

# Examining the special interest areas of autistic adults with a focus on their employment and mental health outcomes

Leslie Ann Bross<sup>a,\*</sup>, Jonathan M. Huffman<sup>b</sup> and Mayumi Hagiwara<sup>c</sup>

<sup>a</sup>*Department of Special Education and Child Development, University of North Carolina at Charlotte, Charlotte, NC, USA*

<sup>b</sup>*College of Medicine, University of Florida, Gainesville, FL, USA*

<sup>c</sup>*Department of Special Education, San Francisco State University, San Francisco, CA, USA*

Received 2 February 2022

Revised 21 July 2022

Accepted 27 July 2022

Pre-press 15 October 2022

Published 22 November 2022

## Abstract.

**BACKGROUND:** Many individuals with autism spectrum disorder (ASD) have special interest areas (SIAs) which are characterized by significant depth and breadth of knowledge in a particular topic. These interests can continue through adulthood.

**OBJECTIVE:** We conducted this study to develop a better understanding of the relation between SIAs and employment and mental health outcomes of adults with ASD.

**METHODS:** Qualitative and quantitative analyses were used to examine the data with an emphasis on bringing autistic voices to the forefront of the discussion. Seventy-two adults with ASD, ages 18–53, completed an online survey describing their SIA engagement, employment status, and current mental health measured by two standardized assessments. Respondents provided open-ended responses describing their SIA and beliefs regarding SIAs broadly.

**RESULTS:** Open-ended responses indicated adults with ASD have highly diverse SIAs that are rarely utilized in their employment experiences. Hierarchical regressions revealed SIA-related bullying was associated with higher levels of depression, anxiety, and stress. SIA employment was associated with depression such that those who were not currently employed in their SIA reported higher levels of depression. Respondents without support from people in their life related to their SIA reported higher levels of stress.

**CONCLUSION:** SIAs are extremely important in the lives of autistic adults and should be utilized to enhance their employment experiences and overall well-being. Family members, adult service providers, and educational professionals should support and encourage SIAs.

Keywords: Anxiety, autism, depression, employment, special interest areas, stress

---

\*Address for correspondence: Leslie Ann Bross, Cato College of Education, University of North Carolina at Charlotte, 9201 University City Blvd, Charlotte, NC 28223-0001, USA. E-mail: lbross@uncc.edu.

## 1. Introduction

Many children, adolescents, and adults with autism spectrum disorder (ASD) have highly specialized interests that are uncommon compared to neurotypical individuals. These interests have been called circumscribed interests (Boyd et al., 2007; Klin et al., 2007), restricted interests (Casco et al., 2014; Gunn et al., 2016), or obsessions (Baron-Cohen & Wheelwright, 1999; Charlop-Christy & Haymes, 1996) in the academic literature. However, we prefer the term special interest areas (SIAs; Bross & Travers, 2017; Winter-Messiers, 2007a; Winter-Messiers et al., 2007b) because this term represents a strengths-based approach. SIAs relate to the second diagnostic criteria of ASD of restrictive and repetitive behaviors (RRBs) according to the current Diagnostic and Statistical Manual of Mental Disorders (DSM-V, American Psychiatric Association [APA], 2013). Within the RRBs domain, individuals with ASD may have highly restricted, fixated interests that are intense in focus (APA, 2013). Individuals with restricted interests or SIAs are knowledgeable on the topic and typically spend long periods of time engaging with the topic.

It is estimated that approximately 75–95% of individuals with ASD have one or more SIA (Turner-Brown et al., 2011). These interests can develop as early as 1–4 years of age in children with ASD (Caldwell-Harris & Jordan, 2014). Some individuals with ASD may have the same SIA across their entire lifespan, and others will change according to their development and age. SIAs are often incorporated into the special education programming for students with ASD during early childhood and K-12 education (Harrop et al., 2019). For example, SIAs can be used as a type of reinforcement or embedded throughout the school day to teach a variety of skills or increase engagement in tasks. However, some educational professionals may view SIAs as obscure or useless and, therefore, implement interventions to limit a student's engagement with their SIA (Harrop et al., 2019). In addition, children with ASD are vulnerable to bullying (Hebron & Humphrey, 2014) and an intense SIA can potentially exacerbate that vulnerability.

Autism-specific characteristics, including RRBs, can lessen with age (Esbensen et al., 2009). However, given ASD is a lifelong disorder, additional focus is needed on SIAs during adulthood. Youth with ASD commonly experience challenges during the transition to adulthood, such as long periods of

underemployment or unemployment (Roux et al., 2017), as well as high prevalence for co-occurring mental health conditions (Hudson et al., 2019; Nah et al., 2018). The Individuals with Disabilities Education Improvement Act (IDEIA, 2004) mandates that a student's strengths, preferences, and interests be incorporated during the special education transition planning process. Accordingly, the SIAs of students with ASD should be considered an important component of high-quality transition planning to enhance adult outcomes.

### 1.1. *Employment and mental health outcomes of adults with ASD*

Leveraging the SIAs of young adults with ASD to enhance their potential careers and jobs may be advantageous. However, simply linking SIAs to jobs will not likely lead to satisfactory employment outcomes given the complexity of this issue. An "autism advantage" at work has been proposed in which SIAs are utilized to the betterment of a business, company, or organization (Bury et al., 2020). However, a recent systematic review found no strong evidence for a so called autism advantage and proposed that SIAs can be both barriers and strengths in workplace environments (Bury et al., 2020). Accordingly, additional research is needed given only 14% of adults with ASD currently work competitively for pay in their local communities (Roux et al., 2017), and it is unclear what percentage of adults are working in jobs aligned to their passions, skills, and interests. This is concerning because high job satisfaction and paid employment is associated with overall positive quality of life (Cocks et al., 2015).

Many adults with ASD experience co-occurring mental health conditions in addition to unemployment and community disengagement. Anxiety and depression are particularly prominent. A recent systematic review and meta-analysis examined the prevalence rates of anxiety and depression for adults with ASD and found that 27% of respondents with ASD had a current comorbid anxiety disorder and 42% had an anxiety disorder in their lifetime (Hollocks et al., 2019). This prevalence is higher than individuals without disabilities (Remes et al., 2016). Similar rates were found for depression for adults with ASD, where 23% of respondents had a current comorbid depressive disorder and 37% had a depressive disorder in their lifetime (Hollocks et al., 2019). Individuals with ASD have also reported experiencing significantly more stressful events and

perceived stress than individuals without disabilities, which was associated with social disability (Bishop-Fitzpatrick et al., 2017). Despite these comorbidities, not all individuals with ASD report their ASD traits are negatively associated with overall quality of life, with variability in autism-specific characteristics and comorbid conditions being an important factor in health (Oakley et al., 2021). Therefore, additional research examining the association between ASD, anxiety, depression, and stress appears warranted.

Researchers have noted the importance of demographic factors such as gender identity, race/ethnicity, sexual orientation, and socio-economic status with mental health outcomes in the general population. For example, racial/ethnic minorities have reported higher levels of depression than racial/ethnic majority respondents (Vyas et al., 2020). Moreover, bisexual persons have noted poorer mental health and physical health compared to heterosexual, gay, and lesbian respondents (Fish et al., 2021), while nonbinary individuals have reported lower perceived health, greater psychological complaints, and feelings of loneliness when compared to their cisgender counterparts (Aparicio-García et al., 2018; Ciria-Barreiro et al., 2021). Furthermore, low socio-economic status is associated with lower levels of well-being (Sainz et al., 2020). Therefore, examining the multifaceted aspects and identities of individuals is important when considering the factors associated with well-being. One area largely unexplored in the well-being literature is specific factors that contribute to the well-being of individuals with ASD (Deserno et al., 2018). This is important given that the severity of autism-specific characteristics negatively relates with well-being (Deserno et al., 2018), and positive well-being may protect against depression for individuals with ASD (Hedley et al., 2019).

In the broader literature, well-being can be conceptualized as many different constructs, such as psychological and social well-being (Keyes et al., 2008; Ryff, 1989). Similarly, research examining the well-being of individuals with ASD have noted that well-being is a multidimensional construct (Danker et al., 2019) and that research examining well-being with individuals with ASD should consider their unique perspectives (Kapp, 2018). Similarly, Keyes et al. (2008) proposed diverse conceptualizations of well-being should be combined for a comprehensive view of subjective well-being. Therefore, in response to the Hedley et al. (2019) call to uncover the mechanisms supporting the well-being

of employed adults with ASD, examining the well-being of individuals with ASD through qualitative and quantitative methods is warranted. In fact, this is a vital area of inquiry as previous research has noted the relation between SIAs and employment is more complex than merely matching jobs to a SIA (Goldfarb et al., 2019), and the construct of well-being is individually-based and fluid (Lam et al., 2021).

Despite the prevalence of SIAs and core RRB domain associated with the disorder, the overall literature base for SIAs is relatively sparse and even more so with a particular focus across the lifespan. Thus, the purpose of this study was to develop a better understanding of the value of SIAs in the lives of adults with ASD through the use of mixed methodology (i.e., qualitative and quantitative analysis), with an emphasis on bringing the voices of autistic adults to the forefront of the discussion related to SIAs. Specifically, we wanted to know how adults with ASD typically engage with their SIA. We also wanted to know how frequently adults with ASD were employed in jobs related to their SIA. Finally, we wanted to develop a better understanding of the relation between SIAs and mental health outcomes, given many adults with ASD have comorbid health conditions (e.g., anxiety, depression), along with their association with positive conceptualizations of well-being.

We hypothesized that adults with ASD will have a wide variety of SIAs that are important to their overall life satisfaction and personal identity. We also hypothesized that adults with ASD will spend long periods of time engaging with their SIA and few adults will have jobs related to their SIA. Finally, we hypothesized employment in their SIA and support for their SIA would be associated with decreased levels of depression, anxiety, and stress, as well as an increased level of well-being. We were guided by the following research questions:

1. What types of SIAs do adults with ASD report engaging?
2. How frequently do adults with ASD engage with their SIA?
3. How commonly do adults with ASD work in jobs or careers related to their SIA?
4. How do adults with ASD perceive their SIA and SIAs broadly?
5. What is the relation between SIA-related employment and depression, anxiety, stress, and well-being for adults with ASD?

Table 1  
Survey questions

Part I: Demographics	
1. ASD diagnostic information	8. Current age
2. Level of supports required	9. Highest level of education
3. Age of diagnosis	10. Current employment status
4. Co-occurring disorders	11. Field of current study, job, or career
5. Special education services during K-12 education	12. Race/ethnicity
6. Disability category for special education services	13. Current gender identity
7. Location/residence	14. Current sexual orientation
Part II: SIA questions	
1. Hobbies and interests	11. Desire for SIA-related employment
2. Identify as having a SIA	12. Feelings when engaging in SIA
3. Category you most closely identify the SIA	13. School professional, family member, peer, or any other person encouraged the SIA
4. Describe your SIA in your own words (text box)	14. Ridiculed, shamed, or bullied because of SIA
5. Intensity level of the SIA	15. Frequency of the ridicule, shame, or bullying
6. Hours spent engaging in SIA per week	16. Intensity of the ridicule, shame, or bullying
7. Engagement in SIA alone, with other people, or both	17. Frequency of the encouragement
8. Description of how you engage with the SIA	18. Intensity of the encouragement
9. Employment experience related to SIA at any point in life	19. What would you like to tell other people about your SIA? (text box)
10. Current employment experience related to SIA	20. What would you like to tell other people about SIAs in general? (text box)
Part III: Standardized mental health assessments	
Depression Anxiety Stress Scales-21 (Lovibond & Lovibond, 1995) and Mental Health Continuum Short Form (Keyes et al., 2008).	

Note. ASD = autism spectrum disorder; SIA = special interest area.

6. What is the relation between current SIA-related supports and depression, anxiety, stress, and well-being for adults with ASD?
7. What is the relation between frequency of SIA-related bullying and depression, anxiety, stress, and well-being for adults with ASD?
8. What is the relation between the frequency of SIA-related encouragement and depression, anxiety, stress, and well-being for adults with ASD?

## 2. Materials and methods

### 2.1. Instrumentation

We developed a 38-item survey with three sections to distribute to adults with ASD who identify as having a SIA (see Table 1). In accordance with DeVellis's (2021) eight steps to scale development, survey questions were developed based on reviews of the existing literature related to SIAs, employment, and well-being for adults with ASD. Prior to distribution, we solicited feedback from three experts in the field of ASD and three autistic adults. The experts provided feedback related to word choice, organization of the survey, accessibility, and overall content. Autistic adults provided additional feedback on diagnostic

classification, user experience, and clarification of SIA categories. The first author met with each autistic adult to ensure their feedback was adequately incorporated into the final survey.

The first section focused on demographics and was developed using recommendations from Hughes et al. (2016) to be as inclusive as possible. The second section focused on SIAs and included a list of SIA categories and descriptions adapted from Caldwell-Harris and Jordan (2014). Respondents indicated which category their SIA most closely identified. They reported how frequently they engaged in their SIA and if they were currently employed in a SIA-related job. We also included three open-ended text boxes in which respondents described their SIA in their own words and shared beliefs about SIAs broadly. The third section consisted of two standardized mental health assessments: the Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995) and the Mental Health Continuum Short Form (MHC-SF; Keyes et al., 2008). Each of the three sections was randomized to control for sequencing effects (Siminski, 2008).

### 2.2. Depression Anxiety Stress Scales-21

The DASS-21 was used to measure overall feelings of depression, anxiety, and stress experienced by the

adults with ASD. We selected this measure because it was found to be valid and reliable self-report of depression, anxiety, and stress for individuals with ASD and no co-occurring intellectual disability as reported by Park et al., 2020. There are 21 items with seven items for each subscales. Participants ranked each of the 21 items on a four-point Likert-type scale ranging from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much or most of the time*). The seven items in each subscale were summed and then multiplied by two to provide a total score for each of the depression, anxiety, and stress subscales. Scores for each subscale range from 0 to 42. Higher scores across the subscales indicate higher levels of depression, anxiety, or stress. In the current sample, Cronbach's  $\alpha$  for the entire DASS-21 (.93), depression subscale (.934), anxiety subscale (.83), and stress subscale (.804) was excellent.

### 2.3. *Mental Health Continuum Short Form*

The MHC-SF was selected to measure the overall well-being of the adults because it has been previously used with individuals with ASD (Botha & Frost, 2020). The MHC-SF is a self-report measure (Keyes, 2002; 2005). The MHC-SF is a 14-item measure, with three items in the emotional well-being subscale, five items in the social well-being subscale, and six items in the psychological well-being subscale. Participants rank each of the 14 items on a Likert-type scale ranging from 0 (*never*) to 5 (*every day*). The 14 items are summed for a total score, with scores ranging from 0 to 70. Higher scores indicate greater levels of positive well-being. In the current sample, Cronbach's  $\alpha$  for the MHC-SF was excellent (.93).

### 2.4. *Survey distribution*

We distributed the survey using the online platform Qualtrics ([www.qualtrics.com/](http://www.qualtrics.com/)). The survey was active from January 2021 until April 2021. Adults with ASD were contacted for participation using the following outlets: (a) social media posts (e.g., Facebook, Twitter), (b) online posts on ASD-specific support group pages, and (c) e-mails to organizations that provide services to adults with ASD. We requested that organizations share the survey link using its regular mode of communication with clients (e.g., e-mail, newsletter). The majority of respondents (42%) reported they learned about the survey through social media. The second largest

recruitment method was online posts (26%). Individuals who indicated interest in participating were directed to an online consent form with a description of the study and purpose. Inclusion criteria to participate was age 18 or older with an ASD diagnosis. Participants were not required to provide documentation regarding their diagnosis. One hundred fifteen people clicked the link to take the survey. Survey respondents were dropped from the final analysis if they did not complete the survey in full, did not report a diagnosis of ASD, and/or did not identify as having a SIA. The average time to complete the survey was 50 minutes. Respondents were offered no incentive or compensation for completing the survey.

### 2.5. *Participants*

Seventy-two eligible respondents were analyzed. The average age of the respondents was 30 (range 18–53). Ninety-three percent of respondents reported needing Level 1 supports (*requiring support*) according to the DSM-V (APA, 2013). Only 1% reported needing Level 2 supports (*requiring substantial support*), and 6% reported needing Level 3 supports (*requiring very substantial support*). The average age of initial ASD diagnosis was 20.75 (range 2–52). The majority of respondents were diagnosed with another disorder at some point in their life (70.8%). The most prevalent co-occurring disorder was a mental health disorder (e.g., anxiety, depression) with 55.6% respondents reporting some type of mental health disorder. The next most prevalent co-occurring disorders were attention deficit hyperactivity disorder (30.6%) and specific learning disability (9.7%). No respondent reported having an intellectual disability. Approximately 39% of respondents received special education services during K-12 education. Of those who received services, 29.2% received services under the Educational Autism category. Regarding location/residence, 68% of the respondents lived in the United States and 32% did not. Other countries represented included Australia, Canada, Hungary, Iceland, Ireland, Norway, Qatar, Trinidad and Tobago, and United Kingdom of Great Britain. Nearly all participants (97.2%) reported they currently receive professional mental health services or had at some point in their life. Table 2 reports all other demographic information including gender identity, race/ethnicity, sexual orientation, education level, and current employment status.

Table 2  
Participant demographic information (N = 72)

Demographic variables	n	Percent
Gender identity		
Man	26	36.1%
Woman	28	38.9%
Transgender	2	2.8%
Agender	1	1.4%
Nonbinary	2	2.8%
Gender fluid/gender queer	1	1.4%
More than one gender identity	10	13.9%
Prefer to self-describe	2	2.8%
Race/ethnicity		
White	62	86.1%
Black or African American	1	1.4%
Asian	4	5.6%
Hispanic or Latinx	4	5.6%
Middle Eastern or North African	1	1.4%
Sexual orientation		
Heterosexual or straight	29	40.3%
Queer	8	11.1%
Asexual	5	6.9%
Gay	6	8.3%
Lesbian	2	2.8%
Bisexual	8	11.1%
Pansexual	4	5.6%
Demisexual	4	5.6%
Questioning	2	2.8%
Prefer to self-describe	4	5.6%
Education level		
Some high school, no diploma	3	4.2%
High school graduate (diploma or equivalent)	12	16.7%
Some college credit, no degree	17	23.6%
Trade/technical/vocational training	1	1.4%
Associate degree	5	6.9%
Bachelor's degree	22	30.6%
Master's degree	9	12.5%
Professional or specialist degree	1	1.4%
Doctorate degree	2	2.8%
Current employment status		
Self-employed	6	8.3%
Full-time employed (20 hours a week or more)	22	30.6%
Part-time employed (19 hours a week or less)	4	5.6%
Participating in employment experiences but not for pay	2	2.8%
Full-time student	8	11.1%
Part-time student	3	4.2%
Military	1	1.4%
Retired	2	2.8%
Unemployed but not actively seeking employment	8	11.1%
Unemployed and actively seeking employment	7	9.7%
Selected more than one response	9	12.5%

## 2.6. Data analysis

### 2.6.1. Open-ended responses

The first open-ended text box asked survey respondents to describe their SIA in their own words. We organized these responses using the categories provided in the survey and adapted from Caldwell-Harris and Jordan (2014). The second and third open-ended text boxes asked survey respondents what they would

like to tell other people about their SIA and SIAs in general. To analyze these responses, we conducted open coding to identify potential themes across all survey respondents. The first and third authors used a general inductive approach (Bhattacharya, 2017) to create a code book with definitions and example participant quotes to support the codes. The first and third authors then independently conducted open coding of all open-ended text box responses. Initial agreement

of the open coding process was 82.72%. To promote trustworthiness, all three authors participated in collaborative code checking to evaluate the working definitions of each code. The second author reviewed all coded data, and we used a consensus approach to refine all coding until 100% consensus was achieved. Finally, all authors participated in thematic grouping in which initial open codes were dropped if not enough participant quotes supported the code. The remaining codes were grouped together to form larger themes to describe main ideas as reported by the survey respondents.

### 2.6.2. Hierarchical regressions

Based on previous research (e.g., Oakley et al., 2021), linear regressions using SPSS (Statistical Package for the Social Sciences) were used to investigate the relationships between SIA employment, SIA support, SIA bullying, and SIA encouragement on depression, anxiety, stress, and well-being. To analyze the data, gender identity, race/ethnicity, sexual orientation, and education level were dichotomized into dummy variables to test for group differences. These decisions were based on previous research such that gender was dichotomized as men/women (0) compared to other gender identities (1; Aparicio-García et al., 2018), White respondents (0) to non-White respondents (1; Vyas et al., 2020), heterosexual (0) to lesbian/gay/bisexual/and other respondents (1; Fish et al., 2021), and education as some high school or completed high school education (0) to some postsecondary or completed postsecondary education (1; Huffman et al., 2020). Upon investigation of demographic variables, a hierarchical linear regression was used to examine the unique effects of the predictor variables on outcome variables (i.e., after controlling first for the effect of race/ethnicity). In the hierarchical regressions, dichotomized gender identity, race/ethnicity, sexual orientation, and education level were entered into block one, and SIA employment, SIA support, SIA bullying, and SIA encouragement were entered into block two.

## 3. Results

Respondents reported a variety of SIA categories in which they identified their SIA. The largest category was creative arts (i.e., interests in movies, television shows, art working, painting) followed by animals and factual information. In addition, respondents

described a variety of SIAs such as penguins, puzzles, crochet, writing poetry, Japanese history, maps, dolls, mathematical concepts, professional baseball teams, and many others. Respondents spent on average of 39.43 (range 2–100) hours a week engaged in their SIA. Twenty-seven respondents (37.5%) engaged in their SIA alone, two (2.8%) with other people, and 43 (59.7%) both alone and with other people. Around half of the respondents (37, 51.4%) reported they have not obtained employment related to their SIA at any point in their life, with only 18 respondents (25%) having current employment related to their SIA. For those who reported no SIA associated employment, 24 (64.86%) stated they would like employment related to their SIA.

With regard to SIA intensity, one (1.4%) respondent reported they are somewhat interested in their SIA, four (5.6%) are interested, 32 (44.4%) are very interested, and 35 (48.6%) are very intensely interested. More than half of respondents (42, 58.3%) stated engagement in their SIA makes them very happy. Other respondents reported engagement in their SIA makes them happy (23, 33.3%), neutral (5, 6.9%), and (1, 1.4%) unhappy. Fifty-four (75%) respondents noted they had someone encourage them in their SIA during their life, with similar results found for current encouragement (52, 72.2%). Frequency of encouragement, praise, and reward for engagement in their SIA varied across respondents from never (8, 11.1%), rarely (12, 18.1%), sometimes (19, 26.4%), often (21, 29.2%), and frequent (11, 15.3%). Intensity of encouragement, praise, and reward also varied from very weak (4, 5.6%) weak (9, 12.5%), moderate (29, 40.3%), intense (16, 22.2%), and very intense (6, 8.3%). Respondents also noted they have been bullied or made fun of for their SIA with responses ranging from frequently (7, 9.7%), often, (9, 12.5%), sometimes (24, 33.3%), rarely (20, 27.8%), and never (12, 16.7%). Intensity of bullying and ridicule also varied with responses ranging from very weak (4, 5.6%), weak (21, 29.2%), moderate (23, 31.9%), intense (6, 8.3%) and very intense (6, 8.3%).

### 3.1. Open-ended qualitative analysis

Table 3 presents the open-ended responses in which we asked respondents to describe their SIA in their own words. We organized their responses according to the SIA categories as described by Caldwell-Harris and Jordan (2014). The themes that emerged from the open-ended text box responses in

Table 3  
Special interest area categories and open-ended participant responses

SIA category and description	Example open-ended responses from respondents
<p><b>Animals:</b> Interests in pets, wild or farm animals, insects, fish, birds, etc., and also includes animal-related activities (e.g., bird watching).</p>	<p>Penguins, I love penguins. I love reptiles and have 3 monitor lizards, a gecko, and 4 snakes. I love to read books about monitor lizards and study them. I spend hours designing future enclosures I will build. A lot of work and care goes into taking care of monitor lizards.</p>
<p><b>Belief systems:</b> Interests in religions or mythologies, political systems, philosophies, alternative beliefs</p>	<p>Interested in comparative religions and philosophy with particular focus on Buddhism and Eastern Philosophies. I seek training in the meditation practices of these religions.</p>
<p><b>Collecting:</b> Interests in acquiring collections of particular items</p>	<p>I collect Rubik's Cubes and enjoy good puzzles.</p>
<p><b>Crafts:</b> Interests in model making, knitting, sewing, carpentry, etc.</p>	<p>Mainly crochet. So much so that I end up with repetitive strain injuries on my wrists.</p>
<p><b>Creative arts:</b> Interests in movies, television shows, art work, painting, playing an instrument, music, writing and reading fiction, creating media (e.g., online films), performing arts, etc.</p>	<p>Creating music using instruments and phone apps. Finding new apps to remix and create music. My primary special interest has always been movies for as long as I can remember. It's not limited solely to actively watching them or knowing information. I also want to make them, practice the craft, and constantly come up with ideas. Writing poetry, specifically Shakespearean sonnets.</p>
<p><b>Factual information:</b> Interests in reading or memorizing lists, reading encyclopedias, dictionaries, newspapers, etc.</p>	<p>I read dictionaries, lexicons and encyclopedias for fun. It's mostly about the political system in the country. And I like to consume a lot of national and world news.</p>
<p><b>Food and drink:</b> Interests in consuming or creating a particular food or drink, cooking, baking, etc.</p>	<p>I like to research how things and the world around me works in regards to people, cooking, baking . . .</p>
<p><b>History and culture:</b> Interests in existing languages, particular countries or civilizations, time periods or eras in history, etc.</p>	<p>Memorizing Japanese history. Knowing the history of every sword ever used by the samurai about 150–600 years ago. Knowing what every part of a samurai sword is called and used for, both in English and Japanese. The social history of medieval England between William the Conqueror and Henry VII. With particular interest in the clothing and how it was constructed (from fibre to weaving to sale/distribution to sewing techniques.)</p>
<p><b>Information and mechanical systems:</b> Interests in plumbing, light switches or electrical wiring, maps, city planning, subway maps and/or schedules, businesses and organizations, etc., or an interest in creating systems (such as languages or maps).</p>	<p>I also have a special interest in maps and geography. I love using Google Maps and looking at Google Street View (although street view's quality is getting bad, but that's a different story).</p>
<p><b>Item attachment:</b> Interests focusing on a particular item or type of object, as well as interests in certain words or phrases.</p>	<p>I love American girl dolls. They just made a doll last year with a hearing loss like me. Stuffies of my favourite Pokemon</p>
<p><b>Machines and technology:</b> Interests in computers, radios, television, clocks, etc., or expresses interest in how things work.</p>	<p>My special interest in computer engineering goes into microcontrollers and computer systems. Building computers</p>
<p><b>Nature:</b> Interests in plants, interacting with nature (e.g., hiking, gardening, exploring, etc.), and natural phenomena (e.g., volcanoes, tsunamis, lightning, etc.).</p>	<p>Evolutionary phylogeny, clades and their common features, last common ancestors</p>
<p><b>Numerical information:</b> Interests in timetables, calculators or calculations, calendars, prime numbers, reading or creating charts or tables of information, etc.</p>	<p>Mathematical concepts, methods, and relations between these</p>
<p><b>People:</b> Interests in a particular person, in types or groups of people, or in interacting with people, including participation in online communities.</p>	<p>I enjoy learning and discussing topics related to relationships (between people, and between people and nature). Relationships, emotions, community, social justice can describe one broad category of what I'm interested in.</p>

(Continued)



Table 3  
(Continued)

SIA category and description	Example open-ended responses from respondents
<b>Psychological disorders:</b> Expresses interest in any psychological disorder.	The particular group of people I'm interested in learning about are those who get diagnosed with autism. I'm interested in learning about just how different we all are and how that affects each of us.
<b>Sciences:</b> Interests in astronomy, chemistry, biology, physics, engineering, mathematics, logic, economics, psychology, meteorology, specific diseases or conditions, etc.	Astronomy, especially systems of travel and physics I am obsessed with drugs. I enjoy reading about the neuroscience and pharmacological taxonomy of psychoactive substances. Please note my interest here is purely academic; I don't drink alcohol or take illegal drugs.
<b>Sensory:</b> Interests in touching or feeling certain things, or mentions fascinations with texture, specific sounds, lighting, colors, smells, etc.	[No text box response reported for this category.]
<b>Sorting, categorizing and organizing:</b> Interests in making lists, lining objects up, arranging objects in certain orders or categories, planning, or obsession with neatness or organization.	I'm also obsessed with my room being clean and not looking disgusting when I wake up every morning.
<b>Sports and games:</b> Interests in football, tennis, walking, biking, tennis, playing cards, chess, board games, puzzles, video games, etc.	I have a special interest in the St. Louis Cardinals baseball team. I am from the St. Louis vicinity and watch every game the team plays . . . Video Game: I'm hyper competitive in the video games I play; my approach to performing well is meticulous preparation and practicing to have strong mechanical skills
<b>Vehicles:</b> Interests in trains, airplanes, buses, boats, cars, etc.	[No text box response reported for this category.]
<b>Other:</b> Interests that did not fit within a specific category.	Tattoos Time management Disasters such as plane crashes, structural collapse, fires, etc.

Note. SIA = special interest area. Source. The SIA categories and descriptions are from Caldwell-Harris & Jordan (2014).

which we asked respondents, "What would you like to tell other people about your SIA?" and "What would you like to tell other people about SIAs in general?" are described below.

### 3.1.1. Theme 1: SIAs are strengths and assets

Survey respondents overwhelmingly described how their SIA enhances their life in a variety of positive ways. Respondents described SIAs as important and "one of the greatest joys in [their] life." Respondents described how SIAs can be used to calm and motivate, manage trauma, develop social skills, or engage in play. For example, one adult wrote, "They're basically especially intense hobbies (or comfort objects) I use to keep myself happy and engaged." Another adult wrote that "They are not worthless endeavors, [and] can bring feelings of peace and contentment." Similarly, another adult wrote, "Our special interests don't have to be impressive to be worthwhile, and as specific and strong you might think they are, to us they are absolutely everything. I think special interests are necessary for engagement and mental health."

Many adults also reported their specialized knowledge in the SIA and how it can contribute to society.

For instance, one adult wrote the following:

Special interests are the key to helping autistics understand the world-at-large, and vice versa. Embracing our special interests (without endorsing unhealthy excessive obsessions) won't only help us get by; it will improve the world as a whole to have our passion accepted and utilized within society.

Similarly, another adult wrote:

I don't consider them obsessions but passions. My special interests are what I can offer society the most; I could develop the fields I love or become an engaging and passionate teacher. I have so much to offer there if people will just be patient with my enthusiasm . . . And finally, my special interests affect how I interact with the world: my love for artistic analysis, for psychology and animal behavior (including humans), my understanding of the history of life on earth, and more affect how I view the world, how I think, how I interact with people and respond to situations. Special interests are beautiful.

Finally, another adult wrote the following:

Special interests are the fuel to living. It may look like a drug at times but it's way healthier than those. Everyone has their special interest, their passion, their area of expertise. In neurotypical contexts, it's seen more positively likely because of economic incentives and/or mainstream social acceptance. With autistics, it seems more intense, exhaustive, and not as useful... but it should still be encouraged and guided towards building a happy and successful life, whatever the interest is. Special interests are the spark that makes life worth living.

### 3.1.2. Theme 2: Shame and masking of SIAs

Survey respondents were keenly aware of limiting conversation focused on their SIA with uninterested people. Some adults reported "masking" or hiding their SIA. For example, one adult wrote, "I don't want to talk about my special interests with people who aren't already interested in it. I prefer to keep it to myself... have always been ashamed of anything that made me too different." Another adult wrote, "It hurts me when people make fun of or don't want to listen/read about my special interests." Similarly, one adult wrote, "We know that we can annoy people with our interests but we don't mean to do it." Adults were also likely to limit their SIA conversation in specific contexts, such as work-related conversation. For example, one adult wrote,

One of the main ways I engage with my special interests is through transformative fanworks about them. I'd love for people to understand this better so that it was more socially acceptable to talk about it. Sometimes at work meetings we talk about how everyone spent their weekends, and I feel like I have nothing to say because I don't want to share that I spent it making fan videos about witches in a kids' TV show.

Respondents reported that other people listening about their SIAs is important. For example, one adult wrote,

Just listening to someone talk about their interest and taking the time to listen and learn about it with them is huge to someone on the spectrum. Don't shame a person on the spectrum or tease them because they are interested in something.

Similarly, adults reported a desire for encouragement and acceptance of their SIAs. One adult wrote,

Let us have our fun? Like why does it have to be wrong or weird to like something too much? If we are happy and healthy then why the hell can't I wear my hand-sewn medieval dress to the supermarket? And sharing the knowledge is about joy, not showing off. Just let us have our fun, please.

Lastly, another adult wrote,

Please don't make us feel bad about our special interests. They mean a lot to us. I should be allowed to feel free to discuss my special interests (within reason obviously) without feeling like I have to hide it from others or spend so much mental energy suppressing what I have to say about it for fear of being shamed. Instead of shaming us, why not look into whatever we're interested in yourself? You might find you like it too!

## 3.2. Hierarchical regressions

Of the dummy coded demographic variables (i.e., gender identity, race/ethnicity, sexual orientation, education level), race/ethnicity was the only significant predictor ( $R^2 = .0123$ ,  $F(1, 70) = 9.827$ ,  $p = .003$ ) and accounted for 1.23% of the variance ( $[\beta = .351$ ,  $SE = 5.141]$ ,  $t(70) = 3.135$ ,  $p = .003$ ) of well-being and was controlled for in subsequent analyses. See Table 4 for the means, standard deviations, and bivariate correlations among demographic, control, predictor, and outcome variables.

### 3.2.1. Depression

See Table 5 for the regression results with significant and nearly significant predictor variables. When entered into the model, SIA employment, SIA support, SIA bullying, and SIA encouragement accounted for 24% of the variance in depression ( $\Delta R^2 = .24$ ,  $\Delta F(4, 66) = 4.369$ ,  $p = .003$ ). SIA bullying ( $\beta = .356$ ,  $SE = 1.409$ ,  $t(66) = 2.893$ ,  $p = .005$ ) and SIA employment ( $\beta = .324$ ,  $SE = 3.624$ ,  $t(66) = 2.771$ ,  $p = .007$ ) were the only significant predictors in depression. Therefore, respondents who reported higher frequency of SIA bullying reported higher levels of depression and respondents who noted they were not currently employed in their SIA reported higher levels of depression when compared to those with current SIA employment.

### 3.2.2. Anxiety

When entered into the model, SIA employment, SIA support, SIA bullying, and SIA encouragement accounted for 14.3% of the variance in anxiety

Table 4  
Means, standard deviations, and bivariate correlations amongst demographic, control, predictor, and outcome variables (N = 72)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender identity	—											
2. Race/ethnicity	.139	—										
3. Sexual orientation	.409**	.166	—									
4. Education level	-.099	-.19	-.073	—								
5. Current SIA employment	-.037	-.046	.144	.02	—							
6. Current SIA support	-.143	.020	-.123	-.064	.072	—						
7. Frequency of SIA bullying	-.185	-.003	-.108	-.157	-.007	.340**	—					
8. Frequency of SIA encouragement	.039	.199	.108	.194	-.355*	-.378**	-.417**	—				
9. Depression	-.012	-.198	.101	-.119	.313**	-.005	.299*	-.228	—			
10. Anxiety	.014	-.015	.031	-.028	.143	-.083	.268*	-.035	.565**	—		
11. Stress	-.067	-.156	-.066	-.057	.173	-.138	.297*	-.088	.631**	.695**	—	
12. Well-being	.063	.351**	-.114	.051	-.303**	-.097	-.279*	.423**	-.723**	-.322**	-.391**	—
M	.25	.14	.6	.79	.75	.278	2.71	3.19	18.61	13.97	20.72	34.72
SD	.436	.348	.494	.409	.436	.451	1.18	1.229	10.294	10.294	9.133	15.997

Note. \* = Correlation is significant at the 0.05 level. \*\* = Correlation is significant at the 0.01 level. Dummy coded predictor variables: Gender identity (0 = male/female, 1 = transgender/agender/gender fluid/gender queer/more than one gender identity/prefer to self-describe), race/ethnicity (0 = White, 1 = Black/Asian/Hispanic/Middle Eastern), sexual orientation (0 = heterosexual, 1 = queer/asexual/gay/lesbian/bisexual/pansexual/demisexual/questioning/prefer to self-describe), education level (0 = some high school or completed high school education, 1 = some post-secondary or completed post-secondary education), SIA employment (0 = yes, 1 = no), SIA support (0 = yes, 1 = no).

( $\Delta R^2 = .143$ ,  $\Delta F(4, 66) = 2.76$ ,  $p = .035$ ). SIA bullying ( $\beta = .387$ ,  $SE = 1.14$ ,  $t(66) = 2.963$ ,  $p = .004$ ) was the only significant predictor in anxiety. Such that respondents who reported higher frequency of SIA bullying reported higher levels of anxiety.

### 3.2.3. Stress

When entered into the model, SIA employment, SIA support, SIA bullying, and SIA encouragement accounted for 21.8% of the variance in stress ( $\Delta R^2 = .218$ ,  $\Delta F(4, 66) = 4.075$ ,  $p = .005$ ). SIA support ( $\beta = -.257$ ,  $SE = 2.451$ ,  $t(66) = -2.124$ ,  $p = .037$ ) and SIA bullying ( $\beta = .429$ ,  $SE = .966$ ,  $t(66) = 3.436$ ,  $p = .001$ ) were the only significant predictors in stress. Therefore, respondents who noted they did not have current support from others in their SIA reported higher levels of stress when compared to those with current support. In addition, respondents who reported higher frequency of SIA bullying reported higher levels of stress. Current SIA employment ( $\beta = .225$ ,  $SE = 2.485$ ,  $t(66) = 1.892$ ,  $p = .063$ ) was a near significant predictor in stress.

### 3.2.4. Well-being

When entered into the model, SIA employment, SIA support, SIA bullying, and SIA encouragement accounted for 31.6% of the variance in well-being ( $\Delta R^2 = .316$ ,  $\Delta F(4, 66) = 4.651$ ,  $p = .002$ ). However, race/ethnicity ( $\beta = .293$ ,  $SE = 4.815$ ,  $t(66) = 2.799$ ,  $p = .007$ ) was the only significant predictor in well-being such that respondents who identified their race/ethnicity as non-White reported greater levels of well-being compared to White respondents. SIA employment ( $\beta = -.215$ ,  $SE = 4.069$ ,  $t(66) = -1.935$ ,  $p = .057$ ) and SIA bullying ( $\beta = -.208$ ,  $SE = 1.583$ ,  $t(66) = -1.783$ ,  $p = .079$ ) were near significant predictors in well-being.

## 4. Discussion

The purpose of this study was to develop a better understanding of SIAs in the lives of autistic adults with a focus on their employment and mental health outcomes. Previous studies have examined how SIAs can be incorporated in interventions to teach K-12 students with ASD (e.g., power card strategy; Angell et al., 2011; Daubert et al., 2015), but this study focused on autistic adults aged 18 or older. Autistic adults frequently experience challenges obtaining employment (Roux et al., 2017) and are likely to have

Table 5  
Regression results with significant and nearly significant predictors ( $N = 72$ )

Hypotheses	Criterion	Predictors	$R^2$	$\Delta R^2$	$p$	Significant and nearly significant predictors	$\beta$	$p$
1	Depression	SIA employment	.240	.201	.003	SIA bullying	.356	.005
		SIA support				SIA employment	.324	.007
		SIA bullying SIA encouragement						
2	Anxiety	SIA employment	.143	.143	.035	SIA bullying	.387	.004
		SIA support SIA bullying						
		SIA encouragement						
3	Stress	SIA employment	.218	.193	.005	SIA support	-.257	.037
		SIA support				SIA bullying	.429	.001
		SIA bullying				SIA employment	.225	.063
		SIA encouragement						
4	Well-being	SIA employment	.316	.193	.002	SIA employment	-.215	.057
		SIA support				SIA bullying	-.208	.079
		SIA bullying						
		SIA encouragement						

Note: Race/ethnicity ( $R^2 = .123$ ,  $p = .003$ ) with well-being.

some type of comorbid mental health disorder (Murray et al., 2019). The results of this study support the hypothesis that SIAs are important in the lives of autistic adults and can be used to potentially alleviate some common challenges in adulthood.

Nearly the same number of women and men completed the online survey, which was encouraging given women are typically underrepresented in autism research (Milner et al., 2019). Furthermore, given the prevalence of gender (Strang et al., 2016) and sexual orientation diversity (George & Stokes, 2018) in the ASD population, we were pleased with the large number of respondents who identified as gender diverse and non-heterosexual. Specifically, 18 respondents (25%) identified as transgender or gender diverse. Incorporating female, transgender, and gender diverse perspectives of the autistic experience is an important focus that future researchers should maintain.

Adults reported a wide range of types of SIAs in which they engaged with the largest category being creative arts. This category encompassed interests in movies, writing and reading fiction, music, and performing arts. Engaging in creative arts can be a positive outlet for autistic adults and particularly adults who identify as talented and creative. This finding is in contrast to other research that found autistic adults had the most intense interests related to item attachment, organizing, sciences, machines, and technology (Caldwell-Harris & Jordan, 2014). Similarly, Kirchner & Dziobek (2014) found technology/engineering to be the most common SIA,

followed by human and social sciences, and creative fields was third. Although some research exists related to the creative thinking of children with ASD (e.g., Hetzroni et al., 2019), less is known regarding the creative pursuits of autistic adults and how the arts can contribute to overall well-being. Additional research is needed to explore this topic further.

Adults reported engaging in their SIA for long periods of time each week. Specifically, respondents spent an average of 39.43 hours per week engaging with their SIA. This was considerably higher than previous research which found an average of 26 hours per week (Kirchner and Dziobek, 2014). Long periods of time each week engaging in a SIA relates to a variety of other adult outcomes, such as community integration, leisure, and socialization. For example, more respondents reported engaging in their SIA with other people (60%) compared to alone (37.5%). Autistic adults clearly enjoy collaborating and engaging with others who have similar interests as them.

Few respondents (25%) were currently employed in a job related to their SIA at the time of taking the survey, but the majority (64.86%) reported they desire a job or career aligned to their SIA. Previous research has examined the employment outcomes of autistic individuals in general (e.g., Roux et al., 2017) but this study focused on SIA-related employment. Given the strong desire of respondents to obtain SIA-related employment, this is an important area of inquiry. Relatedly, job matching is a widely used strategy in the fields of secondary special education and vocational rehabilitation. For instance, Hall et al. (2014)

found young adults with developmental disabilities were more productive and accurate when completing high-preference jobs compared to low-preference jobs. However, successful employment depends on a variety of other factors, such as required job tasks and demands placed upon the employee (Goldfarb et al., 2019). Importantly, as noted by several survey respondents, job skills of autistic employees are varied and extend beyond technology-related fields.

#### 4.1. *Perceptions regarding SIAs*

Respondents reported a variety of benefits associated with engaging in their SIA, including that it makes them happy. This finding was consistent with other research indicating SIAs are associated with higher levels of well-being and life satisfaction (Grove et al., 2018), as well as positive emotions and coping strategies (Teti et al., 2016). In addition, the large majority (75%) reported they had an adult agency provider, school professional, family member, peer, or other significant person encourage their SIA at some point in their lifetime. These key people in the lives of autistic adults can be important for fostering social and community connections (Carter et al., 2013). Respondents felt strongly that SIAs can be a means in which autistic individuals contribute to broader society and that SIAs are closely related to their identity. For example, one survey respondent wrote, “I would like to say that they aren’t the same as a regular interest. They aren’t just lifelong hobbies for me. They are a core part of my identity.” The importance of SIAs to the identity of autistic adults has been previously described in the literature (e.g., Grove et al., 2018; Harrop et al., 2019).

Autistic adults also indicated a preference for neurotypical individuals to develop a better understanding and acceptance of SIAs. For example, one adult wrote, “Special interests are invaluable to a neurodivergent person’s mental health and should be supported once they do not harm others or infringe on the boundaries of others.” Another adult wrote, “Man let us vibe.” These findings are consistent with another survey study that indicated long periods of time spent masking was detrimental to the mental health of autistic adults (Bradley et al., 2021). Accordingly, focus should shift to providing education and knowledge for neurotypical individuals rather than minimizing the SIAs of autistic individuals.

#### 4.2. *Depression, anxiety, stress, and well-being*

More than half of the respondents reported SIA-related bullying at some point in their lifetime. This finding was concerning and consistent with previous literature that found K-12 students with ASD experience higher rates of bullying compared to students without disabilities (Sreckovic et al., 2014). Findings from our statistical analysis indicated respondents who reported higher levels of bullying experienced higher levels of depression, anxiety, and stress. Lack of current support related to one’s SIA also contributed to statistically significant higher levels of stress. This finding suggests having someone encourage their SIA is important in the lives of autistic adults to lower their stress levels. In addition, respondents who were not currently employed in their SIA reported higher levels of depression. Unemployment can indeed negatively impact the mental health of an individual with ASD (Hedley et al., 2017).

Finally, non-White people reported greater levels of well-being compared to White respondents. This finding was inconsistent with the literature, which led us to control for race/ethnicity. There were no other variables that were significant predictors of well-being. This finding suggests some other factor beyond employment, support, encouragement, and lack of bullying must be present for autistic adults to have high levels of well-being. In short, it remains unclear what component will support autistic adults to flourish and live happy and fulfilling lives. However, the qualitative analysis suggests that SIAs may be one means to contribute to the overall well-being of autistic adults. As described by one survey respondent, SIAs are “the spark that makes life worth living.”

#### 4.3. *Limitations*

There are several limitations to this study that must be acknowledged. First, the survey was distributed entirely online so only individuals with technological devices (i.e., computers, tablets, smart phones) and Internet access could complete the survey. Autistic individuals without technology and/or Internet access likely did not receive information about the survey. Second, the majority of respondents (86.1%) were White with limited racially and ethnically diverse respondents. Future researchers should consider strategic methods to recruit more diverse respondents rather than relying on social media posts and other snowballing recruitment methods. Third, nearly all respondents (93%) reported needing Level

1 supports (*requiring support*; DSM-V; APA, 2013) related to their ASD. Therefore, implications for this study related to individuals with more significant support needs should be interpreted with caution. Results of the study can primarily be applied to individuals with the mildest level of autism support needs. Finally, the small sample size ( $N=72$ ) was below the recommended number of respondents for quantitative research (Green, 1991). Therefore, this should be taken into consideration when interpreting the statistical analyses. Given ASD is a low-incidence disability and this study represents an initial inquiry in this topic, we were pleased with the number of analyzed survey responses. However, large scale survey research may be advantageous to better understanding SIAs. Future researchers may also consider offering compensation to incentivize participation.

#### 4.4. Implications

Findings from this study indicate SIAs are indispensable in the lives of autistic adults. Incorporating SIAs into employment experiences of adults with ASD is one potential means to enhance job outcomes and satisfaction. Secondary special education teachers, transition specialists, job coaches and employers should capitalize upon the SIAs of employees with ASD to the betterment of local businesses and the broader community. However, simply matching a SIA to a job is not sufficient. Rather, a more holistic approach should be considered (Dreaver et al., 2020). Autistic employees will likely benefit from other employment strategies such as a supportive workplace environment and individualized job accommodations (Lindsay et al., 2021). Employers may also consider innovative hiring methods to recruit autistic employees (e.g., alternative job interviewing formats). In addition, counselors, psychologists, psychiatrists, and other mental health professionals should examine ways to utilize SIAs to enhance the well-being of autistic adults while also managing their co-occurring mental health conditions (i.e., anxiety, depression). Lastly, the viewpoints of diverse autistic adults should be incorporated while developing a better understanding of the value of SIAs to support employment and mental health outcomes. In particular, future researchers should employ strategic methods to recruit more women, transgender, and gender diverse participants in autism research. We were fortunate to have many types of gender diversity represented, but the voices of these individuals must be brought to the forefront of any

discussion related to employment, mental well-being, and SIAs.

## 5. Conclusion

Supporting individuals with ASD across their lifespan and into adulthood is a critical area of empirical research. Competitive integrated employment and positive mental health are important for autistic adults to live the lives they desire. Results from this survey study indicated autistic adults feel strongly that SIAs enhance their lives in meaningful ways. In particular, the survey respondents reported a strong desire for SIA-related employment and higher levels of stress when people in their life do not support their SIA. SIAs should not be viewed as a deficit that needs to be remedied or masked. On the contrary, SIAs should be highly valued to not only enhance the quality of life of autistic adults but also contribute to the lives of neurotypical individuals as well as broader society.

## Acknowledgments

The authors would like to thank the three autistic adults for their thoughtful contributions to revising the survey prior to distribution. They would also like to thank the following experts in the field of autism for providing their time in reviewing the survey: Brian Boyd, Ph.D., Juniper Gardens Children's Project; Robert Pennington, Ph.D., BCBA-D, University of North Carolina at Charlotte; and Jason C. Travers, Ph.D., BCBA-D, Temple University.

## Conflict of interest

The authors declare that they have no conflict of interest.

## Data availability

There are no supplementary materials or data to report as part of the study.

## Disclaimer

The authors chose to purposely use both identity-first and person-first language throughout the

manuscript. They used identity-first language only in the survey.

### Ethics statement

This study was submitted to University of North Carolina at Charlotte Institutional Review Board prior to survey distribution. The submission was reviewed by the Office of Research Protections and Integrity and was determined to meet the exempt category under 45 CFR 46.104(d). This determination has no expiration or end date and is not subject to an annual continuing review. The first author received this notification on 7/22/2020 and can provide documentation upon request.

### Funding

There is no funding associated with this study. Participants did not receive a stipend or any other monetary incentive for completing the survey.

### Informed consent

Survey respondents provided their consent on the first page of the online survey. Respondents checked nine boxes to indicate they agreed, understood, and accepted the information presented. Respondents were not required to provide their name or contact information as part of the informed consent. If respondents indicated they agreed, then they could access the survey questions. If respondents indicated they disagreed, then the online page closed and they were not able to access the survey questions.

### References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>
- Angell, M. E., Nicholson, J. K., Watts, E. H., & Blum, C. (2011). Using a multicomponent adapted power card strategy to decrease latency during interactivity transitions for three children with developmental disabilities. *Focus on Autism and Other Developmental Disabilities*, 26(4), 206-217. <https://doi.org/10.1177/1088357611421169>
- Aparicio-García, M. E., Díaz-Ramiro, E. M., Rubio-Valdehita, S., López-Núñez, M. I., & García-Nieto, I. (2018). Health and well-being of cisgender, transgender and non-binary young people. *International Journal of Environmental Research and Public Health*, 15(10), 2133. <https://doi.org/10.3390/ijerph15102133>
- Baron-Cohen, S., & Wheelwright, S. (1999). 'Obsessions' in children with autism or Asperger syndrome: Content analysis in terms of core domains of cognition. *The British Journal of Psychiatry*, 175(5), 484-490. <https://doi.org/10.1192/bjp.175.5.484>
- Bhattacharya, K. (2017). *Fundamentals of qualitative research: A practical guide*. Routledge. <https://doi.org/10.4324/9781315231747>
- Bishop-Fitzpatrick, L., Minshew, N. J., Mazefsky, C. A., & Eack, S. M. (2017). Perception of life as stressful, not biological response to stress, is associated with greater social disability in adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 47(1), 1-16. <https://doi.org/10.1007/s10803-016-2910-6>
- Botha, M., & Frost, D. M. (2020). Extending the minority stress model to understand mental health problems experienced by the autistic population. *Society and Mental Health*, 10(1), 20-34. <https://doi.org/10.1177/2156869318804297>
- Boyd, B. A., Conroy, M. A., Mancil, G. R., Nakao, T., & Alter, P. J. (2007). Effects of circumscribed interests on the social behaviors of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 37(8), 1550-1561. <https://doi.org/10.1007/s10803-006-0286-8>
- Bradley, L., Shaw, R., Baron-Cohen, S., & Cassidy, S. (2021). Autistic adults' experiences of camouflaging and its perceived impact on mental health. *Autism in Adulthood*, 3(4), 320-329. <https://doi.org/10.1089/aut.2020.0071>
- Bross, L. A. & Travers, J. C. (2017). Special interest areas and employment skills programming for secondary students with autism. *Teaching Exceptional Children*, 50(2), 74-83. <https://doi.org/10.1177/0040059917730846>
- Bury, S. M., Hedley, D., Uljarević, M., & Gal, E. (2020). The autism advantage at work: A critical and systematic review of current evidence. *Research in Developmental Disabilities*, 105, 103750. <https://doi.org/10.1016/j.ridd.2020.103750>
- Caldwell-Harris, C. L., & Jordan, C. J. (2014). Systemizing and special interests: Characterizing the continuum from neurotypical to autism spectrum disorder. *Learning and Individual Differences*, 29, 98-105. <https://doi.org/10.1016/j.lindif.2013.10.005>
- Carter, E. W., Harvey, M. N., Taylor, J. L., & Gotham, K. (2013). Connecting youth and young adults with autism spectrum disorders to community life. *Psychology in the Schools*, 50(9), 888-898. <https://doi.org/10.1002/pits.21716>
- Cascio, C. J., Foss-Feig, J. H., Heacock, J., Schauder, K. B., Loring, W. A., Rogers, B. P., Pryweller, J. R., Newsom, C. R., Cockhren, J., Cao, A., & Bolton, S. (2014). Affective neural response to restricted interests in autism spectrum disorders. *Journal of Child Psychology and Psychiatry*, 55(2), 162-171. <https://doi.org/10.1111/jcpp.12147>
- Ciria-Barreiro, E., Moreno-Maldonado, C., Rivera, F., & Moreno, C. (2021). A comparative study of health and well-being among cisgender and binary and nonbinary transgender adolescents in Spain. *LGBT Health*, 8(8), 536-544. <https://doi.org/10.1089/lgbt.2020.0477>
- Charlop-Christy, M. H., & Haymes, L. K. (1996). Using obsessions as reinforcers with and without mild reductive procedures to decrease inappropriate behaviors of children with autism. *Jour-*

- nal of Autism and Developmental Disorders, 26(5), 527-546. <https://doi.org/10.1007/BF02172274>
- Cocks, E., Thoresen, S. H., & Lee, E. A. L. (2015). Pathways to employment and quality of life for apprenticeship and traineeship graduates with disabilities. *International Journal of Disability, Development and Education*, 62(4), 422-437. <https://doi.org/10.1080/1034912X.2015.1025714>
- Danker, J., Strnadová, I., & Cumming, T. M. (2019). Picture my well-being: Listening to the voices of students with autism spectrum disorder. *Research in Developmental Disabilities*, 89, 130-140. <https://doi.org/10.1016/j.ridd.2019.04.005>
- Daubert, A., Hornstein, S., & Tincani, M. (2015). Effects of a modified power card strategy on turn taking and social commenting of children with autism spectrum disorder playing board games. *Journal of Developmental and Physical Disabilities*, 27(1), 93-110. <https://doi.org/10.1007/s10882-014-9403-3>
- Deserno, M. K., Borsboom, D., Begeer, S., & Geurts, H. M. (2018). Relating ASD symptoms to well-being: Moving across different construct levels. *Psychological Medicine*, 48(7), 1179-1189. <https://doi.org/10.1017/S0033291717002616>
- DeVellis, R. F., & Thorpe, C. T. (2021). *Scale development: Theory and applications*. Sage Publications.
- DeVries, A. L., Noens, I. L., Cohen-Kettenis, P. T., van Berckelaer-Onnes, I. A., & Doreleijers, T. A. (2010). Autism spectrum disorders in gender dysphoric children and adolescents. *Journal of Autism and Developmental Disorders*, 40(8), 930-936. <https://doi.org/10.1007/s10803-010-0935-9>
- Dreaver, J., Thompson, C., Girdler, S., Adolffson, M., Black, M. H., & Falkmer, M. (2020). Success factors enabling employment for adults on the autism spectrum from employers' perspective. *Journal of Autism and Developmental Disorders*, 50(5), 1657-1667. <https://doi.org/10.1007/s10803-019-03923-3>
- Esbensen, A. J., Seltzer, M. M., Lam, K. S., & Bodfish, J. W. (2009). Age-related differences in restricted repetitive behaviors in autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 39(1), 57-66. <https://doi.org/10.1007/s10803-008-0599-x>
- Fish, J. N., Salerno, J., Williams, N. D., Rinderknecht, R. G., Drotning, K. J., Sayer, L., & Doan, L. (2021). Sexual minority disparities in health and well-being as a consequence of the covid-19 pandemic differ by sexual identity. *LGBT Health*. Advance online publication. <https://doi.org/10.1089/lgbt.2020.0489>
- George, R., & Stokes, M. A. (2018). Sexual orientation in autism spectrum disorder. *Autism Research*, 11(1), 133-141. <https://doi.org/10.1002/aur.1892>
- Goldfarb, Y., Gal, E., & Golan, O. (2019). A conflict of interests: A motivational perspective on special interests and employment success of adults with ASD. *Journal of Autism and Developmental Disorders*, 49(9), 3915-3923. <https://doi.org/10.1007/s10803-019-04098-7>
- Green, Samuel B. (1991). *How many subjects does it take to do a regression analysis*. *Multivariate Behavioral Research*, 26(3), 499-510. [https://doi.org/10.1207/s15327906mbr2603\\_7](https://doi.org/10.1207/s15327906mbr2603_7)
- Grove, R., Hoekstra, R. A., Wierda, M., & Begeer, S. (2018). Special interests and subjective wellbeing in autistic adults. *Autism Research*, 11(5), 766-775. <https://doi.org/10.1002/aur.1931>
- Gunn, K. C., & Delafield-Butt, J. T. (2016). Teaching children with autism spectrum disorder with restricted interests: A review of evidence for best practice. *Review of Educational Research*, 86(2), 408-430. <https://doi.org/10.3102/0034654315604027>
- Harrop, C., Amsbary, J., Towner-Wright, S., Reichow, B., & Boyd, B. A. (2019). That's what I like: The use of circumscribed interests within interventions for individuals with autism spectrum disorder. A systematic review. *Research in Autism Spectrum Disorders*, 57, 63-86. <https://doi.org/10.1016/j.rasd.2018.09.008>
- Hall, J., Morgan, R. L., & Salzberg, C. L. (2014). Job-preference and job-matching assessment results and their association with job performance and satisfaction among young adults with developmental disabilities. *Education and Training in Autism and Developmental Disabilities*, 49(2), 301-312. <https://www.jstor.org/stable/23880612>
- Harrop, C., Amsbary, J., Towner-Wright, S., Reichow, B., & Boyd, B. A. (2019). That's what I like: The use of circumscribed interests within interventions for individuals with autism spectrum disorder. A systematic review. *Research in Autism Spectrum Disorders*, 57, 63-86. <https://doi.org/10.1016/j.rasd.2018.09.008>
- Hebron, J., & Humphrey, N. (2014). Exposure to bullying among students with autism spectrum conditions: A multi-informant analysis of risk and protective factors. *Autism*, 18(6), 618-630. <https://doi.org/10.1177/1362361313495965>
- Hedley, D., Uljarević, M., & Hedley, D. F. (2017). Employment and living with autism: Personal, social and economic impact. In *Inclusion, disability and culture* (Ed., pp. 295-311). Springer International Publishing. [https://doi.org/10.1007/978-3-319-55224-8\\_19](https://doi.org/10.1007/978-3-319-55224-8_19)
- Hedley, D., Uljarević, M., Bury, S. M., & Dissanayake, C. (2019). Predictors of mental health and well-being in employed adults with autism spectrum disorder at 12-month follow-up. *Autism Research*, 12(3), 482-494. <https://doi.org/10.1002/aur.2064>
- Hetzroni, O., Agada, H., & Leikin, M. (2019). Creativity in autism: An examination of general and mathematical creative thinking among children with autism spectrum disorder and children with typical development. *Journal of Autism and Developmental Disorders*, 49(9), 3833-3844. <https://doi.org/10.1007/s10803-019-04094-x>
- Hollocks, M. J., Lerh, J. W., Magiati, I., Meiser-Stedman, R., & Brugha, T. S. (2019). Anxiety and depression in adults with autism spectrum disorder: A systematic review and meta-analysis. *Psychological Medicine*, 49(4), 559-572. <https://doi.org/10.1017/S0033291718002283>
- Hudson, C. C., Hall, L., & Harkness, K. L. (2019). Prevalence of depressive disorders in individuals with autism spectrum disorder: A meta-analysis. *Journal of Abnormal Child Psychology*, 47(1), 165-175.
- Huffman, J. M., Warlick, C., Frey, B., & Kerr, B. (2020). Religiosity, spirituality, gender identity, and sexual orientation of sexual minorities. *Translational Issues in Psychological Science*, 6(4), 356-371. <https://doi.org/10.1037/tps0000262>
- Hughes, J. L., Camden, A. A., & Yangchen, T. (2016). Rethinking and updating demographic questions: Guidance to improve descriptions of research samples. *Psi Chi Journal of Psychological Research*, 21(3), 138-151. <https://doi.org/10.24839/b21.3.138>
- Individuals with Disabilities Education Improvement Act (IDEIA) of 2004, 20 U.S.C. §et. Seq. 1401. (2004). (reauthorization of the Individuals with Disabilities Act of 1990).
- Kapp, S. K. (2018). Social support, well-being, and quality of life among individuals on the autism spectrum. *Pediatrics*, 141(Supplement.4), S362-S368. <https://doi.org/10.1542/peds.2016-4300N>



- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61(2), 121-140. <https://doi.org/10.2307/2787065>
- Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43(June), 207-222. <https://doi.org/10.2307/3090197>
- Keyes, C. L. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, 73(3), 539-548. <https://doi.org/10.1037/0022-006X.73.3.539>
- Keyes, C. L., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the mental health continuum—short form (MHC-SF) in Setswana-speaking South Africans. *Clinical Psychology & Psychotherapy*, 15(3), 181-192. <https://doi.org/10.1002/cpp.572>
- Kirchner, J. C., & Dziobek, I. (2014). Towards successful employment of adults with autism: A first analysis of special interests and factors deemed important for vocational performance. *Scandinavian Journal of Child and Adolescent Psychiatry and Psychology*, 2(2), 77-85. <https://tidsskrift.dk/sjcap/article/view/15858>
- Klin, A., Danovitch, J. H., Merz, A. B., & Volkmar, F. R. (2007). Circumscribed interests in higher functioning individuals with autism spectrum disorders: An exploratory study. *Research and Practice for Persons with Severe Disabilities*, 32(2), 89-100. <https://doi.org/10.2511/rpsd.32.2.89>
- Lam, G. Y. H., Sabnis, S., Migueliz Valcarlos, M., & Wolgemuth, J. R. (2021). A critical review of academic literature constructing well-being in autistic adults. *Autism in Adulthood*, 3(1), 61-71. <https://doi.org/10.1089/aut.2020.0053>
- Lindsay, S., Osten, V., Rezaei, M., & Bui, S. (2021). Disclosure and workplace accommodations for people with autism: A systematic review. *Disability and Rehabilitation*, 43(5), 597-610. <https://doi.org/10.1080/09638288.2019.1635658>
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343. [https://doi.org/10.1016/0005-7967\(94\)00075-U](https://doi.org/10.1016/0005-7967(94)00075-U)
- Milner, V., McIntosh, H., Colvert, E., & Happé, F. (2019). A qualitative exploration of the female experience of autism spectrum disorder (ASD). *Journal of Autism and Developmental Disorders*, 49(6), 2389-2402. <https://doi.org/10.1007/s10803-019-03906-4>
- Murray, C., Kovshoff, H., Brown, A., Abbott, P., & Hadwin, J. A. (2019). Exploring the anxiety and depression profile in individuals diagnosed with an autism spectrum disorder in adulthood. *Research in Autism Spectrum Disorders*, 58, 1-8. <https://doi.org/10.1016/j.rasd.2018.11.002>
- Nah, Y. H., Brewer, N., Young, R. L., & Flower, R. (2018). Brief report: Screening adults with autism spectrum disorder for anxiety and depression. *Journal of Autism and Developmental Disorders*, 48(5), 1841-1846.
- Oakley, B. F., Tillmann, J., Ahmad, J., Crawley, D., San José Cáceres, A., Holt, R., Charman, T., Banaschewski, T., Buitelaar, J., Simonoff, E., Murphy, D., & Loth, E. (2021). How do core autism traits and associated symptoms relate to quality of life? Findings from the Longitudinal European Autism Project. *Autism*, 25(2), 389-404. <https://doi.org/10.1177/1362361320959959>
- Park, S. H., Song, Y. J. C., Demetriou, E. A., Pepper, K. L., Thomas, E. E., Hickie, I. B., & Guastella, A. J. (2020). Validation of the 21-item Depression, Anxiety, and Stress Scales (DASS-21) in individuals with autism spectrum disorder. *Psychiatry Research*, 291, 113300. <https://doi.org/10.1016/j.psychres.2020.113300>
- Remes, O., Brayne, C., Van Der Linde, R., & Lafortune, L. (2016). A systematic review of reviews on the prevalence of anxiety disorders in adult populations. *Brain and Behavior*, 6(7), e00497. <https://doi.org/10.1002/brb3.497>
- Roux, A. M., Rast, J. E., Anderson, K. A., and Shattuck, P. T. (2017). *National Autism Indicators Report: Developmental Disability Services and Outcomes in Adulthood*. Philadelphia, PA: Life Course Outcomes Program, A.J. Drexel Autism Institute, Drexel University.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069.
- Sainz, M., Martínez, R., Moya, M., Rodríguez-Bailón, R., & Vaes, J. (2021). Lacking socio-economic status reduces subjective well-being through perceptions of meta-dehumanization. *British Journal of Social Psychology*, 60(2), 470-489.
- Siminski, P. (2008). Order effects in batteries of questions. *Quality and Quantity*, 42(4), 477-490. <https://doi.org/10.1007/s11135-006-9054-2>
- Sreckovic, M. A., Brunsting, N. C., & Able, H. (2014). Victimization of students with autism spectrum disorder: A review of prevalence and risk factors. *Research in Autism Spectrum Disorders*, 8(9), 1155-1172. <https://doi.org/10.1016/j.rasd.2014.06.004>
- Strang, J. F., Meagher, H., Kenworthy, L., de Vries, A. L., Menvielle, E., Leibowitz, S., Janssen, A., Cohen-Kettenis, P., Shumer, D. E., Edwards-Leeper, L., Pleak, R. R., Spack, N., Karasic, D. H., Schreier, H., Balleur, A., Tishelman, D. E., Rodnan, L., Kushner, E. S., Mandel, F., & Anthony, L. G. (2018). Initial clinical guidelines for co-occurring autism spectrum disorder and gender dysphoria or incongruence in adolescents. *Journal of Clinical Child & Adolescent Psychology*, 47(1), 105-115. <https://doi.org/10.1080/15374416.2016.1228462>
- Teti, M., Cheak-Zamora, N., Lolli, B., & Maurer-Batjer, A. (2016). Reframing autism: Young adults with autism share their strengths through photo-stories. *Journal of Pediatric Nursing*, 31(6), 619-629. <https://doi.org/10.1016/j.pedn.2016.07.002>
- Turner-Brown, L. M., Lam, K. S. L., Holtzclaw, T. N., Dichter, G. S., & Bodfish, J. W. (2011). Phenomenology and measurement of circumscribed interests in autism spectrum disorders. *Autism*, 15(4), 437-456. <https://doi.org/10.1177/1362361310386507>
- Vyas, C. M., Donneyong, M., Mischoulon, D., Chang, G., Gibson, H., Cook, N. R., & Okereke, O. I. (2020). Association of race and ethnicity with late-life depression severity, symptom burden, and care. *JAMA network open*, 3(3), e201606-e201606. <https://doi.org/10.1001/jamanetworkopen.2020.1606>
- Winter-Messiers, M. A. (2007a). From tarantulas to toilet brushes: Understanding the special interest areas of children and youth with Asperger syndrome. *Remedial and Special Education*, 28(3), 140-152. <https://doi.org/10.1177/07419325070280030301>
- Winter-Messiers, M. A., Herr, C. M., Wood, C. E., Brooks, A. P., Gates, M. A. M., Houston, T. L., & Tingstad, K. I. (2007b). How far can Brian ride the daylight 4449 express? A strength-based model of Asperger syndrome based on special interest areas. *Focus on Autism and Other Developmental Disabilities*, 22(2), 67-79. <https://doi.org/10.1177/10883576070220020701>