College Students with Autism Spectrum Disorder: Perceptions of Social Supports that Buffer College-Related Stress and Facilitate Academic Success

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Abstract

This exploratory case study examined the reports by advanced undergraduate students with autism spectrum disorder (ASD) of perceived social supports that buffer college-related stress and facilitate academic success. The sample for this study was comprised of 10 advanced undergraduate students who self-identified as having ASD. These participants were enrolled at seven colleges from three states in New England. Two methods of data collection were employed: a paper-and-pencil survey and a semi-structured, in-person interview. Quantitative and qualitative research methods were applied to analyze the data from the surveys and interviews. Overall, participants perceived that they received emotional, instrumental, and informational support that helped to buffer college-related stress and facilitate academic success. The sources were primarily family members, friends, and professors. Implications and recommendations for higher education in planning and programming for students with ASD are discussed in addition to suggestions for future research.

Keywords: Autism spectrum disorder, higher education, social support, college stress, academic success

As the prevalence rate of autism spectrum disorder (ASD) has substantially increased over the past decade, more and more students with ASD are entering postsecondary institutions. As of 2016, the Center for Disease Control (CDC) released the current prevalence rate of autism in children as 1 in 68 with no change since the previous report in 2014. As early identification of ASD has increased, educational and life outcomes for children and youth with ASD have improved significantly given the protections and related services required under the Individuals with Disabilities Education Improvement Act (IDEA) of 2004 (Hurewitz & Berger, 2008). Students with disabilities and ASD have greater access to educational opportunities, and, therefore, significant strides in identifying and implementing effective educational strategies and interventions have been implemented (Hart, Grigal, & Weir, 2010). Much of the research on students with ASD has focused on the primary and secondary education levels (Glennon, 2001; Smith, 2007) with the respective strategies and practices for those developmental levels (DuCharme & Gullotta, 2013; Iovannone, Dunlap, Huber, & Kincaid, 2007;

Myles & Simpson, 1998). Thus, more and more young adults with ASD who have successfully completed high school are eligible to enter postsecondary education settings (Camrena & Sarigiani, 2009).

According to a national longitudinal study conducted by the U.S. Department of Education, 47% of young adults with ASD had enrolled in a postsecondary institution within six years of graduating from high school (Sanford et al., 2011). Once students with disabilities receive their high school diploma or reach the age of 21, their rights and protections under IDEA are terminated. The federal legislation relevant to postsecondary institutions are Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. These policies have paved the way for greater access for students with disabilities to postsecondary education institutions and influenced supportive program development and a heightened awareness of accessibility and disabilities on campuses (Madaus, 2011). The Americans with Disabilities Amendments Act (ADAAA) of 2008 and Standards for Accessible Design of 2010 further broadened the interpretation of disabilities and in-

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creased ease and protection for postsecondary students with disabilities, especially those with ASD, to have access to accommodations.

Although students with ASD may enter college and receive accommodations under federal law, the graduation or completion rates are discouraging and problematic. Within six years of leaving high school, only 35% of those students with ASD enrolled in postsecondary education graduated or completed their programs (Sanford et al., 2011). Thus, postsecondary students with ASD are less likely to complete their college programs compared to students with no disabilities. This lower rate of completion for college students with ASD not only indicates a need for earlier transition planning (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012), but it also suggests a higher probability of lack of college success and an increasing need for support once these students are attending college (Hendrickson, Carson, Woods-Groves, Mendenhall, & Scheidecker, 2013).

This exploratory case study examined the reports by advanced undergraduate students with ASD of perceived social supports that buffer college-related stress and facilitate academic success. College students in general, and college students with autism spectrum disorder (ASD) in particular, often experience high levels of stress specific to academic commitments, lack of time management skills and study skills, peer relationships, and group living (Glennon, 2001; Misra, McKean, West, & Russo, 2000; Novotney, 2014; VanBergeijk, Klin, & Volkmar, 2008). Researchers (Dennis, Phinney, & Chuateco, 2005; Rayle & Chung, 2007) have also reported that college students from marginalized backgrounds perceive their family, friends, faculty, and classmates as informal sources of social support as described by House (1981). Similar to other students with disabilities, students with ASD are more likely to be marginalized within the college environment, in and out of the classroom, and experience higher levels of college stress (Troiano, Liefeld, & Trachtenberg, 2010). Moreover, perceived social support has been shown to ameliorate perceived stress and relate positively to academic success for college students (Bryan & Simmons, 2009; Smith & Renk, 2007).

More specifically, this study focused on students who were enrolled beyond the first year at four-year universities in New England and have ASD. ASD encompasses a group of developmental disabilities defined by the symptom categories of impaired so-

cial and communication interaction, and restrictive, repetitive patterns of behavior, interests, or activities (American Psychiatric Association, [APA], 2013). For this study, the advanced undergraduate students with ASD who were recruited to participate self-reported that they had no intellectual or language impairment, held an average to above average Verbal Intelligent Quotient (IQ), and matriculated at four-year universities. Academic success, in this study, was defined by students' self-reports of their grade point averages (GPAs), courses attempted and completed, and matriculation status beyond the first year.

Stress Related to the College Experience for Students with ASD

Transitioning and adjusting to a postsecondary educational setting can be stressful for any student, with or without a disability. The ongoing adjustment to the postsecondary environment for students with ASD presents compounded challenges and stressors related to the academic and non-academic settings (Glennon, 2001; VanBergeijk et al., 2008). Based on brain imaging research studies, individuals with ASD have been shown to be more susceptible to increased and variable levels of stress throughout the day than are individuals without ASD (Lytle & Todd, 2009). Moreover, individuals with ASD tend to have co-occurring diagnostic features of generalized anxiety and social anxiety (VanBergeijk et al., 2008; White, Bray, & Ollendick, 2012).

Glennon (2001) explicated the two major aspects—relative to the characteristics of ASD—of the postsecondary setting that present the most stressful challenges: social relationships and activities and academic demands. Given the multidimensional deficits related to social pragmatics and judgment, theory of mind, and executive functioning, the ASD diagnosis significantly competes with an individual's ability to negotiate the social landscape, relate to others positively, manage stress, and adapt to novel social situations (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001).

Relatedly, students with ASD have reported that the most stressful situations were becoming involved in intimate relationships, disclosing their diagnosis to roommates, dating, and calling classmates on the phone (Glennon & Marks, 2010). These challenges are pervasive throughout the postsecondary environment where there are a variety of social situations with complex demands. Another study (White et al.,

2011) investigated the relationship between ASD and social anxiety disorder—as co-morbid diagnoses and co-occurring conditions—and the findings suggested significant overlap of social anxiety and exacerbated social skill deficits and social avoidance when presented with increased anxiety. The findings of these research studies indicated a higher level of susceptibility for students with ASD to social stressors related to the postsecondary environment.

Similar to residential living, the classroom environment also presents social stressors for students with ASD that may impede their academic performance. Classroom group activities are particularly stressful for students with ASD who have difficulty with reading verbal and non-verbal cues, social reciprocity, and perspective taking (Glennon, 2001; Van-Bergeijk et al., 2008). The composition of student groupings, academic task demands, and the expectation of reciprocal dialogue in these group activities require interpersonal skills that are of a primary deficit area for students with ASD. In fact, the level of support and accommodation required within the classroom, especially in the case of group work, goes beyond the typical supports provided for other academic activities, such as testing or note taking. The combination of co-morbidity and neurological atypicality associated with the ASD diagnosis presents a unique susceptibility to stress for these individuals who carry this diagnosis (VanBergeijk et al., 2008). Thus, the increased social, organizational, and work demands of the college experience in and out of the classroom pose innumerable challenges for students with ASD who require classroom and social supports that ameliorate stress and compete with academic success.

Research on Social Support and College Students with ASD

Research studies have revealed that there are significant positive relationships between college students' reports of social support from informal sources and their academic success (DeBerard, Spielmans, & Julka, 2004; Friedlander, Reid, Shupak, & Cribbie, 2007; Smith & Renk, 2007). Researchers have shown that college students who perceived they have received social supports are more likely to manage stress and attain academic success (Skowron, Wester, & Azen, 2004). Empirical studies have also suggested the importance of informal social support sources, such as family members and peers, as reported by college students, in buffering college stress (Bryan &

Simmons, 2009; Dennis et al., 2005; Heiman, 2006; Lombardi, Gerdes, & Murray, 2011; Smith & Renk, 2007). Therefore, the research clearly suggests that perceived social support by college students with and without disabilities buffers stress inherent in the college experience and helps with academic success.

Yet, there is limited research focused specifically on undergraduate students with ASD who perceive social supports as helpful in buffering stress inherent in the college student role and contributing to academic success. Although there have been studies involving college students with learning disabilities and their perceptions of social support fostering academic success (Heiman, 2006; Kowalsky & Fresko, 2002; Lombardi et al., 2011), there is limited social support research focused specifically on the reports of undergraduate students with ASD. Additionally, social support research over the past decade has focused primarily on postsecondary students who are first generation, of minority status, or with learning disabilities (Bryan & Simmons, 2009; Dennis et al., 2005; Heiman, 2006; Smith & Renk, 2007; Lombardi et al., 2011). A study focused exclusively on postsecondary students with ASD may fill a gap in the knowledge base and give voice to these students regarding their perceptions of social support from a range of sources including family members, peers, and college faculty and staff.

This type of case study may not only contribute to the overall knowledge base of social support, but may also provide insight into the experiences and perceptions of advanced undergraduate students with ASD. Similar to the literature on social support, studies focusing on students with ASD in postsecondary institutions are few and typically provided tertiary strategies and accommodations instead of empirical results based on self-reporting (Adreon & Durocher, 2007; Shattuck et al., 2012; Smith, 2007). These studies also placed more emphasis on the transition from secondary to postsecondary education instead of the ongoing postsecondary experience of students with ASD. Most important, this study may provide voice and agency to those college students with ASD, in their own words, based on their self-reports (Madriaga, 2010).

The perceptions of informal social supports by students with ASD may translate into more structural social supports that postsecondary institutions could incorporate into their student services programming and faculty and staff professional development

uniquely related to students with ASD (Adreon & Durocher, 2007; Dente & Coles, 2012; Glennon & Marks, 2010). For example, training faculty on instructional and social approaches and implementing student peer-mentoring programs for curricular and co-curricular strategies could provide those structural supports specifically for postsecondary students with ASD (Wolf, Brown, & Bork, 2009). To this aim, an empirical understanding of the types, sources, frequency, and importance of social supports that buffer college-related stress and facilitate academic success for advanced undergraduate students with ASD may inform best practice, policy, and programming in both curricular and co-curricular settings.

Social Support Framework

Social support theory, with its operationalized dimensions, has been empirically supported by numerous studies conducted since the 1970s in settings from childcare facilities to factories (LaRocco, House, & French, 1980). It naturally lends itself to the college setting where there are a myriad of stressors related to academic performance similar to those in an employment setting. The buffering, or moderating, effect of social support mitigates the impact of stress for high-stress groups of people (House, 1981). House's conceptualization of social support is more soundly based on the buffering effect toward stressors as perceived by individuals than are other models (Cohen & Wills, 1985). Additionally, House placed a strong emphasis on the subjectivity of perceptions of individuals when evaluating types and sources of social support in particular settings.

The tenets of House's (1981) framework, other than the dimensions of types and sources, are the informal, non-intimate relations, the importance or value, and the quantity or frequency of supports. House suggested that informal, non-intimate supports (sources and types) have significant buffering effects on stress in a workplace setting outside of the more formal, intimate interpersonal relationships. In the case of advanced undergraduate students with ASD, this social support definition allows for providers of social support to comprise a broader group of people who may not be intimately related to these students. Students with ASD, based on presentation of traits associated with this diagnosis, lack social reciprocity, theory of mind, and empathic/perspective-taking connections with others (Olney, 2000; Wenzel & Rowley, 2010). With House's conceptualization of social support, the emotional demands and social reciprocity with more personal relationships are not necessarily a prerequisite in order to receive social support. Different types of social support can be received from a variety of sources outside of network membership that impacts postsecondary academic success.

Emotional support. For House (1981), emotional support was the most important and is defined as a type of support based on the provision of care, concern, love, and trust from one person to another. House asserted that the receipt of emotional support was only as effective as in how it was perceived. Examples of emotional support for students with ASD include actively listening and conveying a sense of concern, caring, and trust proactively before problems arise (VanBergeijk et al., 2008).

Instrumental support. There is a clear contrast between emotional support and instrumental support insofar that instrumental support is defined as beneficial behaviors provided to help someone in need. Academic accommodations, such as distraction-free testing environment or a note-taker, and posted schedules and rules in the residence halls are excellent examples of instrumental support for students with ASD (Lytle & Todd, 2009; Wolf et al., 2009).

Informational support. Unlike instrumental support, informational support is predicated on the precept that information provided to a person may be used by that person to help him or herself. Providing information that is directly impactful in one's life could convey a sense of caring and be directly helpful in someone's attainment of success, such as passing a test or obtaining a job. Suggestions for informational support for students with ASD include sharing information about the campus layout/map, hours of operation of the bookstore and dining hall, and key bulletin boards with important announcements (Glennon, 2001; Wolf et al., 2009).

Appraisal support. Similar to informational support, appraisal support involves the transmission of information from one person to another. Appraisal support is comprised of information directly relevant to a person's self-evaluation. Given that self-monitoring and self-estimation skills are difficult for students with ASD, providing self-assessment opportunities with peer or adult feedback in a proactive approach can be very beneficial to these students (Freedman, 2010). The theoretical lens of social support theory, as conceptualized by House (1981), provided an effective framework for examining the perceptions of

social support by advanced undergraduate students with ASD that buffer college-related stress and foster academic success.

Method

A case study design was utilized for this exploratory investigation of the phenomenon of social support as perceived by advanced undergraduate students with ASD within the context of the college experience. The case study approach is the most suitable for addressing the what, how, and why questions of research inquiry (Yin, 2014). This investigation of advanced undergraduate students with ASD, who are also a previously understudied population, was considered a revelatory case because it could potentially elucidate their perceptions of the types and sources of helpful social support during the college experience.

Sampling Process

The sampling approach for this study used an overall purposeful sampling strategy (Creswell, 2013). The type of sampling, in addition to being purposeful, was non-random. Network sampling, a method of non-random sampling, is a technique based on the social networks of multiple individuals who connect the researcher with participants who have direct experience with the phenomenon under investigation (Bryman, 2008). By design, this sampling technique not only involves the judgment of the network professionals who assisted in recruiting potential participants, but the judgment of the researcher since he outlined specific characteristics of participants to be sampled purposefully.

Upon approval of an Institutional Review Board (IRB), the researcher commenced recruitment by contacting professionals affiliated with autism advocacy organizations and college autism support programs to post flyers and share information about this study with potential participants who were attending four-year universities in New England. Once participants contacted the researcher for more information, they were recruited via a series of three emails. The first email was sent to the participants with an invitation to participate and a description of the study along with the informed consent form as an attachment. The two follow-up emails were sent one week apart to non-respondents only. As soon as an individual responded affirmatively to the researcher's request for participation and signed the informed consent form,

the researcher contacted the individual by email or phone to arrange a mutually agreed upon date, time, and location to administer the survey and conduct the interview during the same meeting. Appointments were made on a first come, first served basis. Once a date was set, the researcher emailed each participant a copy of the survey and the interview questions along with the confirmation of the date, time, and location of the meeting. The goal was to recruit a total of 10 advanced undergraduate students with ASD. Follow-up emails were sent to participants following the survey and interview meetings in order to acknowledge and thank them for their participation and to remind them of their rights as outlined by the informed consent form.

Participants

The sample for this study was comprised of 10 advanced undergraduate students who self-reported as having ASD. These students attended seven different four-year universities in the New England region and were recruited using a network sampling approach. The first 10 viable candidates were selected for this sample. As students who completed their first year of college, they would have a broader understanding of their college experiences beyond the transition experiences and of their academic success in continued matriculation. Six of the 10 participants reported working part-time. Six reported living at college, either on or off campus, and four stated that they lived at home. Table 1 contains the demographic information about this sample.

Data Collection Activities

This case study design included a two-method approach for data collection. Study volunteers were asked to complete a paper-and-pencil survey and to participate in an in-person interview. Procedures associated with quantitative and qualitative research were used to analyze the data, which consisted of survey data and verbatim transcripts of in-person interviews.

Survey. Each of the participants completed the College Stress and Social Support Survey ([C4S]; 2014), one of the tools for data collection developed by this researcher (Appendix A). This survey was adapted from and informed by The Child and Adolescent Social Support Scale developed by Malecki, Demaray, and Elliott (2000). Under the direction of this researcher's dissertation advisor, a small-scale pilot was conducted involving three advanced under-

graduate students who self-reported having ASD and were not part of this study's participant sample. This pilot study provided data on clarity, reasonableness, and efficacy of this survey instrument.

The first section, which focused on college stress, was comprised of five items that probed for kinds of college-related stress. Each item required the participant to select a number on a six-point scale which best described the extent to which they experienced the occurrence described by each statement.

The second section of the survey instrument included a table requiring the respondents to place an "X" in the boxes that best reflected the types and sources of social support that they perceived helped one to be successful in college. The table, including the types and sources of social support, were adapted from House's (1981) social support framework (p. 23). Emotional, appraisal, informational, and instrumental supports were listed horizontally at the top of the table. The sources of social support included significant other, family members, classmates, roommates, friends, professors, college staff, counselors, co-workers, and work supervisors. They were listed vertically at the left side of the table. The respondents identified as many types and sources of social support as they desired.

Interview. The second method of data collection was a topical in-person interview. The focus of the interview was an exploration of the types and sources of social support perceived by advanced undergraduate students with ASD that buffered college stress and facilitated academic success. The format and questions for this semi-structured interview protocol were based on the method developed by Flanagan (1954) known as the Critical Incident Technique (CIT). According to Flanagan, the CIT method is "a procedure for gathering certain important facts concerning behavior in defined situations" (p. 335).

Using the CIT method (Flanagan, 1954) during the interview, the researcher described the topic of social support under investigation and asked the respondents to remember and describe a memorable event that was particularly stressful. Then, the respondents were asked to describe: (a) what led up to the situation, (b) what they did that was especially effective or ineffective, (c) the outcomes of their actions, and (d) why they felt the actions were particularly effective. Flanagan's CIT method for the interview protocol was appropriate because the types and sources of social support (House, 1981) can be integrated into that protocol without compromising House's model. The questions in the semi-structured interview guide addressed House's four dimensions of social support.

Data Analysis

The researcher analyzed the data as a sequential process that allows the researcher to collect, manage, and organize data. Then, this process continued with the researcher engaging with the data by reading and reflecting which led to describing, classifying, and interpreting. Finally, the data was presented to elucidate the relationship between the survey and interview data.

Analysis of survey data. Preparation of the data for analysis started with the review of each survey for completeness and legibility. Then, each survey was labeled with a number for subsequent identification (i.e., P-1, P-2, P-3, etc.). Responses to items 1-5 from the first section of the survey (i.e., "College Related Stress") were treated as frequency numerical data and entered into an Excel spreadsheet for analysis. Each row of the spreadsheet represented a participant and was coded with the participant number, as described earlier. The columns represented the items and were numbered accordingly. Item responses were entered as numbers. Frequencies per question item were computed based on ratings.

For the second section of the survey (i.e., "Social Support"), responses were tallied by participant with each one's selection, as marked by an "X," of type of social support (i.e., emotional, appraisal, informational, or instrumental) and source of support (i.e., significant other, family members, classmates, friends, professors, college staff, counselor, co-workers, or supervisor). These data were entered into an Excel spreadsheet. Each row of the spreadsheet represented the source of support while each column represented the type of support. The frequencies of selections of type and source of support by participant were entered as numbers, 1-12, in the spreadsheet. Lastly, a descriptive analysis was conducted on the data of both sections of the survey to describe the sample. The results of the survey were presented in narrative and tabular forms respective to each section and as a whole.

Analysis of interview data. Advice and suggestions provided by Creswell (2009, 2013) and Lichtman (2013) guided the interview data analysis process. The main procedures included preparing and organizing the data, generating themes, coding the data, offering interpretations in notes and memos,

and presenting the results. A verbatim transcript was created from the digital recording of each individual interview. The transcript had wide margins and ample space between the interviewer's comments and the interviewee's comments to allow for coding and analytic notes. The interviewer's questions and comments were also highlighted to provide clear differentiation between the interviewer's comments and the interviewee's comments. In order to protect confidentiality, transcripts were free of names and any other identifiable information. The same label assigned to the individual survey was also assigned to each interview transcript for ease of reporting data. Digital recordings and written transcripts were catalogued, filed, and stored in the researcher's secured office for the duration of the study to ensure that each participant's confidentiality was protected. Participants were given the opportunity to review their transcripts for accuracy.

Following the organization of the data, the researcher began the process of analyzing data by reading each transcript multiple times to get a sense of its whole and details before breaking it down into parts. The data analysis process included coding, categorizing, and conceptualizing (Lichtman, 2013). Coding involved chunking text data by phrases, sentences, or paragraphs and labeling those categories with a term. These segments of text that appeared to be salient to the purpose of the study were color-coded with different colored highlighters with similar text segments coded with the same highlight color. A code chart was created to identify and define the units as they emerged, and notes and memos were written to capture impressions. Categories, themes, and concepts with corresponding coding were refined and modified as many times as necessary, and redundant units were eliminated.

During the summarization of the coded data, the constant comparative method, which involved inductive category coding while simultaneously comparing all topics or concepts, was used to determine similar or distinctive characteristics of categories (Ary, Jacobs, Sorensen, & Walker, 2014). Through this method, new categories emerged and similar categories were combined for greater meaning and understanding. Conversely, the discrepant data analysis method, which allowed the researcher to identify negative or discrepant units that were contrary to the main categories or topics, provided additional refinement and revision of categories and themes. This method

competed with the researcher's first impressions or category formations and provided a counterbalance or different perspective on a category or pattern. The results were organized according to the concepts or themes that emerged and the types and sources of social support perceived by the participants that buffer college-related stress and facilitate academic success. The themes and sub-themes were presented and representative quotes from participants were included.

Results

Study participants' reports of the social supports they perceived helped to buffer college-related stress and facilitate academic success revealed that emotional support was the most frequent type of support received, with family members cited as the primary provider. Participants also revealed that professors and friends were perceived to provide a high level of instrumental and informational support. Overall, participants perceived that they received emotional, instrumental, and informational support that helped to buffer college-related stress and facilitate academic success and the sources were primarily family members, friends, and professors. Table 3 details the sources and types of social supports reported by the participants.

Experiencing College-related Stress

The analyses of the survey and interview data revealed that all of the study participants ($N = 10$) experienced college-related stress some of the time or more often. The data from the survey responses indicated that six of the participants experienced stress from trying to balance coursework with self-care almost always or always. Additionally, five of the participants reported that they experienced stress related to day-to-day performance of tasks related to their courses almost always. Response means for the stress items ranged from a high of 4.30 ($SD = 1.19$) for item 4, "*I experience stress from balancing coursework with personal responsibilities*" to a low of 3.40 (SD = 1.56) for item 1, "*I experience stress from being a college student*." Table 2 displays the number of participants who identified which items were perceived to be sources of college-related stress.

During the interviews, participants talked most about experiencing stress related to being a college student. Participants also provided examples of stress related to day-to-day performance of tasks related to

their courses. Data from the surveys and interviews suggested that daily hassles were the least significant source of stress.

For example, Participant-1 was clear that doing the actual homework was not a source of stress, but the self-imposed pressure of doing better on the upcoming exam in order to increase his overall grade was experienced as intense stress that also increased his co-morbid anxiety:

> I think it's because when I start really stressing out about a particular topic, my ability to learn the subject dramatically drops off. Then, I start getting stressed out and I start feeling ill, physically. And then I run the risk of not being able to go to class or something.

He articulately described a psychosomatic response to stress and anxiety related to the performance pressure to meet a certain level of achievement.

Referring to unexpected change and the lack of chunking strategies (i.e., breaking information into smaller parts for understand) on the part of the professor, Participant-6 described an extremely stressful experience due to a change in professor mid-semester and his subsequent adjustment struggle:

> This was the last semester. I was taking an English course, and I'm not really great at it. But, I was taking an English class, and I was doing okay. Then, the professor left midway through the semester and this other professor [did] not like my learning style. It was like work as quick as possible, and she wanted to get as much in as possible and didn't really break it down.

According to this participant, the new professor seemed to be moving through the material at a rapid pace, had limited to no office hours, and presented information in an overwhelming manner This participant explained how the large chunks of material presented at once with no checks for understanding from students increased his stress level and negatively impacted his performance on quizzes and exams.

Emotional Support

The analyses of the survey and interview data revealed that all ten of the participants perceived emotional support that buffered college-related stress and facilitated academic success. In the survey, family members and friends were both identified as providing the most emotional support. During the interviews, all of the participants described instances in which they perceived emotional support that buffered college-related stress and facilitated academic success. Similar to their survey responses, the participants spoke most often about family members being their source of emotional support.

As an illustrative example, Participant-7 expressed the importance of receiving social support from his mother during exam time or when he was confronted with a challenging class. He described a situation during the semester prior to this interview when he was overloaded and he said, "I really broke down and I had a lot of stuff overdue and I didn't feel comfortable approaching my teachers about it." He further emphasized, "It got me overwhelmed and I was really, really stressed out." He described how he contacted his mother and she was encouraging, caring, and reassuring by telling him, "You don't need to be a perfect student. You've come a long way since high school." Notably, this student identified that during his contact with his parents, their validation of his abilities and encouragement allowed him to feel more comfortable to talk with other people, such as friends and professors, about his stressors.

Referring to emotional support from his parents, Participant-3, in his junior year at a Vermont college, stated that he reached out to his parents when he was taking a class where the professor provided little structure and guidance. He described his frustration that the professor allowed students to be self-directed and that this approach was not helpful since he required clear expectations and guidance. He said, "I vented to my parents about it and they didn't have much to say; just part of life and part of college. I really don't talk to my friends about that type of stuff." Even though this student reported that his parents provided listening as a type of emotional support, he differentiated between his parents and friends by noting that he was not able to share this stressful situation with his friends, but he shared it with his parents.

Instrumental Support

The analyses of the survey and interview data revealed that participants ($N = 10$) perceived instrumental support that buffered college-related stress and facilitated academic success. In the survey, professors ($n = 7$) were identified as providing the most instrumental support with college staff ($n = 5$)

and family members (*n* = 5) following. During the interviews, all of the participants described instances in which they perceived instrumental support that buffered college-related stress and fostered academic success. Similar to the survey responses, they spoke most often about professors (*n* = 6) being their source of instrumental support.

In identifying his preferential source of instrumental support, Participant-8 explained the access and benefit of seeking out his professor for help:

> In terms of classroom support and help, I usually don't use student services. I usually go to the professors, which [sic] I have classes with because I know they're teaching the exact same thing that I'm trying to learn. They're making the test, they're the ones assessing my understanding of the materials and if I really want to understand something, I prefer to go to the source of it.

In this case, the participant preferred and actively sought out the professor who was teaching the class in which he required additional help with the material instead of going to student tutoring services at the university.

Participant-6 described his mother and a very close family friend as sources of instrumental support during the semester for an English class. He asserted that his professor had no office hours and did not make herself approachable (e.g., verbally or by body language) based on his perceptions of her demeanor. Consequently, he said, "Well, I went to my mom and anything that she could do to help, she did. I had to basically breakdown everything I had gone over in the semester, so she kind of understood what to do to help. She knows I'm a visual, hands-on kind of guy, so if you can break it down that way, I learn instantly." Participant-6's mother understood that her son was a visual learner who required smaller chunks of information presented in order for mastery to be achieved.

Informational Support

The analyses of the survey and interview data revealed that the all participants perceived informational support that buffered college-related stress and facilitated academic success. In the survey, family members (*n* = 9) followed by classmates (*n* = 8) and professors (*n* = 8) were identified as providing the most informational support. During the interviews, only five participants described instances in which

they perceived receiving informational support that helped buffer college-related stress and foster academic success. However, their reports of the sources of informational support only focused on four different sources (i.e., family members, friends, classmates, and professors) out of the ten provided.

For Participant-2, his college advisor was an important source of informational support when he was struggling with time management and assignment deadlines. He explained, "My advisor helped me get it all figured out and planned out. She's like, 'You've just got to start attacking it and stuff and stop thinking about it.' I was like, 'That's right!'"

Appraisal Support

The analysis of the survey data indicated family members (*n* = 7), friends (*n* = 7), and professors (*n* = 6) were perceived as providing the highest incidences of appraisal support. The analysis of the in-person interview did not yield any significant findings about appraisal support buffering college-related stress and fostering academic success.

Discussion

Study participants indicated that they experienced stress related to college and being a college student. This finding is consistent with the research literature that indicated that college students with ASD often experience high levels of stress related to the decrease in routine and structure associated with the university experience (Glennon, 2001; Misra et al., 2000; VanBergeijk et al., 2008). The findings in this investigation are also consistent with other studies that have reported that students with ASD are academically capable, but have difficulty succeeding in college due to the stressors associated with daily demands of the course vis-à-vis their challenges in planning, organizing, social interactions, and time management (Dillon, 2007; Pugliese & White, 2014; VanBergeijk et al., 2008).

Emotional support was identified as buffering college-related stress and facilitating academic success most frequently by study participants, with family members cited as the primary source. This investigation's findings related to emotional support are similar to previous studies in that emotional support has been identified as important to the success of college students (Block, 2002; Dennis et al., 2005; Skowron et al., 2004). This study's finding that family members,

and parents in particular, were an important source of emotional support is consistent with the research of Bryan and Simmons (2009) in which family support was identified as the utmost source of support contributing to academic success. Regarding emotional support from friends, the findings of Friedlander et al. (2007), like the findings of the present study, indicated that social support from friends instead of family members contributed to academic success. Similarly, college students with learning disabilities (Lombardi et al., 2011) revealed that family members and friends were a significant source of social support that helped with academic success and retention.

Instrumental support was identified as buffering college-related stress and facilitating academic success second most frequently by study participants, with professors cited as the primary source. The literature is replete with a variety of types of instrumental support that fosters academic success for postsecondary students with ASD (Ackles, Fields, & Skinner, 2013; Dillon, 2007; Freedman, 2010; Taylor & Colvin, 2013; Wolf et al., 2009; Zager, Alpern, McKeon, Maxam, & Mulvey, 2014).

Informational support was identified as buffering college-related stress and facilitating academic success third most frequently by study participants, with family members cited as the primary source. The types of informational support, such as time management tips and college staff information, provided by family members and college staff were described by other researchers as beneficial (Ackles et al., 2013; Dillon, 2007; Glennon, 2001).

Appraisal support was identified as buffering college-related stress and facilitating academic success least frequently by study participants, with family members and friends cited as the main sources. Overall, study participants perceived they received social support that helped to buffer college-related stress and facilitate academic success and the sources of this support were primarily family members and professors.

Recommendations for Higher Education Administrators

To better understand the challenges that students with ASD experience, college administrators would do well to gather data from their respective institutions on these students' perceptions of the social supports that buffer college-related stress and foster academic success. The College Stress and Social Support Survey ([C4S], 2014) that was administered in this study could be used to inform disability services program evaluation and to guide academic support planning for students with ASD. The findings of the present investigation provide rich information about the types and sources of social support that helped to buffer college-related stress and foster academic success. College administrators would do well to gather similar data at their respective institutions.

College administrators should formally review the purpose and efficacy of the tutorial and advisement centers regarding the services and programming provided to students with ASD with the aim of personalizing those supports to their specific needs. Some of the findings related to instrumental support indicated a lack of access or a lack of effectiveness of the formal student support services, such as the tutoring and advisement center and the access abilities office. Based on the study participants' interview data, college administrators should focus on the training of college staff and student-tutors on how best to work with students with ASD. Hours of operation for these formal support services should be variable, accommodate student schedules, and provide personal appointments after an initial meeting.

Given the high frequency of professor support, college administrators should develop a long-term, formalized professional development plan for faculty and staff about best practices for instructing and interacting with students with ASD. This recommendation is based on the finding that professors were perceived to be a key source of social support, and they are the individuals with whom students have the most significant academic interactions. University staff and faculty who have expertise with students with ASD and learning differences, such as disabilities office staff and faculty from the education and psychology departments, could provide professional development sessions focused on best practices related to social skill and executive functioning challenges characteristic of an ASD diagnosis. Additionally, college administrators and disability service providers should consult with the office of international students and professors with specific multicultural expertise in the provision of supports and outreach efforts for students with ASD who are also culturally and ethnically diverse.

For professional development related to students with ASD, Universal Design for Learning [UDL] (Meyer, Rose, & Gordon, 2014) principles should

serve as the foundation for how best to teach and engage these students in the classroom. Universal Design for Learning is based on three broad principles: (a) provide multiple means of representation, (b) provide multiple means of action and expression, and (c) provide multiple means of engagement (Meyer et al., 2014). Therefore, faculty who are open to and trained in providing multiple and flexible opportunities for presenting, expressing, and engaging would benefit students with ASD and positively impact their academic success. More specifically, students with ASD can benefit from a UDL strategy of breaking down larger assignments into smaller ones with a timeline of multiple due dates. Similarly, lectures with larger conceptual chunks or multiple concepts should be broken down into smaller, more manageable parts that allow for formative assessments (e.g., quizzes) and review sessions after each concept is presented. Some participants described this "chunking" technique as very beneficial during their interviews. *Students with Asperger Syndrome: A Guide for College Personnel* (Wolf et al., 2009), *Developing College Skills in Students with Autism and Asperger's Syndrome* (Freedman, 2010), *and Educating College Students with Autism Spectrum Disorders* (Zager et al., 2013) are three beneficial resources for college faculty and staff to review when instructing and working with students with ASD.

College administrators should investigate ways to engage parents of students with ASD in order to share helpful information on how best to work with their young adults in the college environment. This recommendation is based on the findings of this study, which was focused on traditional age (i.e., 18 to 22) students, that family members were a main source of emotional and informational support for students with ASD. College administrators should consider how best to maintain open communication with family members—with the consent of the student, of course—proactively to avoid obstacles related to ASD and reactively when situations arise that require information on how best to communicate, collaborate, and problem-solve with the student. This could involve parents sharing important information about their child's learning style and social skill challenges and providing relevant resources and strategies. More practically, this parental involvement could be accomplished through weekly emails, parent information sessions with faculty and staff, and written progress updates to parents.

Limitations

This study had limitations that involved method, sampling, and the population studied. First, the study was limited by the sample size and composition, which was purposeful and convenient. The recruitment of advanced undergraduate, traditional age students with ASD was from four-year universities in New England. Given this limited geographical range for sampling, the results of this study may not be generalized to other regions or universities in the United States. Also, non-traditional age students or students from diverse cultural and racial backgrounds were not represented in this study. This study was limited by method. The results from a single case study may not provide a basis for generalizing to other persons, organizations, or times. Finally, the limited number of female participants (n = 1) in this study was a limitation because the conclusions primarily focused on the perceptions of male participants with ASD without accounting for any gender differences.

Future Research

Researchers should repeat this study at other four-year universities in different geographical regions and with a larger sample. Also, additional research should be conducted with a focus on female advanced undergraduate students with ASD. Since the first 10 viable participants were recruited, the sample for this study included nine male students and only one female student who identified as having ASD. This study should be replicated with a focus on recruiting female students with ASD to compare and contrast with this study's findings to investigate gender differences in the perception of social support. Similarly, future researchers could also focus on recruiting students with ASD from diverse cultural and racial backgrounds.

Furthermore, researchers should investigate family members' reports of the social supports that buffer college-related stress and foster academic success for students with ASD. Given that family members were identified in this study as a primary source of social support for students with ASD, it would be wise for other researchers to gather data on family members' perceptions of the social supports that buffer college-related stress and foster academic success for their family members. Since this study focused on traditional age students with ASD, future research could focus on the needs of non-traditional age students who either go to or return to college at an age beyond 22. For these non-traditional age stu-

dents, their spouses/partners, children, or other family members would need to be involved as sources of social support.

Although the findings from this single case study cannot be generalized to the larger population, these findings are significantly meaningful. When the opportunity for agency and voice is provided for these students who have been marginalized throughout their lives, the results are richer and more helpful than could have been predicted if someone else were speaking for them. With that said, future researchers should consider directly engaging students with ASD in the research planning, recruiting, and developing or vetting data collection instruments (e.g., surveys, interview questions, etc.). As colleges accept more and more students with ASD, it is imperative that college administrators provide the programmatic supports and resources necessary to promote college completion for these students, based on the findings and recommendations of this study.

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Table 1

Participants' Characteristics (N = 10)

Participants	Gender	GPA	Ethnicity	College Year	College State	College Type	Living Arrangement
P1	M	3.86	Caucasian	2nd	CT	Public	Home
P2	M	2.70	Caucasian	4th	VT	Private	College
P3	M	2.90	Caucasian	4th	VT	Private	College
P4	M	3.00	Caucasian	3rd	VT	Private	College
P5	M	3.50	Caucasian	2nd	MA	Private	College
P6	M	2.60	Caucasian	2nd	CT	Public	Home
P7	M	3.00	Caucasian	4th	CT	Public	College
P8	M	3.58	Caucasian	3rd	VT	Public	College
P9	F	3.50	Caucasian	2nd	CT	Public	Home
P10	M	3.06	Caucasian	3rd	MA	Public	Home

Table 2

Participants' Responses to the College Stress and Social Support Survey (2014)

Item			Never	Almost Never	Some of the Time	Most of the Time	Almost Always	Always
I experience stress from...	*M*	*SD*	*n* %	*n* %	*n* %	*n* %	*n* %	*N* %
1. Being a college student	3.40	1.56	2 20.00	1 10.00	1 10.00	4 40.00	1 10.00	1 10.00
2. Day-to-day performance of course tasks	4.00	1.18	—	2 20.00	1 10.00	2 20.00	5 50.00	—
3. Balancing coursework with self-care	4.20	1.72	1 10.00	1 10.00	2 20.00	—	3 30.00	3 30.00
4. Balancing coursework with personal responsibilities	4.30	1.19	—	1 10.00	1 10.00	3 30.00	2 20.00	2 20.00
5. Daily Hassles	3.90	1.37	—	2 20.00	2 20.00	3 30.00	1 10.00	2 20.00

Note. A dash indicates that the participants did not provide an example of that source.

Table 3

Participants' Reports of the Sources and Types of Social Supports

	Emotional Support	Instrumental Support	Informational Support	Appraisal Support
Significant Other	*n* = 4	*n* = 2	*n* = 2	*n* = 3
Family Members	*n* = 8	*n* = 5	*n* = 9	*n* = 7
Classmates	*n* = 3	*n* = 1	*n* = 8	*n* = 4
Roommates	*n* = 3	*n* = 1	*n* = 2	*n* = 2
Friends	*n* = 8	*n* = 3	*n* = 5	*n* = 7
Professors	*n* = 4	*n* = 7	*n* = 8	*n* = 6
College Staff	*n* = 4	*n* = 5	*n* = 4	*n* = 3
Counselor	*n* = 2	*n* = 1	*n* = 1	*n* = 0
Co-workers	*n* = 3	*n* = 0	*n* = 2	*n* = 3
Work Supervisor	*n* = 2	*n* = 0	*n* = 2	*n* = 2

Appendix

College Stress and Social Support Survey(C4S)
(Revised 9/14)

Demographics

1. Male or Female (Please circle one)
2. Current Grade Point Average (GPA): _____
3. Please list college courses attempted and course courses completed (Please use space below):

College Stress (1st Section)

1=Never   *3=Some of the Time*   *5=Almost Always*
2=Almost Never   *4=Most of the Time*   *6=Always*

Please circle the number that best reflects how often you experience stress as a college student.

I experience stress from…

1. …being a college student.   1 2 3 4 5 6

2. …day-to-day performance of tasks related to my courses   1 2 3 4 5 6
(reading, research, homework).

3. …trying to balance my coursework with my self care   1 2 3 4 5 6
(laundry, exercise, nutrition).

4. …trying to balance my coursework with my personal   1 2 3 4 5 6
responsibilities (job, volunteer).

5. …daily hassles (aggravation related to my finances, work,   1 2 3 4 5 6
home life, social demands, time, physical, or emotional health,
or future).

Please DO NOT place your name on this the survey.

Social Support (2nd Section)

Please place an "X" in any and all of the boxes that best reflect the types and sources of support that help you be successful in college.

	Types of Help			
People Who Help You	*Emotional Support:* trust, concern, listening, caring	*Appraisal Support:* feedback, recognition, affirmation	*Informational Support:* advice, suggestions, helpful information	*Instrumental Support:* accommodations, study assistance, changing the environment
Significant Other				
Family Members				
Classmates				
Roommates				
Friends				
Professors				
College Staff				
Counselor				
Co-workers				
Work Supervisor				