

SHL.

Assessing Neurodiverse Talent


Insights from SHL's Neurodiversity Research Program



Neurodiversity is an umbrella term which refers to natural variations in the way people think and process information. A variety of terms are used to describe less typical neurotypes, including: neurodivergent (as used in this paper¹), neurominority, neurodistinct, differently abled, and neuroatypical.



¹ Our research team includes representation from the neurodivergent community. We strive to use inclusive language and we welcome feedback on how we can enhance the accessibility and inclusiveness of our communications.



Neurodivergent conditions include autism spectrum disorder, dyspraxia, dyslexia, attention deficit hyperactivity disorder (ADHD), Tourette Syndrome and more. Some also extend this to mental health disorders, such as anxiety and depression and acquired brain injury². It's common for individuals to have more than one neurodivergent condition.

While most neurotypical individuals will have both areas of cognitive strengths and challenges, individuals with neurodivergent conditions are likely to display more exaggerated differences, which is often referred to as a 'spiky profile'. Historically, there has been greater focus on the challenges, but there is now a call to instead adopt a strengths-based approach, focusing on the benefits that these individuals can offer to an organization³.

SHL is committed to ensuring that our talent solution offerings are inclusive and accessible for all candidates, helping our clients attract and retain neurodivergent talent. As a leading Talent Solutions provider, SHL has a unique opportunity to further the applied research in this area. We have a responsibility to our clients, their candidates, and our fellow Industrial/Organizational Psychologists to make this research a priority.

This white paper aims to outline why neurodiversity is such an important topic for organizations and to summarize our research to share tangible insights that can drive best practice recommendations for assessing neurodiverse talent.

Research is lagging behind practice in the area of neurodiversity and assessments⁴.

² Weinberg, A., & Doyle, N, 2017

³ Weinberg, A., & Doyle, N, 2017

⁴ LeFevre-Levy, R., Melson-Sillimon, A.M., Harmata, R., Hulett, A.L., & Carter, N.T., 2022

Why Neurodiversity Should Be of Interest to You

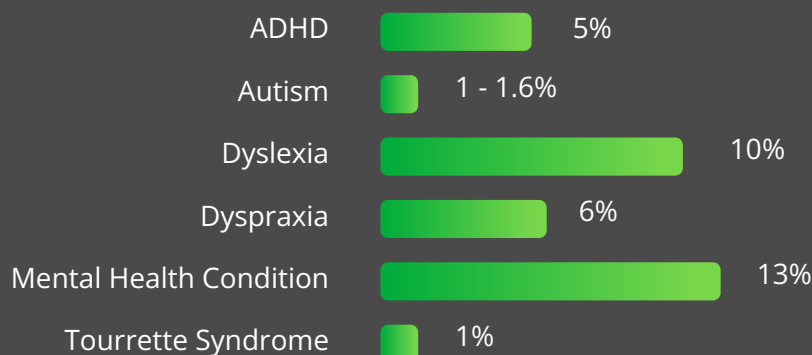
As individuals with neurodivergent conditions are believed to make up about 15-20% of the population, **you can bet that your candidate pool includes neurodivergent talent.** It is difficult to create an exact estimation of prevalence rates given overlap between conditions⁵, misconceptions about the presentation of conditions (e.g., a lack of appreciation of how symptoms vary by gender), and difficulties accessing resources to obtain a diagnosis. Figure 1 shares estimates on the prevalence of some neurodivergent conditions.

Historically, the focus of neurodiversity research has been on the medical model used to diagnose differences displayed by individuals who are neurodivergent, typically focusing on the things they find challenging. These vary by condition and by individual,

but commonly include executive function difficulty such as working memory, attention regulation, and self-regulation⁶.

However, in light of the global diversity movement, organizations are increasingly recognizing and truly appreciating the strengths those with neurodivergent conditions can bring to a role. This aligns with the social justice model which emphasizes the importance of accommodating and leveraging differences, rather than seeking to “fix” them⁷. Common strengths found within the neurodivergent talent pool include higher order cognitive functioning reliant on comprehension and creativity, and others such as innovation, hyper-focus, and entrepreneurialism⁸.

Figure 1: **Prevalence of Neurodivergent Conditions (Globally)**⁹



⁵ Doyle, N., 2020

⁶ Weinberg, A., & Doyle, N., 2017

⁷ LeFevre-Levy, R., Melson-Sillimon, A.M., Harmata, R., Hulett, A.L., & Carter, N.T., 2022

⁸ Hock, M. F., 2012; Armstrong, T., 2010; Logan, J. 2009 - as cited in Doyle, N., 2020

⁹ Doyle, N. 2020; Weinberg, A., & Doyle, N., 2017; Robertson, M. M., Eapen, V., & Cavanna, A. E., 2009; World Health Organization, 2022

Although more research is needed to identify how the unique strengths of neurodivergent people can be applied within a variety of roles, some industries are ahead of others in this area. For instance, the information technology industry has already begun using targeted recruitment efforts for neurodivergent talent to fill their digital-age roles. This is due to the link between critical competencies for success in these roles and the perceived key strengths of this population (e.g., ability to recognize patterns, complete repetitive tasks, stay focused, and apply strong detail orientation)¹⁰.

Prominent companies who have implemented neurodiversity programs to leverage neurodivergent talent have reported positive reputational and business outcomes, such as productivity, quality, innovation, and employee engagement¹¹.



Despite the unique strengths and business outcomes that neurodivergent talent can bring to organizations, this population remains underemployed¹².

The Center for Neurodiversity and Employment Innovation at the University of Connecticut estimates that unemployment for neurodivergent adults runs at least as high as 30-40%¹³. This is three times the rate for people with disability, and eight times the rate for people without disability. A survey of over 1000 leaders and managers, carried out by The Institute of Leadership & Management in the UK, highlighted a worrying level of bias¹⁴. Half of respondents surveyed reported they would not employ someone who is neurodivergent due to assumptions from negative and false stereotypes, such as incapability and a need for extra supervision.

The underemployment of this population presents a significant opportunity for organizations to recruit and hire neurodivergent talent to leverage their strengths and impact business outcomes.

10 Boucher, J., 2008

11 Austin R.D., & Pisano, P.G., 2017

12 Austin R.D., & Pisano, P.G., 2017

13 The Center for Neurodiversity & Employment Innovation, 2022

14 The Institute of Leadership & Management, 2022

Neurodiversity and Assessments

The growing diversity movement has led many organizations to expand their diversity and inclusion efforts and reconsider what they are doing to help support neurodivergent candidates as they proceed through their application process. However, research in this area lags significantly behind practice and more clarity is needed around neurodiversity¹⁵, particularly in the assessment and selection process¹⁶.

A small body of research exists on neurodiversity and assessments¹⁷, for instance, exploring differences in selection assessments¹⁸ and the effectiveness of alternative designs, such as visual personality inventories for individuals which could aid those with dyslexia¹⁹ and game-based cognitive ability assessments²⁰. However, research proves challenging due to limited sample sizes given low disclosure rates. Often candidates aren't willing to disclose and request accommodations²¹, especially in a high-stakes hiring context, because they have not been diagnosed, do not consider their condition a disability, and/or fear the potential stigma and discrimination.

If conditions are disclosed, many modifications can be offered to support neurodivergent candidates while taking assessments, including screen readers, extra time, having someone present to support, providing color contrast, sharing interview questions in advance, and more²². Many practitioners seek guidance on what adjustments are best suited to each type of condition, yet an individualized approach appears more suitable given the overlap between neurodivergent conditions and variations in how each individual experiences the assessment. Despite anecdotal feedback, the effectiveness of modifications has not been established.

Further research is needed to better understand how inclusive assessment and selection programs can serve neurodivergent talent. SHL has committed our research program to help begin to address these gaps and define evidence-based best practices for serving this talent pool.



15 Doyle, N., 2020
16 LeFevre-Levy, R., Melson-Silimon, A.M., Harmata, R., Hulett, A.L., & Carter, N.T., 2022
17 Ritterbush, E.A. & Nuss, K., 2022
18 Lodi-Smith, J., Rodgers, J. D., Cunningham, S. A., Lopata, C., & Thomeer., 2019; Schwarzman, B.C., Wood, J.J., & Kapp, S.K., 2016; Jacobsson, Hopwood, Söderpalm, & Nilsson, 2021.
19 Hilliard, A., Kazim, E., Bitsakis, T., & Leutner, F., 2022
20 Willis, C., Powell-Rudy, T., Colley, K., & Prasad, J., 2021
21 Price, L., Gerber, P.J., & Mulligan, R., 2003
22 Employment Autism, 2022

An Update on SHL's Neurodiversity Research Program

SHL's Neurodiversity Research Program was founded in 2019 and now sits within [SHL Labs](#), an innovation powerhouse dedicated to transforming the talent landscape, including a focus on [Diversity, Equity, and Inclusion \(DEI\)](#). Our Neurodiversity Research Program exists to gather and inform evidence-based best practices, and to create selection tools that provide an inclusive and accessible experience in which all candidates can perform to the best of their abilities reducing the need to request adjustments.

To date we have sought to study the following questions:

1 How do individuals with neurodivergent conditions **perform** on assessments?

2 How do individuals with neurodivergent conditions **experience or react** to assessments?

At SHL, we are uniquely positioned to investigate the answers to these questions. To date, our program of research has spanned five individual research initiatives in which we have focused attention on a variety of assessment tools, as detailed in Figure 2. More detailed findings will be made available in a supplementary report.

Figure 2 Overview of SHL's Research to Date

Study 1: Performance (Cognitive Ability)*

Sample

Practice test takers with a disclosed learning disability including autism** (N=103 - 167)

Assessments

SHL's Verify Verbal Ability, Quantitative Ability, and Inductive Reasoning

Findings

Strengths: Participants disclosing a learning disability including autism took less time to complete **Verbal Ability and Quantitative Ability** than those who did not disclose a disability.

No meaningful difference on time taken for Inductive Reasoning, test scores on any of the assessments, or perception of ability to perform on any of the assessments.

Study 2: Performance (Cognitive Ability) with enhanced disclosure form*

Sample

Practice test takers with disclosed autism (N=248 - 278), learning disability (N=1,102 - 1,853), mental health condition (N= 436 - 1135) and neurological damage (N=300 - 367)

Assessments

SHL's Verify Verbal Ability, Quantitative Ability, and Inductive Reasoning

Findings

Strengths: Participants with **autism** earned slightly **higher** scores on **Quantitative Ability and Verbal Ability** than those who did not disclose a disability. Those who disclosed **autism and neurological damage** completed **Verbal Ability slightly faster**.

No meaningful difference: on test score or time taken for any other neurodivergent condition explored.

Study 3: Performance (Personality)*

Sample

Self-disclosed neurodivergent (unspecified condition) undergraduate students (N=71)

Assessments

SHL's Occupational Personality Questionnaire (OPQ)

Findings

Strengths: found in competency areas such as **Creativity and Innovation, Strategic Thinking, Learning, Writing, Applying Expertise and Technology, and Critical Thinking** than SHL's Graduate norm group.

Challenges found in competency areas such as **Delivering Results, Dependability, Planning and Organizing, Decision Making, Resilience, Initiative, and Ethics and Values**.

*Disclosure rates are low in these studies compared to the estimated global prevalence.

** Our wording in our disclosure forms has evolved over the years and we continue to seek advice and update it accordingly.

Study 4: Performance (Behavioral Assessment)*

Sample

Practice test takers with disclosed autism (N=119), learning disability (N=647), mental health condition (N= 405) and neurological damage (N=119)

Assessments

15 scales from SHL's [Apta behavioral assessment](#)

Findings

Strengths: Participants with **autism** and **mental health** conditions showed a strength in **Works Autonomously** than those who did not disclose a disability. Those disclosing a **mental health condition** completed the assessment slightly faster.

Challenges: varied across conditions, but there was some commonality. Those with **autism**, a **learning disability**, and a **mental health condition** scored lower on **Speaks Clearly, Supports and Coaches Others, and Thrives Under Pressure**. Those with **autism** and a **mental health condition**, also scored lower on **Builds Rapport, and Persuades Others**.

No meaningful difference: for those disclosing neurological damage.

It was interesting to note that when all the conditions were grouped together some of the findings for specific conditions became diluted and didn't emerge for the overall group.

Study 5: Reactions

Sample

Autistic professional level (employed or job seeking) individuals; Pilot study N=5; Main study N=22

Assessments

Previews of [Apta behavioral assessment](#), [Verify Interactive - Deductive Reasoning](#), [Situational Judgement Test \(SJT\)](#), and [video-based Situational Interview on Demand](#)

Data Collected

Applicant reaction survey results (quantitative data) and scripted interview transcripts (qualitative data)

Findings

Reactions to assessments and useful modifications varied between participants.

The majority felt able to show their skills and abilities through cognitive assessments and SJTs, reported enjoyment when completing the assessments, and perceived them to be an inclusive and job-related way to assess candidates. Results were more varied for the behavioral assessment and video interview.

Other than for Deductive Reasoning, many participants weren't always willing to disclose a disability and request accommodations.

* Disclosure rates are low in these studies compared to the estimated global prevalence.

** Our wording in our disclosure forms has evolved over the years and we continue to seek advice and update it accordingly.

Turning Insights into Best Practices

How can you translate the results from our research studies into best practices that you can implement to create an inclusive experience for your candidates? Read these key takeaways from our research.



Cognitive ability is a promising option for assessing neurodivergent talent.

Compared to those not disclosing a disability, individuals with autism and other neurodivergent conditions who took three types of ability tests:

- Performed similarly, if not better.
- Took comparable amounts of time to complete them, if not less.

Autistic participants' reactions to cognitive assessments were generally positive.



Neurodivergent talent is likely to have a 'spiky profile', with areas of both strengths and challenges.

Make sure that the skills/abilities being assessed are truly required for success in the role.

Be aware of the likely strengths and challenges, and evaluate the competencies you are measuring against these. Ask yourself: could someone be successful if they demonstrated some, but not all, of them?



Strengths and challenges vary by condition and across individuals who have those conditions.

There is both commonality and variance of strengths and challenges across neurodivergent conditions.

It is important to study neurodivergent conditions separately and not generalize specific findings to all neurodivergent talent.



Neurodivergent candidates are hesitant to disclose a condition that requires accommodations.

Participants aren't always willing to disclose a neurodivergent condition and request accommodations. This will be even more pronounced in a high-stakes hiring setting.

Encourage your candidates to feel comfortable disclosing by utilizing positive and inclusive language and explaining the benefits of requesting accommodations.

Test providers should ultimately aim to create assessments that are accessible and inclusive for all, to remove the burden of disclosure.



A one size fits all approach does not apply.

There are mixed reactions to assessment formats; what works for one individual may be different for another.

Take steps to make the assessments as inclusive as possible by implementing accessible content and platforms, know what modifications are possible, and be willing to implement them.

Ensure you take an individualized approach to understanding how the test taking experience might be affected and how you can modify it to best help candidates demonstrate their abilities.

Encourage candidates to try practice assessments.



Small changes can make a big difference.

There is value in gathering feedback directly from neurodivergent candidates.

Suggestions for enhancing the assessment experience include: changes in word choice to ensure inclusive language, providing clear instructions about what to expect, customization options to remove features candidates may find stressful, removing unnecessary pressure, and allowing for breaks between assessment components.

Many of these suggestions require little effort to implement, yet could serve to significantly improve the candidate experience.

What's Next for SHL's Research Program?

Through our research, we are starting to understand the strengths and experiences of the neurodivergent talent pool. While we have some initial and informative findings at this time, we will continue to explore data across multiple sources to inform best practices, with a focus on exploring a broader range of neurodivergent conditions and additional assessment types.

Our Neurodiversity Research Program is ongoing, and our research agenda is reviewed and updated on a quarterly basis. We continue to explore potential research partnerships with practitioners and academics to help us advance this important research.



Call to Action

How you can get involved.

1

Activate optional research forms created by SHL.

SHL's disclosure form - to gain more insights into candidate demographics (voluntary opportunity to disclose a disability or neurodivergent condition).

SHL's candidate reactions survey - to understand how candidates are experiencing the assessments.

2

Connect with us.

We are keen to hear from clients, practitioners, and academic partners interested in working together on this important research.

For clients with small sample sizes, SHL can analyze the data in a consortium study across clients and share insights with all partners to provide best practices across a range of assessment types.

3

Check out our other useful resources.

[Blogs](#)

[Whitepapers](#)

[DEI Point of View](#)

[Assessment Accommodation Guidelines](#)

[Contact us](#) to learn more about any of the above or to share your feedback!

References

- Austin, R. D., & Pisano, G. P. (2017). Neurodiversity as a competitive advantage. *Harvard Business Review*. Retrieved from: <https://hbr.org/2017/05/neurodiversity-as-a-competitive-advantage>
- Boucher, J., (2008). *The Autistic Spectrum: Characteristics, Causes and Practical Issues*, 1 edition. SAGE Publications Ltd, Los Angeles.
- Doyle, N. (2020). Neurodiversity at work: A biopsychosocial model and the impact on working adults. *British Medical Bulletin*, 135(1), 108–125. <https://doi.org/10.1093/bmb/ldaa021>
- Doyle, N. (2017). Neurodiversity at work: A biopsychosocial model and the impact on working adults. *Employment Autism* (2022). Reasonable adjustments for interviews and assessments. Retrieved from: <https://www.employmentautism.org.uk/faqs/reasonable-adjustments-for-interviews-and-assessments>
- Hilliard, A., Kazim, E., Bitsakis, T., & Leutner, F. (2022). Scoring a forced-choice image-based assessment of personality: A comparison of machine learning, regression, and summative approaches. *Acta psychologica*, 228, 103659. <https://doi.org/10.1016/j.actpsy.2022.103659>
- Hock, M. F. (2012). Effective Literacy Instruction for Adults With Specific Learning Disabilities: Implications for Adult Educators. *Journal of Learning Disabilities*, 45(1), 64–78. <https://doi.org/10.1177/0022219411426859>
- Jacobsson, P., Hopwood, C. J., Söderpalm, B., & Nilsson, T. (2021). Adult ADHD and emerging models of maladaptive personality: A meta-analytic review. *BMC Psychiatry*, 21, Article 282. <https://doi.org/10.1186/s12888-021-03284-1>
- LeFevre-Levy, R., Melson-Silimon, A.M., Harmata, R., Hulett, A.L., & Carter, N.T., (2022). Neurodiversity in the Workplace: Considering Neuroatypicality as a Form of Diversity. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 16 (1), page tbc. Retrieved from: IOP Journal (siop.org).
- Lodi-Smith, J., Rodgers, J. D., Cunningham, S. A., Lopata, C., & Thomeer, M. L. (2019). Meta-analysis of Big Five personality traits in autism spectrum disorder. *Autism*, 23(3), 556–565. <https://doi.org/10.1177/1362361318766571>
- Price, L., Gerber, P. J., & Mulligan, R. (2003). The Americans with Disabilities Act and Adults with Learning Disabilities as Employees: The Realities of the Workplace. *Remedial and Special Education*, 24(6), 350–358. <https://doi-org.ezproxy.mnsu.edu/10.1177/07419325030240060601>
- Ritterbush, E. A. (Co-Chair), & Nuss, K. (Co-Chair). (2022). Neurodiversity at Work: Current Landscape and Practical Insights [Alternative Session]. Society for Industrial and Organizational Psychology Annual Conference, Seattle, WA, United States.
- Robertson, M. M., Eapen, V., & Cavanna, A. E. (2009). The international prevalence, epidemiology, and clinical phenomenology of Tourette syndrome: a cross-cultural perspective. *Journal of psychosomatic research*, 67(6), 475–483. <https://doi.org/10.1016/j.jpsychores.2009.07.010>
- Schwartzman, B. C., Wood, J. J., & Kapp, S. K. (2016). Can the five factor model of personality account for the variability of autism symptom expression? Multivariate approaches to behavioral phenotyping in adult autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 46(1), 253–272. <https://doi.org/10.1007/s10803-015-2571-x>
- The Center for Neurodiversity & Employment Innovation (2022). Werth Institute for Entrepreneurship and Innovation. Retrieved September 16, 2022, from <https://entrepreneurship.uconn.edu/neurodiversitycenter/>
- The Institute of Leadership & Management – Report 2. Accessed 2022. <https://www.institutelm.com/resourceLibrary/workplace-neurodiversity-the-power-of-difference.html>
- Weinberg, A. & Doyle, N. (2017). Psychology at work: improving wellbeing and productivity in the workplace, Project Report, The British Psychological Society. <https://www.europeanbrainsatwork.eu/wp-content/uploads/2019/02/Psychology-at-Work-improving-wellbeing-and-productivity-in-the-workplace.pdf>
- Willis, C., Powell-Rudy, T., Colley, K., & Prasad, J. (2021). Examining the use of game-based assessments for hiring autistic job seekers. *Journal of Intelligence*, 9(4), 53. <https://doi.org/10.3390/jintelligence9040053>
- World Health Organization. (2022). Mental disorders. World Health Organization. Retrieved September 16, 2022, from <https://www.who.int/news-room/fact-sheets/detail/mental-disorders>

