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Creating a diversity climate in the workplace: a mixed methods study into knowledge of autism and attitudes toward hiring autistic people in the United Kingdom

Jonathan Vincent [1,3] Lisa Harkry [2], and Lorna Hamilton [3]

[1] Educational Research Department, Lancaster University, United Kingdom

[2] School of Humanities and Social Sciences, Leeds Beckett University, United Kingdom

[3] School of Education, Language, and Psychology, York St John University, United Kingdom

Correspondence concerning this article should be addressed to Jonathan Vincent, Educational Research Department, Bailrigg, Lancaster University, United Kingdom, LA1 4YW.

Email: j.vincent3@lancaster.ac.uk

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Abstract

Background

Autistic individuals face challenges accessing employment, particularly as a result of limited knowledge and understanding of autism.

Objective

This mixed methods study aimed to measure levels of knowledge of autism and examine hiring attitudes in the workplace.

Method

To determine knowledge of autism, n=101 professionals in the United Kingdom responded to a survey that included the Autism Stigma & Knowledge Questionnaire (ASK-Q). Open-ended and closed-ended questions were used to examine hiring attitudes and particularly perceived barriers or drivers to employment for autistic candidates. Nine respondents took part in further semi-structured interviews.

Results

Findings report adequate knowledge with a lack of stigma endorsement. Data also indicate a significant relationship between self-reported autism knowledge and the overall ASK-Q total.

Autism knowledge was statistically significantly higher in participants who knew an autistic individual through work and where professionals or their companies had knowingly employed an autistic person. Qualitative data provides more nuanced understanding about barriers and the possibilities for more inclusive autistic employment.

Conclusion

A strong case was made for understanding the needs and strengths of individuals in order to generate a diversity climate in the workplace.

Keywords: autism, diversity, employment, knowledge, hiring attitudes, workplace

Introduction

Unemployment among autistic[1] adults is identified as a 'crisis' in the United Kingdom and beyond (Romualdez et al., 2021:2). This is even more pronounced in the aftermath of the Covid-19 pandemic, which exacerbated pre-existing economic inequalities for this group (Taylor et al, 2021; Goldfarb et al., 2021). For example, 80% of autistic people are estimated to be unemployed worldwide (Ki-moon, 2015) and the total employment rate of autistic people across the European Union is reported to be as low as 10% (Bunt et al 2020). In the United Kingdom, the Buckland Review of Autism Employment (2024) confirmed that autistic adults have the lowest employment rate of any disabled group, with only 29% in work (ONS, 2022) and autistic university graduates consistently experiencing the poorest employment outcomes of any disabled group (Vincent and Ralston, 2023; AGCAS, 2024). In the United States around 38% of autistic adults are reported to be in paid work (Roux et al, 2016), in Canada rates are only 14.3%, and in Australia this is just 28% (Nicholas et al, 2019). Even in nations with greater emphases on social inclusion, like Sweden, only 56% of autistic people are in employment (Black et al, 2019). Such figures are even more disheartening given that evidence suggests that many autistic adults have both the requisite skills to work, including cognitive, spatial, and artistic ability as well as personal characteristics including honesty, reliability, trustworthiness, and persistence (Krieger et al 2012; Perreault et al., 2011 Taylor & Seltzer, 2011) and a strong desire to work (Anderson, et al, 2015).

Various studies identify deficits in employer knowledge of autism as a primary external factor underpinning poor employment outcomes (Black et al, 2019; Davies et al, 2023; Diener et

[1] The paper uses identity-first language. This is in keeping with the request of the advisory group and community research in the UK (Kenny et al. 2016)

al, 2020; Johnson et al, 2020; Mai, 2019; McMahon et al, 2021; Scott et al, 2019; Teindl et al, 2018). Dreaver et al. (2020) report a need for increased knowledge among line managers and colleagues, particularly with respect to two-way communication, providing instructions, adjusting work environments, and allocating tasks and roles that make use of autistic employees' unique skills and abilities. Evidence suggests that employers tend to focus on the repetitive or negative behaviors rather than the individual's potential and capabilities (Hatfield, et al, 2017; Johnson et al, 2020; Mai, 2019, McMahon et al, 2021) and hold more negative perceptions about the costs involved in employing autistic people (Scott et al.,2017). Mai's (2019) study of N=212 hiring agents serving medium-sized organizations (50-249 employees) across the United States reports that these professionals tend to believe that autistic employees would embarrass the organization when interacting with the public or co-workers and are less productive and dependable compared to non-autistic candidates. Similar findings are also reported in the UK where 50% of employers admitted that they would not employ a neurodivergent person (Institute of Leadership & Management, 2020).

There are, however, strong associations between previous experience of hiring disabled people and greater interest in future hiring (Anderson et al, 2015; Flower et al; 2021; Scott et al, 2019; Teindl et al. 2018) and there is evidence of successful employment experiences in healthcare, retail, hospitality, warehousing, education, and government departments although this work tends to be low wage and shorter-term contracts (Austin & Pisano, 2017; Frank et al, 2018). Large multinationals in technology and finance, including Microsoft, SAP Software and Solutions, Deutschebank, and JPMorgan Chase, have also recognized the potential of autistic employees and launched specific recruitment programs to draw on this talent pool (Johnson et al, 2020; Skibell, 2017). Studies report that where companies do employ autistic people, the impact

is typically positive (Nicholas et al, 2019; Pfeiffer et al., 2018) and that these employees can make novel and creative contributions to the work environment and improve workplace morale (Scott et al, 2017).

Objective

It is recognized that colleagues and managers play a central role in the autism employment ecosystem (Nicholas et al., 2018; Vincent and Fabri, 2022) but as Spoor et al (2021) suggest, there is a lack of research that engages sufficiently with this wider employment context, including the perspectives of non-autistic employees. Much of the research to date has focused on the individual difficulties associated with an autism diagnosis (Schall et al, 2020); the barriers to accessing work (Davies et al; 2023; Scott et al, 2019; Vincent and Fabri, 2022); or evaluations of specific autism employment programs which are often limited to specific work matching the skills of autistic individuals and business objectives (Annabi et al., 2019; Hedley et al, 2017a; Krzeminska et al., 2019). Indeed, in their important study on employers' perspectives in a job-readiness initiative in Canada, Nicholas et al (2019) note the need for more diverse samples using psychometrically strong measures and mixed-method designs. The current study, thus, aimed to quantify levels of knowledge with a validated instrument and garner qualitative perspectives among hiring managers and employees in workplaces in the United Kingdom. It builds on previous studies in this Journal but also adds an original contribution in identifying the relationships between knowledge and attitudes to autistic employment in settings not specifically offering supported employment for autistic people. Thus, it might present learnings which are transferable more generally. We sought to address the following research questions:

RQ1. What are workplace levels of knowledge about autism?

RQ2. What relationships exist between knowledge about autism and hiring attitudes?

RQ3. What are the perceived barriers with respect to employing autistic people?

RQ4. What are the perceived drivers with respect to employing autistic people?

Methods

To date, much of the evidence regarding knowledge and perception of autism in the workplace has been reported through qualitative studies (Dreaver et al, 2020; Bury et al., 2021; Nicholas et al, 2018; Vincent 2020; inter alia) and case studies (Johnson and Joshi, 2016). These important exploratory studies, however, invite further data about organizational contexts using validated instruments (Vogus and Taylor, 2018) and mixed methods (Bury et al 2021). To this end, an exploratory sequential research design was adopted in this mixed methods study (Creswell and Plano Clark 2011), where the quantitative strand occurred first in the form of an electronic survey and was followed up a qualitative strand, by way of semi-structured interviews among a subset of participants. The survey and interview schedules were developed in collaboration with an advisory group, which included autistic and neurotypical people. The advisory group also supported the recruitment process for the survey, drawing on their respective networks.

Ethical approval for this study was granted by the Institutional Ethics Committee at first author's institution at the time. All participants provided consent by choosing to agree with the information about the study prior to beginning the survey and no identifying data were collected. All survey data were collected through Qualtrics and then downloaded and stored electronically on a password-protected drive.

The survey was comprised of four sections. The first section queried participants' demographic background, professional responsibilities, and experience of or diagnosis of autism. Following other studies, the second section began with a self-assessment of knowledge of autism (McMahon, Stoll and Linthicum, 2020; Vincent and Ralston, 2020) and in this case used a scale of 0-100, where 0 reflects poor levels of knowledge and 100 reflects complete knowledge of autism. Next, with reference to RQ1, the Autism Stigma & Knowledge Questionnaire (ASK-Q) was used to measure multiple subdomains of autism knowledge using four subscales: (i) diagnosis, (ii) etiology, (iii) treatment, and (iv) stigma (Harrison et al., 2017a). Following Nicholas et al.'s (2019) recommendation for more robust instruments, this 48-item measure possesses high internal consistency (Cronbach's alpha = 0.88) and strong reliability for each of the four subscales (range: 0.93 – 0.98) using a reliability metric similar to test-retest derived from Diagnostic Classification Model (DCM) analysis (Harrison et al., 2017b). As well as knowledge of autism, the ASK-Q includes a stigma subscale within which each item is considered complex and related to each of the knowledge subscales to indicate stigmatizing beliefs. Each correct response is scored as one point, with the following cutoff score ranges reflecting adequate knowledge for each subscale: Diagnosis/Symptoms 11–18, Etiology 11–16, and Treatment 10-14 (Yu, Stronach and Harrison, 2020). The stigma endorsement subdomain was reverse-scored such that higher scores (3–7) demonstrate more positive attitudes and lower scores (0–2) indicate stigma endorsement. The third section of the survey responded to RQ2 and included items on hiring attitudes and the final section, focused on RQ3, in eliciting information about the nature of professional settings through open-ended questions. At the end of the survey participants were invited to participate in a semi-structured interview.

A purposive sampling strategy was employed to recruit UK-based industry professionals through online mailing lists, social media platforms, and UK-based industry networks including the Chartered Institute of Professional Development and Chambers of Commerce. In total, n=139 survey responses were received, however, n=38 responses were excluded either due to incomplete data or being resident outside of the United Kingdom.

Semi-structured interviews were conducted by the first author among nine professionals in the United Kingdom. Seven identified as female and two male and represented a range of industries including management consultancy, environmental science, tourism, retail, the charity sector, data analysis, education, and journalism. Seven out of the nine had some responsibility for recruitment and hiring decisions and four participants had previous experience of hiring an autistic person. One participant identified as autistic and one was a parent of an autistic adult, which also reflects the range of experience from the survey. It is recognized that the sample is likely skewed towards those with an interest in supporting autistic people. Interviews lasted between 60-90 minutes and specifically sought to investigate RQ3 and RQ4 in seeking to determine what participants perceived as the barriers and solutions to employment for autistic people. Interviews were audio-recorded and professionally transcribed.

All quantitative analyses used SPSS version 26. Data were pro-rated to deal with any missing values. The dataset was checked for linearity using scatterplots and distribution normality using the Shapiro-Wilk test. This revealed the ASK-Q total scores and all four ASK-Q subscales were not normally distributed ($p < .001$), therefore non-parametric tests were used throughout. However, a one-way Analysis of Variance was still considered appropriate as ANOVAs are typically robust to violations of normality (Schmider, Ziegler, Danay, Beyer, & Buhner, 2010) and a Levene's test for this analysis indicated equal variances ($p > .05$). The dataset was not checked

for outliers because they were likely to reflect the experiences of autistic participants, as 11% of the sample identified as autistic. Therefore, it was decided that all outliers would be kept in the analysis. Where multiple correlations were run, an alpha level of .01 was set as an attempt to avoid any Type I errors.

The qualitative data analysis followed the principles outlined by Fereday and Muir-Cochrane (2006). After thorough reading of transcripts to identify meaning and patterns within the data, the first author identified initial codes and pertinent concepts at the semantic level, guided broadly by the research questions. Following this, the first two authors discussed the codes to reduce potential bias and generated higher order categories; this involved the grouping together of recurring codes and assigning to these succinct phrases to describe their meaning. Through consensus, categories were clustered into four themes which were scrutinized by both authors to ensure clarity and coherence in relation to the dataset in full. Finally, data extracts were selected as illustrative of the themes but also as authentic representations of the rich accounts elicited from the participants (see Table A in Supplementary Materials for the categories and themes).

Results

Table 1 shows the main demographic and employment characteristics of the sample.

[Table 1]

Quantitative results

RQ1. What are employers' levels of knowledge about autism?

The knowledge of autism, as measured by the total ASK-Q score (M = 41.07, SD = 2.72), aligned with Harrison et al's (2019) cross-cultural reliability study (M = 41.43, SD = 3.58). The four subdomain scores (diagnosis, etiology, intervention, stigma) were slightly higher than Harrison et al's (2019) study, which were reported as 'adequate'. The diagnosis knowledge of our sample (M = 14.18, SD = 1.57) was highly comparable to the Harrison et al. (2019) study (M = 13.75, SD = 1.24), as was etiology (M = 14.20, SD = 1.29 compared to M = 13.98, SD = 1.59), intervention (M = 12.64, SD = 1.18 compared to M = 11.65, SD = 0.89) and stigma (M = 6.71, SD = 0.80 compared to M = 5.20, SD = 0.99). Therefore, the mean ASK-Q scores in the present sample aligned with the cutoffs demonstrating adequate diagnosis, etiology and intervention knowledge with a lack of stigma endorsement.

A series of Spearman's rank-order correlations were run to examine the relationships between self-reported autism knowledge and the ASK-Q total and subscales. Table 2 indicates there were significant relationships between self-reported autism knowledge and diagnosis (r_s = .42, p < .001), self-reported autism knowledge and etiology (r_s = .46, p < .001) and self-reported autism knowledge and stigma (r_s = .36, p < .001). The higher participants rated their own knowledge of autism, the more accurate their understanding of autism diagnosis, etiology and stigma was reported to be. There was also a significant relationship between self-reported autism knowledge and the overall ASK-Q total (r_s = .54, p < .001). The higher participants rated their own knowledge of autism, the more accurate their overall understanding of autism was reported to be.

[Table 2]

A one-way ANOVA was run to compare the effect of contact with an autistic individual on autism knowledge. There was a statistically significant difference between groups (F(2,42) = 7.67, p = .001, h^2 = .27). A Tukey post-hoc test revealed that autism knowledge was statistically

significantly higher in participants who knew an autistic individual through work (M = 42.56, SD = 1.45) compared to participants who knew an autistic individual through social networks (M = 40.43, SD = 2.20, p = .046, d = 1.13) or participants who did not know any autistic individuals (M = 38.63, SD = 3.44, p = .001, d = 1.51). There were no statistically significant differences in autism knowledge when participants knew an autistic individual through social networks compared to those who did not know any autistic individuals (p = .120).

RQ2. What relationships exist between knowledge about autism and hiring attitudes?

A Spearman's rank-order correlation was run to examine the relationship between overall understanding of autism and workplace inclusivity. This was not a statistically significant relationship (r_s = .17, p = .10). However, a Mann-Whitney test indicated that overall understanding of autism was significantly higher where participants (or participants' companies) had knowingly employed an autistic person (Mdn = 51) compared to those who had not (Mdn = 38), U = 714, p = .024, h^2 = .06.

RQ3. What are the perceived barriers with respect to employing autistic people?

A total of n=74 responses (where five participants were autistic) were given to the question: '*From an employer / employee perspective, what do you see as the main barriers to employing a person on the autism spectrum in your company / organization*?' The main perceived barrier to employing autistic people was the job role itself, with 42% of participants citing a lack of flexibility, unexpected changes or social communication difficulties as problematic. The second most frequent barrier was autism knowledge with 26% of participants wanting to know more about autism or workplace adjustments. The job environment was also seen as problematic with 8% of participants mentioning a lack of quiet areas and a high stress environment. The results

were highly similar when the sample only included non-autistic participants, with 41% citing job role, 20% citing autism knowledge and 8% citing job environment as the main barriers (see Figure 1 in Supplementary Materials).

RQ4. What are the perceived drivers with respect to employing autistic people?

A total of *n*=66 responses (where five participants were autistic) were given to the question: '*From an employer / employee perspective, what would enable you or your company / organization to employ a person on the autism spectrum?'* The main perceived driver to employing autistic people was autism training, with 41% of participants wanting to improve their understanding of autism or receive guidance around recruitment processes or reasonable adjustments. The second most frequent driver was individualized reasonable adjustments with 20% of participants wanting a job coach, mentoring or some form of external support for the autistic person. The results were highly similar when the sample only included non-autistic participants, with 39% citing autism understanding and 18% citing individualized reasonable adjustments as the main drivers (see Figure 2 in Supplementary Materials).

Qualitative results

Four themes were identified through the qualitative data analysis: (1) Gaps in understanding; (2) Knowledge bridges; (3) Organisational 'risks'; and (4) Avenues to enabling change. Each of these themes are outlined below, along with illustrative excerpts from interviews.

Theme 1: Gaps in understanding

Whilst the quantitative data appear to show adequate levels of knowledge the qualitative data indicate that gaps exist at the level of understanding. It appears that employer anxiety at the

recruitment stage is a barrier as captured by a manager who stated, ‘maybe some employers would automatically be a little bit nervous... if you’ve got a lack of understanding, someone might think, that’s going to be too much hard work’ (HiringManager_Tourism). There was also an apparent gap with respect to autistic employees’ needs, where ‘employers don’t understand the dynamics’ (HiringManager_MgmtCons) in relation to the organisational or social demands or how the ‘environment can be quite... sensorially overwhelming’ (Employee_Journalism). One respondent (HiringManager_Charity) reported how some in her team did not only lack understanding but were actively resistant to supporting autistic employees, stating ‘We’re not trained to have people like that’, a perspective also reflected by one hiring manager (HiringManager_EnvirScience) who related,

> This one lad came in for his interview and was under pressure, blacked out sort of thing, just sat there and zoned out for a whole 30 seconds in his interview. He didn’t get a job. I wasn’t going to re-employ him because what he demonstrated to me there and then is I couldn’t trust that individual.

Such responses indicate forms of othering and social exclusion for autistic jobseekers which stem from a lack of understanding. There was, however, also evidence of a more positive shift.

Concurrent with the quantitative findings, professionals in our sample reported increased knowledge associated with greater exposure to autism in the workplace and the wider social context, as one respondent (HiringManager_Tourism) stated,

> The more awareness that you have, the more people that you can contact, the better it will be for everybody really... it’s the trading of ideas that’s important.

It is clear that joined-up strategies for building knowledge can be instrumental for sharing good practice, learning from one another, and building professional capacities for inclusion. As one retail hiring manager reported, workplace training increased interest among senior leaders and was easily transferred to other branches. Echoing our quantitative findings more knowledgeable

colleagues ‘lost the stigma’ and were able to talk ‘very comfortably’ about their own or family members’ diagnoses.

Theme 2: Knowledge bridges

Consistent with the survey data, higher levels of knowledge were more clearly represented where interview participants had knowingly employed an autistic person and often led to concrete changes in attitudes and practices. A point developed by a university HR manager who asserted that it ‘starts at recruitment...with those clear positive messages that we’re up for this’ and from there hiring managers learn to ‘adjust how they do things... and account for when they’re kind of scoring and they’re looking at that applicant’ (HR_University). Accordingly training, especially where it was facilitated by an autistic expert-by-experience, led to perceived increases in staff capacity to feel ‘comfortable to make any adjustments’ such as ‘removing the lighting’ (HiringManager_Retail) or ‘having that awareness that [transition] was going to be an issue so they could pre-empt it by explaining to him what was going to happen and exactly when it was going to change’ (HiringManager_Charity).

Whilst knowledge was a bridge to more inclusive practices, individual professionals’ attitudes and management styles were also important in improving outcomes. One manager in retail discussed how increased understanding of autism had made her ‘delighted’ when someone disclosed on their application and another believed hiring autistic people ‘actually makes us better people ourselves’ (HiringManager_Charity), indicating the possibility of less stigmatising working environments. As a result of this, the same manager reported ‘a sense of responsibility’ given the lack of opportunities and using her position she ‘banged on a lot of doors and pulled in a lot of favours’ to gain someone paid employment. These examples demonstrate how greater

understanding can lead to more compassionate and inclusive leadership which can have implications for recruitment and workplace success.

Theme 3: Organisational 'risks'

Respondents reported various barriers to employment. Among these was a perception that employing autistic people was considered a 'risk', particularly where 'creating a proper operational level infrastructure is a bigger investment than people realise' (HiringManager_ MgmtCons). The same respondent suggested that such risks were perceived as more challenging for smaller companies where 'you're responsible for the mortgage being paid for a lot of people you know very well... So they are as a breed, and quite rightly, very risk-averse'. However, similar perspectives were also reported in larger organisations where change is seen as 'difficult because in corporate cultures to engage in something that doesn't appear to create an immediate profit … you need to make the case for persuading the management that this is actually beneficial' (Employee_DataAnalyst).

Connected to financial investment was the perceived risk to companies' reputation, as one hiring manager suggested,

> I think the biggest barrier is public perception…If I have a whole bunch of people who were autistic working for us, customers are then going to come in and they're going to get served by these individuals and the customer service would be really, really poor…We would be getting accused of hiring anybody, anything... We'd be accused of going for the lowest common denominator'. (HiringManager_EnvirSci)

Whilst his attitudes must be taken seriously as a reflection of the kinds of concerns some employers have, they indicate a level of prejudicial stigma regarding autistic people's capacities to complete roles to a satisfactory standard. His dehumanising language – 'anyone, anything' – indicates a fundamental lack of understanding and empathy and perpetuates a view of autistic people as 'the lowest' rather than equal members of society with a right to work.

Participants also reported honestly about how their own attitudes can act as a barrier to employment. As one university HR manager reflected how 'as a manager you just want an easy life... You want somebody that can come in and just get on with stuff. And I think that's where they'll struggle'. Interestingly, even positive attitudes among management were recognised as a potential barrier at times, as one Management Consultant put it,

> 'for managing directors it's actually quite easy to say, we'll take somebody on and we'll do this and tell the middle management layer… And then by the time the individual arrives, he's working within a team who simply know this is something that has to be done, on top of another huge set of pressures, and with no change on their performance.'

His point indicates the double bind that autistic people can find themselves in, where stigmatising attitudes can limit their initial opportunities to access work but then, should they get a role, it is often without the necessary training and infrastructure in place to support them to be successful.

Theme 4: Avenues for enabling change

There are four main categories in this final theme which were perceived as avenues for successful employment; these include, commitment to cultural change; supporting positive disclosure; individualised workplace adjustments; and aligning autistic strengths with the role.

In line with our quantitative findings, interview participants unanimously recommended a commitment to cultural change in order to achieve better understanding and employment outcomes for autistic people. There was, however, disparity about whether this ought to be top-down or bottom-up. The latter approach was seen as 'incredibly difficult' (Employee_DataAnalysis), particularly within large corporate settings. Smaller companies were perceived as offering greater opportunity for this approach given the tighter working relationships although a top-down approach was more often perceived as the most efficient way

to achieve success. This might include training for all employees across the company, building into policies and strategies ‘concrete efforts to recruit more diversely’ (Employee_Journalism), and using nationally recognised structures such as Disability Confident in the UK, which ensures that when a disabled / autistic person discloses they are automatically offered an interview. In such a case hiring managers are ‘obliged to interview this candidate’ giving autistic people more of a chance to demonstrate their capacity.

Disclosure was perceived by professionals as more likely to lead to successful employment outcomes. Again, within smaller organisations this was viewed as ‘completely okay’ as it would be easier to provide an accessible working environment compared to larger companies with more formal processes and structures. Some respondents recognised the significance of disclosure as more than ‘just a word…on a piece of paper’, which requires discussion and a collaborative approach. When disclosure is presented as a positive option, it tended to lead to mutually beneficial experiences which could be replicated for others, as one University HR manager stated, ‘it opened my eyes to something so simple like [meeting the panel] made their interview process a whole lot easier for them to be able to communicate’.

As the quantitative findings suggest, individualised adjustments were perceived as being a central driver to employing an autistic person. Simple changes to the working environment were recognised as important but relatively straightforward in many cases; for example, having a ‘smaller office’ with fewer people to interact with, changing the lighting, or offering flexibility with start and finish times. However, the adjustment that was reported most by professionals with experience of employing autistic people was carving out the right role aligned to the individual’s strengths. Autistic traits perceived as advantageous to employers included ‘loyalty’, offering a ‘fun’ and ‘refreshing’ perspective, ‘enthusiasm’ and ‘applying the ‘need to be in

control and have structure' to work, as well as a 'level of attention to detail, which can be quite spectacular' (HiringManager_MgmtCons). The value of this was captured by a professional from the Tourist sector who stated,

> 'So, in terms of his knowledge it was just unbelievable, more so than myself and any of our other colleagues because he knew it. It wasn't a broad outline he knew every single detail... So, in terms of the engagement with people, because a lot of our jobs are front-facing, he has an amazing confidence when speaking about his subject'

As well as specialist knowledge, however, autistic employees were recognised for their reliability and dedication to the role. This was still the case even where their output was perceived as lower than non-autistic colleagues, for example 'he'd work at 85% so he wasn't the fastest but he'd work 85% every single day' (HiringManager_EnvirSci) and so overall the manager valued the consistency of output that his autistic employee could offer him. Ultimately, once strengths have been identified, 'it's about placing people in the right area with the right managers' or as one hiring manager put it 'thinking, okay, how do I almost utilise the strengths that that person?' as when this happens 'we're likely to employ them for longer and they'll stay with us for longer' (HiringManager_EnvirSci).

Discussion

Together these mixed data provide depth and breadth for understanding workplace knowledge and perceptions of autism in the UK. The quantitative element, based on the ASK-Q, provides important evidence regarding levels of knowledge using a robust validated measure and so offers more concrete evidence in this regard (Nicholas et al. 2019; Dreaver et al 2020; Vogus and Taylor, 2018). The qualitative data complement these with rich accounts of the perceived barriers and opportunities that exist in a range of large and small companies across the UK. Rather than specifically targeted at employees with prior experience of hiring autistic adults or

involved in specialized employment programs (Bury et al, 2021; Harkry et al, 2022; Hedley et al, 2017), these findings reflect knowledge and attitudes of professionals in typical workplace settings and so might inform employment practices more generally. The sample was not large, however, and perhaps under-representative of various sectors often associated with autistic employment, including science, technology, and engineering (Vincent and Ralston, 2023) and, thus, conclusions can only be made tentatively.

Our survey data uncover autism knowledge scores judged to be adequate overall with a lack of stigma endorsement. In this way our data concur with that of Nicholas et al. (2019) who also report inclusive attitudes among their sample involved in a Canadian job readiness initiative although in the case of this study, our sample was drawn from those without specific experience of supported employment. Importantly, the workplace was recognized as a significant site of contact for gaining knowledge of autism compared to social networks and is in line with wider evidence that suggests that improving levels of knowledge among managers and colleagues can promote positive disclosure experiences, foster understanding, and lead to greater acceptance of autism (Davies et al, 2023; Dreaver et al, 2020; Flower et al, 2021; Harkry et al, 2022; Nicholas et al. 2019; Romualdez, et al, 2021; Teindl et al; 2018). However, our interview participants draw the important distinction between knowledge of autism and understanding, recognizing gaps in the latter that often lead to poorer attitudes and fewer employment opportunities. Similar to Mai's (2019) study, some participants reported stigmatizing and, at times, dehumanizing attitudes which served to actively exclude autistic people from the workforce. Such responses reflect the 'double empathy problem' (Milton, 2012 p.885) which posits that 'disjunctures in reciprocity' occur in 'cross neurotype' interactions between autistic and neurotypical people. The 'empathy' problem is bi-directional where – in this case – the neurotypical hiring manager fails

to understand the autistic person as much as the autistic job candidate may struggle to navigate the socially-mediated context of the job interview.

Our data found significantly higher levels of autism knowledge where participants (or their companies) had knowingly employed a person on the autism spectrum compared to those who had not. This finding is in line with wider evidence that suggests that improving levels of knowledge among managers and colleagues can promote positive disclosure experiences, foster understanding, and lead to greater acceptance of autism (McMahon et al, 2021; Nicholas et al. 2019; Dreaver et al, 2020). At a more practical level, disclosure can also provide legal protections to autistic employees and open up access to adjustments such as flexible working hours and changes to the physical work environment (Romualdez et al., 2021). Qualitative data in our study reflect what Vogus and Taylor (2018) describe as a 'diversity climate' where under-represented employees are better integrated and valued in the workplace. This was represented through examples of championing autistic people in the workplace, seeking out opportunities to offer additional support, and developing positive discourses among the non-autistic workforce. Frazier et al (2017) argue that transformational leadership such as this is instrumental in creating inclusive environments which can increase work engagement and the psychological safety necessary for interpersonal risk-taking in the workplace. However, future studies could investigate more longitudinally whether increased understanding of autism and greater inclusion improves recruitment rates for autistic applicants.

Finally, we identified perceived barriers and drivers with respect to employing autistic people. The main perceived barrier was the job role itself. Social challenges, such as difficulties around social interaction and implicit communication have been highlighted in other studies (Bury et al., 2021; Davies et al, 2023; Waisman-Nitzan et al., 2021). However, perceiving

inflexibility or unexpected change as job role barriers may undermine their capacity to act as strengths for some autistic employees; for instance, through excellent detail-oriented memories and high levels of persistence, loyalty and precision (Brinkert and Remington, 2020; Remington and Fairnie, 2017). The second most frequent barrier was lack of knowledge about autism or workplace adjustments. This is interesting, given the positive levels of self-reported and measured knowledge through the ASK-Q and might reflect the aforementioned disjuncture between awareness of the clinical traits related to autism and understanding of the best practices to support autistic people in the workplace (Nicholas et al, 2019; Vincent, 2020). It is likely that the perceived risks that hiring managers face stem from this lack of understanding. Our findings, thus, suggest that workplace training, informed by autistic experts-by-experience, and delivered at all levels is crucial for identifying the strengths of autistic employees, removing recruitment barriers, implementing workplace accommodations, and increasing understanding of autism.

Limitations

Firstly, whilst the ASK-Q has demonstrated strong reliability as a measure of knowledge of autism, it may be valuable in the future to combine the ASK-Q with other measures more sensitized to workplace cultures (Vogus & Taylor, 2018). Secondly, the samples for both strands are relatively small and likely to have some self-selection bias, drawing participants with a pre-existing interest in issues of autistic employment, particularly from Healthcare/Social care, Creative industries, and Education or Public services. Future studies ought to incorporate larger and more representative samples across different industry sectors; this would give greater power to the analyses and increase the transferability of the findings.

Conclusions

This mixed methods study indicates that adequate levels of knowledge are not enough to lead to inclusive employment. The qualitative findings unpack, through more nuanced discussion, how hiring autistic people can be beneficial for developing understanding among organisations, recognising neurodivergent strengths, and increasing the likelihood of future employment opportunities. The findings, thus, invite us to consider how more routes into employment, including funded placements, internships, and initiatives that actively recruit autistic people, might be generated for autistic people in order to showcase their skills and capacities. This notwithstanding, barriers persist in relation to training needs to make job roles more suited to autistic people and developing greater empathy among colleagues to create a 'diversity climate'. The findings, overall, signal that knowledge of autism is necessary but not sufficient and ought to be expanded alongside the development of more inclusive workplaces and society.

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Table 1

Demographic and Employment Characteristics of Sample

Variable	Categories	*n* = 101	%
Sex	Male	31	30.7
	Female	67	66.3
	Missing	3	3.0
Age	18-25	6	5.9
	26-35	24	23.8
	36-50	41	40.6
	51-65	28	27.7
	Missing	2	2.0
Size of organisation	Micro (< 10 people)	14	13.9
	Small (11-49 people)	16	15.8
	Medium (50-250 people)	11	10.9
	Large (250+ people)	55	54.4
	Missing	5	5.0
Industry*	Accounting/Business/IT/Marketing/Legal	28	19.6
	Charity/Healthcare/Social care/Creative arts	34	23.8
	Education/Public services	50	35.0
	Engineering/Environment	4	2.8
	Leisure/Hospitality/Property/Transport	13	9.1
	Recruitment/Retail	10	6.9
	Self-employed	4	2.8
Management responsibilities	Yes	71	70.3
	No	29	28.7
	Missing	1	1.0
Recruitment responsibilities	Yes	70	69.3
	No	30	29.7
	Missing	1	1.0
Contact with autistic people	Participant has autism diagnosis	11	10.9
	Participant knows somebody autistic	77	76.2

	Participant does not know anybody autistic	11	10.9
	Missing	2	2.0

* Total *n*=143 as some participants worked across more than one industry.

Table 2

Spearman's Rank-Order Correlations of Self-Reported Autism Knowledge, Diagnosis, Etiology, Intervention, Stigma and Total Overall Understanding

	Diagnosis	Aetiology	Intervention	Stigma	Total overall understanding
Self-reported autism knowledge	.42*	.46*	.21	.36*	.54*

* $p < .001$