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# Neurotype and participatory autism knowledge predict perceptions of an autistic employee in the workplace

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**Introduction:** Autistic adults are unemployed at much higher rates than the general population. Differences due to autistic traits, including social skills differences, are often barriers to autistic adults obtaining and retaining employment in non-autistic workplaces. The double empathy problem (DEP) posits that autistic social differences are not due to assumed autistic social impairment but to mutual misunderstandings within the autistic/non-autistic social interaction. Consistent with the DEP, autistic adults are more likely to accurately interpret the behavior of an autistic employee, compared to non-autistic adults. This study examined additional factors, beyond neurotype, that are associated with accurate interpretation of the behavior of an autistic employee.

**Methods:** A sample of 73 autistic and 140 non-autistic participants read a vignette about a hypothetical autistic employee in a non-autistic workplace having a difficult workday. Participants completed questions about their interpretation of the employee's behavior, an autism knowledge measure, autism experience questions, and demographic information.

**Results:** General autism knowledge, but not autism experience, was an influential predictor of accurate behavior interpretation toward the autistic employee and negated the predictive influence of education level, income, and gender identity of participants ( $OR = 1.12, p < 0.001$ ). However, regardless of the level of autism knowledge, autistic participants continued to be significantly more likely to accurately interpret the behavior of the autistic employee, compared to non-autistic participants ( $OR = 2.94, p = 0.02$ ).

**Discussion:** Results continue to contribute support for the DEP within the context of autistic employment challenges. Findings also point to autism education as a promising autism workplace support in addressing the DEP and barriers autistic adults face with obtaining and retaining employment.

## KEYWORDS

autism, adulthood, autism knowledge, employment, double empathy

## Introduction

In 2020, the Centers for Disease Control (CDC, 2020) estimated that there were almost 5.5 million autistic adults living in the United States. As this disability group continues to transition into adulthood, they face many challenges with adult functioning. In particular, unemployment rates for autistic adults range from 50 to 90% depending on the research study methodology and sampling (Roux et al., 2013; Nord et al., 2016; Wehman et al., 2016; Ohl et al., 2017; Wei et al., 2018; Espelöer et al., 2023).

Autistic adults are unemployed at significantly higher rates than adults with other disabilities, including adults with intellectual disabilities (Shattuck et al., 2012; Roux et al., 2013; Nord et al., 2016). In a comparison of community employment rates for disabled adults who are users of intellectual and developmental disabilities (IDD) services, autistic adults were found to have 30% lower odds of being employed in the community compared to non-autistic IDD service users. This finding held true even when considering demographics and other disability characteristics such as health, mobility, and severity of intellectual disability (Nord et al., 2016).

## Social skills and autistic employment challenges

According to current autism diagnostic criteria, autistic individuals demonstrate long-standing and persistent challenges with social communication and social interaction across multiple non-autistic contexts (American Psychiatric Association, 2013). Of the many complex challenges involved with employment for autistic adults, difficulties with functioning socially in the non-autistic world are associated with problems obtaining and retaining employment (Holwerda et al., 2012; Chiang et al., 2013; Lorenz et al., 2016; Anderson et al., 2020; Black et al., 2020). Autistic adults report many social challenges related to employment including difficulty presenting themselves as a desirable job candidate in employment interviews (Flower et al., 2021; Whelpley and May, 2022), communicating effectively and collaborating with non-autistic coworkers and supervisors (Muller et al., 2003; Baldwin et al., 2014; Sosnowy et al., 2018; Grob et al., 2019; Black et al., 2020; Bury et al., 2021), understanding and responding appropriately to non-autistic coworkers social cues (Anderson et al., 2020; Bury et al., 2021), and judging when, how, and with whom to discuss workplace issues that arise (McKnight-Lizotte, 2018; Anderson et al., 2020; Bury et al., 2021). Autistic adults report misreading social cues and having difficulty with communication, being misunderstood, and being emotional at work as antecedents to being dismissed from their employment (Pezzimenti et al., 2023).

## Theory of mind abilities

Traditionally, autistic social functioning challenges have been attributed to assumed autistic impairments in theory of mind (ToM) abilities (Baron-Cohen et al., 1985; Baron-Cohen, 1995; Fletcher-Watson and Happé, 2019). ToM is proposed as the ability to sense the thoughts, feelings, and motivations of another, often based on observation. Those with ToM abilities have the social advantage of “perspective taking” or understanding another’s mental state and responding accordingly (Leslie, 1987; Baron-Cohen, 1995). Autistic children and adults have had significantly poorer performance on traditional ToM testing compared to non-autistic (Happé, 1994; Baron-Cohen, 1995; White et al., 2009). However, ToM studies have been difficult to replicate and found to have problems with predictive and convergent validity (Gernsbacher and Yergeau, 2019). For example, Gernsbacher

(2022) reviewed nine studies published between 2001 and 2017 that compared autistic and non-autistic individuals’ performance on Happé’s (1994) strange stories assessment of ToM abilities. These studies failed to demonstrate group differences in test performance such as test scores or the ability to explain mental states related to behaviors (Gernsbacher and Yergeau, 2019; Gernsbacher, 2022). Additionally, studies of autism and the reading of facial expressions and body language have shown mixed results with some autistic participants demonstrating abilities similar to non-autistic participants (Fletcher-Watson and Happé, 2019). ToM scores have also been found to be unrelated to scores on measures of autism traits such as the Autism Spectrum Quotient (AQ) as well as measures of social anxiety and empathy (Brewer et al., 2017).

## The medical and social models of disability

Viewing autistic social challenges from the perspective of ToM deficits is consistent with the medical model of disability and its focus on identifying and correcting perceived individual pathology. The medical model of disability describes disorders that manifest in impairments within the person deemed as deviations from the norm. Norms are considered ideals and are defined by the presentations of the majority (American Psychiatric Association, 2013; Cherney, 2020).

In contrast, the social model of disability views disability as determined by the culture, beliefs, structures, and practices of society. A person who differs from the majority is disabled by a society that is structured to accommodate only those considered to be part of the “normal” majority (Oliver et al., 2012). Disability is created by an environment that is not friendly to different ways of being. Society creates disability by not allowing for adaptations for differences and therefore not being inclusive (Dwyer, 2022). Disability is lessened or disappears when the environment is changed to accommodate differences. In the workplace, those who function differently are disadvantaged when the work environment is conducive only to those who think and function like the majority. Those who think, behave, and function differently from the majority may be deemed impaired and subject to stigma and censure for not conforming to what is deemed normal (Oliver et al., 2012).

Currently, in the field of autism research, there is growing questioning of the utility, humanity, and accuracy of the medical model of disability applied to autistic challenges and outcomes (Kapp et al., 2013). There are growing calls for viewing autism in adulthood through the lens of the social model of disability (Pellicano, 2020; Botha, 2021; Pellicano et al., 2022).

## The double empathy problem

Consistent with the social model of disability, Milton (2012) has proposed the double empathy problem (DEP) as a response to the ToM deficits explanation for autistic social challenges in non-autistic spaces. According to the DEP, while autistic individuals struggle to understand and interpret social interactions with non-autistic individuals, autistic individuals often understand and relate

well to each other (Milton, 2012, 2017). Additionally, non-autistic individuals demonstrate ToM errors in reading the behaviors of autistic individuals (Edey et al., 2016; Sheppard et al., 2016; Milton, 2017; Casartelli et al., 2020; Szechy et al., 2023). Therefore, autistic social challenges in non-autistic spaces are not due to assumed autistic social deficits but missteps and misunderstanding within the social interactions between autistic and non-autistic as two differing neurotypes (Milton, 2012, 2017).

When comparing the DEP vs. ToM deficits explanation of autistic social challenges, researchers have hypothesized that findings in support of autistic ToM deficits would demonstrate that the poorest social rapport and communication would be between autistic social partners compared to mixed autistic/non-autistic social partners and to non-autistic social partners. Optimal social skills would be between non-autistic social partners given the assumption of superior ToM skills in non-autistic persons. Alternatively, findings consistent with the DEP should demonstrate at least equal social rapport and communication between matched autistic social partners, compared to non-autistic social partners. Furthermore, if the problem lies in the interaction between the two differing neurotypes, the lowest quality interactions would be between mixed autistic/non-autistic social partners.

Following this line of reasoning, recent studies have indicated support for the DEP. Autistic participants in social dyads have been observed to have the highest social rapport with each other, compared to non-autistic dyads and especially mixed autistic/non-autistic dyads (Crompton et al., 2020b). When passing the details of a story to each other, groups composed of all autistic individuals have demonstrated equal abilities in communicating story details compared to non-autistic groups. In the same study, mixed groups of autistic/non-autistic participants demonstrated the poorest communication with each other (Crompton et al., 2020a).

Because it has been traditionally assumed that non-autistic people have superior ToM abilities compared to autistic (Baron-Cohen, 1995), non-autistic individuals often incorrectly assume they are accurately reading and understanding autistic individuals when they are not (Milton, 2017). Consistent with the DEP, non-autistic individuals have demonstrated difficulty reading and understanding behaviors and the corresponding emotions of autistic individuals. While observing motor movements that indicate emotional states, non-autistic adults have demonstrated more difficulty reading the motor movements that correspond with the emotions of autistic children vs. non-autistic children (Casartelli et al., 2020). Non-autistic participants have also been found to have difficulty reading the emotional expressions of autistic actors in videos (Sheppard et al., 2016) and discerning the emotions of character animations done by autistic animators, compared to those done by non-autistic animators (Edey et al., 2016).

While a growing body of work is demonstrating evidence for the DEP, more work needs to be done to understand further contextual and nuanced aspects of this theoretical framework (Davis and Crompton, 2021). Notably, while social challenges in non-autistic spaces are considered a barrier to autistic adults obtaining and retaining employment, there are limited studies examining the DEP framework of autistic social functioning in the context of the workplace (Szechy et al., 2023).

Szechy et al. (2023) wrote a vignette about a hypothetical autistic employee at a fictitious manufacturing company having a challenging day at work. Consistent with the DEP, a higher proportion of autistic participants accurately interpreted the behavior of the autistic employee described in the vignette, compared to non-autistic participants. More than two-thirds of non-autistic participants misinterpreted the resulting emotions and behaviors of the autistic employee in the vignette (Szechy et al., 2023). Misinterpretation of the behavior of autistic employees has the potential for negative employment outcomes for the autistic person at work. Misunderstanding and miscommunication may result in negative quality of work life for autistic employees, as well as jeopardize their employment success and retainment (Bury et al., 2021; Pezzimenti et al., 2023). Therefore, it is important to identify factors associated with more accurate behavior interpretation skills toward autistic individuals in the workplace. A better reading of autistic behaviors and traits may help to address the DEP in the workplace.

## Autism knowledge, autism experience, and interpreting autistic behavior in the workplace

Having a greater understanding of autism in general may be associated with a more accurate interpretation of autistic behaviors at work. Greater autism knowledge has been associated with more positive attitudes toward autistic individuals in various settings. Autism knowledge has been associated with more favorable first impressions of autistic individuals on video, especially when their autism diagnosis was known to observers (Sasson and Morrison, 2019). Observers with greater autism knowledge have also appraised autistic persons more positively in terms of both first impressions and social distancing attitudes (Morrison et al., 2019). Increased knowledge of autism has also been accompanied by reduced stigma toward autistic college students (Gillespie-Lynch et al., 2022). Upon reading vignettes of autistic job candidates in job interviews, greater autism knowledge on the part of non-autistic participants was associated with more favorable ratings of the autistic job candidate in the vignette (McMahon et al., 2021).

Having experience with autism by being autistic, having an autistic family member, or having autism as the focus of work or study may be associated with more positive attitudes and better interpretation of autistic behaviors and traits. However, research is limited in examining the association between autism experience and attitudes and perceptions toward autistic persons. In a study that examined factors related to whether college students would volunteer to work with an autistic peer. Both the amount of previous contact and quality of contact (the "perceived positivity" of past interactions) with autistic persons were associated with more acceptance toward an autistic peer. However, contact quantity was not significantly associated with the intent to volunteer to work with autistic peers (Gardiner and Iarocci, 2014).

While there are studies establishing the connection between autism knowledge and experience and attitudes toward autistic persons, less is known about the association between autism knowledge and autism experience and accurate interpretation

of adult autistic behaviors. Early childhood education teachers with preservice autism training demonstrated improvement in autism knowledge and more positive attitudes toward the inclusion of autistic children in classrooms but continued to view autistic behaviors as disruptive in the educational environment (D'Agostino and Douglas, 2021). In a review of specialized autism training programs for physicians, such programs were associated with greater autism knowledge and physician self-efficacy when working with autistic patients. However, the previously mentioned studies did not address directly interpreting specific autistic behaviors and were focused on the care of autistic children rather than adults (Clarke and Fung, 2022).

Identified factors such as autism knowledge and experience with autistic persons, if associated with more accurate behavior interpretation abilities toward autistic employees, can then guide interventions to assist supervisors and co-workers to better understand and support their autistic colleagues. However, no known studies have been conducted examining other factors associated with improved behavior interpretation abilities toward an autistic employee at work, such as autism knowledge or past or present experience with autistic persons at work or in other settings.

## The present study hypotheses

The present study is the first known study to examine autism knowledge and autism experience as predictors of more accurate behavior interpretation abilities toward an autistic employee in the workplace. The following hypotheses were proposed:

- 1) Higher autism knowledge scores and more experience with autism and autistic persons will be associated with more accurate behavior interpretation abilities toward a hypothetical autistic employee described in a vignette.
- 2) Consistent with the DEP, autistic participants, as a neurologically different social culture (Milton, 2012, 2017), have demonstrated more accurate interpretation of the behavior of an autistic employee in a vignette (Szechy et al., 2023). Therefore, it is expected that neurotype will moderate the relationship between autism knowledge, autism experience, and accurate behavior interpretation skills toward an autistic employee, such that these associations will be significantly greater for non-autistic participants, compared to autistic participants.

## Method

### Study measures

#### Vignette, questions, and behavior interpretation scoring

This study used the vignette of a hypothetical autistic employee in the workplace and accompanying open-ended questions from previous work examining behavior interpretation abilities toward an autistic employee's behavior by neurotype (Szechy et al., 2023). Following consultation from several self-report sources of autistic adults, including books, blog posts, interviews, and qualitative data

(Willey, 1999; Muller et al., 2003; Autism Society Ontario Autism Group, 2004; Hurlbutt and Chalmers, 2004; Grandin, 2012; DePape and Lindsay, 2016; Johnson and Joshi, 2016; Lerman et al., 2017; McKnight-Lizotte, 2018; Sosnowy et al., 2018; Anderson et al., 2020; Autistic Self Advocacy Network, n.d.; Life on the Autism Spectrum - Overview, n.d.), a vignette was written in which a hypothetical autistic employee struggles through a workday at a fictional manufacturing company. The employee experiences challenges involving changes in routines, sensory overload, social and communication ambiguity, and a lack of downtime to recover. As a result of the several stressors of the day, the employee becomes overwhelmed and emotional followed by experiencing an autistic shutdown with the inability to respond to questioning by a displeased supervisor (Muller et al., 2003; DePape and Lindsay, 2016; McKnight-Lizotte, 2018; Belek, 2019; Nimmo-Smith et al., 2020). The vignette was extensively reviewed by autistic and non-autistic autism researchers from the College Autism Network Virtual Association of Scholars [College Autism Network (CAN), n.d.] through three iterations of revisions.

Participants were randomized to read a vignette about a male (John) or female (Julie) employee, followed by six open-ended questions to capture nuances of the content of the vignette and provide the opportunity to theorize about how to understand the hypothetical autistic employee's behavior. Sample questions include *What do you guess happened in the story that caused John/Julie to think this way?* and *What do you guess happened in the story to cause John/Julie to feel this way?* Open-ended questions were scored using a similar scoring system as that used by the strange stories ToM measure developed by Happé (1994). However, unlike Happé's strange stories, only one longer and more detailed vignette was used. The text from all the open-ended questions was combined and scored as a whole for the presence or absence of content based on the following criteria: 0 = inaccurate or off-topic answer(s), 1 = partially accurate behavior interpretation answer but missing an important component (stated the employee was overwhelmed by the experiences of the day or stated the employee could not respond to a supervisor due to being shut down physically and emotionally), 2 = accurate behavior interpretation (stated the employee was *both* overwhelmed *and* experienced a shutdown). For more detailed descriptions of the development of the vignette describing an autistic employee in the workplace, open-ended questions, and the behavior interpretation abilities scoring system used, see Szechy et al. (2023).

All cases used in this study had been scored for behavior interpretation in the previous study as follows: all cases were scored by two scorers and all scoring was done blind to the neurotype of participant. Cohen's kappa values were calculated to assess interrater reliability (Cohen, 1960) using R version 4.2.1 (R Core Team, 2022). A random selection of 150 cases was scored by the first author and a speech and language pathologist with experience working in the field of autism ( $\kappa = 0.659$ , moderate agreement). The remaining cases were scored by the first author and a research assistant ( $\kappa = 0.704$ , moderate agreement). Following calculations of interrater reliability, any cases with scoring discrepancies were discussed and behavior interpretation scores were reconciled between scorers (Szechy et al., 2023).

## Autism status and autism experience questions

Participants were asked to respond yes or no to the following questions: “Do you have an autism diagnosis?” and “Do you self-identify as autistic or a person on the autism spectrum?” To assess autism experience, participants were asked to respond yes or no to the following questions: “Do you have a first-degree relative (parent, child, sibling) with an autism diagnosis?” “Do you have a second-degree relative (grandparent, grandchild, aunt, uncle, niece nephew, half-sibling, or other) with an autism diagnosis?” “Are you a service provider for autistic individuals and/or is autism the focus of your work or study?” and “In your time employed in any workplace have you ever had a coworker or coworkers that you were aware were diagnosed as autistic or on the autism spectrum?”

## Measure of autism knowledge

Participants completed the Participatory Autism Knowledge-Measure (PAK-M; Gillespie-Lynch et al., 2022). The PAK-M was adapted from the Autism Knowledge Scale (AKS), a 23-item measure of autism knowledge developed by Stone (1987). The AKS has been used and adapted by several studies internationally with well-established favorable psychometric properties (Stone, 1987; Harrison et al., 2017). The PAK-M was developed with autistic co-investigators and reflects updated autism information compared to the original AKS, as well as improved internal consistency (Gillespie-Lynch et al., 2022). The 25-item PAK-M asks participants to rate statements of autism information on a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*; Gillespie-Lynch et al., 2022). For this study, items were reverse-scored such that higher scores indicated more autism knowledge. One item, “Vaccinations cause autism,” was removed due to potential error variance from current political views about vaccinations. One item, “Richer people are only more likely to be diagnosed with autism in countries where everyone does not have equal access to healthcare,” was also removed due to the study sample being United States residents only.

Missing data analysis and multiple imputation procedures for the PAK-M were conducted using R version 4.2.1 (R Core Team, 2022). As six cases in the sample had missing PAK-M item values, Little’s MCAR (Little, 1988) was calculated and found to be significant ( $\chi^2 = 246$ ,  $df = 204$ ,  $p = 0.023$ ). Multiple imputation (MI) was conducted on the PAK-M items using predictive mean matching (van Buuren, 2021) from the *mice* (Multivariate Imputation by Chained Equation) R package (van Buuren and Groothuis-Oudshoorn, 2011). A pooled data set was created and used for analysis from five imputed data sets generated by 100 iterations each.

A reliability analysis and an exploratory factor analysis (EFA) were conducted using SPSS version 28 (IBM, 2021). To investigate the possible multidimensionality of the scale, an EFA was conducted using principal axis factoring and direct oblimin rotation for potentially correlated factors. The initial oblique solution had a Kaiser–Meyer–Olkin value of 0.895 and a significant Bartlett’s test of sphericity. An examination of the Guttman–Kaiser’s criterion (Yeomans and Golder, 1982; eigenvalues  $\geq 1$ ), the scree plot, communality values of items, and the pattern of factor loadings, indicated that the PAK-M was unidimensional. The

reliability analysis was conducted by examining corrected item–total correlations (CITC) and Cronbach’s alpha values if items were removed. Item 6, “Autism can be diagnosed as early as 18 months of age,” was removed given a low CITC value ( $r = 0.102$ ). The resulting final analysis indicated high reliability for the PAK-M 22-item unidimensional scale ( $\alpha = 0.911$ ,  $\omega = 0.914$ ) with scores in the sample ranging from 60 to 109.

## Sample

Given current autism prevalence rates of 1 in 36 (Maenner et al., 2023), Monte Carlo simulation analyses using R version 4.2.1 (R Core Team, 2022) were run on a hypothetical data set to determine adequate sample size differences for comparison of autistic and non-autistic groups. A simulation data set was created with two groups, autistic and non-autistic, and the sample PAK-M scale mean of 87.2 and a standard deviation of 12.6. Group sample sizes were manipulated such that the impact of sample sizes on the power of the test was explored. With unequal sample sizes of 30 autistic participants and 100 non-autistic participants, a difference of 2.5 points in mean PAK-M scale scores would be considered statistically significant at  $p < 0.05$ , with a small effect size, as measured by Cohen’s  $d$ , of 0.2 and a low power estimate of 0.16. A difference of 7.5 points on mean PAK-M scale scores would be statistically significant at  $p < 0.001$ . The effect size, as measured by Cohen’s  $d$ , would be moderate at 0.6, with a strong power estimated at 0.82 (Cohen, 1988).

This study sample was composed of 73 (34.3%) autistic and 140 (65.7%) non-autistic participants ( $N = 213$ ). The majority identified as a cisgender woman (65%) followed by a cisgender man (25.2%). However, 21 participants (10%) identified as non-binary, transgender, or gender non-conforming. The majority of participants identifying as non-binary, transgender, or gender non-conforming (16) were in the autistic group, consistent with reported higher rates of gender-diverse persons in the autistic community (Strang et al., 2018; Kourti and MacLeod, 2019; Lewis et al., 2021). The average age of the sample was 34.4 with a range of 18–73 years old. The majority of the sample identified as white (74.6%) followed by Black (8.5%), and Asian (7.5%). More than half of the sample (56.3%) had a college degree or higher and the majority had been employed more than 50% of their adult life (78.4%), with no participants reporting having never been employed as an adult. Further demographic characteristics of the sample by neurotype are presented in Table 1.

## Procedure

Data for this study and the study sample are from a larger online anonymous survey of 254 participants in a cross-sectional posttest-only comparative approach (Szechy et al., 2023). For this study, 41 participants were excluded from the original sample due to missing demographic and autism experience data (83.8% of participants remained). Participant recruitment was conducted in two stages to ensure an adequate sample of autistic participants for group comparison data analysis. Autistic participants were

TABLE 1 Description of the sample.

	Non-autistic, <i>n</i> (%)	Autistic, <i>n</i> (%)	Total (sample), <i>n</i> (%)
<b>Gender**</b>			
Cisgender man	29 (20.7)	25 (34.2)	54 (23.2)
Cisgender woman	106 (75.7)	32 (43.8)	138 (65.0)
Non-binary/gender non-conforming/transgender/other	5 (3.6)	16 (23.5)	21 (9.9)
<b>Race</b>			
White	100 (62.8)	59 (80.8)	159 (74.6)
Black	14 (10)	4 (5.4)	18 (8.4)
Asian	12 (8.6)	4 (5.4)	16 (7.5)
Middle Eastern or North African	4 (2.8)	4 (5.4)	8 (3.7)
Latino or Hispanic	8 (5.7)	5 (6.8)	13 (6.1)
Native American/First Nation/Alaskan/Hawaiian/Pacific Islander/other	11 (7.8)	4 (4.9)	15 (7.0)
<b>Education level*</b>			
High school graduate or less	14 (10.0)	18 (24.6)	32 (15.0)
Some college/associate's degree	38 (27.1)	23 (31.5)	72 (33.8)
College degree	44 (31.4)	12 (16.4)	56 (26.3)
Graduate or professional degree	44 (31.4)	20 (27.4)	64 (30.0)
<b>Household income (USD)*</b>			
35,000 or less	16 (11.4)	19 (26.0)	38 (17.8)
35,000–74,999	41 (29.3)	29 (39.7)	75 (35.2)
75,000–124,999	39 (27.8)	16 (21.9)	62 (29.1)
125,000 or more	44 (31.4)	9 (12.3)	61 (28.6)
<b>Amount of time employed in adulthood</b>			
50% or less	25 (17.8)	21 (28.8)	46 (21.6)
More than 50%	115 (82.1)	52 (71.2)	167 (78.4)
	( <i>M/SD</i> )	( <i>M/SD</i> )	( <i>M/SD</i> )
Age**	36.3 (14.4)	30.8 (10.2)	34.4 (13.3)

N = 213. USD = U.S. dollars.

\**p* < 0.05.

\*\**p* < 0.001.

recruited from April to May 2022, through CANVAS [College Autism Network (CAN), n.d.], the University Center for Excellence in Developmental Disabilities, and social media groups for autistic adults. Non-autistic participants were recruited through campus-wide advertisements and social media.

Participants were directed to an online anonymous Qualtrics survey with several safeguards built into the survey to exclude bots, duplicate responses, and users accessing the survey from outside the United States. After completing the survey, participants could optionally enter a drawing to win one of 10 gift cards worth \$50.00. This study was approved by the Wayne State University Institutional Review Board, IRB-22-02-4403.

The survey began with the vignette as described earlier. Participants were not told at the beginning but debriefed at the end of the survey that the character in the vignette was autistic.

Withholding neurotype information from participants is consistent with other studies examining the DEP and perceptions of autistic behavior by participant observers (Sheppard et al., 2016; Crompton et al., 2020b), and consistent with ToM measures such as Happé's (1994) strange stories, which do not indicate the neurotype of characters in vignettes. By not disclosing the autism status of the employee in the vignette, the study promotes autistic behavior as part of human neurodiversity and of equal value to non-autistic behavior including the importance of it being accurately understood (Milton, 2017; Autistic Self Advocacy Network, n.d.).

Following reading the vignette, participants were asked open-ended questions regarding their interpretation of the behavior of the hypothetical autistic employee (Szechy et al., 2023). Participants also completed the PAK-M items, autism experience items, and demographic questions, including their race, income,

education level, and percentage of time in adulthood they have been employed.

## Data analysis

A bivariate analysis of demographic, and autism experience variables was conducted using SPSS version 28 (IBM, 2021). Analysis of variance (ANOVA) and logistic regression analyses were conducted using R version 4.2.1 (R Core Team, 2022). Following examining bivariate results, a hierarchical logistic regression analysis predicting behavior interpretation scores was conducted in four blocks. The initial model included neurotype (autistic/non-autistic), education level, gender, age, and autism experience variables. The second block included autism knowledge scores. Per the study hypotheses that neurotype will moderate the relationships between autism knowledge and experience, and behavior interpretation abilities, the third block included the interaction between neurotype and autism knowledge. The fourth block included the interaction between neurotype and autism experience variables.

## Results

### Bivariate analysis

Bivariate relationships between behavior interpretation scores, demographic variables, autism knowledge scores, and autism experience variables were calculated and are presented in Table 2. The following demographic variables were dichotomized due to low expected cell counts: race, education level, income, and amount of time employed in adulthood. Consistent with previous findings from the larger sample from which this study sample was drawn (Szechy et al., 2023), autistic participants were more likely to have a behavior interpretation score of 2 compared to non-autistic participants ( $\chi^2 = 13.1, p = 0.001$ ). Participants who had a college degree or higher ( $\chi^2 = 13.3, p < 0.001$ ) were more likely to have a behavior interpretation score of 1 or 2. Cisgender women were more likely to have a behavior interpretation score of 1 or 2 compared to cisgender men, and participants identifying as non-binary/transgender/gender non-conforming were the most likely to have a behavior interpretation score of 2 compared to both other genders ( $\chi^2 = 26.0, p < 0.001$ ). Contrary to the first study hypotheses of the autism experience variables, both participants who reported having had an autistic coworker ( $\chi^2 = 6.9, p = 0.031$ ), and participants who reported autism was the focus of their work or study ( $\chi^2 = 11.1, p = 0.004$ ), were less likely to have a behavior interpretation score of 2.

A one-way ANOVA, examining participant age by behavior interpretation score was statistically significant,  $F_{(2,212)} = 4.64, p = 0.011$ . The ANOVA was bootstrapped due to a significant positive skew of the age variable. Older participants were more likely to have a behavior interpretation score of 2 ( $M = 37.3$ ) compared to participants with a behavior interpretation score of 0 ( $M = 30.9$ , 95% CI of bootstrapped mean difference 2.2–10.4).

A one-way ANOVA of PAK-M scores by behavior interpretation scores was significant,  $F_{(2,212)} = 72.8, p < 0.001$ . Games–Howell *post-hoc* tests indicated that participants who had a behavior interpretation score of 0 ( $M = 76.3, SD = 11.1$ ) had significantly lower mean PAK-M scores (less autism knowledge) compared to participants who scored a 1 ( $M = 88.2, SD = 9.8, p < 0.001$ ) and participants who scored a 2 ( $M = 95.4, SD = 8.2, p < 0.001$ ). Participants with a behavior interpretation score of 1 also had significantly lower mean PAK-M scores than participants with a behavior interpretation score of 2 ( $p < 0.001$ ).

### Associations between autism knowledge and autism experience variables

Mean PAK-M scores were not significantly different if participants had a history of working with an autistic coworker ( $M = 85.0, SD = 13.5$ ) compared to no autistic coworker history,  $M = 87.5, SD = 12.1, t_{(211)} = 1.3, p = 0.092$ , or had an autistic relative ( $M = 87.4, SD = 12.1$ ) compared to no autistic relative,  $M = 86.1, SD = 13.0, t_{(211)} = -0.69, p = 0.49$ . However, contrary to what might be expected of those who work or study in the field of autism, participants who identified autism as being the focus of their work or study had a significantly lower mean score on the PAK-M ( $M = 81.7, SD = 15.5$ ) compared to those who did not indicate that autism was the focus of their work or study,  $M = 88.0, SD = 11.3, t_{(211)} = 2.72, p = 0.008$ .

### Logistic regression analysis

Given only 10 autistic participants had a behavior interpretation score of 1, very low cell counts of the dependent variable were expected in the regression along with potentially accompanying large standard errors (Harrell, 2015; Field, 2018). Therefore, for regression analysis behavior interpretation scores were dichotomized by grouping scores of 0 (inaccurate behavior interpretation) and 1 (partially accurate behavior interpretation but missing an important component) vs. a behavior interpretation score of 2 (accurate behavior interpretation of behavior). To accommodate predictors in a more parsimonious model, binary demographic variables were entered into the regression. For participants who reported having a first- or second-degree autistic relative, given the many variations of circumstances and the limited sample size, this variable was dichotomized into a yes/no answer.

A hierarchical logistic regression analysis was conducted examining predictors of behavior interpretation scores in four blocks: (1) demographics and autism experience, (2) autism knowledge, (3) interactions between neurotype and autism knowledge, and (4) interactions between neurotype and autism experience. Demographic predictors of age, gender, income, and education level were included in the regression models given they were significantly associated with behavior interpretation scores in the bivariate analyses. Collinearity statistics indicated tolerance values ranging from 0.696 to 0.870 and variance inflation factor values ranging from 1.149 to 1.426 for all predictors in the model, indicating no concerns with multicollinearity. For all four regression blocks, the deviance/degrees of freedom residual

TABLE 2 Bivariate relationships with behavior interpretation scores.

	Behavior interpretation scores, <i>n</i> (%) <sup>a</sup>		
	0	1	2
<b>Neurotype**</b>			
Autistic	30 (41.0)	10 (13.7)	33 (45.2)
Non-autistic	46 (32.8)	52 (37.1)	42 (30.0)
<b>Race</b>			
White	50 (35.0)	37 (26.9)	56 (39.2)
Non-white	26 (37.1)	25 (35.7)	19 (27.1)
<b>Gender of hypothetical autistic employee</b>			
Male	46 (43.0)	27 (25.2)	34 (31.8)
Female	30 (28.3)	35 (33.0)	41 (38.7)
<b>Gender of participant***</b>			
Cisgender man	33 (61.1)	11 (20.4)	10 (18.5)
Cisgender woman	41 (29.7)	45 (32.6)	52 (37.7)
Non-binary/transgender/gender non-conforming/other	2 (9.5)	6 (28.6)	13 (61.9)
<b>Education level***</b>			
Below a college degree	44 (47.3)	29 (31.2)	20 (21.5)
College degree or higher/professional degree	32 (26.7)	33 (27.5)	55 (45.8)
<b>Income**</b>			
\$74,999 or less	50 (47.6)	27 (25.7)	28 (26.7)
\$75,000 or greater	26 (24.1)	35 (32.4)	47 (43.5)
<b>Amount of time employed in adulthood</b>			
50% or less	21 (45.7)	14 (30.4)	11 (23.9)
More than 50%	55 (32.9)	48 (28.7)	64 (38.3)
<b>Autistic relative</b>			
No	54 (38.0)	44 (31.0)	44 (31.0)
Yes	22 (31.0)	18 (25.4)	31 (43.7)
<b>Autistic coworker (past or present)*</b>			
No	40 (30.8)	46 (35.4)	44 (33.8)
Yes	36 (43.4)	16 (19.3)	31 (37.3)
<b>Autism is the focus of work or study**</b>			
No	48 (29.6)	53 (32.7)	61 (37.7)
Yes	28 (54.9)	9 (17.6)	14 (27.5)
	( <i>M/SD</i> )	( <i>M/SD</i> )	( <i>M/SD</i> )
Age*	30.9 (9.8)*	35.0 (15.2)	37.3 (14.1)*
PAK-M score***	76.3 (11.1)***	88.2 (9.8)***	95.4 (8.2)***

N = 226. PAK-M, Participatory Autism Knowledge-Measure.

\**p* < 0.05.

\*\**p* < 0.01.

\*\*\**p* < 0.001.

<sup>a</sup>0 = inaccurate behavior interpretation, 1 = partially accurate but missing an important component, 2 = accurate interpretation of the behavior. N = 213.

ratio ranged from 0.898 to 1.12, indicating no concerns with overdispersion (Cameron and Trivedi, 1990).

Predictors entered into the first block were neurotype (autistic/non-autistic), age, gender (three genders, with male as

the reference group), education level, income, and the autism experience variables of having an autistic relative, autism being the focus of work or study, or a history of having an autistic coworker. The overall model was significant,  $\chi^2_{(9)} = 35.8, p <$



0.001, Nagelkerke  $R^2 = 0.28$ ,  $-2LL = 227.74$ ). Participants who were autistic (OR = 4.25,  $p < 0.001$ ), had a college degree or higher (OR = 2.97,  $p = 0.004$ ), had household incomes of \$75,000 or higher (OR = 2.06,  $p = 0.02$ ), identified as cisgender woman vs. cisgender man (OR = 3.32,  $p = 0.006$ ), and identified as non-binary/transgender/other gender vs. cisgender man (OR = 6.66,  $p = 0.002$ ) were significantly more likely to have a behavior interpretation score of 2 (accurate interpretation). For participants who reported that autism was the focus of their work or study, the regression coefficient was trending toward those participants being less likely to have a behavior interpretation score of 2 but did not meet standard  $p < 0.05$  criteria (OR = 0.428,  $p = 0.054$ ).

The second regression block included PAK-M scores as a predictor. The overall model was significant,  $\chi^2_{(10)} = 47.9$ ,  $p < 0.001$ , Nagelkerke  $R^2 = 0.48$ .  $-2LL = 185.33$ , with a significant change in model fit from the first block ( $\Delta -2LL = 42.4$ ,  $p < 0.001$ ). Higher PAK-M scale scores (greater knowledge) were associated with greater odds of having a behavior interpretation score of 2 (OR = 1.12,  $p < 0.001$ ). Autistic participants were significantly more likely to have a behavior interpretation score of 2 (accurate interpretation; OR = 2.94,  $p = 0.02$ ). However, controlling for variance in PAK-M scores resulted in education level ( $p = 0.25$ ), income ( $p = 0.15$ ), being female vs. male ( $p = 0.08$ ), and identifying as non-binary/transgender/non-conforming/other ( $p = 0.10$ ) no longer being significant predictors of a behavior interpretation score of 2. Autism being the focus of participant work or study was no longer trending toward being a significant predictor of a behavior interpretation score of 2 ( $p = 0.30$ ).

The third regression block included the interaction between neurotype and autism knowledge. The overall model was significant,  $\chi^2_{(11)} = 46.3$ ,  $p < 0.001$ , Nagelkerke  $R^2 = 0.49$ .  $-2LL = 183.09$ , but with no significant improvement in model fit from the second block ( $\Delta -2LL = 2.23$ ,  $p = 0.135$ ). The interaction between neurotype and autism knowledge was not a significant predictor of behavior interpretation scores. However, by adding the interaction into the model, neurotype alone was no longer a significant predictor in the model ( $p = 0.15$ ).

The fourth block included the interactions between neurotype and autism experience variables. The overall model was significant,  $\chi^2_{(14)} = 42.0$ ,  $p < 0.001$ , Nagelkerke  $R^2 = 0.51$ .  $-2LL = 177.77$ . None of the interaction terms were significantly associated with behavior interpretation scores and model fit was not significantly improved ( $\Delta -2LL = 5.32$ ,  $p = 0.15$ ). Neurotype was not a significant predictor of behavior interpretation scores ( $p = 0.71$ ). The results of the hierarchical logistic regression are reported in [Table 3](#). Given the lack of significant improvement in model fit for blocks 3 and 4, changes in predictors in model blocks 3 and 4 were not considered to be significant.

## Discussion

Consistent with the DEP and with previous findings with the larger sample (Szechy et al., 2023), autistic participants had greater odds of correctly interpreting the behavior of an autistic employee, compared to non-autistic participants. This finding indicates that within the context of the workplace and regardless of a person's level of autism knowledge, autistic

individuals were more likely to accurately interpret autistic behavior and understand autistic challenges, compared to non-autistic. Additionally, participants' autism knowledge, as measured by the PAK-M, significantly impacted all the regression models as an influential predictor of accurate behavior interpretation toward the hypothetical autistic employee in the vignette. Consistent with the first hypothesis, autism knowledge above and beyond all other factors, was associated with accurate behavior interpretation. However, contrary to the first hypothesis, once variance from autism knowledge was accounted for, autism experience was not significantly associated with accurate behavior interpretation. Furthermore, once introduced into the regression, autism knowledge accounted for the odds of accurately interpreting the autistic employee's behavior previously associated with education level, income, and gender identity.

Contrary to this study's second hypothesis that neurotype (autistic/non-autistic) would moderate the relationship between autism knowledge, autism experience, and behavior interpretation, those interactions were not significant predictors in the final models. For non-autistic participants, autism knowledge was not more influential with behavior interpretation skills toward the autistic employee, compared to autistic participants. Autism knowledge may be helpful for both autistic and non-autistic individuals in understanding autistic employees in the workplace. Autistic individuals may benefit from education about their own disability, particularly from their autistic peers. For example, newly diagnosed autistic adults have reported benefiting from autistic lead peer support, including understanding their own autism better and understanding diversity within their community (Crane et al., 2021). While experiencing the world from an autistic perspective autism education may also help the autistic person to understand their own identity and improve their connections with the autistic community, including in the workplace.

While non-autistic persons who have experience with autistic individuals in their families, workplace, or as part of their work or study, may have the personal expectation that they understand the autistic experience (Clarke and Fung, 2022), in actuality, they may not. In the bivariate analysis, participants who indicated autism was the focus of their work or study also scored significantly lower on the autism knowledge measure. While not statistically significant there was a trend toward participants who indicated that autism was the focus of their work or study also being less likely to demonstrate behavior interpretation abilities toward the autistic employee. Controlling for the influence of autism knowledge in the regression models negated the association between autism being the focus of work or study and poorer behavior interpretation toward a hypothetical autistic employee. This study used a non-probability convenience sample with potential sampling bias addressed in the study limitations. It is possible that participants in the sample who did not indicate autism as their focus of work or study, were still more knowledgeable and familiar with autism compared to the general population, and, therefore, not a representative comparison group. However, the importance of anyone working in the autism field to be educated and trained with accurate information about autism and the autism experience cannot be overstated. This is especially of concern when autistic service providers often hold power over autistic individuals who are the recipients of their service (Milton, 2016).

TABLE 3 Hierarchical logistic regression predicting behavior interpretation scores of "0/1" vs. "2"<sup>a</sup>.

Variable	Model 1	Model 2	Model 3	Model 4
	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]
Neurotype (non-autistic/autistic) <sup>b</sup>	4.25*** [1.91–9.87]	2.94** [1.18–7.54]	2.18 [0.727–6.20]	1.43 [0.178–8.55]
Education level <sup>c</sup>	2.97** [1.44–6.35]	1.64 [0.710–3.85]	1.61 [0.695–3.80]	1.64 [0.701–3.90]
Income <sup>d</sup>	2.06* [1.03–4.24]	1.79 [0.818–4.00]	1.81 [0.826–4.09]	1.83 [0.821–4.18]
Autistic relative <sup>e</sup>	1.51 [0.744–3.07]	1.58 [0.713–3.53]	1.76 [0.782–3.98]	1.29 [0.501–3.25]
Autistic co-worker <sup>f</sup>	1.10 [0.548–2.18]	1.57 [0.716–3.48]	1.58 [0.721–3.52]	1.94 [0.783–4.84]
Autism is the focus of work/study <sup>g</sup>	0.428 [0.174–0.999]	0.576 [0.195–1.60]	0.579 [0.184–1.68]	1.02 [0.266–3.60]
Age	1.01 [0.986–1.04]	1.03 [0.998–1.06]	1.02 [0.995–1.06]	1.02 [0.993–1.05]
Cisgender woman <sup>h</sup>	3.32** [1.45–8.28]	2.41 [0.920–6.83]	2.43 [0.906–7.09]	3.03 [1.05–9.95]
Non-binary/transgender/gender non-conforming/other <sup>i</sup>	6.66** [2.01–23.8]	3.33 [0.816–14.4]	2.98 [0.674–13.6]	3.97 [0.828–20.2]
Autism knowledge (PAK-M scores)		1.12*** [1.08–1.17]	1.09** [1.04–1.16]	1.09*** [1.04–1.16]
Neurotype by PAK-M score interaction			1.07 [0.980–1.17]	1.12 [1.00–1.30]
Neurotype by autistic relative interaction				6.21 [0.741–82.4]
Neurotype by autistic coworker interaction				0.634 [0.100–4.29]
Neurotype by autism focus of work/study interaction				0.121 [0.008–1.39]
Model $\chi^2$ (df)	35.8 (9)***	47.9 (10)***	46.3 (11)***	42.0 (14)***
Nagelkerke Pseudo $R^2$	0.28	0.48	0.49	0.51
-2LL	227.74	185.33	183.09	177.77
$\Delta$ -2LL		42.4***	2.23	5.32

N = 213. PAK-M, Participatory Autism Knowledge-Measure.

\*p < 0.05.

\*\*p < 0.01.

\*\*\*p < 0.001.

<sup>a</sup>Inaccurate or partially accurate behavior interpretation (missing important component) = 0/1, accurate behavior interpretation = 2.

<sup>b</sup>Non-autistic = 0, autistic = 1.

<sup>c</sup>Below college degree = 0, college degree or higher = 1.

<sup>d</sup>\$74,999 or less = 0, \$75,000 or greater = 1.

<sup>e</sup>-§No = 0, yes = 1.

<sup>h,i</sup>Cisgender man is the reference group.

In addition to this study's findings that autism knowledge was associated with more accurate behavior interpretation, in other studies, autism knowledge has been associated with more positive attitudes and the perceptions of autistic persons. Autism knowledge has been associated with more favorable first impressions of autistic individuals, which may improve social interactions between autistic and non-autistic persons (Sasson and Morrison, 2019). A brief online autism training for college students was followed by not only increased autism knowledge but also decreased autism stigma (Gillespie-Lynch et al., 2015). Morrison et al. (2019)

examined the association between participant characteristics (e.g., autism knowledge and stigma beliefs about autism) and first impressions of an autistic person being observed. They concluded that first perceptions were more related to the characteristics of the participants, such as their knowledge of autism, as opposed to characteristics of the autistic person being observed. How autistic others are perceived may be more about the internal knowledge and beliefs of the non-autistic perceiver, as opposed to the way an autistic person presents to others (Morrison et al., 2019).

## Autism employment supports

Autistic employees who experience miscommunication with others in the workplace and whose behavior and characteristics are misunderstood are potentially at risk for failing to obtain and retain employment (Black et al., 2020; Flower et al., 2021; Whelpley and May, 2022). Many intervention studies addressing autism and employment challenges have been oriented toward helping autistic individuals gain social skills to function in non-autistic work environments (Wehman et al., 2016; Lerman et al., 2017; Grob et al., 2019; Roberts et al., 2020). Despite these interventions, autistic individuals still struggle with employment and may not generalize skills across the many nuanced social situations in the non-autistic workplace (Scott et al., 2019; Roux et al., 2021). Furthermore, previous autism employment interventions have placed little emphasis on workplace environmental factors that make the workplace challenging for autistic employees. Likewise, there has been little focus on changing workplace culture to be more accepting and accommodating to autistic coworkers (Sosnowy et al., 2018; Scott et al., 2019; Black et al., 2020).

This study's strong association between autism knowledge and accurate interpretation of autistic employee behavior supports the importance of autism education for coworkers and supervisors as a workplace intervention. Educating non-autistic coworkers and supervisors with accurate autism information, may significantly impact their understanding of autistic employees, and therefore help address the DEP. Consistent with the findings of this study, the findings of Dreaver et al. (2020) support the need for autism knowledge in the workplace. In their qualitative study of employer feedback, employers credited autism knowledge as helping them provide better support to their autistic employees. In particular, they noted the benefits of learning the best ways to communicate with their autistic employees and learning ways to modify the environment to manage workplace stressors (Dreaver et al., 2020). Autism knowledge contributes to understanding and appreciation of the autistic experience and therefore potentially contributes to autistic employee job satisfaction and success.

Non-autistic researchers often have control over the research agenda for the autistic community and design research studies without incorporating input from autistic collaborators (Robertson, 2009; Fletcher-Watson et al., 2019). Support for the DEP promotes cultural humility among those who are not autistic, including those who study and work in the field of autism as they should not assume they accurately understand autistic behaviors and autistic individuals' experiences (Milton et al., 2022). It is the responsibility of non-autistic autism researchers to approach the population they serve with humility and recognize that autistic individuals are the experts on their own experience (Botha, 2021; Milton et al., 2022). The PAK-M used in this study was developed with a team of autistic and non-autistic researchers within a participatory action research model (Gillespie-Lynch et al., 2022). When autism trainings were provided to non-autistic higher education students, the training which included information developed by autistic collaborators and direct contact and input from autistic lead presentations, was more significantly associated with improved knowledge of autism, more positive attitudes toward autistic students, and decreased stigma toward autistic students (Gillespie-Lynch et al., 2022).

The present study's finding of the PAK-M score as the most influential predictor of accurate behavior interpretation toward an autistic employee in a vignette points to the importance of educating others with up-to-date autism information co-created with autistic collaborators. Such education is important regardless of one's autism experience, such as having an autistic family member, coworker, or being an autism service provider. In considering the "nothing about us without us" statement of autistic self-advocates (Autistic Self Advocacy Network, n.d.) and the growing call for participatory action research and participatory methods in planning autistic supports (Fletcher-Watson et al., 2019; Nicolaidis et al., 2019; Pellicano, 2020; Stark et al., 2020), planning autism education as an environmental intervention would best be done in a participatory model. The future of autism research and intervention is in collaboration with the autistic community (Pellicano et al., 2018).

## Limitations

For analysis purposes, this study sampled in two phases in order to have a larger number of autistic participants compared to what would be expected based on the occurrence of autism in the general population. The first phase of sampling asked for autistic participants. The second phase of sampling invited all adult participants and used different recruitment advertising. However, as a non-probability convenience sample from social media attached to the researcher, many participants may have been aware of the general area of research and may also have more autism knowledge and experience compared to what is found in the general population. In comparing variables such as knowledge scores between groups, the comparison group of those for whom autism was not the focus of their work or study may still have had greater knowledge and exposure to autism compared to the general population. There may also be other instances of sampling bias not known to the authors.

Autism experience in this study was measured with yes-or-no answers to questions, such as having had an autistic coworker, as this was a concrete self-report measure for participants. This measurement would not capture potentially complex and highly variable autism experiences. Likewise, the simple binary variable of autism being the focus of work or study does not capture any important data regarding what kind of work and what type and level of study the participant undertook in the field of autism.

In this study, behavior interpretation abilities were measured by one vignette only. While this vignette contains significant detail created from multiple sources of self-report and lived experiences of autistic employees' and reviewed by autistic autism researchers (Szechy et al., 2023), it does not represent the full autistic experiences of autistic employees in the workplace.

As this study employed an anonymous online survey methodology, the validity of participants' self-reported autism diagnosis could not be verified.

This study points to the importance of cultural humility of non-autistic researchers and upholds the growing call for participatory autism research with autistic co-creators, co-investigators, and co-authors (Fletcher-Watson et al., 2019; Nicolaidis et al., 2019;

Pellicano, 2020). Although several autistic researchers consulted on the workplace vignette, a limitation of this study is that it was not designed or conducted with an autistic co-investigator.

## Conclusion

Ongoing support for the DEP and the influence of autism knowledge in accurate interpretation of autistic behavior at work, together have implications for how autism employment supports are approached and developed. Rather than focusing on fixing incorrectly assumed autistic social impairments, study findings support addressing mutual misunderstandings in autistic and non-autistic social interactions as well as focusing on imparting accurate participatory autism knowledge in the workplace. Educating non-autistic workplaces about autism and the autism experience is consistent with working toward autism-friendly workplace environments and culture. Going forward, autism adult support studies examining the effectiveness of autism education programs within the workplace could significantly contribute to the field of autism employment supports. Such research has the potential to enhance autistic employees' optimal workplace functioning.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by Wayne State University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The ethics committee/institutional review board waived the requirement of written informed consent for participation from the participants or the participants' legal guardians/next of kin because Anonymous online survey in which consent was given by proceeding after reading a research information sheet approved by the IRB.

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## Author contributions

KS: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Visualization, Writing – original draft, Writing – review & editing. LO'D: Methodology, Resources, Supervision, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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