Research Article

Understanding the Experiences of Autistic College Students: An Exploratory Mixed-Methods Analysis

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Abstract

Autism is characterized by repetitive behaviors, restricted interests, and social communication challenges. Postsecondary institutions have seen an increase in enrollment of students with autism. However, the graduation rate of four-year university students with autism is only 20 percent in the U.S. This study examined the perspectives of 13 autistic college students from a four-year university. Participants completed surveys about their executive function and sensory processing. Participants also were asked about their college experiences in a semi-structured interview. Quantitative and qualitative data were examined using a mixed-methods approach. The results suggest that autistic college students: (a) have challenges related to executive function; (b) have sensory processing needs; (c) struggle to access appropriate resources; (d) face challenges in social situations; and (e) feel isolated and misunderstood. These findings suggest that postsecondary supports (e.g., autism-specific programs and resources) for autistic college students may be warranted to ensure their continued success.

Introduction

Autism is a complex neurodevelopmental condition that affects behavior and social communication [1]. The estimated prevalence of autism is 1 in 54 youth in the U.S [2]. Over the past three decades, research on autistic children has led to improved outcomes [3]. Roux and colleagues [4] report that 36% of autistic individuals pursue postsecondary education; of these individuals, only 11% attend a four-year university. Despite a growing body of research on autistic college students, this area lags behind what we know about autistic individuals in primary and secondary education [3,5-7].

Only 20% of autistic college students graduate within six years compared to 59% of college students in the U.S [4,8]. There are many factors which may contribute to low graduation rates including difficulties in social skills (e.g., struggles to collaborate with classmates), self-advocacy (e.g., making their needs known to others), and caring for their daily needs (e.g., eating regularly and attending class) [9-13]. Many autistic students report that on-campus resources such as disability resources and career centers are necessary but not sufficient to meet their needs [14]. These factors may affect students' overall experiences in college.

Two areas that may be important to further understand the experiences of autistic college students are executive function and sensory processing. Executive function describes a set of higher-level mental processes that regulate one's thoughts and behaviors, including planning, decision-making, risk analysis, prioritization,

autonomy, and cognitive flexibility [15]. Autistic individuals tend to experience considerable difficulty with executive function, [16] which plays a large role in college success – individuals need to plan one's schedule, balance school and personal life, and maintain independent living skills. These aspects of college are difficult for any student and may result in challenges that manifest as procrastination or difficulty with timely submission of assignments which may be exacerbated in an autistic person [17]. Sensory processing includes processing of visual and auditory input and multi-sensory integration [18]. Approximately 94% of autistic adults show varying degrees of sensory processing challenges, and many of these individuals actively seek out or avoid particular sensations [19]. College activities required for academic success (e.g., completing exams in a crowded lecture hall, concentrating on a professor's lecture, or studying with a group in a noisy area) can be difficult for students with sensory processing differences. An over- or under-stimulating environment may interfere with learning for autistic students.

Most services available for autistic students are general disability services, and few services are specifically individually tailored to meet their needs (e.g., mentorship specifically for autistic students) [14]. Services currently offered include preferential seating in classrooms, reduced-distraction testing environments, copies of materials presented in class, lecture recordings, note-taking services, assistance navigating group dynamics, and priority class registration, to name a few [20,21]. Research emphasizes that comprehensive programs in academic, social, and emotional domains are essential to help autistic students succeed at postsecondary institutions [10,11,22,23]. Training designed for faculty, staff, and students also is important to inform how to best support autistic college students [21].

Relatively little research exists on the holistic college experiences of autistic students [24]. The dearth of research on autistic college students represents a crucial gap in the field [25]. Understanding the nuances of the overall experiences of autistic college students has critical implications to inform recommendations and best practices for postsecondary success. The heterogeneity and presentation of autism symptoms is one of the greatest challenges in working with autistic individuals-no one service is guaranteed to work for all individuals [26]. Thus, colleges and universities may need breadth and depth of resources to serve autistic students, but first we must better understand their experiences and needs. The purpose of this study is to explore the nuances of the experiences of autistic college students to inform potential recommendations for university supports.

Methods

Surveys and semi-structured interviews were conducted with autistic college students at a large four-year university in an urban city in the Northwestern U.S. Approval was obtained from the university institutional review board. An advisory group of autistic young adults was involved in the selection of the outcome measures, development of the interview guide, and the implementation of this study.

Participants: Thirteen autistic students (7 male, 5 female, 1 genderqueer) were included in this study. Participants were recruited through informational flyers posted in the disability resources center and on-campus housing. Interested participants contacted the research team. Specific data on socioeconomic status were not recorded. Additional demographic data for 10 participants are included in Table 1.

	Participants (n=13)	Range
Gender		
Male	7	
Female	5	
Genderqueer	1	
Race		
White	6	
Multiracial	6	
Asian	1	
Ethnicity		
Hispanic/Latino/Spanish origin	3	
Age, mean (SD)	23.5 (5.35)	19-36

GPA, mean (SD)	3.58 (0.329)	3.0-4.0
	Participants (n=10)	
Currently employed		
Yes	6	
No	3	
No, but actively looking	1	
Voluntarily left a college or university		
Yes	3	
No	7	
Current student standing		
Freshman	2	
Sophomore	2	
Junior	3	
Senior	2	
Graduate student	1	
Majors		
Humanities	3	
Computer science & engineering	2	
Natural sciences	1	
Undeclared	2	
Missing	2	
Conduct investigation at current university		
Yes	0	
No	10	
Dismissal from previous college or university		
Yes	0	
No	10	
Honor Roll/Dean's List at current university		
Yes	3	
No	7	
Services received at current university		
Disability accommodations (e.g., extra testing time, reduced distraction environment)	7	
Educational Opportunity Program (EOP)	1	
None	2	

Services received off-campus		
Mental health	4	
Autism support	1	
None	1	
Missing	4	
Student organizations/clubs		
Faith-based	1	
Autism-related	1	
Diversity initiatives	2	
Identity-related	2	
Hobby/special interest	3	
None	1	
Received scholarships or merit-based awards		
Yes	3	
No	7	

SD: standard deviation, EOP: Educational Opportunity Program

Table 1: Participant demographics.

Measures

Executive Function: Executive function was measured using the Behavior Rating Inventory of Executive Function -Adult Version (BRIEF-A), which is a 75-item self-report questionnaire that assesses executive function in everyday settings and has nine clinical subscales, collapsed into two indices [27]. All of these ratings are expressed as T scores based on a normative sample with M=50 and SD=15, in which higher scores are indicative of more executive function challenges. Scores of 65 and above are considered clinically significant [27]. Roth and colleagues reported moderate to high internal consistency (clinical scales α=0.73–0.90, and α=0.93–0.96 for the indices) in their self-report clinical sample of neurotypical individuals [28]. The BRIEF-A was administered via Research Electronic Data Capture (REDCap), a secure, web-based application designed to support data capture for research studies [29].

Sensory Processing: Participants also completed the Adolescent/Adult Sensory Profile, a 60-item survey with the following sensory behavior scales: Low Registration, Sensation Seeking, Sensory Sensitivity, and Sensation Avoiding [30]. Individuals select the frequency of their response to various sensory experiences. Mean scores for each scale are compared to a normative range [31]. Internal consistency for the use of this measure in adults ranged from α =0.64–0.70 [31]. The Adolescent/Adult Sensory Profile was administered via REDCap.

Semi-Structured Interview Protocol: We developed a systematic, comprehensive semi-structured interview guide that examined the perspectives and experiences of autistic college students, such as "Tell me what it is like to be a student at [University] right now," and "What sort of family or social supports do you have?" Researchers followed the four-phase process outlined by Castillo-Montoya and colleagues which comprises "ensuring interview questions align with research questions," "constructing an inquiry-based conversation," "receiving feedback on interview protocols," and "piloting the interview protocol [32]." Questions were carefully constructed to elicit clear information without assigning valence to performance and validated based on input from autistic community members.

Procedures

A member of the research team obtained informed consent form from all participants. Research staff provided participants with survey materials (e.g., BRIEF-A and Sensory Profile) and scheduled and conducted interviews either in person or through the virtual platform Zoom [33], which were used for analysis. Ten participants had both quantitative and qualitative data, while three participants had only interview data because they did not return

the surveys. Study data were managed using REDCap [29]. Participants were compensated $50 for the interview (approximately 60 minutes) and $40 for completion of the survey instruments (approximately 45-60 minutes).

Data Analysis: This study used a mixed-methods approach [34] to examine data by "collecting, analyzing, and merging both quantitative and qualitative data [35]." The format of this analysis was QUAL + quan because qualitative and quantitative data were collected simultaneously, and the quantitative data serve to expand upon the interviews. The quantitative data focused on the executive function and sensory experiences of participants. Descriptive analyses (mean, range, standard deviation) were conducted using SPSS Version 24; [36] these statistics were then converted to standardized scores using manuals for each quantitative measure [28,31]. After separate analyses of the qualitative and quantitative data, the data were connected using the qualitative data as the primary source of data and the quantitative data as a secondary source. Researchers identified common themes between the qualitative and quantitative data, then analyzed how executive function and sensory data interacted with participants' qualitative experiences. This complementary process focused largely on the interviews and used quantitative data to make sense of those interviews. Thus, the data analysis process served to better understand not only the amount of difficulty present but also how these difficulties manifest in participants' college experiences.

Coding of Qualitative Interviews: Three members of the research team developed the coding scheme to quantify the elements of participants' general college experiences. Interviews for all participants were imported into NVivo QSR 12 [37]. The coding scheme was developed using a rigorous, systematic, transparent, and iterative approach and included operational definitions of each code, examples of the code from the data, and where to use and not use the code. The first and third authors coded a randomly-selected 20% of transcripts to determine inter-rater reliability. Agreement was calculated based on the number of words agreed upon; agreement between raters was excellent (97.9-100%). Consensus dialogue was used to address discrepancies. See Table 2 for an inventory of codes and their corresponding descriptions and examples. Remaining interviews were coded by the first author.

Code	Description	Examples
Academics	Challenges, successes, and general information pertaining to coursework, study habits, exams, grades, research, projects, etc.	"It seems like I can only do either the philosophical [assignments] or tests. And I can't do anything in the middle which is, like, every project."
Navigating Campus Resources	Navigating campus resources, such as disability services, career fairs, and campus supports independent of the program	"The [academic coach] has to literally rearrange her schedule just to give you 15 minutes. What I just need is somebody to sit down with me and help me to physically break down a schedule."
Interpersonal Relationships and Interactions	Examples of social interactions and how the participant relates to others. Includes personal, academic, professional, romantic, and other relationships, and interactions with program participants, program staff, professors, classmates, etc.	"I am more introverted when it comes to socializing with neuro-typicals. With neuro-atypicals I am more extroverted." "[My] co-workers are all very nice, very friendly, very helpful. If I ask a question, they will be happy to answer or help with or anything. It has been very supportive."
On-/Off-Campus Activities	On- and off-campus activities, including clubs and employment	"I am usually the one that initiates the study groups."

**Table 2:** Descriptions and examples of codes.

Results

Quantitative Data

Executive Function: Table 3 shows the means and standard deviations of the BRIEF-A. Our sample of autistic college students have more executive function challenges compared to the test's normative sample. The means for the two indices (BRI and MI) and the composite score (GEC) were 66, 69, and 69, respectively; these were greater than the test norm of 65, which suggests clinically significant executive function impairments (Table 3 and Figure 1).

	T score (%ile)	**Clinically significant?**	**Min *T* score (%ile)**	**Max *T* score (%ile)**
Inhibit	67 (95)	Yes	48 (53)	85 (>99)
Shift	69 (96)	Yes	48 (52)	87 (>99)
Emotional control	58 (76)	No	38 (20)	74 (97)
Self-monitor	63 (92)	No	46 (52)	86 (99)
Initiate	66 (93)	Yes	47 (55)	84 (>99)
Working memory	79 (99)	Yes	57 (81)	95 (>99)
Plan/organize	68 (95)	Yes	55 (75)	86 (99)
Task monitor	68 (98)	Yes	60 (85)	83 (>99)
Organization of materials	53 (67)	No	37 (15)	71 (98)
Behavioral Regulation Index (BRI)	66 (92)	Yes	42 (22)	86 (>99)
Metacognition Index (MI)	69 (95)	Yes	50 (56)	87 (>99)
Global Executive Composite (GEC; BRI+MI)	69 (95)	Yes	46 (38)	89 (>99)

Table 3: Summary of participants' average scores on the Behavior Rating Inventory of Executive Function – Adult Version (BRIEF-A) [25].
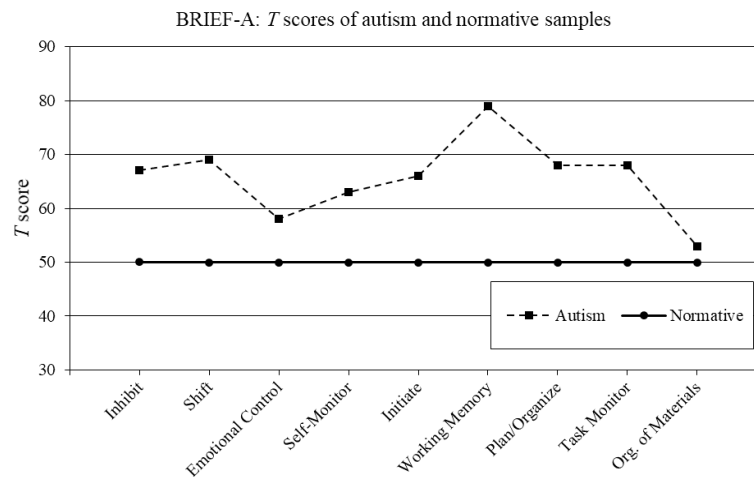
BRIEF-A: Behavior Rating Inventory of Executive Function – Adult version [25].

Figure 1: Visual representation of BRIEF-A T scores of autism and normative samples [25,26].

Sensory Processing: Participants' mean scores on all subscales were outside of the normative range for each quadrant (Low Registration, Sensory Avoidance, Sensation Seeking, and Sensory Sensitivity) (Table 4). Three subscales were above the test's normative sample; only Sensation Seeking was below the test's normative sample.

Quadrant	Mean	*SD*	Min	Max	Normative range[29]
Low registration	44.71	11.76	35	67	27-40
Sensation seeking	39.17	9.04	32	57	42-58
Sensory sensitivity	45.67	14.25	25	67	26-40
Sensation avoidance	50.29	12.70	32	66	26-40

SD: standard deviation

Table 4: Adolescent/Adult Sensory Profile quadrant scores for the autism and normative samples.

Qualitative Data

Four codes emerged from the interviews: Academics, Navigating Campus Resources, Interpersonal Relationships and Interactions, and On- and Off-Campus Activities. Percentages of coded excerpts within codes are listed in parentheses.

Academics

Participants described executive function skills, performance, and more as part of their academic experiences in college.

Role of Executive Function Skills (39.3%): Participants discussed executive function skills such as planning, organization, and juggling multiple tasks simultaneously. Several participants reported feeling easily distracted and unsure how to study, did not consistently create and/or follow a schedule for themselves (resulting in procrastination) or did not have the time management skills required to complete everyday assignments. Multiple participants said they needed "clear academic expectations" for their work; one participant stated, "'easy' for me means clear expectations."

Academic Performance (33.3%): Participants reported an average grade point average (GPA) of 3.58 (A-/B+), notably higher than their university's average GPA of 3.12 (B). However, many participants described difficulties related to their academic performance, including difficulty with homework completion and poor performance on exams. One student said, "intelligent bullshitting was good enough in high school but not [in college]". Another participant had so many accommodations in high school that they "didn't really have to try hard." Other participants mentioned high interest in their classes, heavy course loads, high performance on exams, enjoyment in classes, and strong essay-writing skills.

Other (27.4%): Participants often stated that they found academics at the university very challenging and felt overwhelmed at the university. For instance, one participant stated: "So at the day

before it's due, I feel, 'Oh, God, I've already failed. I won't have any time to finish it and I might as well not do it at all.' I take a long time because I really think about things, just automatically. I've been overanalyzing tons of stuff." Participants frequently discussed high pressure to be competitive at university. One participant felt they needed to "constantly maintain" their academic performance to be "competitive" for medical school.

Navigating Campus Resources

Participants discussed their experiences navigating various campus resources including the disability resource center, career center, academic advising, and others, and discussed barriers (see below) they experienced in accessing these resources.

Disability Resource Center (33.3%): Participants described their experiences navigating the university disability resource center. For many participants, the center was the first on-campus resource they contacted (either independently or with a parent) for academic accommodations. Some participants found their academic disability accommodations very helpful, namely the reduced credit load, alternative testing, audio recordings of class sessions, and notetaking services. One participant learned what services were available for autistic students from the disability resource center:

"I wasn't doing very well [in my first quarter] and I thought, I need something to help me. I can't figure out how to be successful in my classes. I sort of realized that I'm not going to get much help from a lot of places. So I went to [disability resources] and asked them, 'What can I do to help my situation?'"

One participant described that their accommodations were "incredibly helpful" in relieving stress, resulting in better health and grade increases. Other participants criticized the center for being "incompatible" with their needs due to lack of understanding of their autism and the short duration of appointments.

Other Resources (30.8%): Participants also used the career center, their academic adviser, their department's writing and research center, and the disability and deaf cultural center. Many participants recognized that they needed help of some sort but were unsure where to start; one participant recounted that they "knew there were accommodations but [not] a whole lot else." Many participants utilized on-campus housing such as a residence hall or a university-owned apartment, though none stated that they had taken advantage of on-campus housing accommodations (e.g., single, low-noise rooms).

Barriers to Success (35.9%): Some participants were disappointed that various campus resources failed to meet their needs. Multiple participants wanted a resource to help them plan their schedule; for instance, one participant stated, "Once I have a schedule in place, which I cannot do myself… I do really, really well." Some

participants noted feelings of hesitancy, lack of confidence, and lack of skills as barriers to them reaching out to other on-campus resources. One participant described feeling unprepared for an on-campus career fair:

"But I didn't have a resume ready. I didn't feel like I was prepared enough. I guess I didn't feel like I had the confidence that I would have the skills that would allow me to succeed in the internship, [so] I didn't go for any of those."

Participants also reported frustration about not getting enough time with their academic adviser, resource coordinators, and university-employed counselors due to short appointment times and limited number of appointments for each student.

Interpersonal Relationships and Interactions

Participants' relationships included neurotypical peers, faculty, family members, and friends. The majority of participants described difficulty forming relationships of any kind; some had a couple of friends but were not close with any of them, while some said they had no friends.

Neurotypical Peers (28.9%): Participants described their interactions with neurotypical peers such as classmates and co-workers. Interactions included increased comfort over time, becoming "the initiator" of study groups, positive interactions with co-workers, and in-class activities. Others reported feelings of confusion, frustration, and exhaustion in interacting with their neurotypical peers. One participant described the difficulty of having different needs than their neurotypical peers:

"It's always work, running everything you're saying through your head and having to explain why you're doing 'x' thing that's not normal for neurotypicals, like stimming. Or being like, 'Oh, hey, I went to a museum on Saturday morning' and have it not be understood that you spent the next two days recuperating in bed and wearing ear-defenders because the sensory hell of that was unbelievable. It's hard because fundamentally, the way my brain and body are set up is not the same as 99% percent of the world."

Interactions with Faculty (4.4%): Two participants described interactions with faculty members at the university. Participants became more comfortable with faculty over time, and one said their professor became their "go-to person, always giving feedback on professionalism and study habits."

Family Members (28.6%): A majority of participants had family support. Family often supported participants emotionally, financially, academically, and socially. Emotional support included helping the participant navigate the adjustment to university. A few participants noted their family was their primary source of emotional support; one participant said:

"I don't really notice if I am getting really high-strung. But when [my parents] come up and [give me a] hug, it's like oh yeah, I forgot that hugging feels nice and that I haven't had a hug in a week."

Financial support included paying for tuition, housing, or food. Several participants lived with their parents; some did not want to move far from home due to close family relationships or financial dependence. Academic support included helping the participant with their homework, while social support included providing a space for the participant to talk. Often family fulfilled multiple needs at once; for instance, academically and emotionally:

"My mom helps me so much. If I have an essay that's due the next day, she does editing on it. We'll sit at the computer together reading it through, and it really helps because writing is very anxiety-provoking for me."

Some participants noted a lack of support from their family altogether. One participant in particular said, "I haven't talked about my issues being autistic much. There wouldn't be any support from [my family]."

Interactions with Friends (14.3%): Participants reported varied experiences with friends in college. Some participants had very close friends, while others did not. Of those who had friends, participants received advice from friends, were able to express personal thoughts, and help build self-awareness. One participant recounted the time when their friends told them they no longer wanted to live together:

"At first [my roommates] told me they couldn't live with me because there were too many people. Then I asked one of the girls, 'What if we split up?' And she said, 'it's not that we judge you, it's not that we don't feel comfortable around you, it's just that we think it would be better for you and for us so that we can all focus on school.'"

One participant stated that they had a friend in a class earlier in the school year, but since then the participant did not consider anyone a friend.

Barriers to Satisfactory Social Interactions (23.8%): Factors preventing satisfactory interactions included social anxiety, not understanding social dynamics, and limited social opportunities. One participant described feelings of isolation and lack of understanding of social dynamics, characterizing their experience as "flying blind" in social interactions. Another participant described themselves as not "socially active" and unsure how to act in certain situations, so they "haven't gone out a lot." One participant described it as being "so hard to meet people," despite taking actions to deter others from approaching them:

"On one hand, I want to meet people. On the other hand, I usually have my bag wide open so people see how heavy a load I've got, and I'll have my sunglasses on and earbuds in just so I have my own seat on the bus."

Some participants reported highest difficulty in social

interactions with their peers, compared to interactions with the elderly or children. While some participants described their relationships as "pretty uncomfortable" and stressful, others said their peers were simply "indifferent" to them. One participant described their tendency to "become nonverbal" as a result of stressful social situations.

On/Off Campus Activities

Participants described their on- and off-campus activities. The main activities described were employment, academics, hobbies, and clubs. Employment was defined as a hired position for which the individual received monetary compensation, while academics included any educational pursuits including research. Hobbies and clubs were defined as extracurricular activities related to special interests.

Employment (25.9%): Many participants had a part-time job at the time of the interview. The jobs included working at an on-campus library, as a resident adviser in the dorms, a retail shop, and a videographer for a university athletic team, among others. One participant's job involved speaking at schools to increase minority involvement in engineering. Another noted that having a part-time job was "very applicable to learn all these leadership and social skills."

Academic Activities (29.6%): Several participants noted being involved with research at the university. One student described their experience as:

"All the student workers participated in the student research symposium. There's [also] the opportunity to work with a lot of advanced tools. It's a very good job with co-workers that are all very nice, friendly, and helpful. If I ask a question, they will be happy to answer or help with or anything. It's been very supportive."

Participants also were involved with leadership conferences, study groups, and tutoring for course credit; one participant was involved in a tutoring program at the University, which they described as "good practice with having to go up and talk to [students], and having to help them on the fly."

Hobbies and Clubs (44.5%): Some participants were involved with student-run clubs on campus and a few participants were involved with music, either as a hobby or in a campus ensemble. Some participants were involved in activism by supporting autism advocacy and LGBT rights. Other activities included recreation (swimming lessons), religion (on- and off-campus faith-based organizations), autism-specific activities (off-campus autism support group and supporting other autistic people) and special interests (Harry Potter club, gaming, and membership in a queer fraternity).

Discussion

The purpose of this study was to explore the general experiences of autistic college students. Our data highlight that: (a) executive function skills posed substantial challenges in many facets of college life; (b) sensory processing made many aspects of college more challenging or inaccessible; (c) there were academic challenges despite strong performance (grades); (d) campus resources were difficult to access and navigate; (e) interpersonal relationships and interactions often were strained or non-existent; and (f) on- and off-campus activities varied. The most prevalent suggestions for universities were to offer additional support for social skills and executive function challenges. Our discussion expands the extant literature on supports for autistic college students.

Although participants had high GPAs, they noted many academic struggles in relation to executive function. Class participation, organization, and attendance were extremely challenging and required substantial effort for many autistic students. Participants discussed academic challenges such as planning assignments, time management, multi-tasking, making and following a study schedule, deciphering unclear course expectations, group work, and heavy course loads. These challenges were substantiated by clinically significant scores on the BRIEF-A. Consistent with the literature, these students may need appropriate and individualized tools and services to assist them. [3] Based on our findings, we recommend that instructors reduce ambiguity by clearly stating course expectations, objectives, and deadlines, and directing students to campus resources for additional needs (e.g. writing and research help or assistance finding an internship). We also recommend that disability resource centers offer time management strategies and supports (e.g., setting up a schedule) to autistic students.

Similarly, the interviews expanded our understanding of data from the Sensory Profile. Our quantitative data suggest our participants were hyper-sensitive to sensory stimuli. Multiple participants discussed sensory hyper-sensitivity in everyday environments such as classrooms, meetings, and museums. Participants often noted it took them a while to learn about sensory-friendly spaces and high-traffic times on campus, but once participants found sensory-friendly spaces, they spent a lot of time there. These data suggest that campuses should create sensory-friendly spaces (e.g., ambient lighting, noise reduction/ sound proofing, fragrance free, ergonomic furniture, etc.), provide a general list of sensory-friendly spaces on campus, host a walkthrough of campus (including sensory-friendly walkways, study rooms, and cafes), and assist students in choosing sensory-friendly campus housing. With regard to campus resources, autistic

students used the disability resource center most frequently, followed by academic advisers, on-campus mental health services, the career center, and the writing/research center. The disability resource center was the first stop for many of our participants; however, some noted they were not adequately supported because the resources did not meet all of their needs. Our data indicate that despite strong academic performance, autistic students may still need accommodations to address anxiety, depression, sensory issues, and/or social skills. Many disability resource centers serve a wide range of students with disabilities and may not be aware of the specific needs of autistic students because many of these students do not advocate for their needs, often due to feeling overwhelmed, embarrassed, uncomfortable, stigmatized or unsure how to advocate for themselves. To address these issues, we recommend the disability resource center offer students: peer mentorship programs with neurotypical and autistic mentors, if possible; intervention for social, self-advocacy, and executive function skills; and an autism liaison or a case coordinator, who can help autistic students transition from high school to college and/or advocate and procure the resources they need. Ideally, the disability resource center can work with middle and high schools to inform autistic students what services are available in college vs. primary and secondary education and explicitly teach autistic students how to self-advocate [14].

Universities also offer on-campus housing accommodations such as single or low-noise rooms, but these accommodations are difficult to access; housing accommodations must be requested months prior to moving in, but many autistic students do not know they are eligible for these accommodations until the academic year starts, if ever. Minor adjustments to the accessibility of housing accommodations (e.g. feature the accommodation information in a prominent part of the housing website, flyers, or application) could result in major improvements in the well-being of these students. Institutions should take care when offering sensory accommodations; Gelbar and colleagues indicated that providing single rooms and sensory-friendly spaces could have a "paradoxical" effect on autistic students because these provisions may encourage self-isolation, a common behavior in autistic individuals [14]. Steps should be taken to facilitate social interaction through activities and programs for those students who may want them.

Nearly all participants reported difficulty with social interactions and relationships. College is a time of transition for all students. Some of the hallmark characteristics of autism, such as social communication deficits and restricted and repetitive interests and behaviors, can exacerbate a dynamic social landscape that is already difficult to navigate. Our participants noted they often struggled to understand how neurotypical people communicate – some were not sure how to start and maintain friendships, and some felt their personality repelled potential friends. Improving social skills for autistic students who wish to focus in this area could potentially include peer mentorship programs [38], online support (e.g. a forum for autistic students at their university), or opportunities for "low stress" interactions around a common interest (e.g., crafts, puzzles, etc.), which may reduce social pressure than many other events (e.g., student clubs, meet-ups).

Limitations

Several study limitations should be noted. First, these data were gathered from one 4-year university in the U.S.; thus, participants' perspectives may be geographically influenced. Second, sample size was limited by the number of individuals who contacted the research team for participation. This resulted in a sample of mostly undergraduate students and only one graduate student. Third, autism is a heterogeneous condition; therefore, the ideas presented in this sample may not reflect the views of all autistic college students. Further studies should: (1) examine experiences of both two- and four-year autistic college students in other geographic regions; (2) include both undergraduate and graduate autistic students; and (3) enroll larger sample sizes. Finally, because of the nature of in-person interviews and audio recordings, participants may have felt obliged to respond in a socially preferred manner.

Conclusion

These data suggest that university-provided supports related to executive function, sensory processing, academics, campus resources, and interpersonal relationships and interactions may influence the college experience of autistic students. To ensure a positive college experience for autistic students, barriers to success must be mitigated. It is our hope that colleges and universities provide the resources and personnel required to accommodate the needs of every autistic student, evidence-based programs that support a diverse range of needs, and services to improve self-advocacy and increase autonomy to ultimately improve postsecondary success.

Acknowledgments

Conflict of Interest

No competing financial disclosures exist.

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