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Brief Report: Self-reported academic, social, and mental health experiences of post-secondary students with autism spectrum disorder

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Abstract

Increasing numbers of individuals with autism spectrum disorder (ASD) are enrolling in post-secondary academic institutions. However, research indicates that post-secondary students with ASD are struggling more than their typically developing peers, with high rates of loneliness, anxiety, depression, and an increased incidence of dropping-out before completion of their degrees. The current study utilized an online survey to gain insight into the self-reported academic, social, and mental health experiences of post-secondary students with ASD. Participants reported high levels of academic comfort, but struggled with issues of isolation/loneliness and high levels of stress, anxiety, and depression. Of greatest concern, were the nearly three-quarters of participants who reported lifetime suicidal behaviors. Further analysis on collected data and implications of findings are discussed.

Keywords

Autism Spectrum Disorder; Asperger's; College; University; Post-secondary; Mental Health; Student; Academics

Introduction

Over the past several decades, one of the most notable areas of change in the characteristics of individuals diagnosed with autism spectrum disorder (ASD) has been the increasing number of those with average or above average intellectual ability (i.e. IQ>85 Christensen et al., 2016). Along with the improving outcomes in ASD associated with earlier diagnosis and intervention, an increasing number students with ASD are now considering post-secondary education as a viable option following high school (Volkmar, Jackson, & Hart, 2017).

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Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

Estimates (Newman et al., 2011) suggest that nearly 44% of transition age adults with ASD enroll in some form of post-secondary academic setting following high school (including 32.2% at 2-year or community colleges; 21.0% at vocational, technical, or business schools; and 17.4% at 4-year colleges/universities). Additionally, findings from a recent study indicate that 0.7–1.9% of current college students without a diagnosis would qualify if assessed for ASD (White, Ollendick, & Bray, 2011). In combination, these data suggest that there are a large number of current and soon-to-be post-secondary students with ASD that may be faced with a unique set of challenges in these environments, and as such require a unique set of supports.

While adult outcomes in ASD are generally considered fairly poor with regard to social relationships, occupational attainment, and independent living (Levy & Perry, 2011), successful completion of a college degree is a significant predictor of positive adult outcomes in this population (Newman et al., 2011). However, despite often possessing the cognitive capacity to succeed, many college students with ASD report difficulties with the transition to post-secondary education and are at increased risk for dropping out before completion of their degree (Drake, 2014). While the increased academic expectations may play a role, ASD-related challenges associated with adjusting to the new social demands of post-secondary school, poor planning and organizational skills, and difficulties adapting to an unfamiliar setting with new and fluctuating routines may be more critical factors (Volkmar et al., 2017). Additionally, difficulties with mental health issues are likely to play a role, as a recent literature review on the experiences of college students with ASD found co-occurring mental health difficulties to be some of the most commonly reported experiences by these students; with anxiety reported in 71% of the articles, loneliness reported in 53%, and depression in 47% (Gelbar, Smith, & Reichow, 2014). The consistency with which mental health issues appear to arise for post-secondary students with ASD suggest another area of potential concern for this population; suicidal behavior. Previous studies have already noted elevated rates of suicidal ideation (66%) and plans/attempts (35%) in high-functioning adults with ASD (Cassidy et al., 2014; Paquette-Smith, Weiss, & Lunskey, 2014). These findings, along with reports that college students in general have a greater incidence of suicidal behaviors than the general population (American College Health Association, 2015) would suggest that this population is likely to be at high risk for these behaviors, however, there is currently no data on this critically important topic in the literature. In sum, while the mechanisms underlying the struggles faced by post-secondary students with ASD are still unclear, it is apparent that the changing nature and the increased demands for self-sufficiency that occur in the college environment present problematic challenges for this population, and as such many of these students are in need of a broader range of support than many college disability programs have historically offered (Brown, Wolf, & Kroesser, 2014).

Unfortunately, important data on the nature of the needs for this student body, particularly input from the point of view of the students themselves, and the supports that would benefit them is lacking. Accordingly, the current study was designed to address this gap in the extant literature by collecting input directly from students with ASD on their post-secondary experiences. This was achieved through the use of an online-based (Qualtrics) survey, providing insight into self-reported needs, struggles, and successes associated with

academic, social, and mental health experiences as a post-secondary student with ASD. Survey development was primarily accomplished through a collaboration between researchers and professionals in the ASD field (from XXX University and College Autism Spectrum). Additionally, insight and input was sought from current and former college students with ASD when initially deciding on the topics to be covered in the survey and when reviewing the final survey design. It was the aim of the study to acquire a broad understanding into the range of experiences of post-secondary students with ASD, to gather details on where difficulties are arising from for these students, and to gain important insight into how schools may better be able to support these students and address their unique challenges.

Methods

Participants

At the time that this report was written, survey data was collected from 56 adults (range: 18–57 years old; 46.4% Male; 80.4% White) currently enrolled in a post-secondary academic institution. The majority of participants were undergraduates at 4-year universities ($n=40$; 71.4%), studying at institutions in the USA ($n=49$; 87.5%). All participants reported having received a formal ASD diagnosis (age of diagnosis range: 3–38 years), and an ASD phenotype questionnaire was included as part of the survey. The majority of participants reported receiving a diagnosis of Asperger's Syndrome ($n=34$; 60.7%). Full demographic information for study participants can be found in Table 1.

Materials

The survey utilized for this study was designed to capture information on post-secondary students with ASD across 4 domains: *Demographics* (age, gender, ethnicity/race, ASD diagnosis, ASD symptom severity), *Academic Experiences* (degree concentration, comfort with academic demands, support service utilization), *Social Experiences* (friendships, romantic relationships, bullying, feelings of loneliness), and *Mental Well-Being* (psychiatric diagnoses, medication use, suicidal behavior, symptoms of depression, anxiety, and stress). These topics were chosen based on reviews of the available literature, collaborations with College Autism Spectrum, and feedback from current and former college students with ASD. While the majority of questions within the survey were developed just for this study, some established and standardized measures were also incorporated into the survey.

ASD Symptom Severity—The 10-item Autism-Spectrum Quotient (AQ-10; Allison, Auyeung, & Baron-Cohen, 2012) was included in the survey to assess participant ASD symptom severity. Scores on the AQ-10 range from 0–10, with higher scores indicative of the presence of greater ASD symptom severity.

Loneliness—The 3-item UCLA Loneliness Scale (Hughes, Waite, Hawkley, & Cacioppo, 2004) was included in the survey to assess participant struggles with feelings of loneliness. This measure includes the questions “How often do you feel that you lack companionship?”, “How often do you feel left out?” and “How often do you feel isolated?”, which participants rate as “hardly ever” (1), “some of the time” (2), or “often” (3). Items will be examined

individually and summed to produce an overall loneliness score ranging from 3–9, with higher scores indicating greater feelings of loneliness.

Suicidal Behavior—The Suicide Behavior Questionnaire-Revised (SBQ-R; Osman et al., 2001) was included in the survey to assess the presence, type, and currency of suicidal behaviors in the study participants. The SBQ-R consists of 4 items, that cover the topics of (1) lifetime suicidal behavior, (2) the frequency of recent (past 12 months) suicidal behavior, (3) whether the participant has ever expressed the desire to commit suicide, and (4) the self-reported likelihood of a future suicidal attempt. Participants were only presented with items 2–4 if they reported some form of lifetime suicidal behavior in item 1.

Symptoms of Depression, Anxiety, and Stress—The 21-Item Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) was included in the survey to assess currently symptom levels of depression, anxiety, and stress in study participants. The items of the DASS-21 are equally divided among those designed to measure symptoms of depression (e.g. “I felt I was pretty worthless”), anxiety (e.g. “I was worried about situations in which I might panic and make a fool of myself”), and stress (e.g. “I found it difficult to relax”). Total scores range from 0–21, with higher scores indicating the increased expression of the symptoms associated with either depression, anxiety, or stress. As symptoms of ASD and anxiety (in particular social anxiety) can be difficult to disentangle (Lecavalier et al., 2014) not all anxiety measures are appropriate for use in this population. Since the available examinations on which anxiety measures are most valid for this population focus on use in children and adolescents (Grondhuis & Aman, 2012; Lecavalier et al., 2014), the DASS-21 was chosen as it has been used in studies with this population previously (e.g. Richdale, Baker, Short, & Gradisar, 2014; Zimmerman, Ownsworth, O’Donovan, Roberts, & Gullo, 2016) and the total score has been shown to be sensitive enough to distinguish individuals with ASD with and without comorbid social anxiety disorder (Maddox & White, 2015).

Procedure

Primary study recruitment occurred by directly contacting Disability Support staff and mental health professionals from 50 post-secondary academic institutions within the US, including 4-year universities and community/junior colleges, and requesting that they share study details with students at their institution with a reported ASD diagnosis. Additionally, links to the study were distributed through ASD advocacy/support groups in the US, Canada, and the UK, as well as through advertisements in ASD related academic journals. The survey was run through the Qualtrics online survey platform, and potential participants were given the opportunity to read about the study and email questions to the researchers before choosing to begin the survey. All survey data that was collected was anonymous, and all aspects of the study were reviewed and approved by the XXX University Institutional Review Board.

Results

ASD Symptom Severity

On average, participants in this study demonstrated levels of ASD symptom severity above the ‘clinical cut-off’ score of 6 for the AQ-10 ($M=6.46$, $SD=2.49$), as suggested by the assessment creators (Allison et al., 2012). However, individual AQ-10 scores for participants spanned the entirety of the assessment range (0–10), suggesting wide variability in disorder-related symptom severity across the sample. While the 20 participants who had AQ-10 scores below the suggested clinical threshold for the tool [the majority of which had scores of 5 ($n=7$) or 4 ($n=6$)] could be an indicator of the heterogeneity of severity observed in ASD, and/or of the potential for ‘optimal outcome students’ (individuals who once had autism but no longer meet usual thresholds, Fein, et. al., 2013) to enter college, it could also be a byproduct of the measure itself, which has been found to be susceptible to ‘false negatives’ (Ashwood et al., 2016).

Academic Experiences

When asked to rate their level of comfort with their academic workload on a 7-point scale from very uncomfortable to very comfortable, the majority of participants reported being slightly to very comfortable ($n=27$, 48.2%). Meanwhile 12 participants (21.4%) reported being slightly to very uncomfortable and 8 participants (14.3%) reported being neither comfortable nor uncomfortable with their academic workload. Participants reported a broad range of areas of concentration, with the majority equally split ($n=22$, 39.3% each) between Science (e.g. physics, math, computer science, chemistry, biology) and Social Science (e.g. psychology, sociology, social work, international studies, education) degrees, and the remaining either engaged in a Humanities (e.g. philosophy, languages, arts) degrees ($n=11$, 19.6%) or undeclared ($n=1$, 1.8%). On average, participants in this study utilized 2.38 ($SD=2.10$, range=0–7) support services while at school (Table 2). Of the total sample, 17 participants (30.4%) stated a desire for additional or improved services beyond what was offered at their school. The most frequently noted desired services were related to the availability of social support groups/peer-mentorship programs ($n=6$, 10.71%) and career planning/counseling services ($n=2$, 3.6%), as well as the need for more accommodating housing options ($n=5$, 8.9%) and improved counseling/psychological services ($n=2$, 3.6%). Following a series of non-parametric tests (Spearman’s correlation or Kruskal-Wallis H test, depending on the independent variable) only degree concentration area (and not age, gender, school-type, number of support services utilized, loneliness, experiences with bullying, number/satisfaction with friendships, satisfaction with number of romantic relationships) was significantly associated with academic comfort level ($\chi^2(3)=10.78$, $p<0.05$). Those in the Social Sciences reported on average the most academic comfort, followed by those in the Humanities, and finally those in the Sciences degrees reporting on average the least academic comfort. However, the difference in level of academic comfort was only significant between those engaged in Science degrees, and those in Social Science degrees ($U=109.0$, $p<0.01$).

Social Experiences

The students with ASD who participated in this study reported an average of 1–2 close friends at school, but other than those who reported having five or more close friends ($n=6$, 10.7%), the number who reported no close friends ($n=22$, 39.3%), those with 1–2 close friends ($n=12$, 21.4%), and those with 3–5 close friends ($n=16$, 28.6%) did not differ too greatly. For the most part, students reported being slightly to very satisfied with the number of close friends they had ($n=28$, 50.0%), but over a third reported being slightly to very dissatisfied as well ($n=21$, 37.5%). It should be noted that not having close friends can be desirable for some on the spectrum, and in fact a small group of the students who reported having no close friends ($n=3$), also reported being slightly to very satisfied with the number of close friends they had. The majority of study participants reported having no romantic relationships while at school ($n=33$, 58.9%), with a little over a third ($n=22$, 39.3%) reporting 1–2 romantic relationships, and a single participant reporting three or more romantic relationships. Participant satisfaction with their number of romantic relationships at school was fairly evenly distributed between those who were slightly to very satisfied ($n=17$, 30.9%), those who were slightly to very dissatisfied ($n=21$, 38.2%), and those who were neither satisfied nor dissatisfied ($n=17$, 30.9%). Loneliness (Figure 1) was a commonly reported issue for study participants, with over 75% reporting feeling left out, isolated, or lacking companionship ‘some of the time’ or ‘often’. Overall loneliness ($M=6.52$, $SD=1.96$) was found to be significantly associated with the number of close friends participants reported ($r_s(54)=-0.52$, $p<0.001$) and how satisfied they were with how many close friends they had ($r_s(54)=-0.61$, $p<0.001$), but was not found to be associated with number of or satisfaction with romantic relationships ($0.36<p<0.38$). Bullying was only experienced by a minority of participants while at school ($n=20$, 35.7%), with exclusionary bullying being the most commonly experienced ($n=16$, 28.6%), followed by verbal ($n=11$, 19.6%), provocative ($n=8$, 14.3%), and physical bullying ($n=2$, 3.6%).

Mental Well-Being

At least one co-occurring psychiatric diagnosis during their time at school was reported by 32 (57.1%) of the participants ($M=1.46$, $SD=1.73$, range=0–6). The most commonly reported co-occurring diagnosis was depression ($n=20$, 35.7%), followed by generalized anxiety disorder ($n=19$, 33.9%), social anxiety disorder ($n=15$, 26.8%), attention deficit hyperactivity disorder ($n=13$, 23.2%), obsessive compulsive disorder ($n=4$, 7.1%), bipolar disorder ($n=3$, 5.4%), specific phobia ($n=2$, 3.6%), and panic disorder ($n=1$, 1.8%). The majority of participants ($n=35$, 62.5%), were currently prescribed at least one medication ($M=1.86$, $SD=2.06$, range=0–9). Based on DASS-21 scores, the study sample averaged ‘Extremely Severe’ symptom levels of depression ($M=15.71$, $SD=11.77$) and anxiety ($M=10.82$, $SD=7.73$), and ‘Severe’ levels of stress ($M=16.39$, $SD=8.80$). Using a hierarchical stepwise regression analysis (Table 3) with total DASS-21 scores as the dependent variable and controlling for age and gender, overall loneliness ($\beta=0.417$, $p<0.001$), academic comfort ($\beta=-0.353$, $p<0.01$), and AQ-10 ($\beta=0.275$, $p<0.05$) emerged as significant predictors of overall emotional distress in the study sample, accounting for 49% of the variance in total DASS-21 scores (other variables included in the analysis were previous/current experience with bullying at school and number of support services utilized).

One participant chose to not respond to the SBQ-R questions on suicidal behavior. Of those that responded, the majority ($n=41$, 74.6%) experienced some form of suicidal behavior in their lifetime (see Figure 2 for breakdown of types of suicidal behavior reported). Additionally, of those who reported some form of lifetime suicidal behavior, 30 participants (53.6% of the total sample) reported having thought about suicide in the past year, and 10 participants (17.9% of the total sample) reported that it was ‘likely’ to ‘very likely’ that they would attempt suicide someday. Variables assessed in the current study that were found to be significantly associated with the presence of lifetime suicidal behavior included: AQ-10 ($r_s(53)=0.40$, $p<0.01$), number of friends ($r_s(53)=-.31$, $p<0.05$), overall loneliness ($r_s(53)=0.36$, $p<0.01$), academic comfort ($r_s(53)=-0.30$, $p<0.05$), as well as symptoms of depression ($r_s(53)=0.56$, $p<0.001$), anxiety ($r_s(53)=0.40$, $p<0.01$), and stress ($r_s(53)=0.39$, $p<0.01$) as reported by the DASS-21.

Discussion

In this survey, we examined information from students with ASD enrolled in post-secondary education across four broad domains: Demographics (age, gender, ethnicity/race, ASD diagnosis, ASD symptom severity), Academic Experiences (degree concentration, comfort with academic demands, support service utilization) Social Experiences (friendships, romantic relationships, bullying, feelings of loneliness), and Mental Well-Being (psychiatric diagnoses, medication use, suicidal behavior, symptoms of depression, anxiety, and stress). We understand, given the nature of the sample, that caution is in order in interpreting the results obtained but data on this population is very scarce and given the increasing number of students with ASD moving into college educational experiences, it is still important to consider the results. It is of interest that the sample for the current study has an almost equal proportion of male and female participants despite the 4–5:1 male to female ratio typically observed for ASD (Christensen et al., 2016). At first glance this may seem to suggest that women with ASD are having greater academic success than males, however, larger examinations of the demographics of post-secondary students with ASD (i.e. Newman et al., 2011) have found ASD student male to female ratios that align more with that of the diagnosis in general, at 6:1. Additionally, since there were no significant differences between male and female participants across any of the variables in the current study this topic was not examined in any further detail.

On the whole, the majority of participants appeared relatively comfortable with their academic workloads, but without a comparison sample it is difficult to assess whether these rates of academic comfort are typical of post-secondary students or not. Additionally, considering that academic comfort was one of the variables found to be a significant predictor of emotional distress in this sample, academic issues should clearly not be overlooked in this population. It should be noted that this variable is solely a subjective rating of academic comfort as perceived by the student, and without the ability to link these rating to something more objective, like the student’s grades, we are unable to know how this variable related to academic success. Regardless, these findings are in line with a number of previous studies that have highlighted the vital role academic supports often play in enabling students with ASD to achieve success in post-secondary academic settings (Gelbar, Shefcyk, & Reichow, 2015; White et al., *In Press*).

Many of the students with ASD surveyed in the current study appeared to face a number of challenges that generally stemmed from non-academic aspects of collegiate life. Despite reports of being satisfied with their close friends and number of romantic relationships on campus, it appears that this group experienced a great deal of difficulty integrating with the broader campus environment. Over three quarters of the students reported regular struggles with feelings of isolation, being left out, and lacking companionship, and the group averaged DASS-21 scores representative of 'Severe' levels of stress, and 'Extremely Severe' symptom levels of depression and anxiety. While difficulties across these domains are not uncommon in post-secondary students, for comparison, a recent large sample study (N=374; Beiter et al., 2015) of college students that also utilized the DASS-21 only found 'Severe' to 'Extremely Severe' symptom expression in 11% of their sample with regards to depression (compared to 55.4% of the current sample), 15% with regards to anxiety (compared to 60.7% of the current sample), and 11% with regards to stress (compared to 58.9% of the current sample).

While difficulties with co-occurring depression and anxiety are in line with previous findings in the adult ASD literature (Doyle, McDougle, & Stigler, 2014), the accompanying and unexpectedly high rates of suicidal behavior in this sample, as measured on the SBQ-R, are of particular concern. Nearly three quarters of the participants in this study had some form of suicidal behavior over their lifetime, which included 40% who had made suicidal plans and 14.6% who had previously made a suicide attempt. Additionally, another 53.6% reported having thought about suicide in the past year, with 32.1% stating that they had thought about it often to very often over that time period. In comparison, a recent report on college students in general (based on a sample of over 90,000 students) estimates rates of suicidal attempts and ideation in this population at 1.4% and 8.9%, respectively (American College Health Association, 2015). Moreover, what is of greatest concern is the 10 participants, representing 17.9% of the current sample, who stated that it was 'likely' to 'very likely' that they would attempt suicide someday. Since this is the first study to report on prevalence rates of suicidal behavior in post-secondary students with ASD it will be important for these findings to be replicated, however, considering the severity of the issue and the similarly high rates reported in adults with ASD in general (i.e. Cassidy et al., 2014; Paquette-Smith et al., 2014) this is an issue that deserves immediate attention and consideration from all Disability Support and Mental Health/Counseling staff at post-secondary institutions.

Currently students with ASD are entitled to the supports and accommodations offered by post-secondary academic institutions after disclosing their diagnosis to educational support staff. However, many of the major areas of difficulty encountered by students with ASD in this study, as well as those in previous works (Gelbar et al., 2015; Anderson & Butt, *In Press*), are not always fully covered or addressed by their school's disability support office (Brown et al., 2014). Initial research suggests that students with ASD possess a fairly unique profile of challenges and needs compared to students with other disabilities such as ADHD (Elias & White, 2017). As such, the accommodations typically granted to students with learning disabilities (e.g. extra time on exams, or separate test rooms), may not be as helpful for students with ASD or fully meet their needs (Brown et al., 2014). While a growing number of schools are beginning to implement programs specifically for students with ASD

(Brown et al., 2014), providing parents and disability providers with appropriate knowledge and information on what to look out for and how they might facilitate this group of student's success while in post-secondary education may represent a beneficial intermediate step. Mirroring suggestions of the study participants, the findings from the current study would suggest that colleges could help these students improve their experience at school with support programs designed to build social skills/networks (e.g. peer-mentor programs, ASD housing/clubs), and by improving the availability and quality of counseling/psychological services. It should additionally be noted that the estimated 0.7–1.9% of college students that would qualify as having ASD but are currently undiagnosed (White et al., 2011), would likely benefit from these specialized services, but will be unable to gain access to them without a formal diagnosis. As such, it is important for universities to keep an eye out for students in this category, who may otherwise fall through the cracks of the school system, so that they may help them navigate the process of gaining access to any support services they may need to achieve their potential in post-secondary academics.

The above findings make it clear that many post-secondary students with ASD would benefit from additional support from their institutions of higher education in academic, social and emotional domains. Such support could go a long way in helping these students become fully integrated into their campus environment and succeed while enrolled in post-secondary education. Additional data collection efforts to increase the sample size and provide a comparison sample of post-secondary students without ASD is needed to improve interpretation of these findings, and are currently in progress. Moreover, the perspectives of parents and supporters (both within and outside the college settings) present important areas in need of further exploration.

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Figure 1.

Percentage of participants with differing levels of loneliness (Feeling Isolated, Feeling Left Out, Lacking Companionship) as reported on the 3-Item UCLA Loneliness Scale.

Figure 2.

Presence of lifetime suicidal behavior with breakdown of suicidal behavior type for study participants ($n=55$) as reported on the SBQ-R.

Note: SBQ-R= Suicide Behavior Questionnaire-Revised; Participants can only select one response for each question on the SBQ-R, so even though an attempt would likely include ideation and a plan, this would only be reported as the most severe behavior (i.e. Attempt).

Table 1

Sample demographics (N=56)

Age	Mean	SD	Range	
	22.98	6.01	18 – 57	
Gender				
<i>n</i> (%)	Male	Female	Non-binary	
	26 (46.4%)	26 (46.4%)	4 (7.1%)	
Location				
<i>n</i> (%)	USA	Canada	UK	
	49 (87.5%)	4 (7.1%)	3 (5.4%)	
Ethnicity				
<i>n</i> (%)	White	Hispanic	Black	Mixed/other
	45 (80.4%)	2 (3.6%)	1 (1.8%)	4 (7.1%)
Diagnosis	Asperger's	ASD	HFA	PDD-NOS
<i>n</i> (%)	34 (60.7%)	10 (17.9%)	8 (14.3%)	4 (7.1%)
Institution	Com. college	4-year univ.	Post-grad	Transition
<i>n</i> (%)	6 (10.7%)	40 (71.4%)	8 (14.3%)	2 (3.6%)

ASDn autism spectrum disorder, HFA high-functioning autism, PDD-NOS pervasive developmental disorder not otherwise specified

Table 2

Support service utilization among study participants.

Support service	<i>n</i>	%
None	12	21.43
Academic advising	30	53.57
Academic tutoring	17	30.36
Counseling/psychological services	22	39.29
Exam accommodations	25	44.64
Study skills training	7	12.50
Time management training	10	17.86

Model output for hierarchical stepwise regression analysis examining the predictive association between variables of interest and overall emotional distress (total DASS-21 scores).

Table 3

Model	Predictors	R ²	R ²	F	p value
1	Age, gender	0.02	0.02	(2.51)=0.43	0.65
2	Age, gender, loneliness	0.28	0.26**	(3.50)=6.36	<0.001
3	Age, gender, loneliness, academic comfort	0.43	0.15**	(4.49)=9.10	<0.001
	Age, gender, loneliness, academic comfort, AQ-10	0.49	0.07*	(5.48)=9.26	<0.001

Excluded variables: number of supports utilized, experiences with bullying
DASS-21 21-item depression anxiety and stress scale, AQ-10 10-item autism-spectrum quotient

* $p<0.05$,
** $p<0.01$