of a subject heading that closely matches the topic under consideration, approximations of topic were used. For example, CINAHL includes “job accommodation” as a subject heading, whereas an equivalent term to describe workplace accommodations in the Medline database (using the MeSH subject headings) was not available. Instead, several combinations of closely related subject headings such as [1] “employment of the disabled” and “legislation” (to include articles regarding ADA related reasonable accommodations), [2] “assistive technology” and “employment of the disabled”, [3] architectural accessibility” and “employment of the disabled” and [4] supported
employment were used. Despite these limitations, the search strategy resulted in a comprehensive set of articles related to the topic under review.

The data extracted from the remaining 47 in this scoping review were entered into an excel spreadsheet using a rubric to identify the primary purpose, sample targeted, research method used and the type of disability addressed. Five categories of articles describing different types of accommodations were identified; accommodations that address: [1] physical disabilities; [2] sensory disabilities; [3] cognitive and psychiatric disabilities; [4] accommodations for more than one type of disability; and [5] employer perspectives of accommodations. Content analysis was conducted to identify the type of accommodations described in each of the articles, which were then categorized as [1] assistive technology and specialized equipment; [2] changes in the physical work environment; [3] modified job requirements; [4] changes in the workplace policies; and [5] human assistance. Articles classified by the type of disability and the accommodation types identified are presented in Tables 1 through 5.

3. Findings

This review included 47 articles published between 2001 and 2014. As shown in Table 6, many of the articles were describing accommodations used to address physical disabilities (n = 18); followed by multiple disabilities (n = 11); cognitive and psychiatric disabilities (n = 7). Seven articles focused on employer perspectives on providing accommodations. Most studies used small sample sizes and qualitative methods such as case study, focus groups, or structured interviews to gather information about accommodations and supports.
3.1. Analysis of the types of accommodations

The total number of accommodations specified in each study was categorized for each type of disability and the findings are presented in Table 1. The total number of accommodations identified was 433. The accommodations were categorized as [1] assistive technology and specialized equipment; [2] changes in the physical work environment; [3] modified job requirements; [4] changes in workplace policies; [5] human assistance; and [6] other. Examples of accommodations included under assistive technology and specialized equipment were use of footrests, ergonomic chairs, modified keyboards, augmentative and alternative communication mouth sticks, and arm splints. This category also included information in alternative format such as large print and written information. Changes in workplace policies included use of sick and vacation time, changes in hiring or interviewing procedures, creation of alternate pathways to promotion and performance evaluation. Human assistance in the workplace included job coaches, personal assistants, workplace buddies, and informal assistance from co-workers.

Overall, accommodations related to assistive technology and specialized equipment were the most frequently reported (40%) type of accommodation. For studies of physical and multiple disabilities, assistive technology and equipment accounted for close to half of all the accommodations used. The second most frequently identified type of accommodation was modifications in job requirements (16%). This type of accommodation was most often reported in studies of individuals with cognitive and psychiatric disabilities. The fewest number of accommodations were reported for individuals with sensory disabilities. It was interesting to note that modified job requirements were the most frequently reported type of accommodation from the perspective of employers.

The frequency of certain types of accommodations may reflect the availability and ease of procurement of these accommodations. For example, purchase of technology and equipment may seem like a simpler solution for some employers than changing policies that will affect all employees. Such policy changes need to consider the indirect and hidden costs for training and reorienting all employees to the new policies [25]. Overall, few studies reported changes in the built environment and in workplace policies. Very few accommodations were identified for individuals with sensory, cognitive, and psychiatric disabilities.

3.2. Accommodations for persons with physical disabilities

Eighteen studies focused on accommodations and supports used to address physical disabilities (See Table 2). The studies addressed a wide variety of physical disabilities such as arthritis, spinal cord injury, low back pain, multiple sclerosis, cerebral palsy, and neurological disorders that cause arm weakness. Although certain conditions like cerebral palsy and multiple sclerosis may affect multiple systems and cause limitations that are not just physical in nature, these articles were included under this category because the accommodations described primarily addressed limitations that were physical in nature. The studies chosen for review used a wide range of methods such as self-administered or mail in surveys [26–28], case studies [29], experimental studies [30], and review of existing databases [31].

Seven studies focused on workplace accommodations for individuals with different types of arthritis. The use of personal accommodation strategies and modifying the way in which the job was performed was the common theme among all five articles [27, 32–35]. A general lack of supportive workplace policies or variations in policies within technical, sales, administrative, and managerial positions was found.
<table>
<thead>
<tr>
<th>Article</th>
<th>Purpose</th>
<th>Sample</th>
<th>Disability</th>
<th>Method</th>
<th>Accommodations described</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allaire et al. [32]</td>
<td>To describe work barriers for employed persons with rheumatic diseases and to assess factors associated with use of accommodations</td>
<td>242 employed individuals</td>
<td>Rheumatic diseases</td>
<td>Experimental study, randomized controlled trial</td>
<td>Assistive technology and equipment (1); Changes in the physical work environment (1); Modified job requirements (4); Others (1)</td>
</tr>
<tr>
<td>Allaire et al. [33]</td>
<td>To examine the use of Americans with Disabilities Act (ADA) among individuals with rheumatic diseases and to identify factors associated with its use.</td>
<td>240 employees at risk for work disability</td>
<td>Rheumatic diseases</td>
<td>Mail Survey</td>
<td>Assistive technology and equipment (1); Changes in the physical work environment (1); Modified job requirements (2); Others (1)</td>
</tr>
<tr>
<td>Baker et al. [26]</td>
<td>To identify the need for interventions and assistive technology to prevent computer use problems and accommodation strategies used by individuals with systemic sclerosis</td>
<td>2 participants with a diagnosis of Scleroderma and currently employed for more than 8 hours a week and with a self-perceived difficulty of working</td>
<td>Systemic Sclerosis</td>
<td>Descriptive study, self-administered survey</td>
<td>Assistive technology and equipment (2); Modified job requirements (4)</td>
</tr>
<tr>
<td>Baker et al. [27]</td>
<td>To examine the problems experienced by and accommodation strategies used by people with rheumatoid arthritis and fibromyalgia during computer use and to examine differences in accommodation strategies for different equipment items for each diagnosis</td>
<td>292 computer users with a diagnosis of arthritis (200 with rheumatoid arthritis and 92 with fibromyalgia) between the ages 45 and 64</td>
<td>Rheumatoid arthritis and Fibromyalgia</td>
<td>Descriptive study, mail in survey</td>
<td>Assistive technology and equipment (1); Modified job requirements (4)</td>
</tr>
<tr>
<td>Chen et al. [34]</td>
<td>To examine the associations between workplace policies and knee osteoarthritis in a community-based population</td>
<td>1639 individuals from a community based population, aged less than 65 years</td>
<td>Knee osteoarthritis</td>
<td>Descriptive study, face to face interviews and a clinical, functional and radiological examination</td>
<td>Modified job requirements (2); Human assistance (2)</td>
</tr>
<tr>
<td>Gignac et al. [35]</td>
<td>To understand arthritis related workplace changes using different theories of adaptation and behavior change as a framework</td>
<td>492 employed individuals with arthritis or osteoarthritis</td>
<td>Arthritis (rheumatoid and osteoarthritis)</td>
<td>Descriptive study, structured interviews</td>
<td>Modified job requirements (3); Human assistance (1)</td>
</tr>
<tr>
<td>Study Authors</td>
<td>Study Objective</td>
<td>Target Population</td>
<td>Accommodation Type</td>
<td>Study Design</td>
<td>Accommodation Categories</td>
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<td>Hedrick et al. [28]</td>
<td>To investigate the association between assistive technology (AT) cost, underwriting, ownership, use, employment, and employer accommodations for working age adults</td>
<td>civilian and veteran working age adults</td>
<td>Spinal cord injury or dysfunction</td>
<td>Descriptive study, telephone survey</td>
<td>Assistive technology and equipment (4)</td>
</tr>
<tr>
<td>Shaw et al. [69]</td>
<td>To describe the use of the Job Requirements and Physical Demands (JRPD) scale and a self-reported measure of ergonomics to improve job accommodations</td>
<td>101 workers who were returning to work</td>
<td>Work-related upper extremity disorders</td>
<td>Descriptive study; factorial design</td>
<td>Assistive technology and equipment (22); Changes in the physical work environment (3); Modified job requirements (6); Human assistance (1); Other (1)</td>
</tr>
<tr>
<td>Koviack [9]</td>
<td>To describe the implementation and evaluation of a medical and reasonable accommodation program to support nurses in a clinical center</td>
<td>Nurses experiencing functional limitation</td>
<td>Arthritis</td>
<td>Program evaluation, descriptive analysis</td>
<td>Modified job requirements (1)</td>
</tr>
<tr>
<td>Langton and Ramseur [29]</td>
<td>To explore the role of assistive technology resources and services to enhance employment outcomes</td>
<td>Four individuals with physical disabilities</td>
<td>Multiple sclerosis, Quadriplegia, Cerebral palsy</td>
<td>Descriptive study, case studies</td>
<td>Assistive technology and equipment (15)</td>
</tr>
<tr>
<td>McKinley et al. [38]</td>
<td>To examine the use of assistive technology and computer adaptations in the workplace for individuals with spinal cord injury</td>
<td>3 employed men with motor and sensory impairments resulting from a spinal cord injury</td>
<td>Spinal Cord Injury</td>
<td>Descriptive study, case studies</td>
<td>Assistive technology and equipment (9)</td>
</tr>
<tr>
<td>Schulze et al. [30]</td>
<td>To evaluate the effectiveness of four computer typing accommodations in enhancing the typing performance or comfort of adults with neurological disorders</td>
<td>Twelve adults</td>
<td>Neurological disorders that caused weakness and loss of arm movement or control</td>
<td>Experimental study, factorial design</td>
<td>Assistive technology and equipment (2)</td>
</tr>
<tr>
<td>Solovieva et al. [62]</td>
<td>To explore the perceived value of workplace accommodations from the perspective of employees who use Personal Assistance services (PAS)</td>
<td>45 individuals with disabilities</td>
<td>Not specified</td>
<td>Descriptive study, telephone survey</td>
<td>Assistive technology and equipment (3); Changes in the physical work environment (1); Modified job requirements (3); Human assistance (4); Changes in workplace policies (1); Others (1)</td>
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<thead>
<tr>
<th>Article</th>
<th>Purpose</th>
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<th>Method</th>
<th>Accommodations described</th>
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<tbody>
<tr>
<td>Stoddard and Kraus [40]</td>
<td>To understand how assistive technology and personal assistance services are arranged in the workplace and issues related to same</td>
<td>20 users of workplace personal assistants, 21 employers familiar with workplace PAS, and 19 employment organizations</td>
<td>Spinal cord injury, quadriplegia, vision impairments, brain injury</td>
<td>Descriptive study, structured phone interviews</td>
<td>Assistive technology and equipment (1); Changes in the physical work environment (1); Human assistance (3)</td>
</tr>
<tr>
<td>Targett et al. [39]</td>
<td>To describe how supported employment practices can be used to assist individuals with Spinal Cord Injury return to work</td>
<td>1 individual with spinal cord injury at C-5 level spinal cord injury</td>
<td></td>
<td>Descriptive study, case studies</td>
<td>Assistive technology and equipment (3); Human assistance (2)</td>
</tr>
<tr>
<td>West and Anderson [42]</td>
<td>To describe the use of telework as an accommodation strategy for employees with disabilities and to explore potential funding strategies for telework</td>
<td>Two employers who have instituted telework as a successful accommodation strategy</td>
<td>Physical disabilities including arthritis, lupus, pulmonary disease and diabetes</td>
<td>Descriptive study, case studies</td>
<td>Modified job requirements (1)</td>
</tr>
<tr>
<td>Yelin et al. [36]</td>
<td>To determine the frequency with which persons aged 51 to 61 and with musculoskeletal conditions receive workplace accommodations and to determine the association between accommodations and future employment</td>
<td>502 individuals aged 51 to 61</td>
<td>Musculoskeletal disorders</td>
<td>Secondary analysis of data</td>
<td>Assistive technology and equipment (1); Modified job requirements (4); Human assistance (1); Others (2)</td>
</tr>
<tr>
<td>Zolna et al. [6]</td>
<td>To collect information and review knowledge regarding accommodation of persons with mobility and dexterity impairments in the workplace and to extend the findings to impact the practice of universal design</td>
<td>NA</td>
<td>Physical impairments including traumatic injuries, paralysis, mobility impairments, dexterity impairments, musculoskeletal impairments, amputations, repetitive strain injuries and multiple sclerosis</td>
<td>Review of literature</td>
<td>Assistive technology and equipment (17); Changes in the physical work environment (9); Modified job requirements (7); Human assistance (1)</td>
</tr>
<tr>
<td>Article</td>
<td>Purpose</td>
<td>Sample</td>
<td>Disability</td>
<td>Method</td>
<td>Accommodations described</td>
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<tr>
<td>Gioia and Brekke [48]</td>
<td>To understand ADA knowledge and use of provisions from the “point of view” of young employees with schizophrenia</td>
<td>Twenty young adult workers</td>
<td>Schizophrenia</td>
<td>Mixed methods approach</td>
<td>Human assistance (1); Other (1)</td>
</tr>
<tr>
<td>MacDonald-Wilson et al.</td>
<td>To identify relationships between functional limitations, job accommodations, and demographic characteristics of persons with psychiatric disabilities</td>
<td>191 employees with psychiatric disabilities in 22 supported employment programs across three states.</td>
<td>Serious mental illness including schizophrenia or other psychotic disorders, affective disorder, schizoaffective disorder, anxiety, personality disorders and substance use issues.</td>
<td>Multisite, longitudinal, descriptive study</td>
<td>Modified job requirements (2); Human assistance (1); Others (2)</td>
</tr>
<tr>
<td>MacDonald-Wilson et al.</td>
<td>To examine the reasonable accommodations provided to individuals with psychiatric disabilities involved in a supported employment program</td>
<td>191 individuals with psychiatric disabilities, 204 employers and 22 service provider organizations</td>
<td>Psychiatric disabilities including schizophrenia or other psychotic disorders, affective disorder, schizoaffective disorder, anxiety, personality disorders and substance use issues.</td>
<td>Exploratory, descriptive, longitudinal, multi-site investigation</td>
<td>Human assistance (1); Changes in workplace policies (6); Other (3)</td>
</tr>
<tr>
<td>Rogan et al. [46]</td>
<td>To investigate the ways supported employment is being conceptualized and implemented by organizations that provide supported employment services, with a specific emphasis on natural supports within the workplace.</td>
<td>126 primary stakeholders of supported employment (employees, supervisors, employment consultants) in 39 worksites</td>
<td>Intellectual disabilities</td>
<td>Descriptive study, site visit observations, semi-structured interviews and document review</td>
<td>Human assistance (4); Changes in the physical work environment (1)</td>
</tr>
<tr>
<td>Tremblay [45]</td>
<td>To identify job characteristics and workplace practices conducive to the job success of individuals with bipolar disorder and to examine the interactions between employers and employees regarding workplace accommodation requests</td>
<td>Thirty nine adults in outpatient care</td>
<td>Bipolar I or II disorder</td>
<td>Descriptive study, mail-in survey</td>
<td>Assistive technology and equipment (4); Modified job requirements (5); Human assistance (2); Changes in workplace policies (3); Other (1)</td>
</tr>
<tr>
<td>Walls et al. [53]</td>
<td>To examine employment issues and workplace outcomes for individuals with substance use disorders</td>
<td>Cases files from the RSA database and 1365 case files from Jon Accommodation Network containing accommodations for substance abuse</td>
<td>Substance use disorders</td>
<td>Descriptive study, review of individual case data from Rehabilitation Services Administration and Job Accommodation Network databases</td>
<td>Changes in the physical work environment (1); Modified job requirements (3); Human assistance (1)</td>
</tr>
<tr>
<td>Wehmeyer et al. [47]</td>
<td>Review of literature to examine the impact of technology use on employment outcomes for people with intellectual disabilities</td>
<td>13 single subject studies addressing employment related needs of individuals with intellectual and developmental disabilities involving 42 unique individuals with intellectual disabilities</td>
<td>Intellectual disabilities</td>
<td>Meta-analysis of single subject studies</td>
<td>Assistive technology and equipment (1)</td>
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### Table 4: Accommodations for persons with sensory disabilities

<table>
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<tr>
<th>Article</th>
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<tbody>
<tr>
<td>Mendelson et al. [52]</td>
<td>To describe qualitative findings from a study that examined challenges and adaptations made by individuals who experience Scleroderma and continue to work</td>
<td>32 individuals experiencing Scleroderma for at least 2 years</td>
<td>Scleroderma</td>
<td>Qualitative study</td>
<td>Assistive technology and equipment (6); Modified job requirements (5); Changes in workplace policies (1)</td>
</tr>
<tr>
<td>Morata et al. [54]</td>
<td>To investigate the perspective of workers with self-reported hearing impairment and occupational noise exposure on hearing loss prevention at work including safety, communication, and ability to perform jobs. To understand supervisor perception of the challenges faced by and accommodations required by workers with hearing impairments.</td>
<td>31 workers and eight supervisors</td>
<td>Self-reported hearing trouble and occupational noise exposure</td>
<td>Descriptive study, Focus groups and in depth interviews</td>
<td>Assistive technology and equipment (3)</td>
</tr>
<tr>
<td>Trotter et al. [24]</td>
<td>To conduct a systematic survey of communication strategies and experiences of healthcare providers with hearing loss</td>
<td>32 healthcare workers with hearing loss</td>
<td>Hearing loss</td>
<td>Descriptive study: Survey</td>
<td>Assistive technology and equipment (16); Human assistance (2); Modified job requirements (1)</td>
</tr>
<tr>
<td>Wheeler-Scruggs [51]</td>
<td>To examine the work and independent living status of people who are deaf and have varying levels of low functioning</td>
<td>23 current or former consumers of VR services, of which 17 were employed</td>
<td>Deaf and hard of hearing</td>
<td>Descriptive study, structured interviews</td>
<td>Assistive technology and equipment (2); Human assistance (1)</td>
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A similar trend was observed by Koviack [59], who reported frequent use of modified job assignments (e.g., alternating work shifts, reorganization of work hours, and changing work schedules) to accommodate the functional limitations of workers with arthritis. Baker et al. [27] examined the problems and accommodation strategies used by individuals with rheumatoid arthritis and fibromyalgia. Very few participants modified their environment or used alternative equipment. Modifications in the job requirements were also the central theme of an experimental study of individuals with rheumatic disease [33]. More than 65% of the study participants experienced work-related limitations. The majority of the accommodations reported were related to assistive technology in the workplace. The major focus of the accommodations reported were related to assistive technology in the workplace. The majority of the accommodations reported were related to assistive technology in the workplace. The majority of the accommodations reported were related to assistive technology in the workplace. The majority of the accommodations reported were related to assistive technology in the workplace.
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<th>Accommodations described</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coble-Temple et al. [56]</td>
<td>To explore the concept of personal assistance services in the workplace for individuals with disabilities</td>
<td>Thirteen men and three women with disabilities who have current or past experience using worksite personal assistants</td>
<td>Deaf blind, visually impaired, paralysis, injury, psychiatric disability</td>
<td>Descriptive study, focus groups</td>
<td>Human assistance (1)</td>
</tr>
<tr>
<td>Conyers and Boomer [70]</td>
<td>To understand the patterns of use accommodation use among people with HIV/AIDS and to understand the factors that predict disclosure of HIV status to employers</td>
<td>84 participants with HIV/AIDS who were employed</td>
<td>HIV/AIDS</td>
<td>Descriptive study, survey research</td>
<td>Assistive technology and equipment (1); Modified job requirements (4); Human assistance (1); Changes in workplace policies (1); Others (2)</td>
</tr>
<tr>
<td>Gamble et al. [31]</td>
<td>Review of literature related to workplace assistive technology and to describe a model for the provision of assistive technology</td>
<td>Sample of telephone calls to the Job Accommodation Network between 1994 and 2004</td>
<td>Cross disability (behavioral, motor, neurological, sensory, brain injury, obesity, circulatory, diabetes, sleep apnea, hydrocephaly, asthma etc.)</td>
<td>Descriptive study</td>
<td>Assistive technology and equipment (2); Changes in the physical work environment (1); Modified job requirements (1); Human assistance (1); Changes in workplace policies; (3); Others (3)</td>
</tr>
<tr>
<td>Kaplan et al. [57]</td>
<td>To propose a new framework to help employers apply both business and common sense when evaluating the potential for telecommuting as an accommodation</td>
<td>Two individuals with physical and psychiatric disability</td>
<td>Physical disability – degenerative and progressive muscular weakness</td>
<td>Descriptive study, case studies</td>
<td>Assistive technology and equipment (7); Changes in workplace policies (1)</td>
</tr>
<tr>
<td>Shamberg [58]</td>
<td>To describe the role of occupational therapists in providing workplace accommodations</td>
<td>Two employees with a disability</td>
<td>Spinal cord Injury (paraplegia) and Visual Impairments</td>
<td>Descriptive study, case study</td>
<td>Assistive technology and equipment (5); Changes in the physical work environment (7); Modified job requirements (2); Changes in workplace policies (2); Other (2)</td>
</tr>
<tr>
<td>Steinberg et al. [59]</td>
<td>To provide recommendations to accommodate active medical school faculty with disabilities and to explore concerns of faculty with sensory and physical disabilities</td>
<td>Faculty from seven medical schools</td>
<td>Physical and sensory disabilities</td>
<td>Descriptive study, anecdotal data</td>
<td>Assistive technology and equipment (2); Changes in workplace policies (2); Others (2)</td>
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<tr>
<th>Article</th>
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<th>Disability</th>
<th>Method</th>
<th>Accommodations described</th>
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<tbody>
<tr>
<td>Williams et al. [5]</td>
<td>To understand the types of accommodations that are commonly used and to understand how those accommodations vary across age groups and functional limitations.</td>
<td>510 persons with self-reported disabilities who are currently employed or had been employed in the past</td>
<td>Motor, sensory and mental limitations</td>
<td>Descriptive study, online, telephone and mail-in survey</td>
<td>Assistive technology and equipment (19); Changes in the physical work environment (4); Modified job requirements (1); Human assistance (4); Changes in workplace policies (1); Others (1)</td>
</tr>
<tr>
<td>Yeager et al. [55]</td>
<td>To identify barriers to employment and examine the role of job related assistive technology to overcome such barriers</td>
<td>333 focus group participants and 1507 survey respondents</td>
<td>Mobility and other physical limitations, sensory limitations, speech impairments, cognitive impairments and mental health issues</td>
<td>Descriptive study, focus groups followed by mail in survey</td>
<td>Assistive technology and equipment (17); Changes in the physical work environment (3); Human assistance (5); Changes in workplace policies (3); Others (1)</td>
</tr>
<tr>
<td>Zwerling et al. [4]</td>
<td>To describe the nature of workplace accommodations and the factors associated with the provision of workplace accommodations in the US</td>
<td>Cohort from the 1994-95 National Health Interview Disability Supplement (NHIS-D) who reported a variety of functional limitations, ADL difficulties and impairments and who were 18–69 years of age</td>
<td>Cardiovascular, musculoskeletal, respiratory, sensory, mental health conditions</td>
<td>Descriptive and exploratory study, secondary data analysis</td>
<td>Assistive technology and equipment (11); Changes in the physical work environment (5); Modified job requirements (3); Human assistance (3); Others (1)</td>
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<td>Bruyère et al. [63]</td>
<td>To summarize information from literature and findings from survey on how employers of different sizes comply with ADA and how rehabilitation practitioners can contribute to the information and technical assistance needs of small employers.</td>
<td>813 survey respondents who were members of the Society for Human resource Management (SHRM)</td>
<td>Not specified</td>
<td>Descriptive study, survey of HR professionals</td>
<td>Assistive technology and equipment (3); Changes in the physical work environment (2); Modified job requirements (2); Human assistance (1); Changes in workplace policies (2)</td>
</tr>
<tr>
<td>Misra et al. [71]</td>
<td>To understand critical issues related to the recruitment, management, and provision of Personal Assistant Services in the workplace.</td>
<td>75 employers who were registered in the Job Accommodation Network</td>
<td>Not specified</td>
<td>Descriptive study, focus groups</td>
<td>Human assistance (1)</td>
</tr>
<tr>
<td>Sabata et al. [61]</td>
<td>To understand the types and frequencies of workplace accommodations and to expand the knowledge base about workplace accommodations</td>
<td>Case files of 266 individuals who received vocational assessment</td>
<td>Motor and sensory impairments such as Spinal cord injury, visual impairment, cerebral palsy, traumatic brain injury</td>
<td>Descriptive study, retrospective analysis of case files</td>
<td>Assistive technology and equipment (8); Changes in the physical work environment (2)</td>
</tr>
<tr>
<td>Shaw et al. [64]</td>
<td>To examine aspects of supervisor involvement most valued by employees for post-injury recovery and return to work</td>
<td>30 employees from four companies working in physically demanding jobs</td>
<td>Present or past work injuries including lacerations, low back pain, upper extremity disorders and shoulder pain</td>
<td>Qualitative study conducted through interviews with employees</td>
<td>Assistive technology and equipment (3); Changes in the physical work environment (1); Modified job requirements (4); Human assistance (3); Others (1)</td>
</tr>
<tr>
<td>Solovieva et al. [62]</td>
<td>To assess the benefits of making workplace accommodations from the perspective of employers</td>
<td>229 employers who did not use the Job Accommodation Network</td>
<td>Motor impairments such as paraplegia, carpal tunnel syndrome, (59%), sensory impairments such as deafness, partial loss of vision (22), cognitive impairments such as traumatic brain injury, neurological disorder (6%), cardiac and respiratory disorders such as heart issues, poor circulation (4%), mental health issues such as alcoholism and depression (2%) and other issues like diabetes and allergies (2%)</td>
<td>Descriptive study, online Survey</td>
<td>Changes in workplace policies (1)</td>
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<th>Method</th>
<th>Accommodations described</th>
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<tr>
<td>Styers and Shultz [72]</td>
<td>To understand how the origin of a person’s disability, status of job applied for and the level of accommodation influences the perception of the reasonableness of testing accommodation</td>
<td>62 human resource employees in the public sector</td>
<td>Hearing impairment, head injury, visual impairment</td>
<td>Descriptive study, survey based on narrative vignettes</td>
<td>Assistive technology and equipment (1); Changes in the physical work environment (1); Modified job requirements (3); Human assistance (2)</td>
</tr>
<tr>
<td>Hernandez et al. [73]</td>
<td>To explore employer’s perceptions of accommodating workers with disabilities in the health care sector and the provision of accommodations and the extent to which it was reported by employees with and without disabilities</td>
<td>About 25 employers from the hospitality, retail and health care industry</td>
<td>Any permanent physical or mental impairment that substantially limits one or more major life activities.</td>
<td>Mixed methods study: focus groups and survey</td>
<td>Assistive technology and equipment (1); Changes in the physical work environment (1); Modified job requirements (3); Human assistance (2)</td>
</tr>
<tr>
<td>Schur et al. [17]</td>
<td>To examine accommodations requested and granted in eight companies</td>
<td>128 individuals from six organizations with 38–38,00 employees nationwide</td>
<td>Hearing, vision, cognition and mobility impairments</td>
<td>Individual and focus group interviews</td>
<td>Assistive technology and equipment (1); Changes in the physical work environment (1); Modified job requirements (1); Changes in workplace policies (1)</td>
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with spinal cord injuries [37–39]. In each of the three studies, the use of assistive technology was associated with positive employment experiences.

Two articles discussed the need for personal-care assistants at the workplace. Stoddard and Kraus [40] observed that employees used creative strategies to arrange for assistive technology and personal care assistants at work and often relied on informal social networks to do so. Solovieva and colleagues [41] reported that the use of accommodations and personal care assistants could boost the employment potential of individuals with disabilities. Once established, employees who use accommodations reported experiencing lower levels of functional limitations. West and Anderson [42] described telework opportunities, yet another type of accommodation available to individuals with disabilities. These opportunities are gaining popularity as an accommodation strategy for many individuals since it allows employees to customize their work experience and hours while also accommodating their limitations at the same time.

### 3.3. Accommodations for persons with cognitive and psychiatric disabilities

Seven articles addressed accommodations and supports for individuals with cognitive and psychiatric disabilities (See Table 3). Although, cognitive and psychiatric disabilities represent two distinct types of disabilities, the two were grouped together in this review because the types of accommodations and supports reported in the studies were very similar. In a scoping review of accommodations for mental illnesses, flexible scheduling, reduced work hours, modified training and supervisory practices were reported often [13]. The dependence on human assistance was a central theme in several articles. Human assistance is typically indicates assistance available through informal networks and natural supports in the workplace or the presence of paid job coaches and employment specialists. Two articles provided an extensive description of accommodations and supports for individuals with a wide range of psychiatric disabilities such as schizophrenia, affective disorder, and anxiety and personality disorders [43, 44]. In a longitudinal multi-site study of 191 participants, who received workplace accommodations, the authors documented 322 accommodations used by participants [44]. Presence of a job coach was the most frequently reported accommodation, followed by changes in the relationship to the employee, and changes in the way other people interact/intervene with that employee. Most of the accommodations that employees received involved some human assistance. Examples of accommodations that did not involve human assistance were changes in supervisory practices, modified job duties, and training less frequently. Trembley [45] emphasized the role of the employers in adjusting work assignments, job requirements, and changing workplace policies to address issues related to attendance, concentration, fatigue and exposure to alcohol or drugs in the workplace.

Two articles focused on the use of accommodations for individuals with intellectual and developmental disabilities. Rogan et al. [46] examined the perceptions of supported employment among employment specialists who worked in the field of developmental disabilities. A meta-analysis of single subject studies conducted Wehmeyer et al. [47] demonstrated the effectiveness and potential of technology for individuals with developmental and intellectual disabilities. Technology was used to support a wide range of work tasks and skills such as social skills, task sequencing and performance, food preparation, assembly, cleaning, and computer use. The presence of universal design features in assistive technology such as equitable, flexible, and intuitive use were reported in less than 60% of the devices. Assistance available through coworkers and the organizational structure and culture of the workplace play an important role in the success of the supported employee.

However, not all employees are aware of or understand the options available to them for workplace accommodations. Gioia and Brekke [48] used case studies of four individuals to illustrate how not being aware of ADA mandated accommodations can negatively influence employment outcomes among employees with schizophrenia. In some rare instances, employers and co-workers are willing to provide the needed supports without a formal request for accommodation. The authors described the phenomenon of “passive accommodations” where the individual defines their own job and the employers and coworkers follow along, often with a deep understanding of the employee’s needs although no formal evaluation was performed. For individuals with cognitive and emotional disorders, the use of supported employment strategies, job coaches, and natural supports has been shown to be very successful and several randomized controlled trials and meta-analyses attest to their effectiveness [49, 50]. Although several elements of supported employment, especially in the Individualized Placement Services (IPS) model are synchronous with
accommodations in the workplace, it was interesting to note that not many studies described supported employment as a workplace accommodation.

3.4. Accommodations for persons with sensory disabilities

Only four articles addressing accommodations for persons with sensory disabilities were included in this review (see Table 4). Although several authors have documented the importance of technology or other supports in assisting individuals with sensory limitations, those articles were not included in this review because the technology was not described in the context of workplace accommodations [31]. The articles included in this review addressed hearing impairments [24, 51] and scleroderma [52, 53]. Wheeler-Scruggs [51] used structured interviews to examine the availability of workplace accommodations for individuals who were deaf and low functioning. Study participants reported that workplace accommodations were virtually nonexistent and very few used assistive technology or emergency signaling devices. Virtually no one used TTY or a dedicated sign language interpreter. Most employees did not perceive the need to request accommodations or did not want to burden their employers or coworkers. Along the same lines, supervisors were not very aware of the accommodations available for workers with hearing loss or for these exposed to high levels of noise at work [54].

Mendelson and colleagues [52] emphasize the importance of a supportive workplace environment for individuals with scleroderma. Study participants had trouble getting to work, managing symptoms at work, navigating the physical environment and taking time off work. Despite these challenges, most participants had learnt to self-accommodate for their limitations. Those who were successful were in managerial or clerical positions compared to employees working in health care or “blue collar” positions.

3.5. Accommodations for persons with multiple disabilities

Eleven articles addressed accommodations for more than one type of disability. In this review, the term multiple disabilities is used to describe articles included different types of disabilities and does not refer to an individual experiencing multiple disabilities. Studies in this category used a wide variety of methods including online and mail in surveys [5, 55], focus groups [56], case studies [57, 58], and qualitative reviews [59]. The most frequently used type of accommodation was assistive technology followed by modifications in job performance.

Gamble et al. [60] reviewed a sample of telephone calls that were made to the Job Accommodation Network (JAN) between 1994 and 2004. Purchase of products or equipment, modification of equipment, and modification of the worksite were the top three recommendations provided to callers seeking information from the JAN. About 163 different assistive technologies were recommended to the 145 callers. Surveys of employees with disabilities indicated that personal accommodation strategies such as maintaining body position, moving around and personal assistive technology such as headsets or wheelchairs, followed by ramps, automatic doors, and ergonomic chairs were used most frequently [5, 55]. It was interesting to note that a very small percentage of participants in this study used job coaches and personal assistants.

Zwerling et al. [4] used data from the Disability Supplement of the Health and Retirement Study (HRS) to describe the nature of accommodations and factors associated with its provision. Survey respondents had a wide range of impairments and functional limitations including musculoskeletal, respiratory, and sensory impairments. Building related accessibility features such as handrails, accessible parking, and elevators were used most frequently followed by specially designed workstations. Coble-Temple et al. [56] investigated the use of personal assistance services in the workplace as an accommodation. Participants faced several barriers in the use of personal assistant services such as discrimination, lack of a formal procedure to request for workplace accommodations and negotiating job descriptions and tasks for the personal assistant.

3.5. Employer perceptions of workplace accommodations

Seven articles discussed the provision of accommodation from the perspective of employers. All seven studies employed large sample sizes and used focus groups of surveys to gather information from employers. Because of the large sample sizes used in these surveys, individuals with a wide range of disabilities were included in these studies [61, 62]. Sabata et al. [61] examined the types and
frequency of workplace accommodations provided to individuals with motor and/or sensory limitations. The authors reviewed over 250 case files of individuals who received accommodations and coded the accommodations received. Computer access related accommodations were most frequently reported followed by work tools and furnishings, and communication equipment. Strategies such as adjusted schedules; job restructuring and personal assistance were observed less frequently. This trend suggesting an increased reliance on assistive devices and technology was similar to that described previously for individuals experiencing physical disabilities.

In contrast, Bruyère et al. [63] observed that accessibility-related accommodations and flexible human resource policies were most often implemented by large companies. Smaller companies were more likely to perceive their employees as not needing any accommodations. Both large and small companies recognized the challenges in changing policies related to performance management systems and changing the attitudes of supervisors and coworkers towards employees with disabilities. Shaw et al. [64] asked employees about the role of supervisors in preventing workplace disabilities following an injury. Employees perceived the role of supervisors to include providing accommodations, being responsive, showing empathy, supporting and engaging in shared-decision making. Employees acknowledged the need for a positive role and support of supervisors to facilitate providing accommodations and preventing workplace disabilities. While most studies reviewed under this category focused on the services and supports provided by employers, Solovieva et al. [62] examined how employers benefit from providing certain accommodations. The findings reinforce the value of accommodations for employers. Employers observed the beneficial impact of accommodations in terms in higher retention of qualified employees, increased productivity decrease in training costs, and improvements in social interactions and overall morale within the workplace. Research in this area needs to be channeled to broader audience including management and human resource professionals [12].

4. Discussion

The purpose of this study was to examine how workplace accommodations are operationalized in current research literature and to identify the types of accommodations represented in literature by conducting a thematic analysis. Previous reviews of literature in this area were focused on certain types of disabilities like musculoskeletal disorders, psychiatric disorders or the effectiveness of certain types of supports like assistive technology or supported employment. This is the first attempt to comprehensively review and examine what workplace accommodations are used for individuals with a wide variety of limitations. As expected, a large number of studies identified were studies that addressed accommodations for physical disabilities, followed by articles that addressed more than one type of disability.

The types of accommodation described in the articles were largely dependent on the research design of the study. Majority of studies included in this scoping review were descriptive or exploratory in nature and used case study or survey methods, where workplace accommodations were elaborately described or listed. Experimental studies, on the other hand focused on one specific type of technology, such as arm supports [30] possibly because of the need to control and manipulate the accommodation variables in experimental studies impact the number of accommodations can be included in the study.

There is an overall agreement in the field that assistive technology and specialized equipment is considered as workplace accommodations. Ergonomic workstations, communication devices, and computer access devices were included in many studies and across various disability types. This review identified a limited use of organizational practices or human assistance as a workplace accommodation strategy, although such accommodations are well recognized within the fields of human resource management and organizational behavior. Human assistance as an accommodation strategy was limited to paid or formal assistance such as personal assistance services or interpreter services and did not include informal or natural coworker supports in the workplace. The cognitive and psychiatric disability literature offered an expansive interpretation of workplace accommodations in comparison to physical and sensory disability literature. The findings from this study are consistent with our conventional view of workplace accommodations as being a tangible piece of equipment or device that supports job performance.

Notably absent in the research literature was informal and nuanced supports provided by coworkers.
and supervisors that promote acceptance and integration of individuals with disabilities in the workplace. For example, coworkers who communicate in a softer tone of voice to reduce distractions for an individual with attention deficit problems or supervisors who informally model workplace socialization skills for an individual with developmental disabilities are often not represented in the literature on workplace accommodations. The question that remains unanswered is whether these behaviors represent a deliberate “workplace accommodation” or good management practices and positive interpersonal relationships in the workplace. This blurring of the boundary between certain behaviors and practices that are an inherent part of the workplace culture and a more conscious effort to accommodate a person with a disability presents a challenge in operationalizing and measuring workplace accommodations. Regardless of how informal supports are perceived, employers who provide workplace accommodations and promote an inclusive workplace culture are more likely to benefit in other areas such as increased social interactions between employees, increased overall company morale increased overall productivity [31].

This review did not identify studies of individuals with certain diagnostic conditions such as low back pain, learning disabilities, autism, amputations, or other limb disorders. This raises important questions about the conceptualization of disability itself and consequentially the workplace accommodations required by those individuals. For example, there is an abundance of literature on work supports for individuals with back impairments, but most of these articles do not refer to the supports as “workplace accommodations”. Strategies for supporting individuals with back pain are discussed from a disability prevention and management or return to work viewpoint. Similarly, workplace accommodations and supports for individuals with learning disabilities and autism are typically addressed from a “school to work transition” perspective. Studies regarding accommodations and supports for aging employees in the workplace were also notably missing. If indeed, certain groups of individuals or certain types of supports are systematically excluded from the current definitions of workplace accommodations, it warrants further examination of our perception and understanding of disability itself. Popovich and colleagues [65] found a huge discrepancy in what people believed to be a disability and what was legally considered a disability. Low back pain, alcoholism, diabetes, and psychological conditions were overlooked as disabling conditions even though they were legally considered disability. Furthermore, several studies have noted discrepancies in individual perceptions of reasonableness of accommodations requested by employees with a disability [66–68]. Consistent with these findings, the types of disabilities represented in this paper were more severe and limiting in nature, like spinal cord injuries, psychotic disorders, or intellectual and developmental disabilities.

Future research should identify and include a wider range of accommodations and supports across all disability types. The expanded definition of workplace accommodation should include interpersonal interactions and overall organizational climate and culture of the workplace. Rather than using task-specific approach for understanding accommodations, a person-centered approach will help redefine and expand our current perception of workplace accommodations. Employers and service providers working with individuals needing workplace accommodations, should ask themselves “how do we accommodate this person within the workplace context?” rather than accommodating a specific job task. By shifting the focus to the person rather than the job task or a specific limitation, organizations can demonstrate that they value all employees, gain the trust of all employees, and improve overall morale within the organization. Organizations that actively include and integrate persons with disabilities in its workplace benefit by increasing the workforce diversity, reducing employee turnover, and thereby reducing costs associated with hiring and training new employees.

One limitation of this study is that only studies conducted in the U.S. were included and caution must be used while interpreting results in an international arena. Further examination of the nature and types of accommodations and supports received and valued by employees with disabilities may help to further clarify the ambiguity around defining workplace accommodations. By classifying and mapping the different types of supports used by employees in the workplace, this scoping review disentangles some of the threads that are conflated in defining and understanding workplace accommodations. Accommodating individuals with disabilities in the workplace is a complex, individualized process that can only be achieved by combination of formal, informal, and natural supports coupled with the careful consideration of the employee’s needs and the workplace context as a whole.
Acknowledgments

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Conflict of interest

The author has no conflict of interest to report.

References


[65] Popovich PM, Scherbaum CA, Scherbaum KL, Polinko N. The assessment of attitudes toward individuals with


