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ORIGINAL PAPER

Workplace Social Challenges Experienced by Employees on the Autism Spectrum: An International Exploratory Study Examining Employee and Supervisor Perspectives

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Abstract

Social challenges represent a significantly under-researched area when it comes to the poor employment outcomes in autism. In this exploratory study employees on the autism spectrum ($N=29$) and supervisors ($N=15$), representing seven continents, provided 128 written examples of workplace-based social challenges, their interpretation, consequences and resolution. Content analysis revealed that types of social challenges were individually oriented or associated with the work-environment. Social challenges were frequently attributed to internal or personal factors with direct consequences for the employee. Resolutions were more frequently targeted toward the individual than the workplace, and hindered employees' experience of work. This international study represents a first look at the types of social challenges that impact equitable work participation of autistic people.

Keywords Adults · Autism spectrum disorder · Employment · Social challenges · Social communication · Vocation

Adults on the autism spectrum[1] are significantly underrepresented in the workforce. In Australia, the employment rate for adults on the autism spectrum is only 27.3%, lower than adults with no disability (80.3%), and all other disability groups (47.8%; Australian Bureau of Statistics 2019). There are similar disparities between autism and other disabilities (e.g., intellectual disability) in the US (Roux et al. 2013). Low autism employment rates are estimated worldwide, from 14% in the United States (US) and Canada (Roux et al. 2017; Zwicker et al. 2017), to 32% in the United Kingdom (UK; The National Autistic Society 2016). Although data are not available, these rates are most likely much higher in developing countries. Underrepresentation is further displayed by higher rates of underemployment or working in positions below their qualifications (Hedley et al. 2017a, b; Holwerda et al. 2012; Müller et al. 2003; Shattuck et al. 2012), and at lower pay rates (Cimera and Cowan 2009). These poor employment outcomes worldwide led to a "call to action" on employment of individuals on the autism spectrum by the United Nations (2015).

Poor employment outcomes for adults on the autism spectrum come at a significant financial cost to families who support them (Cimera and Cowan 2009), society more broadly

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[1] Recent research (Bury et al. 2020) suggests that there is no consensus on autism label, and that *person on the autism spectrum* is least likely to offend, therefore safest if audience preference is unknown.

(Buescher et al. 2014), and with significant personal cost to the individual. Employment is a rite of passage into adulthood (Roux et al. 2013), without which there is the potential for social exclusion, financial hardship (Howlin 2013), and mental health challenges (Hedley et al. 2019), as well as lost potential for improved well-being, quality of life, sense of purpose, and social relationships (Flower et al. 2019; Hedley et al. 2018; Walsh et al. 2014). Moreover, exclusion of a sizable segment of the labour pool, in this case workers on the autism spectrum, heightens risk for systematic negative impacts on organizations and more broadly, national and international economies (Nicholas et al. 2019). Therefore, supporting the employment of individuals on the autism spectrum has potential benefits to not only individuals and their family, but society as a whole.

Barriers to employment are often attributed to difficulties associated with the symptoms of autism. While behaviours associated with the Restrictive and Repetitive Behaviours and Interests (RRBI) criteria of the autism diagnosis (American Psychiatric Association 2013), such as inflexibility, strict adherence to routines or sensory differences, are often cited as challenges in the workplace (Chen et al. 2015; Kirchner and Dziobek 2014; Müller et al. 2003; Scott et al. 2017), they are also commonly associated with positive attributes, such as superior attention to detail or tolerance for repetitive tasks (Hillier et al. 2007; Scott et al. 2017; Wehman et al. 2014). These potential skills are increasingly attractive to employers, especially in fields such as Information and Communications Technology (ICT; Austin and Pisano 2017), although individual differences and support needs may temper this autism-related advantage (Bury et al. 2019, 2020).

In contrast, difficulties associated with the social communication and interaction diagnostic criteria (American Psychiatric Association 2013) are often cited as the primary barriers to employment (Chiang et al. 2013; Harmuth et al. 2018; Hedley et al. 2018; Hillier et al. 2007; Lorenz et al. 2016; Mawhood and Howlin 1999; Müller et al. 2003; Solomon 2020). Furthermore, beyond superficial suggestions of "autism advantage" through less socially distracted employees (see Kopelson 2015 for a critique), social differences are not seen as a potential workplace advantage. In fact, social challenges are suggested to present difficulties at each stage of the employment process, from job interviews (Flower et al. 2019; Harmuth et al. 2018; Hendricks 2010), interactions with supervisors and colleagues (Hillier et al. 2007; Müller et al. 2003), to termination of employment (Baldwin et al. 2014; Chen et al. 2015).

Differences in social interaction and communication as detailed by the diagnostic criteria for autism include (a) differences in social-emotional reciprocity or social approach, (b) differences in nonverbal communication, and (c) difficulties in developing, maintaining and understanding relationships (American Psychiatric Association 2013). Additionally, deficits in the ability to interpret other people's beliefs, intentions, motivations and emotions present significant challenges in social communication, and are common in autism (Baron-Cohen et al. 1985; Brewer et al. 2017). Taken together, social differences common in autism often lead to varying difficulties understanding, predicting and conforming to social rules and expectations. This can be confusing and frustrating, and have real world impact, especially in rigid work environments. This was captured well by Anne Carpenter (1992), who describes being fired after a month of employment for "inappropriate behaviour".

> In a conference with my counselor, it was revealed that I had interrupted the supervisor several times because I did not know what to do next, conversed with other staff members at the wrong times, and needed constant help with the IBM Selectric typewriter. I became upset very easily and was never *quite* sure how to handle certain situations. It is very difficult for even a high-functioning autistic adult to know exactly when to say something, when to ask for help, or when to remain quiet. To such a person, life is a game in which the rules are constantly changing without rhyme or reason. (p. 291).

Similar themes to those conveyed by Carpenter (1992) are often referred to in studies focused on autism employment in which social challenges are not the focus. Individuals on the autism spectrum report facing workplace challenges due to difficulties understanding instructions (Müller et al. 2003), asking too many questions (Hurlbutt and Chalmers 2004), or not interacting with supervisors enough (Lorenz et al. 2016). They may report no difficulties doing their work-tasks, but that the social aspects of workplaces are difficult, tiring, and stressful (Hurlbutt and Chalmers 2004), and impede work performance (Pfeiffer et al. 2017) and success (Müller et al. 2003). Managers, support-workers and colleagues describe social challenges including being social at the wrong time, not following conversational rules and unwritten social norms, or having difficulty interpreting non-verbal information (Hagner and Cooney 2005; Hedley et al. 2018; Hillier et al. 2007).

While these studies report instances and consequences of social challenges, these findings were ancillary to the overall aims of the research and no research to date has directly investigated the nature of social challenges in the workplace, their consequences and resolution. Given the potential impact social challenges in the workplace can have on employment success, understanding when social challenges occur, their consequences and how they are resolved (if they are) is important to better support employees on the autism spectrum. Improved understanding of the nature of workplace social challenges should also lead to greater inclusion and improved work processes (e.g., human resources).

Current Study

This exploratory study investigated the nature of social challenges in the workplace experienced by employees on the autism spectrum. Recruitment was conducted internationally to enhance generalisability of results to a wide range of employment settings, cultures, and conditions. To ensure triangulation of findings, the voice of employees on the autism spectrum and those who supervise and support them were surveyed and asked to provide specific written examples of social challenge, their interpretation, consequences, and resolution.

Method

Participants

Participants consisted of 29 employees who reported a diagnosis of autism (M_{age} = 40.93, SD_{age} = 414.56) and 15 supervisors (M_{age} = 44.40, SD_{age} = 412.34) who directly support employees on the autism spectrum (managers, n = 8; support workers, n = 7). Employee gender was reasonably split between males and females (51.7% female), with no participants identifying as non-binary. The sample was international, with participants representing seven continents, with the largest representation from Australasia (Table 1). Participants worked in a broad range of industries including education, information technology and farming (Table 1), with most participants working full-time (65.6%). Employees self-reported their diagnosis, with the majority reporting an Asperger's diagnosis from a psychologist. Supervisors were individuals with experience supervising and supporting at least one individual on the autism spectrum in the workplace. They were primarily female (Table 1), and 60% had completed specific autism training and had between 1 to 10 years (M = 4.73, SD 2.67) experience working with individuals on the autism spectrum. Participants received no financial benefits for participation.

Table 1 Demographic information

	Autism		Supervisors	
	n	%	*n*	%
Gender				
Male	14	48.3	2	13.3
Female	15	51.7	13	86.7
Other	0	0	0	0
Country				
Australia/NZ	16	55.2	11	71.4
Europe	6	20.7	4	28.6
North America	4	13.8	0	0
South America	1	3.4	0	0
Asia	2	6.9	0	0
Industry				
Information technology	4	13.8	7	46.7
Education	6	20.7	0	0
Administration/office work	4	13.8	2	13.3
Finance	3	10.3	1	6.7
Farming	2	6.9	0	0
Government	5	17.2	0	0
Disability support	1	3.4	4	26.7
Retail	1	3.4	1	6.7
Other[a]	4	13.8	1	6.7
Workload[b]				
Full-time	19	65.5	–	–
Part-time	9	31.0	–	–
Casual	1	3.4	–	–
Reported autism diagnosis				
Autism spectrum disorder	8	27.6	–	–
Asperger's disorder	20	69.0	–	–
PDD-NOS	1	3.4	–	–
Other	0	0	–	–
Diagnostician				
Doctor/general practitioner	4	14.0	–	–
Psychologist	19	65.5	–	–
Psychiatrist	5	17.2	–	–
Speech pathologist	0	0	–	–
Don't know	1	3.4	–	–

[a]One participant each in Transport, Construction/Engineering, Advertising, Food Services

[b]Full-time reflects scheduled full-time work hours, Part-time reflects scheduled hours per week fewer than full-time hours, Causal hours reflect no regular scheduled hours

Procedure

The study was approved by La Trobe University Human Research Ethics Committee and participation was voluntary. An anonymous online survey was created and hosted on Qualtrics (2017). Many individuals on the autism spectrum find online and written communication allows for increased comprehension and control over communication, providing greater opportunity for increased self expression (Benford and Standen 2009; Gillespie-Lynch et al. 2014; Hayward et al. 2019). Thus, online sampling was chosen for this initial project to best support participation in what is potentially a difficult topic for this population.

The authors asked industry and community partners to share the study information within their organisation and to promote the study on social media. Participants were also

recruited through internal mailing lists and social media accounts from the first authors' university research centre. Advertisement included a link to the study information and survey hosted on Qualtrics.

Materials

Participants in the two groups (autistic individuals, supervisors) completed separate but similar online questionnaires. Employees on the autism spectrum responded first to demographic questions and were then asked to provide up to 10 examples of times when they believed (a) they had misinterpreted or were not aware of the social rules, and/or (b) individuals not on the autism spectrum had misinterpreted their intentions. They received four prompts (see below) with free-text responses aimed at understanding *what happened, the interpretation*, *the consequences*, and *the resolution*. Similarly, supervisors responded to demographic questions and were also asked to provide up to 10 examples of social challenges and/or misinterpretations experienced by employees on the autism spectrum they support or supervise with four open text questions (see below).

Data Analysis Plan

Open-ended narrative survey responses were analysed using a content analysis approach (Hsieh and Shannon 2005). Content analysis is a useful approach to analyse qualitative data, and specifically to illuminate participants' understanding of their experiences (Hsieh and Shannon 2005). This process involved the stages outlined by Elo and Kyngäs (2008): (i) reviewing the survey to gain a sense of the whole data (*preparation*), (ii) conducting an inductive analysis (*organization*), and (iii) creating a map of how categories relate to each other (*reporting*). The inductive analysis approach involved conducting open coding, creating categories and developing themes. Categories were coded based on relationships and synergies between codes and specifically how codes relate to each other (Elo and Kyngäs 2008).

Qualitative textual data in survey responses were analysed across the following questions, (i) What is the social challenge? (ii) How is the social challenge interpreted?, (iii) What is the consequence of the social challenge?, and (iv) What is the resolution to the social challenge? Responses were compared across the two types of participants: employees on the autism spectrum and supervisors. This was completed by analysing data within and across these participant groups. Data analysis was supported by NVivo qualitative inquiry data management and analysis software, with analysis being conducted by RZ, with analytic consultation from DBN and SMB. RZ and DBN reviewed a portion of the data, and consensus of coding was achieved. Data units were further reviewed by team members which resulted in resonance with interpretive analysis of content (Elo et al. 2014; Graneheim and Lundman 2004). Further, rigor of qualitative findings was demonstrated through inter-rater reliability (multiple reviewers of the data reaching consensus on interpretation of data; Vaismoradi et al. 2013), peer debriefing (review of and subsequent resonance and 'fit' of findings among key stakeholders with experience and depth in this field; Elo et al. 2014), and referential adequacy (evidence of text quotes confirming determined themes; Guba 1981).

Results

Employees on the autism spectrum reported up to 10 examples ($M = 2.48$, SD 1.79) of social challenges; 72 in total. Supervisors reported up to 11 examples ($M = 3.73$, SD 3.03) unrelated to those provided by employees; 56 in total.

Identified Social Challenges

Identified social challenges, as emergent in analysis, reflected variant strands or domains. Specifically, the nature of social challenges reflected two areas: (i) those that were internally-associated with work, in that they related to the individual adjusting to the work environment, including their perceptions and characteristics, and (ii), those that that were external factors, relating to the external environment (sample quotes and description are illustrated in Table 2). Both had a bearing on how the individual experienced their work, and included two sub-categories. *Internal social challenges* are social challenges experienced by the individual as they complete *work tasks* and engage in *social events*. *Work task* barriers encompass the barriers that an individual can experience while completing work tasks and completing social tasks that are related to their work. These were experienced within cognitive or experiential processes in the context of the workplace or work requirements such as learning how to interpret work protocols, learning how to interpret behaviours (verbal and non-verbal) of others in the workplace, remembering work tasks and personal executive function/management (e.g., managing tasks, time and work/life balance).

In contrast with work task barriers, *social event challenges* were barriers individuals faced when learning how to engage in various social situations associated with the work setting or work relationships. These *social event* challenges included engaging in celebrations at parties (e.g., knowing what foods to bring and how to eat an appropriate amount of food), discussing social topics at work (e.g., knowing appropriate topics to discuss at work), and respecting co-worker/

Table 2 Data categories and illustrative quotes from participants for type of social challenge

Type of social challenge	Sub-category	Example of an illustrative quote from employee participant[a]	Example of an illustrative quote from supervisor participant[a]
Internal	Work task	My supervisor told me that the task should be finished for 3 pm, so I was constantly worried because I was afraid of not making it on time	The person on the spectrum sent an email to their manager's manager's manager and didn't understand the hierarchical needs and appropriate chain of command needed in order to get an item appropriately addressed
	Social event	Birthday celebration in the office, and I observed others acted differently in congratulating or not congratulating the person on their birthday, so I just stood in a corner doing nothing, aside from everyone	A social issue faced at work, are sometimes there are the hidden rules/expectations associated with work social events—work morning teas. The individual would try to eat the food before the event commenced or take larger portions
External	Work standards and culture	Events are often planned around meal sharing at work for departments. I have diabetes that I manage extremely well, but I also don't like many foods that are traditionally brought to these functions. I try to bring something that I can eat to share, but I am often teased about my diet (sometimes good-naturedly, but not always). And sometimes they appear exasperated	One work environment had grown in employees and work contracts very quickly. The work was rushed, unplanned and usually the work was spurred out of a crisis from lack of planning. The employer did not know the employee had autism. This work environment was very stressful for the employee. Yet the employee was a phenomenal performer often out doing the university qualified workers, with him being self taught. The challenge was performance measures were not ever articulated and the HR person kept leaving so the role was always vacant
	Built environment	Over stimulated by and heightened sensors getting wound up and my attitude changes depending on any situation	Leaving work because the noise cancelling headphones broke
Unknown	N/A	N/A	Unknown

[a]Employee and supervisor responses reflect similar themes, not the same specific social challenge example

employer boundaries (e.g., knowing when behaviour may be appropriate/inappropriate to other people).

Another set of codes reflect what emerged as *external social challenges*. These social challenges consisted of largely meso/organizational-level features of employment that had a direct bearing on the employee's experience. Subcategories included social challenges that included organizational or work standards, a lack of supportive supervisory/HR engagement, and work culture, as well as the built environment. Examples of challenges related to *work standards and culture* comprised performance expectations that individuals were expected to attain, and the nature/format of supervision given to an individual. Barriers faced in the *built environment* imposed sensory difficulties on employees as a result of the requirement to work in a particular space or in a physical setting.

Generally, both supervisors and employees indicated that individuals on the autism spectrum face more internal compared to external social challenges. Among internal challenges, both supervisors and employees felt individuals on the autism spectrum often have more social event challenges. However, employees on the autism spectrum reported facing a comparable number of work task challenges that were largely related to interpreting others' behaviours (e.g., getting feedback from co-workers and employers) and interpreting work protocols (e.g., how to adjust work schedules). For both supervisors and employees, they reported a smaller number of social challenges that included management (e.g., management of tasks, time management, and life/work balance), and communication (e.g., communicating with customers).

Interpretation of Social Challenges: Attribution

Examples of how quotes differed for each participant are displayed in Table 3. Social challenges were either attributed to internal or external factors or causes. Internal factors were elements about an individual on the autism spectrum and included a person's characteristics, perceptions, motivations and behaviours. External factors were those found within the work environment and included co-worker behaviour or communication, work standards, and the built environment. Generally, both supervisors and employees attributed social challenges faced by individuals on the autism spectrum to internal factors i.e., challenges that stemmed from the differences specific to the person on the autism spectrum rather than upon that of the broader environment per se.

Among supervisors, the occurrence of social challenges was viewed as largely a result of individuals on the autism spectrum not being aware of their own behaviours. Other reasons were an employee's perceptions and reactions to the work environment including a perceived inability to take

Table 3 Data categories and illustrative quotes from participants for interpretation of a social challenge

Type of interpretation	Sub-category	Example of an illustrative quote from employee participant	Example of an illustrative quote from supervisor participant
Internal	Negative impressions of self by others	Misunderstandings like this often give rise the impression (I believe) of me being scatty and ditzy, and not as intelligent as I actually am	N/A
	Perceptions and reactions of self	Didn't think I needed help	The employee is a very efficient person and will only respond to emails if clarification is required. He doesn't see the point of writing 'ok thanks' or replying with unnecessary commentary as it almost treats the sender as an idiot for needing reassurance the email arrived
	Unaware of self	N/A	Not considering other individuals thoughts/feelings in the situation. The situation was simply black and white. They needed to use the elevator to get to work and therefore entered when the doors were opening
External	N/A	Some work colleagues came up to talk with me and see if I was alright	This employee finds it very stressful to speak loudly (as in their head they already feel like they are screaming) due to sound sensitivities
Unknown	N/A	Unknown	Unknown

directions, feeling discomfort in social settings, and having strong motivation to complete a task.

Employees on the autism spectrum generally felt that their social challenges were interpreted by others as largely being inappropriate i.e., gauged by a standard that rendered the person on the autism spectrum as demonstrating an anomaly to the presumed and accepted 'norm', and thus social challenges were largely attributed to negative characteristics (e.g., ignorance), motivation (e.g., negative intention) or undesired behaviours (e.g., presenting as angry); in each case, attributes that were negatively attributed to the individual.

Both groups of participants identified external factors as salient to employees' social challenges. However, these were reported as being less frequent than internal factors.

Consequences of Social Challenges

Quotes illustrative of the consequences of social challenges are listed in Table 4. Consequences of a social challenge either reportedly had *direct* or *indirect effects* on an employee on the autism spectrum. *Direct effects* were seen as impacts that were felt/experienced by the individual. These included three subcategories, including the individual on the autism spectrum experiencing *negative feelings and perceptions* (e.g., isolation, frustration, not feeling understood, and having an outburst) and having *challenging relationships* with work colleagues/others. In addition, and in contrast, *positive effects* were cited by individuals on the autism spectrum and supervisors, but these were few. In these instances, individuals on the autism spectrum who experienced social challenges were informed that they did not have to worry about the effects as these challenges were reflective of external factors.

Indirect effects were impacts on the work staff and/or environment that did not directly involve the individual on the autism spectrum. For both groups, indirect effects differed in type. For employees on the autism spectrum, these were reported to include reactions from customers, co-workers and employers. For supervisors, these included co-worker reactions/responses, employer responses, and work/staff accommodations.

Generally, both supervisors and employees felt social challenges had more direct effects on individuals on the autism spectrum than on others in the work setting. These direct effects often resulted in difficult experiences and negative feelings on the part of the employee on the autism spectrum. In addition, supervisors felt that these social challenges had indirect effects on work staff, including negative outcomes in others (e.g., irritation, being offended, and frustration) that were not directly communicated to the individual on the autism spectrum.

Resolution of Social Challenges

Resolutions of social challenges were described as responses, actions and/or attempted solutions that were undertaken by various people within the workplace (See Table 5). For employees on the autism spectrum, solutions were largely described as strategies targeted toward the individual (e.g., educational strategies seeking work/behaviour/communication change), adjustments made by a co-worker/supervisor (e.g., co-worker adjustment in behaviour), or other circumstances (e.g., the situation did not happen again). In some cases, supervisors that felt social challenges were resolved by focusing on the individual, co-workers/supervisors adjusting their behaviour/engagement, or a job coach offering a solution. In other instances, no resolution was identified, or the social challenge was not resolved.

There were variations in how common each type of resolution was identified. In descending order from most to least common solution, actions of supervisors were as follows: the social challenge was (or deemed as needing to be) resolved individually by the employee on the autism spectrum, a co-worker finding a solution, no solution, and job coach solution. In contrast, there was a different pattern among employees on the autism spectrum. In descending order, employees' solutions were: finding a resolution that can be resolved by her/himself, no solution, a co-worker finding a solution, and other.

Generally, both supervisors and employees perceived social challenges to be largely resolved by focusing on the employee on the autism spectrum. From the perspective of employees, identified solutions were described as being implemented by the individual on the autism spectrum and generally were seen as self-directed. Examples included the individual implementing self-management (e.g., learn to adjust to the work culture), self-recognition (e.g., awareness of behaviour and apologizing for behaviour), and avoidance of the issue and/or specific people at work, (e.g., leaving/quitting work and not participating in social activities). For supervisors, resolutions often involved educating individuals on the autism spectrum (e.g., learning how to take into consideration others' perspective and reading social cues). Other individual strategies included self-directed strategies that entailed getting help (e.g., consulting with a psychologist to manage anxiety), and making their own adjustment (e.g., determining strategies to prevent reoccurrence of the issue in the future).

There were similarities among supervisors and employees in determining the types of co-worker/supervisor initiated resolutions. Among employees, co-worker/supervisor solutions encompassed adjustments in co-workers' behaviours, assistance from co-workers, accommodations made in the workplace, and increased autism awareness in the

Table 4 Data categories and illustrative quotes from participants for consequences of a social challenge

Type of consequence	Sub-category	Example of an illustrative quote from employee participant	Example of an illustrative quote from supervisor participant
Direct	Experiencing negative feelings and perceptions	They are confused because I'm bright, competent, and pay attention to details. But they don't seem to understand why I need so much detail to learn the task/position. They seem exasperated and impatient. This has occurred at every position I've held in the County for the last 10 years	He is not performing to the best of his ability as he is inflexible and is focusing on things he cannot change as opposed to things he can
	Challenging relationships with staff	It probably makes it harder to become friends with people	The conversation between the employees started to get a bit tense and was at risk of an argument erupting in the office
	Positive experiences	The authorities told me not to worry, that I had been faithfully serving them for several years and was valued. They even sent me a letter of recognition of my services	The employee quietly gave the acting secretary the eggs and kind of mumbled ' I don't want you to think I had forgotten you'. The acting secretary saw this employee in her shy/post melt-down manner, thanked her for the gift…
Indirect	Reactions from customers	Client kept asking where were the missing documents and about replacing the wrong ones	N/A
	Reactions from co-workers	I'm not sure. I know she seemed exasperated, but I'm not sure how she interpreted it otherwise. I'm a hard worker, so it must have seemed confusing to her that the new task took me half the day to do for a couple of months	Other members of the department judge him for these actions. No one says anything to individual himself, but they do talk amongst themselves about how this employee takes too much food
	Reactions from employers	The manager had to email back to the client and tell them to disregard the email I sent to them	Yes, the supervisor did not know if the employee with autism had understand the instruction, and if he had any questions about it. This behaviour was not professional, so was it necessary to change it by working with the job coach or support worker
	Work staff accommodations	N/A	No, the team were supportive and adjusted their language to ensure there was clarify when explaining situations and explaining the partner needed to let people know if they were leaving for an extended period

Table 5 Data categories and illustrative quotes from participants for resolution of a social challenge

Type of resolution	Sub-category	Example of an illustrative quote from employee participant	Example of an illustrative quote from supervisor participant
Individual	Educational	N/A	Autism consultant met with the individual to explain Theory of Mind and how other people would be perceiving these comments. He said there is no written rule saying you cannot talk about them, and consultant explained that there is a social/unwritten rule about speaking about these things and gave examples of how and why other people would have opposing views
	Self-directed	I simply try to speak up a little more, even though it makes me very uncomfortable	Yes, one the employee on the autism spectrum did understand the situation and learnt some specific expressions to give appropriate response to the supervisor
Co-worker/supervisor solution	Education	My supervisor became more aware of my weaknesses in certain arrears which they had previously dismissed as trivial … they even end up attending one of my sessions with my psychologist at the time, and offered to take up that session's bill (he was rather surprised by the cost)—it also explained why every 2–3 months I would take half a day off (for the session)	The staff were educated that he was most comfortable without lights on and then they could approach and say good morning without turning on the lights and he was pleasant to them and stopped being known as grumpy
	Assistance	With the help of my support worker	Other workers stepped in and completed jobs
	Accommodation	I got a marginally better location	The individual was moved out of the very demanding and busy team and moved into a much calmer team and was able to work in a manner more suited to his processing style
Job coach	N/A	**N/A**	I witnessed their work over the following week and while it's not the way I would do it, their method works well for them and the results are basically the same. They are methodical and diligent. I learnt to appreciate that
Other	N/A	Fortunately, it didn't happen again	N/A
None	N/A	It is not resolved	It wasn't

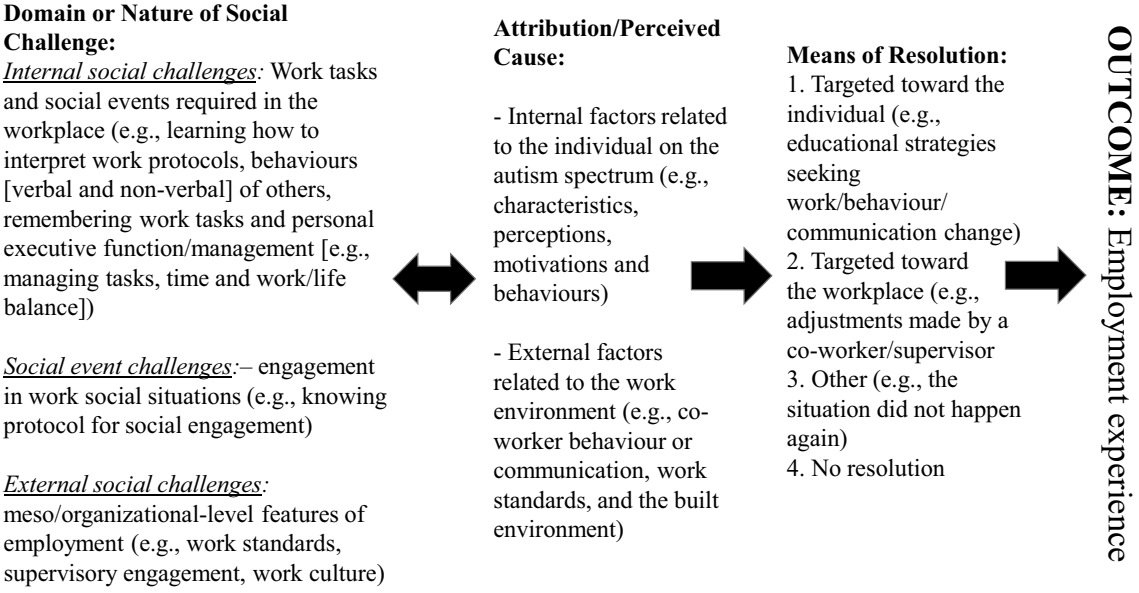

Fig. 1 Social challenges: nature, causal attribution, means of resolution, and pathway to outcome

workplace. In addition to these categories, supervisors highlighted other resolutions that included educational strategies targeted to co-workers and employers (e.g., clarification of instructions to individuals on the autism spectrum) and the development of handbooks or protocols for employees on the autism spectrum (e.g., self-care and time management strategies, and clearer work protocols).

These findings cumulatively identified these items of social challenges, perceived attributions, and means of resolution (or lack thereof) as salient to the workplace experience of employees on the autism spectrum. Accordingly, these constructs appear elemental to, and formative of, employment experiences and outcomes (Fig. 1).

Notably, each element (social challenge, attribution and resolution) may be potentially influenced by what emerged in the data as variably supportive versus non-supportive forms of engagement and understanding, apparently resulting in a range of potential actions by others in the workplace. Sadly, in multiple cases, negative engagement and blaming the individual on the autism spectrum for "their" social challenges emerged via particular interpretations and attribution of the social challenge to the individual. This interpretation seemingly provoked responses that tended toward change requisites imposed on the person with autism, rather than more systemically viewing a broader structural response. Too often, what seemed like a person-focused attribution lens, led to negative experiences or perceptions of the self (on the part of the individual on the spectrum), with potentially detrimental effects on employment experiences. These findings amplify the salience of elements of interpretation/attribution and response—by locating them as integral to employee experience and outcomes.

Discussion

The present study identified social challenges as experienced by employees on the autism spectrum in the workplace. These social challenges were noted to hinder employees' experience of work, including their quality of work life and view of self. Internalised attributes of social challenges as "personal problems" as well as externally-imposed elements were noted by both participant groups. Irrespective of the identified cause and experience for the individual, their social challenges tended to be attributed to, or "problematized" as a reflection of the employee on the autism spectrum regardless of participant group. That these attributions, especially negative self-attributions, were often accompanied by emotional responses (e.g., anger, anxiety) is consistent with other reports of social challenges in the workplace (e.g., Hurlbutt and Chalmers 2004), and may contribute to the mental health challenges faced by employees on the autism spectrum (Hedley et al. 2019). While it may be that employment can bring increased subjective well-being and purpose (Flower et al. 2019; Hedley et al. 2018), it can also impose a range of social challenges that impact broader improvements in mental-health and well-being (Hedley et al. 2019).

It is notable that these data identified perceptions of workplace-based social challenges as largely attributed to issues of the individual on the autism spectrum more than a reflection of other workplace/contextual or societal elements

such as organisational supports/lack of supports or broader system- or value-based impositions that alternatively could be seen as problematic, unnecessarily imposing, and/or warranting of modification. While some instances of social challenges exemplified resolutions in the broader work system (e.g., responses of supervisors or co-workers), the issues of concern related to social challenges generally were largely seen in light of the person on the autism spectrum.

That there would be a tendency for internal attributions from both parties is in line with broad findings of attribution theory (Harvey et al. 2014; Heider 1958). Social challenges associated with an autism diagnosis could contribute to both participant groups placing the locus of causality and stability of the social difficulties to internal qualities of the individual on the autism spectrum, and from the perspective of the employee the accompanied negative effect is what would be expected from attributing behaviour internally (Weiner 1985). From the perspective of the supervisors, given the propensity for internal attributions for social challenges placed on those on the autism spectrum, it might be expected that more serious consequences would occur more frequently (Harvey et al. 2014). However, it may be that factors associated with the perceived controllability of behaviour, and knowledge of autism may have attenuated more serious outcomes. Future research may benefit from investigating if supervisors' attributions for social challenges and any potential consequences change based on knowledge of an autism diagnosis. What it does suggest is that tendencies for attribution to internal factors may blinker participants from considering more broader cultural and structural factors that may contribute to the reported social challenges.

Seen through the lens of critical disability theory and the social model of disability (Hosking 2008), social challenges in these data largely reflect a breach of social norms separate to job tasks, and 'disability' or disadvantage reflects institutional, structural, and attitudinal environment more than job performance per se. This is highlighted by the seemingly trivial nature of some of the social challenges provided (e.g., party food) when compared to broader problems that social challenges are said to represent relative to the employment of individuals on the autism spectrum. There has been some shift away from social workplace practices that disadvantage individuals on the autism spectrum, such as alternate recruitment to the traditional job interviews that rely less on social rapport and social skills (e.g., Flower et al. 2019; Hedley et al. 2017a, b, 2018). Additionally, better knowledge and understanding of autism have been linked to reported change in management practices (e.g., communication strategies—both verbal and written instructions) that more readily facilitate the employment success of employees on the autism spectrum (Dreaver et al. 2020). However, more work needs to be done, particularly given the majority of supervisors in the present study had autism training and several years of experience working with employees on the spectrum.

These findings invite critical reflection and consideration of a broader work 'systems' perspective in which employment experience and workplace interpersonal culture are alternatively located as products or a reflection of a well-functioning vocational system (e.g., Nicholas et al. 2018). This entails inclusive actions, structures, processes, communication elements, roles and environments that promote positive, prosocial and satisfying opportunities for all in the context to vocationally engage, contribute and thrive in the collective aim of contributing to organizational and individual goals. Considering how to widen the gaze of employment relationships and actions to such a broader systems lens, seemingly invites consideration of factors in organizational design and workplace behaviour that promote optimal experience and outcomes for various stakeholders in the work setting including persons on the autism spectrum. Based on this work, notions of social challenges, attributional causes and resolutions need to be viewed as elemental factors toward inclusive workplaces.

Limitations and Future Research

This study was limited by use of a cross-sectional convenience sample. Recruitment, though international, was reflective of those who were willing to engage and explore the issues of social challenges. While research suggests that online written formats of inquiry utilised in this study, present benefits in self-expression and comprehension for some people on the autism spectrum (Benford and Standen 2009; Gillespie-Lynch et al. 2014; Hayward et al. 2019), the extent and difficulty of social challenges may be underestimated by virtue of only including people who were willing to talk about what emerged as potentially difficult and variably painful issues. Moreover, we only engaged those on the autism spectrum with verbal and written language abilities to convey data in the study's narrative format, and as such, we included only those who could conceptualize and communicate in writing the complex notion of social reciprocity/challenge. While the inclusion of supervisors somewhat mitigates this limitation, future studies should draw on a broader and representative sample, including sample diversity across the autism spectrum.

While the approach taken supported greater accessibility, which has allowed access to an international sample representing multiple countries, and provided a data set with rich data collection points, it is possible the written narrative format used in data collection may have limited potential depth and length of data expression through limits of space and time for writing reflections. This research presents an important first step in understanding social barriers encountered

by employees on the autism spectrum, future long interview-based or observational research may yield richer data related to greater understanding of the minutia of social challenges and the sequalae of outcomes and meanings for individuals on the autism spectrum. We further recognize our reliance on participants' self-reporting their autism diagnosis, without diagnostician confirmation.

These important exploratory and layered findings invite future study using a robust design, potentially including mixed methods. Moreover, longitudinal research seems needed in ascertaining the impact of social challenges over the course of one's career, as well as interventional research systematically examining proactive means to support employment-based thriving even amidst social challenges. Future research in this area would also benefit situating social challenges within the broader employment ecosystem, to investigate the degree to which workplace factors (e.g., organisational policies and procedures, stigma, autism awareness training) contribute to, or reduce, social challenges for employees on the autism spectrum, and how this changes across different industries and cultures. Furthermore, investigating individual difference factors (e.g., gender), to better understand the range of difference social approaches and requirements, and how this may be reflected in workplace challenges, is an important avenue for future research.

Conclusion

Notwithstanding these limitations, in an international sample, this study has uniquely identified social challenges as a salient phenomenon and risk in employment among persons with autism. We have further amplified relevant elements of attribution and response; the malleability of these notions offers important possibilities toward generative employment outcomes. Further advancement, application and testing of these constructs seem needed in advancing employment prospects for people on the autism spectrum.

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Compliance with Ethical Standards

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Ethical Approval This study was approved by La Trobe University Human Research Ethics Committee, HEC19054.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. Washington: American Psychiatric Pub.

Austin, R. D., & Pisano, G. P. (2017). Neurodiversity as a competitive advantage. *Harvard Business Review, 95*, 1–9.

Australian Bureau of Statistics. (2019). 2018 Survey of disability, ageing and carers: Autism in Australia. Retrieved May 21, 2020, from https://www.abs.gov.au/AUSSTATS/subscriber.nsf/log?openagent&44300do060.xls&4430.0&Data%2520Cubes&5C2149D4F635399 6CA2584C0000C3B7F&0&2018&29.11.2019&Latest.

Baldwin, S., Costley, D., & Warren, A. (2014). Employment activities and experiences of adults with high-functioning autism and Asperger's disorder. *Journal of Autism and Developmental Disorders, 44*, 2440–2449. https://doi.org/10.1007/s10803-014-2112-z.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition, 21*, 37–46. https://doi.org/10.1016/0010-0277(85)90022-8.

Benford, P., & Standen, P. J. (2009). The Internet: A comfortable communication medium for autistic people? *I: Journal of Assistive Technologies, 3*, 44–53.

Brewer, N., Young, R. L., & Barnett, E. (2017). Measuring theory of mind in adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 47*, 1927–1941. https://doi.org/10.1007/s10803-017-3080-x.

Buescher, A. V., Cidav, Z., Knapp, M., & Mandell, D. S. (2014). Costs of autism spectrum disorders in the United Kingdom and the United States. *JAMA Pediatrics, 168*, 721–728. https://doi.org/10.1001/jamapediatrics.2014.210.

Bury, S. M., Hedley, D., Uljarević, M., Dissanayake, C., & Gal, E. (2019). If you've employed one person with autism…: An individual difference approach to the autism advantage at work. *Autism, 23*, 1607–1608. https://doi.org/10.1177/1362361318794937.

Bury, S. M., Hedley, D., Uljarević, M., & Gal, E. (2020). The autism advantage at work: A critical and systematic review of current evidence. *Research in Developmental Disorders*. https://doi.org/10.1016/j.ridd.2020.103750.

Bury, S. M., Jellett, R., Spoor, J. R., & Hedley, D. (2020). "It defines who I am" or "it's something I have": What language do [autistic] Australian adults [on the autism spectrum] prefer? *Journal of Autism and Development Disorders*. https://doi.org/10.1007/s10803-020-04425-3.

Carpenter, A. (1992). Autistic adulthood: A challenging journey. In E. Shopler & G. B. Mesibov (Eds.), *High-functioning individuals with autism* (pp. 289–294). New York: Springer.

Chen, J. L., Leader, G., Sung, C., & Leahy, M. (2015). Trends in employment for individuals with autism spectrum disorder: A review of the research literature. *Review Journal of Autism and Developmental Disorders, 2*, 115–127. https://doi.org/10.1007/s40489-014-0041-6.

Chiang, H.-M., Cheung, Y. K., Li, H., & Tsai, L. Y. (2013). Factors associated with participation in employment for high school leavers with autism. *Journal of Autism and Developmental Disorders, 43*, 1832–1842. https://doi.org/10.1007/s10803-012-1734-2.

Cimera, R. E., & Cowan, R. J. (2009). The costs of services and employment outcomes achieved by adults with autism in the US. *Autism, 13*, 285–302. https://doi.org/10.1177/1362361309103791.

Dreaver, J., Thompson, C., Girdler, S., Adolfsson, M., Black, M. H., & Falkmer, M. (2020). Success factors enabling employment for adults on the autism spectrum from employers' perspective. *Journal of Autism and Developmental Disorders, 50*, 1657–1667. https://doi.org/10.1007/s10803-019-03923-3.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*, 107–115. https://doi.org/10.1111/j.1365-2648.2007.04569.x.

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open, 4*, 1–10. https://doi.org/10.1177/2158244014522633.

Flower, R. L., Hedley, D., Spoor, J. R., & Dissanayake, C. (2019). An alternative pathway to employment for autistic job-seekers: A case study of a training and assessment program targeted to autistic job candidates. *Journal of Vocational Education & Training, 71*, 407–428. https://doi.org/10.1080/13636820.2019.1636846.

Gillespie-Lynch, K., Kapp, S. K., Shane-Simpson, C., Smith, D. S., & Hutman, T. (2014). Intersections between the autism spectrum and the internet: Perceived benefits and preferred functions of computer-mediated communication. *Intellectual and Developmental Disabilities, 52*, 456–469. https://doi.org/10.1352/1934-9556-52.6.456.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24*, 105–112. https://doi.org/10.1016/j.nedt.2003.10.001.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *ECTY-Annual Review Paper, 29*, 75–91. https://doi.org/10.1007/BF02766777.

Hagner, D., & Cooney, B. F. (2005). "I do that for everybody": Supervising employees with autism. *Focus on Autism and Other Developmental Disabilities, 20*, 91–97. https://doi.org/10.1177/10883576050200020501.

Harmuth, E., Silletta, E., Bailey, A., Adams, T., Beck, C., & Barbic, S. P. (2018). Barriers and facilitators to employment for adults with autism: A scoping review. *Annals of International Occupational Therapy, 1*, 31–40. https://doi.org/10.3928/24761222-20180212-01.

Harvey, P., Madison, K., Martinko, M., Crook, T. R., & Crook, T. A. (2014). Attribution theory in the organizational sciences: The road traveled and the path ahead. *Academy of Management Perspectives, 28*, 128–146. https://doi.org/10.5465/amp.2012.0175.

Hayward, S. M., McVilly, K. R., & Stokes, M. A. (2019). "I Would Love to Just Be Myself": What autistic women want at work. *Autism in Adulthood, 1*, 297–305. https://doi.org/10.1089/aut.2019.0020.

Hedley, D., Cai, R., Uljarevic, M., Wilmot, M., Spoor, J. R., Richdale, A., et al. (2018). Transition to work: Perspectives from the autism spectrum. *Autism, 22*, 528–541. https://doi.org/10.1177/1362361316687697.

Hedley, D., Uljarevic, M., Bury, S. M., & Dissanayake, C. (2019). Predictors of mental health and well-being in employed adults with Autism Spectrum Disorder at 12-month Follow-up. *Autism Research, 12*, 482–494. https://doi.org/10.1002/aur.2064.

Hedley, D., Uljarević, M., Cameron, L., Halder, S., Richdale, A., & Dissanayake, C. (2017a). Employment programmes and interventions targeting adults with autism spectrum disorder: A systematic review of the literature. *Autism, 21*, 929–941. https://doi.org/10.1177/1362361316661855.

Hedley, D., Uljarević, M., & Hedley, D. F. E. (2017b). Employment and living with Autism: Personal, social and economic impact. In S. Halder & L. C. Assaf (Eds.), *Inclusion, Disability and culture: An ethnographic perspective traversing abilities and challenges*. New York: Springer. https://doi.org/10.1007/978-3-319-55224-8_19

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Hendricks, D. (2010). Employment and adults with autism spectrum disorders: Challenges and strategies for success. *Journal of Vocational Rehabilitation, 32*, 125–134. https://doi.org/10.3233/Jvr-2010-0502.

Hillier, A., Campbell, H., Mastriani, K., Izzo, M. V., Kool-Tucker, A. K., Cherry, L., et al. (2007). Two-year evaluation of a vocational support program for adults on the autism spectrum. *Career Development for Exceptional Individuals, 30*, 35–47. https://doi.org/10.1177/08857288070300010501.

Holwerda, A., van der Klink, J. J., Groothoff, J. W., & Brouwer, S. (2012). Predictors for work participation in individuals with an autism spectrum disorder: A systematic review. *Journal of Occupational Rehabilitation, 22*, 333–352. https://doi.org/10.1007/s10926-011-9347-8.

Hosking, D. L. (2008). *Critical disability theory.* Paper presented at the 4th Biennial Disability Studies Conference at Lancaster University, UK.

Howlin, P. (2013). Social disadvantage and exclusion: Adults with autism lag far behind in employment prospects. *Journal of the American Academy of Child & Adolescent Psychiatry, 52*, 897–899. https://doi.org/10.1016/j.jaac.2013.06.010.

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*, 1277–1288. https://doi.org/10.1177/1049732305276687.

Hurlbutt, K., & Chalmers, L. (2004). Employment and adults with Asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 19*, 215–222. https://doi.org/10.1177/10883576040190040301.

Ki-moon, B. (2015). *Secretary-General Invites Business to Commit to Hiring People with Autism, as He Launches 'Call to Action' Initiative on World Day.* Retrieved June 8, 2018, from https://www.un.org/press/en/2015/sgsm16639.doc.htm.

Kirchner, J. C., & Dziobek, I. (2014). Towards successful employment of adults with autism: A first analysis of special interests and factors deemed important for vocational performance. *Scandinavian Journal of Child and Adolescent Psychiatry and Psychology, 2*, 77–85. https://doi.org/10.21307/sjcapp-2014-011.

Kopelson, K. (2015). "Know thy work and do it": The rhetorical-pedagogical work of employment and workplace guides for adults with "high-functioning" autism. *College English, 77*, 553–576.

Lorenz, T., Frischling, C., Cuadros, R., & Heinitz, K. (2016). Autism and overcoming job barriers: Comparing job-related barriers and possible solutions in and outside of autism-specific employment. *PLoS ONE, 11*, 1–19. https://doi.org/10.1371/journal.pone.0147040.

Mawhood, L., & Howlin, P. (1999). The outcome of a supported employment scheme for high-functioning adults with autism or Asperger syndrome. *Autism, 3*, 229–254. https://doi.org/10.1177/1362361399003003003.

Müller, E., Schuler, A., Burton, B. A., & Yates, G. B. (2003). Meeting the vocational support needs of individuals with Asperger syndrome and other autism spectrum disabilities. *Journal of Vocational Rehabilitation, 18*, 163–175.

Nicholas, D. B., Hedley, D., Randolph, J. K., Raymaker, D. M., Robertson, S. M., & Vincent, J. (2019). An expert discussion on employment in autism. *Autism in Adulthood, 1*, 162–169. https://doi.org/10.1089/aut.2019.29003.djn.

Nicholas, D. B., Mitchell, W., Dudley, C., Clarke, M., & Zulla, R. (2018). An ecosystem approach to employment and autism spectrum disorder. *Journal of Autism and Developmental Disorders, 48*(1), 264–275. https://doi.org/10.1007/s10803-017-3351-6.

Pfeiffer, B., Braun, K., Kinnealey, M., Derstine Matczak, M., & Polatajko, H. (2017). Environmental factors impacting work satisfaction and performance for adults with autism spectrum disorders. *Journal of Vocational Rehabilitation, 47*, 1–12. https://doi.org/10.3233/Jvr-170878.

Qualtrics. (2017). *Qualtrics (version 2.6)*. Provo, UT: Qualtrics.

Roux, A. M., Rast, J. E., Anderson, K. A., & Shattuck, P. T. (2017). *National autism indicators report: Developmental disability services and outcomes in adulthood*. Retrieved June 20, 2019, from Philadelphia, PA: https://drexel.edu/autismoutcomes/publications-and-reports/publications/National-Autism-Indicators-Report-Developmental-Disability-Services-and-Outcomes-in-Adulthood/.

Roux, A. M., Shattuck, P. T., Cooper, B. P., Anderson, K. A., Wagner, M., & Narendorf, S. C. (2013). Postsecondary employment experiences among young adults with an autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 52*, 931–939. https://doi.org/10.1016/j.jaac.2013.05.019.

Scott, M., Jacob, A., Hendrie, D., Parsons, R., Girdler, S., Falkmer, T., et al. (2017). Employers' perception of the costs and the benefits of hiring individuals with autism spectrum disorder in open employment in Australia. *PLoS ONE, 12*, 1–16. https://doi.org/10.1371/journal.pone.0177607.

Shattuck, P. T., Narendorf, S. C., Cooper, B., Sterzing, P. R., Wagner, M., & Taylor, J. L. (2012). Postsecondary education and employment among youth with an autism spectrum disorder. *Pediatrics, 129*, 1042–1049. https://doi.org/10.1542/peds.2011-2864.

Solomon, C. (2020). Autism and employment: Implications for employers and adults with ASD. *Journal of Autism and Developmental Disorders*. https://doi.org/10.1007/s10803-020-04537-w.

The National Autistic Society. (2016). *The autism employment gap: Too much information in the workplace*. Retrieved April 6, 2018, from London, UK: https://www.autism.org.uk/~/media/nas/get-involved/tmi/tmi%2520employment%2520report%252024pp%2520web.ashx?la=en-gb.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*, 398–405. https://doi.org/10.1111/nhs.12048.

Walsh, L., Lydon, S., & Healy, O. (2014). Employment and vocational skills among individuals with autism spectrum disorder: Predictors, impact, and interventions. *Review Journal of Autism and Developmental Disorders, 1*, 266–275. https://doi.org/10.1007/s40489-014-0024-7.

Wehman, P. H., Schall, C. M., McDonough, J., Kregel, J., Brooke, V., Molinelli, A., …, Collins, H. T. (2014). Competitive employment for youth with autism spectrum disorders: Early results from a randomized clinical trial. *Journal of Autism and Developmental Disorders, 44*, 487–500https://doi.org/10.1007/s10803-013-1892-x

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*, 548–573.

Zwicker, J., Zaresani, A., & Emery, J. H. (2017). Describing heterogeneity of unmet needs among adults with a developmental disability: An examination of the 2012 Canadian Survey on Disability. *Research in Developmental Disabilities, 65*, 1–11. https://doi.org/10.1016/j.ridd.2017.04.003.