"It's like a ramp for a person in a wheelchair": Workplace accessibility for employees with autism

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ARTICLE INFO	ABSTRACT
	Background, aims and methods: Participation in employment by individuals with autism spectrum disorders (ASD) remains restricted despite their high motivation and evident abilities. Challenges to employment result from personal characteristics and environmental barriers. This phenomenological research explores the accessibility of a competitive work environment according to the perceptions of adults with ASD. *Procedures and outcomes:* We conducted in-depth interviews with 19 employees with ASD, followed by a thematic content analysis. Three themes emerged: (a) the employees' motivation for employment, (b) challenges and abilities at work, and (c) workplace accessibility (types of accommodations, implementation process). *Results and conclusions:* The findings contribute a classification of accommodations that addresses the core characteristics of autism—challenges as well as abilities and motivations for employment. Four types of accommodations were identified: job-performance communication, attitudes and interpersonal communication, daily workplace routines, and physical and sensory environments. Hence, this study supports the centrality of environmental factors in successful employment of individuals with ASD. *Implications:* This study presents an evidence-based foundation for autism-related workplace accessibility. It offers an approach to enhance employees' abilities, strengths, and motivation for employment, as well as to decrease barriers and challenges. The findings may expand organizational policies regarding accessibility and thereby anchor workplace accommodations within organizations' corporate cultures.

What this paper adds?

This paper highlights the concept of workplace accessibility for employees with ASD in competitive employment. In line with growing literature on competitive employment for this population, the findings reinforce the need for reasonable accommodations that will decrease challenges and expand optimal conditions to manifest employees' strengths and abilities. The study contributes a classification of accommodations that could be incorporated as an integral part of an inclusive workplace-accessibility policy.

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1. Introduction

Successful integration in employment is a primary concern for many people because of its implications for their economic independence, personal identity, and development (Duggan & Jurgens, 2007; Friedland & Price, 2003; Tipping et al., 2012). Challenges associated with entering the workplace and obtaining a desired job are even greater for people with disabilities, who face stigma and negative perceptions regarding their ability to perform the job (Ren et al., 2008). Among the most disadvantaged groups in the employment arena are individuals with autism spectrum disorder (ASD), even when compared to individuals with other disabilities (Cederlund et al., 2008; Scott et al., 2015; Taylor & Seltzer, 2011).

Major persistent challenges in social communications and interactions and in restricted or repetitive behaviors, interests, or activities (RRBI) characterize ASD. The *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*) defines three levels of severity and functioning of people with autism according to the individual's impairment and support required: Level 1, needs support; Level 2, needs substantial support; and Level 3, needs very substantial support (American Psychiatric Association [APA], 2013). People in Level 1, such as this study's participants, usually do not have intellectual disabilities. Within the employment context, they may demonstrate personal characteristics such as high desire and motivation for employment (Baldwin et al., 2014; Hendricks, 2010), reliability, integrity (Gal et al., 2015), and often superior attention to details, work ethic, and work quality (Scott et al., 2017).

Although many employees with ASD have vocational-related strengths, the ASD core characteristics, such as challenges in social communication and RRBI patterns (APA, 2013), might present them with numerous challenges. Such challenges include inability to "read between the lines," understand directions, communicate appropriately, or follow unspoken social rules (Harmuth et al., 2018; Walsh et al., 2014). Thus, these social-communication characteristics emerge as primary hindrances to employment among individuals with ASD. In addition, the employees' RRBI may hinder performance or be poorly tolerated in a competitive workplace because people with ASD often behave in ways that differ from the typical employee image (Giarelli et al., 2013; Hendricks, 2010). Individuals with ASD therefore may benefit from workplace supports that target the challenges they experience. However, although the *DSM-5* definition of ASD established the levels of support required (APA, 2013), it did not elaborate on the nature or dimensions of the support needed to enhance participation of employees with ASD. Specifically, there is still a lack of evidence-based data regarding suitable and reasonable accommodations for these individuals. Thus, organizations lack accessibility policies that address the needs of employees with ASD.

Accessibility refers to the ability to reach, be mobile, be oriented in a place, use and enjoy services, receive information, and participate in programs and activities in an equal, dignified, independent, and safe manner (Americans with Disabilities Act [ADA], 1990; Israeli Equal Rights of Persons with Disabilities Act, 2005). Whereas the physical and sensory dimensions of accessibility and relevant accommodations for people with physical or primary sensory disabilities have been well acknowledged, its additional dimensions—those of receiving information and participating in social activities and services—have been relatively neglected (Iwarsson & Ståhl, 2003). Moreover, accommodation models or guidelines (e.g., clear daily routines and personal mentors during informal communication) for people with other than physical or sensory disabilities are still preliminary (Yalon-Chamovitz, 2009).

Reasonable accommodations are adjustments that allow people with disabilities to have equal employment opportunities as long as they qualify to perform the essential job functions and the required accommodations do not result in "undue hardship for the employer" (ADA, 1990). Providing accommodations in the workplace has proven important for employee job retention (Krause et al., 1998), satisfaction (Dreaver et al., 2019; Schartz et al., 2005), and performance (Hendricks et al., 2005). On one hand, providing accommodations relates to the employees' knowledge of accommodations and of their rights (Frank & Bellini, 2005) and, on the other hand, to the employees' self-advocacy and confidence in requesting the accommodations (Allaire et al., 2003; Dreaver et al., 2019). Providing accommodations also relates to the type and severity of the disability. Employers and coworkers are more prone to misunderstand people with nonvisible disabilities (as in ASD) and avoid providing them with accommodations (Williams et al., 2006).

People with ASD need workplace accommodations that address their unique characteristics (Fast, 2004; Hedley et al., 2017; Hillier & Galizzi, 2014). A recently published scoping review (Khalifa et al., 2020) demonstrated the contribution of environmental accommodations, especially those that address relationships and personal support within the workplace, to the positive work experience of employees with ASD. Similarly, Hayward et al. (2019) pointed to formal and informal relationships, clarity of communication, and inclusive attitudes of others as enablers to employment of persons with ASD. Other studies (Flower et al., 2019; Remington & Pellicano, 2019) described on-site support programs and emphasized the need to prepare managers and coworkers when including an employee with ASD in the workplace. Despite accumulating evidence regarding various workplace accommodations that address the needs of employees with ASD, an evidence-based classification of accommodations that addresses both environmental characteristics and job requirements is still needed. Such classification could assist managers and coworkers to use their knowledge of ASD practically and to promote the employees' self-advocacy to pursue their rights for an accessible workplace. In previous research, we examined employers' perceptions regarding reasonable accommodations for employees with autism. It revealed four types of environmental barriers and their corresponding accommodations, including those that address social and physical aspects of the environment and those that relate to the job requirements (blinded). However, allocating accommodations is a process that requires dialogue between the parties involved (Gold et al., 2012) hence, an understanding of the phenomenon from the employees' perspective is also needed.

The aim of this research was to explore the employment experience of employees with ASD. We specifically aimed to understand what an accessible working environment is, according to their perceptions, and to use this understanding to recommend best practices to enhance workplace accessibility that facilitates their work diligence.

2. Material and method

This qualitative study used a phenomenological approach to explore the phenomenon of the employees' employment experience and, specifically, workplace accessibility, from their in-depth personal perspectives. This approach is suitable for examining perspectives on phenomena comprising unique and complex social interactions that occur along an adjustment process (Creswell & Poth, 2017).

2.1. Participants

We used purposeful and criterion sampling to select participants who best represented the population experiencing the phenomenon under study and could relate to and describe it (Creswell & Poth, 2017). Inclusion criteria were employees who: (a) were officially diagnosed with ASD according to the participant's report; (b) had formal recognition of the ASD diagnosis by the National Insurance Institute of (blinded) or by the Ministry of Labor, Social Affairs and Social Services (blinded), and were eligible for support services; (c) worked in a competitive-employment setting for at least 6 months during the past year, with a minimum of 10 h per week; and (d) could verbally share their experience and participate in an in-depth interview. Exclusion criteria were significant physical disabilities.

We recruited participants through support-service providers in XXX (location blinded for review) via snowball sampling. The sample comprised 19 employees (11 men and eight women) with a mean age of 26.8 years ($SD = 3.75$). The majority (14) participated in supported employment programs. One (5.3 %) participant was married; three (15.8 %) reported maintaining lasting intimate relationships. Fifteen (78.9 %) participants graduated secondary education; the remaining four (21.1 %) completed 12 years of education. Nine (47.4 %) participants reported co-occurring conditions (e.g., learning disabilities or attention deficit hyperactivity disorder); however, ASD was considered their primary diagnosis. Table 1 presents participants' jobs according to the O*NET Online (2019) classification of occupations, gender, age, number of former workplaces, and co-occurring conditions. Coded names were used to insure anonymity.

2.2. Procedures

The Faculty of Social Welfare and Health Sciences Ethics Committee at the University of (blinded) and the (blinded) Ministry of Social Affairs and Social Services approved this study, and all participants signed informed consent forms. We assured participants' anonymity and confidentiality by coding and removing their identifying details and allowing them to withdraw from the study at any stage.

Coordinators of two main support services in the area made initial contact with the participants and explained the research goals. After the volunteers signed informed consent, the first author, a trained occupational therapist, sensitively conducted face-to-face, in-depth interviews in a quiet place of the participant's choice. The interviewer facilitated open and safe communication thanks to her familiarity with people with ASD and her experience in qualitative research. She had no earlier acquaintance with any participant. Each interview lasted 45−90 min and was recorded with the participant's permission. Participants were provided ongoing employment support services and offered public-support service contacts in the letter of consent. None faced emotional difficulties following

Table 1
Participants' Jobs and Personal Characteristics.

Job Family [a]	Participant (coded)	Gender [b]	Age	Former work experience [c]	Co-occurring condition
Office and administrative support	AL	M	29	1	
	GS	F	24	0	
	YV	M	27	2	
	NM	M	29	2	
	EL	F	25	1	
	TL	F	26	0	
	AD	M	22	0	ADHD, LD
	EY	M	28	2	
Food preparation and serving related	AS	M	26	1	ADHD
	LC	M	26	2	ADHD
	RK	M	27	1	ADHD
Sales and related	NB	F	24	0	ADHD, LD
	NA	F	24	0	ADHD
Education, training, and library	NL	F	33	2	Mild vision impairment
	MO	F	27	2	ADHD
Arts, design, entertainment, sports, and media	GL	M	25	2	
	DZ	F	41	0	
Helpers–production workers	YM	M	24	2	
Computer and mathematical	NY	M	26	4	ADHD

[a] Classified according to O*NET Online (2019) "job family".
[b] M = male; F = female.
[c] Number of former workplaces; ADHD = attention deficit hyperactive disorder; LD = learning disabilities.

the interview.

2.3. Research tools

We developed an interview guide based on an earlier pilot study. The guide's questions referred to a variety of issues relevant to the employment experience of people with ASD (e.g., job-seeking and recruiting processes, descriptive daily experiences and routines, challenges to performing the job, potential limiting and enabling factors, and accommodations). The open-ended questions provided a flexible framework that invited interviewees to lead the interview according to their perspectives while enabling the researcher to maintain conceptual and structural focus on the relevant issues to be studied.

2.4. Data analysis

Using Dedoose software version 7.0.23, we analyzed the interviews by examining thematic content in the participants' descriptions regarding their experiences, feelings, thoughts, and perceptions. The analytic process consisted of three stages (Corbin & Strauss, 2015): (1) initial analysis, in which citations from the interviewees' responses formed textual meaning units and were grouped into initial categories; (2) mapping analysis, which revealed similarities and divergence among the interviewees' responses, potential meanings, examples, perspectives, and best practices; and (3) focused analysis, in which the findings were conceptualized into three major themes.

All authors coded the first five interviews independently, resulting in 52 preliminary categories. We then merged them into new 22 final categories, which were used cautiously in mapping the remaining interviews through several brainstorming sessions. The first author ascribed significant examples of citations from all interviewees to demonstrate and validate each category. This process resulted in conceptualizing the three main themes and promoted the study's validity and trustworthiness alongside a thick and rich description of the participants, their work experiences, and contexts. Further trustworthiness was established by two focus groups that included three employers, four employees with autism, and four support-services professionals. These 11 participants validated the conceptual classifications of the accommodations presented and found them valuable for their own daily practice. Including a variety of stakeholders to share viewpoints on the phenomenon in such focus groups is a common triangulation method within phenomenological text analysis methods (Corbin & Strauss, 2015). Additional information on the focus groups will be published separately.
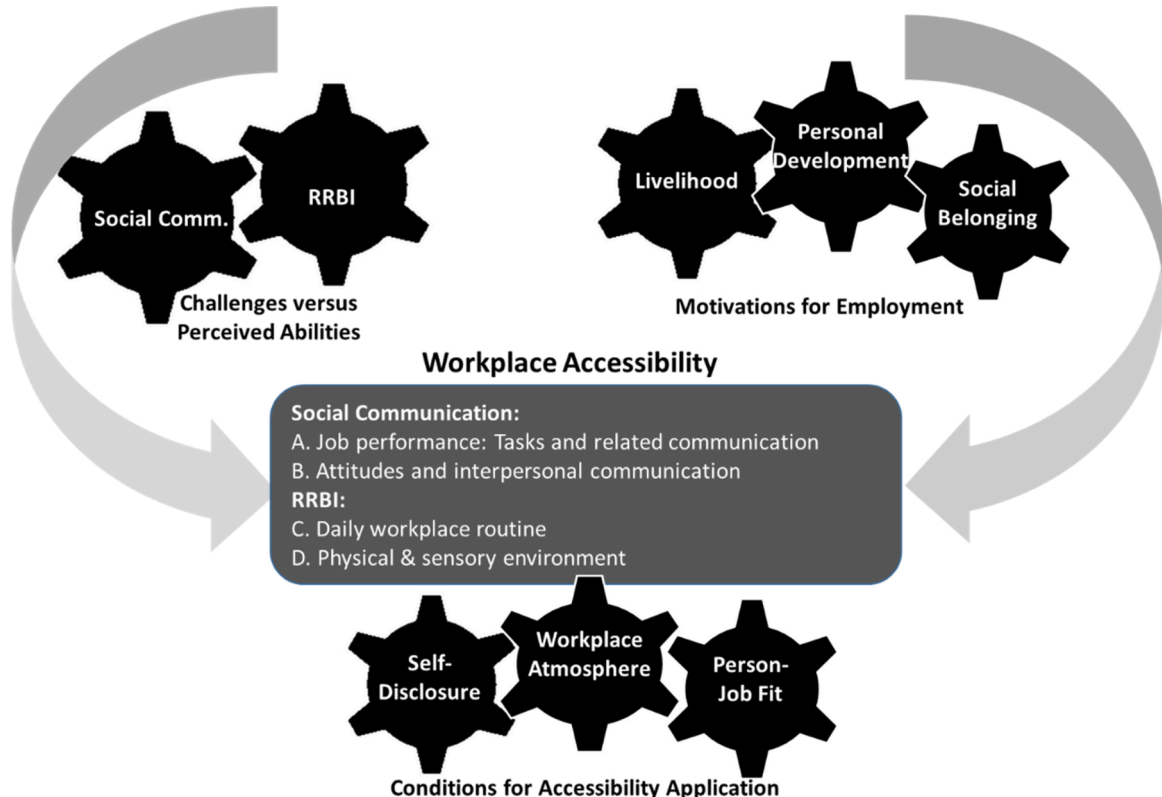

Fig. 1. The Study's Themes and Related Components.

3. Results

Three primary themes emerged: (a) employees' motivations for employment, (b) challenges versus perceived abilities, and (c) workplace accessibility, or the types of accommodations and their implementation process. Identified subthemes were interrelated and hence presented in Fig. 1 as gears. In the following text, direct citations illustrate the participants' perspectives in support of the themes.

3.1. Employees' motivations for employment

The first theme, motivations for employment, reflected three major motivations: livelihood (24 citations/12 participants), personal development (21 citations/7 participants), and social belonging in the workplace (24 citations/12 participants). Most participants related to the need to earn a living, for instance, "I want to earn money. I also need to pay rent, obviously" (NA). Some credited independence and autonomy for their ability to earn a living, such as participant GS, who added, "This is how I can live independently. This is my ambition to live independently."

The participants also echoed the opportunity for personal development, that employment facilitates, as a motivation for employment. Some participants highlighted opportunities to develop their own professionalism and achieve meaningful jobs. AL expressed:

I want to work in a job that has meaning. I'll give you an example: technical support or sales,. . . involves active work. You need to deal with yells and problems of customers. This is no fun;. . . you don't know how to help them.. . . But, on the other hand, whoever works in this kind of job does something! He contributes something to someone!

Other participants valued opportunities at work to develop their social skills and contacts. AD commented, "I go to work because it actually takes me out of my comfort zone,. . . which is to be with myself alone. . . and being with other people is an exit from the comfort zone." GL expressed his wish not to work on his own, in order to feel social belonging and avoid loneliness:

It is important for me to talk with people, to say hello, that I won't feel alone. I rather communicate with people than be all day long in front of the computer. So, we will be able sometimes to discuss various topics that are out of the work contexts if we can.

The motivations for employment the participants voiced reflected personal challenges such as social difficulties and developing independence and autonomy. In participants' perceptions, these could be promoted through employment experiences, together with their own abilities and assets.

3.2. Challenges versus perceived abilities at work

The second theme this study revealed was the challenges versus perceived abilities that employees with ASD described regarding their participation in employment. Both the identified challenges and abilities were associated with the *DSM-5* core characteristics of autism; that is, characteristics related to social communication and interactions and characteristics related to RRBI (APA, 2013). Participants echoed many challenges with social interactions and communication in the workplace. Some expressed their lack of interest in others (18 citations/10 participants). For example, NY ascribed his lack of interest to a fundamental difference between him and other people: "They were regular people, and I can't find interest in regular people. It is difficult for me." Participants also voiced their lack of social understanding (25 citations/13 participants), especially with nonverbal communication: "Nothing is obvious for me! People like us don't know these things if we are not told" (NA). NA's comment reflected the need for explicit communication, a need common for persons with autism in different contexts.

A few participants reflected on their work experiences and explained their motives for inappropriate social behaviors (8 citations/7 participants). For example, LC ascribed his inappropriate behavior as a waiter in a restaurant to his fundamental perception of food waste: "I can't stand that people throw [away] food, so I kept eating what people didn't finish. I was bothered by their behavior and didn't realize that my behavior bothered them." Finally, participants associated vulnerability and stress to vocational social circumstances and their effects on their work performance (24 citations/10 participants). NA explicitly indicated her vulnerability in ambiguous social interactions, such as those including sarcasm and humor: "I can be offended very easily. One can tell me 'I didn't want to hurt you. It was a joke.' But I don't understand it as he meant, although I try to train my brain to understand." Difficulties in managing stressful social situations were especially intensified and restricted the employees' job performance in situations that raised differences between the employees and their coworkers. NY explained, "When I work with someone who doesn't suit me, it bothers me big time. I can't function when I'm around him."

Interestingly, despite these inherent social difficulties, participants often valued having good social relationships in the workplace (35 citations/18 participants). MO's comment echoed many others: "It is important for me.. . . The people I work with,. . . it is important that my relationship with them will be good." Some participants gave examples of strategies they used to initiate social relationships (27 citations/12 participants). For example, LC, who demonstrated an art talent, explained how he used his painting to his advantage in social situations: "I show them my art, and it kind of 'breaks the ice.'" Participants also associated obedience with their sociability. AL perceived it as a strength that helps his coworkers: "I'm a diligent, obedient person and I make things easy for them when I do tasks they avoid."

The second cluster of autism characteristics relates to RRBI. Participants addressed the requirement to sometimes compromise their special interests (16 citations/11 participants), and articulated that they might avoid a job that does not allow the expression of their unique interests. NY explained: "If it is a long-term job, I don't believe that a person with Asperger will agree to work in a job that is not

within his interests." Other challenges related to RRBI were obsessive insistence on sameness and inflexible adherence to routines (12 citations/9 participants), especially when facing current demands for multitasking jobs and dynamic work environments. DZ reflected, "My obsession makes me stuck at one stage of work. I tell myself, 'Come on DZ, get going. Do something.'" She conceptualized her inflexibility as a disability: "When they change plans, it is just something you don't do to a person on the spectrum." Finally, in line with the literature, participants demonstrated sensory-processing difficulties within the workplace (9 citations/8 participants), most mentioning sensitivity to noise and other sensory stimuli: "It disturbs me when the environment is very noisy, chaotic, crowded, and full of colors, shapes, and sounds. A mess!" (MO).

Participants also related to personal characteristics and abilities that could be ascribed to RRBI (19 citations/15 participants). They perceived their intense focus on specific interests and activities as also an asset in the employment context. For example, NB related her thoroughness in job tasks and focus beyond work expectations: "I'm so intense. I'm so thorough. I often do way beyond expectations at

Table 2
Workplace Accessibility: Types of Accommodations.

Autism characteristic	Type of accommodation	Reasonable accommodation	Example participant comment
Social-communication difficulty	A. Job performance: Tasks and related communication	A1. Clear instructions presented by a single supervisor (48 citations; 15 participants)	I can only work if they tell me very clearly and explicitly exactly how I am expected to work, explaining it in a really orderly and clear way for me. (GS)
		A2. Clear and detailed feedback (29 citations; 12 participants)	I'd rather they give me an explanation and be frank instead of giving me some idiotic excuse. (YV)
		A3. Ongoing supervision and guidance (31 citations; 15 participants)	Be prepared that the person is permitted to demand coaching, even after the on-the-job training period is over. Forever.. . . You have to be mentally prepared that he will always need it. (DZ)
	B. Social environment: attitudes and interpersonal communication	B1. Acceptance and respect: promote interpersonal initiative of colleagues (47 citations; 17 participants)	I want them to be open to me, to be interested in me, to hang together after work, that they would like my company. (AS)
		B2. Sensitively: consider preparing/educating coworkers, e.g., what autism is, workplace strengths and challenges (9 citations; 7 participants)	The boss should introduce the employee to everyone as a guy with Asperger's because I just do not want those who are not with Asperger's to laugh at him. (AS)
		B3. Appoint workplace mediator/mentor (9 citations; 9 participants)	To assign, at least in the beginning, someone who can help them understand the rules of the place and the procedures; how to dress, what to do at break times. (AL)
RRBI	C. Daily workplace routine	C1. Consistent/flexible work hours (22 citations; 11 participants)	A flexible step-in and a flexible step-out. In the two companies I worked for, you could arrive whenever in the morning and leave 9 h later. (NY) Don't tell me suddenly, "You should stay 5 extra minutes," nor, "Do this," or "Stay until 2 a.m." They are out of their minds.. . . Or, "Come to work at 7 a.m. because we must start early." Why should I accustom my body to natural disaster? (NA)
		C2. Assist the employee to set priorities and define what the employee should do between tasks (8 citations; 7 participants)	They set up a daily routine for me; what to do in the morning, the first thing to do in the morning, and how to manage the day. So yes, what they need to do so that it is better.. . . If I have a daily routine, I can feel more balanced. I know what I have to do. (AL)
		C3. Structure informal routines (breaks, social gatherings, time between assignments) (22 citations; 11 participants)	It's important to me that no situations come up in which I have nothing to do, because I get really freaked out. (MO)
		C4. Structured and consistent job assignments (8 citations; 7 participants)	Unexpected changes in my job stress me. (AS) For me, structuring plans and assignments is like a ramp for a person in a wheelchair. (DZ)
	D. Physical and sensory environment	D1. Noise reduction: allocate quiet space and tolerate frequent "escape breaks." (12 citations; 7 participants)	The store is very large and very open and there are lots of people and it's very hard because it's very noisy; things are moving around.. . . So, sometimes I can go into the kitchen to ask for a drink of water, even though I don't really want to drink water.. . . It's a little quieter. (NB)
		D2. Physical environment organization: reduce visual distraction using clear space design and closed storage places; consider personal workstation placement and design (16 citations; 11 participants)	I have to be in the corner. The corner is the best place for me. (NY)

work." NL and LC described how they can perform effectively in repetitive or tedious jobs and fill gaps in tasks that most people avoided: "I don't get bored doing things that most people find boring" (NL); "I fill in their gaps" (LC). Other participants mentioned unique abilities of persons with autism that could be personal assets for employment. For example, RK discussed special visual perception: "A woman named R tells me I have special visual abilities, that I see everything.. . . If they are looking for something, they may ask me, as I have probably already seen it."

Taken together, these findings offer a vocational profile that demonstrates the unique characteristics of people with ASD. It encompasses challenges aside abilities and personal assets that could be valued within the vocational context. However, according to the participants, accommodations and environmental support are imperative to promote their abilities. As DZ summarized, "One of the most prominent characteristics of people with ASD is that once we have accommodations, our work ethic is very high."

3.3. Work accessibility: types and conditions for implementation

Table 2 summarizes the four types of accommodations revealed in this study, accompanied by sample participant quotations. Two accommodation types—job tasks and related communication, as well as social environment attitudes and interpersonal communication—mostly address difficulties in social communication and interactions. The other two—daily workplace routines and physical and sensory environment—mostly address RRBI.

Participants differentiated between social communication difficulties related to job performance and to informal interpersonal communication, and most addressed accommodations of task-related communication. They asked for ongoing supervision, clear instructions, and feedback presented by a single supervisor. They also demonstrated the need for accommodations relating to interpersonal aspects of employment, such as informal contacts during lunch, breaks, and after-work social events. However, although most participants indicated receiving acceptance and respect from their colleagues, a few called for enhancing their organizations' inclusive cultures. Others suggested appointing mediators/mentors from the workplace to specifically assist in social challenges. Together, these accommodations complement the employees' motivation for social belonging.

For RRBI-related accommodations, some participants mentioned diverse needs for externally structured (e.g., by the supervisor) and consistent assignments and priorities, as well as for formal and informal (such as breaks) routines. Others asked for flexible working hours and demands. This ambivalence between consistency and flexibility demonstrates the need for accommodations tailored individually for employees with ASD.

Among the environment's physical and sensory aspects, participants mentioned their strong preference to work in specific locations and highlighted noise as a primary obstacle. Some participants recommended identifying a quiet room or a corner to which they could withdraw in case of sensory overload. Others suggested using earphones to decrease the noise level in cases when it is difficult to change the physical environment.

The participants also mentioned three preconditions essential for implementing workplace accessibility. At the individual level, participants emphasized the disclosure of autism (23 citations/13 participants). At the organizational level, they related to a general atmosphere of closeness, trust, and togetherness (14 citations/9 participants). Finally, at the job level, they related to the precondition of fitting the employee's abilities to the job demands (15 citations/13 participants).

Most participants commented on the dilemma of disclosing their condition in the workplace. Participants such as YM alluded to effects of disclosure on their social acceptance, trust, belonging, and reducing stigma. Most agreed that disclosing their condition underpinned self-advocacy and dialogue with their employer, which could improve workplace accessibility and work performance. As NY commented:

> My recommendation is to say that you have ASD and to emphasize what it means for you. If it means you can't stand that people move things on the table, say it. If it means that you need to receive all notes written in tidy handwriting, say it. To say exactly what it is that prevents you from functioning and to make sure your needs will be addressed.

However, some participants expressed resentment that, despite disclosing their condition, their needs and rights for accommodations were not acknowledged:

> People always tell me, "but we're all a bit on the spectrum." This is really annoying. No! Because you, you have it, but it doesn't limit you in the workplace. You can function. With me, it affects my function, which is why it's a disability. (DZ)

At the organizational-climate level, some participants indicated a general atmosphere of closeness and solidarity, for example, "There is a feel of togetherness there.. . . We can chat and joke. Not each individual to himself" (NM). Similarly, YM and RK acknowledged the familial, accepting climate they experienced following intensive interactions at work. They indicated that such a workplace atmosphere may lead to attentiveness and sensitivity of others to their needs and to applying relevant accommodations.

Finally, all participants emphasized a fit between their abilities and the job. AS explained, "First, [it] is important to know what [the employee] can do and what he can't do." Achieving this fit requires a match between the person's scope of interests and abilities and the job's demands and context. However, participants perceived mismatches mainly due to over- or under-demands that result when the employer or supervisor fail to recognize the employee's actual skills and abilities. MO, who works as an assistant at an educational institute, stressed, "I want them to have an understanding of what I can and can't do.. . . I mean things that I really can't do because it's difficult, not things I should do but don't feel like doing." On the other hand, GL addressed being assigned simple jobs that did not utilize his abilities due to stereotypic perceptions regarding people with ASD. As a result, he quit the job.

In summary, participants in this study revealed their motivations for employment, along with their challenges and abilities associated with the core characteristics of autism. They contributed four accommodation types and the conditions needed to implement accessibility in the workplace.

4. Discussion

Past studies have acknowledged the participation of individuals with ASD in competitive employment as highly meaningful for both the person and the workplace organization (e.g., Walsh et al., 2014). However, to enable employees with disabilities to achieve optimal participation, workplace accessibility is needed (Prince, 2017; Williams et al., 2006). Specifically, workplace accessibility for individuals with ASD still lacks conceptualization and clear evidence-based guidelines. Whereas others related to specific workplace accommodations for this population (Flower et al., 2019; Hayward et al., 2019; Khalifa et al., 2020), this study adds a classification of accommodations, as well as three essential preconditions for implementing accessibility in organizations. Further, this study's findings situate workplace accommodations in light of the motivations strengths and challenges that employees with ASD face (Fig. 1).

The data confirm that the participants' motivations for employment entail the needs for self-development, social belonging, and livelihood. These needs enrich each other in any successful employment (Duffy et al., 2016), as previous studies relating to persons with ASD emphasized (Goldfarb et al., 2019; Hedley et al., 2017; Krieger et al., 2012). Prior research so far has presented the social requirements of employment as major obstacles for employees with ASD (Harmuth et al., 2018; Hayward et al., 2019). Similarly, this study reveals many examples of social challenges, such as difficulty understanding social interactions and implicit communications in the workplace (Chen et al., 2015; Harmuth et al., 2018).

Our findings expand to encompass the stress some participants described in their work experience, mostly regarding their social interactions. Indeed, the literature has related the social and communication challenges that characterize people with ASD to their high stress levels when facing social communication demands (e.g., Bishop-Fitzpatrick et al., 2015). The stress participants reported may be further explained by the gap between the social challenges and both (a) the participants' desire to develop social abilities required at work and (b) contemporary competitive labor market characteristics (e.g., open workspaces, required teamwork, staff meetings, presentations, and ongoing feedback). These findings appear consistent with Flower et al.'s (2019) qualitative study, which found that managers' knowledge and awareness regarding autism resulted in employees experiencing reduced stress. The accumulating evidence highlights the extensive effect of workplace accommodations among employees with ASD on their subjective work experience and performance. The current study, however, additionally voices the value that participants ascribe to social belonging in the workplace, as well as to their own social abilities. This study situates accommodations relative to not only specific challenges, but also empowering employees' strengths and enhancing motivation and sense of belonging.

In addition to social communication, this study illuminates both challenges and strengths related to RRBI within the work context. In a previous study, we found RRBI to be a major factor that explains work performance and related self-efficacy among employees with ASD without cognitive disabilities (blinded). In the current study, participants more specifically described their insistence on sameness and inflexible adherence to routines and the effect of these behavioral patterns on their work performance. Many participants also expressed their desire to work in areas related to their specific and special interests. Such desire is not always available in the labor market because it is difficult to achieve a good fit between job demands and special restricted interests (Goldfarb et al., 2019).

Nevertheless, RRBI may present a source of both barriers and work-related strengths (Bury et al., 2018). For example, participants described intensive focus, thoroughness, and interest in repetitive tasks most people find boring as special abilities. Acknowledging such employee strengths facilitates the application of a strengths-based approach to including people with ASD in the workplace. This approach encourages a shift from focusing on impairments towards identifying unique and necessary abilities that individuals with autism might contribute (Grove et al., 2018; Patten Koenig & Hough Williams, 2017). Minimizing the effects of the unique social-communicational and behavioral characteristics of people with ASD and discovering ways to benefit from their strengths call for careful job-demand definition and ongoing creative accommodations.

This study's findings contribute a theoretical conceptualization of classification and practical accommodations for people with ASD within the workplace. These accommodations relate to (a) job performance (tasks and related communication); (b) social environment (attitudes and interpersonal communication); (c) daily work routine; and (d) physical and sensory environments (Table 2). This study's findings also emphasize that, for employees with ASD, accommodations are not only physical or technical, requiring a one-time action to be implemented (e.g., allocating a quiet space or providing earphones). More so, employees with ASD need ongoing social-communication support and job-requirement accommodations. Similarly, Hayward et al. (2019) identified the significance of ongoing support and emphasized it as a core of inclusive organizational cultures and diversity climates. Khalifa et al. (2020) suggested a classification for workplace supports based on the environment's domains according to the international classification of functioning, disability, and health (ICF; World Health Organization, 2001). Such classification is based on a deductive conceptualization aimed at promoting a common language to describe workplace accommodations. The current study supplements such an approach by suggesting a classification based on an inductive conceptualization that echoes the viewpoints of employees with ASD. Such a classification is sensitive to the unique needs of individuals with ASD, as well as to job requirements and daily routines. The classification could be implemented as an integral part of an accessibility policy that places responsibility on the organization's various stakeholders. Rather than put sole responsibility to advocate for their rights on the employees with ASD, it encourages ongoing dialogue among employees, employers, supervisors, and coworkers.

Indeed, the numerous accommodations that this study's participants suggested as needed for accessible work environment address the important role of a mentor in the work context and illuminate the important roles of supervisors and coworkers. Participants described mentors, usually coworkers but sometimes direct supervisors, as providing ongoing supervision and guidance, promoting colleagues' interpersonal initiatives, and providing support to interpret social situations and appropriate behaviors. The literature suggested the term, *natural supports*, for work-related mentors (i.e., nonprofessional people in the workplace who are not trained in ASD) who provide assistance, feedback, contact, or companionship for employees with disabilities (Storey & Certo, 1996). This support not only benefits those with ASD, but also results in satisfaction and positive attitudes among coworkers who act as their natural

supports in the workplace (Hedley et al. 2017).

We identify three essential preconditions to apply the required accessibility. The first is disclosure of the disability. Various studies suggested that disclosure in the workplace also may expose individuals to prejudice and discrimination on the part of coworkers and supervisors (Hurlbutt & Chalmers, 2004; Johnson & Joshi, 2016; Schur et al., 2014; Taylor & Seltzer, 2011). However, similar to Prince (2017), our results suggest that disclosure could result in opportunities for the employee and supervisor to discuss challenges and accommodation needs. Indeed, Ohl et al. (2017) found that employees with ASD who disclosed their disability were three times likelier to integrate in the workplace than were those who did not disclose.

The second condition required for a successful accessibility process is an inclusive organizational-diversity climate. In line with Konrad et al. (2005), our study's participants referred to the sense of belonging and feeling comfortable in a climate that presents social sensitivity to diverse employees and respect for each individual. Indeed, systematic implementation of accommodations is possible in organizations that are open to diversity and adopt clear norms and procedures for inclusion (Flower et al., 2019; MacDonald-Wilson et al., 2008). Respect for differences embedded in ASD should manifest in the employer's understanding that accessibility encompasses mostly ongoing, nonphysical accommodations. These are not costly but involve others' awareness, knowledge, and sensitivity, such as organizing daily routines and instructions, as well as mediating the informal social environment.

The third condition needed for successful accessibility is the "goodness of fit" between the employee's abilities and interests and the job's demands, as Hough and Patten Koenig (2014) and Kirchner and Dziobek (2014) also identified. Successful fit is based on identifying the employees' abilities, interests, motivations, and evident contribution to the work place (Scott et al., 2015).

This study's data were collected and analyzed through meticulous trustworthiness methods, including triangulation of interviews with data collected through heterogenic focus groups. However, the study's relatively small sample calls for caution in generalizing the results. In addition, because the participants had good verbal skills and no cognitive limitations (*DSM-5* Level 1), they may not fully represent the whole spectrum of ASD. However, we hope that this study's participants could, at least partially, serve as a voice for others on the autism spectrum. Further, participants in this study had been accompanied by support services, which may have resulted in an already accessible work environment that then influenced the participants' perceptions. Future research could examine perceptions of workplace accessibility among employees with ASD who are not receiving ongoing support.

5. Conclusions

This study contributes a theoretical classification of workplace accessibility derived from the input employees with ASD in order to enhance their work participation. The findings provide four dimensions of accessibility addressing this population's needs. The study contributes evidence-based practical suggestions for accommodations based on successful experiences. It specifically emphasizes accommodations addressing social-communicational aspects. The findings show that implementing reasonable accommodations is based, to a large extent, on "natural supports," such as supervisors and coworkers. In addition, successful employment of people with ASD requires an ongoing dialog that should be applied in an inclusive organizational climate. A successful process to implement workplace-accessibility policies should be based on (a) the employees' advocacy skills to disclose and discuss accommodations; (b) the organization's diversity climate, and (c) acknowledging the employees' strengths and abilities that best fit the job demands.

This study complements our former study, which was based on interviews with employers (blinded). Together, this research establishes the importance of a conceptual framework for workplace accessibility as a complex process that requires a partnership among all parties involved. The conceptual and evidence-based knowledge regarding workplace accommodations presented in this study may serve all parties engaged in such dialogue.

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Declaration of Competing Interest

The authors report no declarations of interest.

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