Comparing the Social Networks of Students Enrolled in Inclusive Postsecondary Education Programs and their Peers Enrolled in Traditional College Programs

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Abstract

We examined differences in the social networks, social supports, and college-related anxiety and distress between 42 college students in a traditional degree-seeking (TDS) program and an inclusive postsecondary education (IPSE) program at the same campus. Our findings revealed that IPSE students had smaller, denser social networks predominantly made up of family members. Despite these differences in network structure, anxiety levels, locus of control scores, and perceived distress related to academic, social, and daily living domains were similar across both groups. These results offer insights into the social network dynamics of students with and without disabilities as they start their college experience and underscore the implications for K–12 transition programming and IPSE initiatives.

Keywords: inclusive higher education, inclusive postsecondary education, intellectual and developmental disability, social network, social support network

Plain Language Summary

- College students often rely on family, friends, and other important people for help when they're feeling stressed or anxious.
- We wanted to find out how students in inclusive postsecondary education (IPSE) programs and their peers experience stress and support in college.
- **What we did in this study:** We surveyed college students in an IPSE program and their peers at the same university. We asked: who is important to them, what parts of college they find stressful, and who helps them when they need support.

- **Findings:** We found that both groups of students felt stressed by similar things in college. IPSE students named fewer people as important to them, but they received more help with social issues, academics, and daily living.
- **Conclusion:** This study helps IPSE staff understand the support needs of IPSE students and who is providing that support. With this knowledge, IPSE staff can better support students by helping them find additional sources of support if needed.

Young adults with intellectual and developmental disabilities (IDD) are increasingly accessing college through inclusive postsecondary education (IPSE) programs, which are designed to support their full participation in the college experience. IPSE programs offer a range of benefits, including improvements in adaptive behaviors such as communication, socialization, and daily living skills, as well as positive outcomes in employment, independent living, and health (Butler et al., 2016; Grigal et al., 2023; Lee & Taylor, 2022). Students with IDD in these programs also report expanded social networks, including making new friends (Hendrickson et al., 2017), having companions to talk to or engage in activities with (Butler et al., 2016), and experiencing romantic relationships (Sheppard-Jones et al., 2018).

All students benefit from robust social networks as they transition into postsecondary education. Social factors such as the connections students maintain, the depth of their relationships, and the types of supports they receive can significantly impact academic success, resilience, and postschool quality of life, especially for those from underrepresented groups (Mishra, 2020). Social networks represent how individuals are interconnected within society and provide social capital—both tangible and symbolic resources that can be converted into cultural and economic capital (Bourdieu, 1986). For young adults with IDD in IPSE programs, both family members and higher education staff play crucial roles in offering information and tangible support, aiding them in managing challenges such as living away from home, meeting academic expectations, navigating complex social situations, and handling new responsibilities (Bumble et al., 2022; Eisenman et al., 2013; Spencer, Van Haneghan, Baxter, Chanto-Wetter et al., 2021). These new experiences often form part of the hidden curriculum of higher education, but a strong social network can help students with IDD learn to navigate the necessary content and skills for college success (Berg et al., 2017; Spruit & Carter, 2021).

As students with IDD progress in postsecondary programs and integrate new individuals into their social networks, they gradually reduce their reliance on faculty and staff, forming new friendships with peers outside their families (Berg et al., 2017). These evolving social supports foster a sense of belonging and open pathways for students to engage in various campus activities and events (Eisenman et al., 2013; Spencer, Van Haneghan, Baxter, Chanto-Wetter et al., 2021). They introduce diverse perspectives and ideas, providing crucial emotional support as students with IDD navigate the challenges of college life (Spruit & Carter, 2021). While discussions about IPSE programming often emphasize employment and independent living metrics, the social networks that students with IDD build and how they utilize these networks for support are also vital indicators of their success (Sheppard-Jones et al., 2018).

The Characteristics of Social Networks of Youth and College Students with IDD

The social networks of young adults with IDD are typically small, dense, and largely comprised of family members, service providers, and peers with disabilities (Amado et al., 2013; Eisenman et al., 2013; Sanderson et al., 2020). For instance, 17% of young adults with IDD aged 18–22 report having no friendships beyond family members and paid supporters (National Core Indicators, 2017). When these individuals transition to college through IPSE programs, their social networks often undergo significant changes, including an increase in non-familial and non-service-provider connections. An initial study by Eisenman et al. (2013) showed that at the beginning of an IPSE program, students' networks included a substantial proportion of authority figures, along with family and peers, each comprising nearly a third of the network. The composition of the networks varied by size, density (i.e., connectedness), and composition. Over about nine months, the size of these networks decreased while the overall density increased. Although the exact compositions differed, there was a general trend of reduced involvement from family members and increased involvement from authority figures and peers.

In another longitudinal study tracking the social networks of IPSE students from program entry through their second year, researchers observed that students developed more peer connections over time while their familial ties decreased (Spencer, Van Haneghan, Baxter, Chanto-Wetter et al., 2021). During the program, students' networks became clustered with more disconnected groups, which is likely a result of dependency on the program for connections and activities. However, these changing networks coincided with positive social changes, including greater confidence in social situations, a heightened sense of belonging, and improved mood and motivation. In a subsequent study by Spencer, Van Haneghan, and Baxter (2021), which examined IPSE students from pre-graduation to one year post-graduation, familial and work ties became more prominent after graduation, with work connections often replacing those of fellow IPSE students. However, similar to prior research by Eisenman and colleagues (2013), there was wide variation in the size, density, and composition of the graduate networks. Students with more diverse connections continued to engage in non-work activities or maintained relationships with their IPSE peers after graduation.

Although IPSE programs offer extensive supports to facilitate social and academic inclusion, such as peer support and individualized course plans (Bumble et al., 2019; Hendrickson et al., 2017), a student's mindset plays a crucial role in how effectively they adapt to their new environment and utilize these supports. For all college students, high levels of stress and anxiety can lead to poor academic performance and feelings of isolation on campus (e.g., Brook & Willoughby, 2015). However, students with IDD may experience even higher levels of distress (Hemm et al., 2018; Plotner et al., 2023). For instance, Lei and colleagues (2020) found that autistic college students reported greater social anxiety and more frequent distress in academic, daily living, and social domains compared to their non-disabled peers. Additionally, college students with IDD may exhibit a more external locus of control (LOC), believing their actions have limited impact on their outcomes (Wehmeyer et al., 1994). External LOC orientations can create challenges in developing friendships and may contribute to learned helplessness, leading students to rely heavily on IPSE supports that might not translate well to postschool environments.

Shogren and colleagues (2010) found that children with learning disabilities or no disabilities had more internal LOC orientations—stronger beliefs in their ability to control their own lives—compared to children with intellectual disabilities. This internal LOC orientation was found to be relatively stable over time. However, there is limited research on how LOC orientations and social anxieties differ between college students with and without IDD, and how these factors might impact the development and quality of their social networks.

Measuring Social Networks

Social network analysis (SNA) is a valuable method for assessing the relationships and connections between individuals or groups (Carolan, 2013; Perry et al., 2018). Two key aspects of a network are its size—how many individuals are involved—and its composition—the roles those individuals play within the network. According to social resource theory, resources embedded within social networks can significantly impact outcomes; having access to a larger number of resources and using them effectively can lead to improved results (Lin, 1982). For college students with IDD, their social networks can provide vital academic, daily living, and social support to help manage the stress and anxiety associated with navigating new campus routines and expectations. Additionally, the qualities of the network, including communication patterns and formats, can influence how and when a student utilizes their network (Perry et al., 2018), as well as their overall postschool outcomes. Two approaches are commonly used to measure social networks: whole network analysis and egocentric network analysis. Whole network analysis looks at the relationships among all individuals within a bounded system, such as an entire school. In contrast, egocentric network analysis focuses on examining one individual and the characteristics of their relationships with others. In this study, we utilized egocentric network analysis to gain insights into students' perceptions of their network structures and their interactions with network members at the beginning of their college experience. This approach allowed us to better understand how students perceive and engage with the people in their personal social networks.

While previous research has explored the social network characteristics of students in IPSE programs, there has been limited investigation into how these networks compare to those of peers in traditional degree-seeking (TDS) programs. The aim of this quantitative study was to examine baseline differences in the social networks of students enrolled in IPSE and TDS programs who are living on campus at the same university. Our primary aims were to:

1. Evaluate any differences in the level of college-related distress/anxiety new students in IPSE and TDS programs experience and their LOC orientations (internal vs. external). *We hypothesized that students in IPSE programs would experience greater levels of distress and have a more external LOC than students in TDS programs.*
2. Evaluate any differences in the structure of the social networks of new students in IPSE and TDS programs at one university. *We hypothesized that students in IPSE programs would report smaller, denser networks with a greater proportion of family members than students in TDS programs.*

3. Evaluate any differences in the dynamics (i.e., communication patterns and basic supports exchanged) of the social networks of new students in IPSE and TDS programs at one university. *We hypothesized that students in IPSE programs would have more frequent communication with family members and receive more overall supports from their networks than students in TDS programs*.

Method

Participants

Study participants were 42 of the 108 freshmen college students (38.8%) living on campus at a public, 4-year university in a midwestern state during the 2021–2022 school year. To evaluate the structure of social networks at the start of college, only first-year students were included in the sample. We excluded surveys from respondents who were (a) not first-year students, (b) not living on campus, or (c) transfer students from another university. The university had more than 12,000 students enrolled but was primarily a commuter campus with only one on-campus dorm. Fewer students were living in the dorm due to the COVID-19 pandemic.

Half of the participants (n = 21) were students in an IPSE program pursuing a 2-year Chancellor's certificate, and the remaining half of the participants (n = 21) were students in a TDS program, pursuing a 4-year degree. All students in the IPSE program had intellectual disability, but some students reported additional diagnoses including autism (n = 13), mental health disorder (n = 4), ADD/ADHD (n = 9), and other health impairments (n = 1). Two students in the TDS program reported other health impairments. About half of participants identified as female (n = 23), and most were White (n = 37). Groups significantly differed based on age ($t(40) = -2.54$, p = .02, Cohen's d = .78) and work status (i.e., volunteer, part-, or full-time vs. not working; $\chi 2$ (1, n = 42) = 5.25, p = .02, phi = -.40). See demographic data in Table 1.

IPSE Program

During the study, the 2-year IPSE program, established in 2013, became a TPSID model demonstration site and began expanding to include a 4-year option. The program typically accepts 25 students with intellectual disability each year and is supported by four full-time staff members. It offers students access to academic courses, employment internships, student clubs and organizations, and campus events. Students can choose to live on or off campus and participate in a combination of traditional and program-specific courses. The program incorporates person-centered planning meetings where families and students collaborate with project staff to select courses and experiences aligned with the students' goals. To support student success, the program provides 1:1 academic and social coaching, tutoring, and job coaching. During the study year, a new peer support program was introduced to foster social connections on campus. However, this program was not operational at the beginning of the school year, which is the focus of the current study.

Recruitment

Survey recruitment and data collection took place over the first three weeks of the 2021 fall semester during the COVID-19 pandemic. To engage a wide range of students, we (a) disseminated flyers (including a survey link) via email to all students living in the campus dorm, (b) emailed recruitment flyers to students enrolled in College of Education courses, and (c) provided flyers and email templates to faculty and staff associated with the IPSE program to share with their students. Given the multi-pronged approach to recruitment, we cannot determine the total number of students who received a link to the survey. We randomly selected five participants who completed the survey to receive a $100 gift card.

Survey Design and Measures

We used an iterative survey design process that integrated feedback from college students with intellectual disability (n = 3), college students without a disability (n = 2) and special education faculty (n = 4). We piloted the instrument at two timepoints and incorporated recommendations to limit the number of measures, increase clarity, reorganize the questions to decrease cognitive load, shift the rating of decision-making support quality (i.e., instead of rating each decision-making area, participants provided an overall rating), and shift the frequency of support scale to binary response options to minimize cognitive load (i.e., instead of reporting frequency of receiving support from each network member on a 5-point scale, we asked if each network member provided support in each domain in the previous three months; 1 = *yes*, 0 = *no*). In addition, we reduced any six-point Likert-type items to five-point Likert-type items based on feedback from pilot testers. To provide any necessary supports (i.e., clarifying questions, researcher reading items aloud, researcher showing only one question at a time), students in the IPSE program completed the survey virtually or in-person with a member of the research team. We hosted the survey on Qualtrics (survey copies available upon request) and had four sections (a) student demographics, (b) the adapted Social Network and Perceived Social Support tool (SNaPSS; Lei et al, 2019), (c) the Social Anxiety Scale for Adolescents (La Greca & Lopez, 1998) short form, and (d) the Nowicki-Strickland Internal-External Locus of Control Scale (Nowicki & Duke, 1974).

Pre-Test for IPSE Participants

We conducted a pre-test to determine the complexity of the Likert-type scale for which each IPSE student could reliably respond (i.e., binary, 3-point scale, or 5-point scale). The pre-test was developed based on the Comprehensive Quality of Life Scale-ID pre-test (Cummins, 1997) in which individuals with intellectual disability designate size-order relationships among sets of blocks, relate the size of the blocks to a written description of size (e.g., smaller, larger), translate the shape size to a Likert-type scale from the survey (e.g., participants are told the largest shape is the most important and they rate each shape accordingly from 1 = *not at all important* to 5 = *extremely important*), and place something of known desirability on a novel Likert-type scale from the survey (e.g., participants rate how often they complete a known hobby of interest based on frequency ratings from 1 = *never* to 5 = *every day*).

To conduct the pre-test, we met with participants virtually via Zoom video conferencing software. The pre-test involved several stages to assess participants' ability to use different response scales. First, participants were shown two shapes and asked to classify them as “bigger” or “smaller.” Next, participants were presented with three shapes of varying sizes and instructed that larger shapes were “more important.” They were then asked to rank these shapes using a 3-point scale (i.e., not important, slightly important, very important). Following this, participants completed a similar task with five shapes of different sizes and a 5-point scale (i.e., not important, slightly important, important, fairly important, very important). In the final stage, participants used two novel 5-point response scales from the online survey: one ranging from 1 = *not at all* to 5 = *extremely* and another from 1 = *never* to 5 = *every day*. They answered questions such as, “How excited are you about starting classes?” and “How often do you go swimming?” These questions were selected based on initial conversations with participants about their preferences and interests to build rapport. Although we anticipated that some participants might need a 3-point scale or visual supports, all participants successfully mastered the 5-point scale during the pre-test. One potential participant, however, became frustrated with the virtual format and decided not to continue with the study.

Student Demographics

All participants completed basic demographic questions including age, gender identity, race/ethnicity, year in school, if they had previously attended another university, work status, housing situation, disability status, and degree or certificate they were pursuing in school.

Adapted Social Network and Perceived Social Support (SNaPSS) Tool

The Social Network and Perceived Social Support (SNaPSS; Lei et al, 2019) tool measured students’ social network size, density, composition, and social supports. Respondents identified network members they had communicated with in the last three months who are “really important” to them using a name generator (i.e., Think of all the people you have talked with [at school, at work, at home, in social or religious settings, etc.] over the past three months. Who is really important to you? Write their first name or nickname below). Then, respondents answered questions about each member including sex, nature of the relationship (i.e., family member, friend or acquaintance, romantic partner, disability service provider, university faculty member or staff, other), communication frequency (i.e., 1 = 1-3 *times total in the last three months* to 4 = *almost every day*), length of relationship (they wrote in a timeframe), and which other network members that individual would identify as “important” (to measure density, or the proportion of people in the network who are connected). Respondents could only choose one category to describe the nature of the relationship. For network members who were classified as friends, respondents answered questions related to when the friendship formed (i.e., before college or after college) and questions about how they met the person (e.g., childhood friend, at work, neighbor in the dorms, academic class, etc.). Students in the IPSE program also answered a question to identify if any friends they had made since college were part of the IPSE program.

To learn about levels of distress related to the academic, daily living, and social domains, the SNaPSS also asked about the frequency with which respondents felt distress (i.e., stress, anxiety, or depression/low mood) related to each domain (0 = *never* and 4 = *every day*). Then, respondents reported distress frequencies for 15 items related to academics (i.e., class workload, class difficulty, meeting class deadlines, doing group work, time management and planning), daily living (i.e., changes in routines, cooking, household chores like laundry and cleaning, managing a budget, taking care of their health), and their social lives (i.e., living with other people, getting along with people they lived with, fitting in, being bullied or alone, socializing or making friends; (0 = *never* and 4 = *every day*). If respondents reported a distress score greater than 0, they identified who had provided them with support in that domain in the last three months. For example, respondents would see the list of names of people in their network and for each name they would answer the following question "Over the last three months, did this person help you with academics [managing classwork, tutoring, understanding content, managing time, meeting deadlines]"; 1 = yes, 0 = *no*).

We adapted the SNaPSS tool for this study, modifying language (e.g., dorm instead of flat), reducing 6-point scales to 5-point scales for the distress ratings based on feedback from pilot testers with intellectual disability, and shifting the support scale to binary response options to minimize cognitive load (i.e., instead of reporting the frequency of receiving support from each network member on a 5-point Likert-type scale, we asked if each member provided support in each domain in the previous three months [1 = *yes*, 0 = *no*]). Our 15-item distress scale had good internal consistency (α = 0.77). SNaPSS has been used in previous studies with college students with autism and college students without disabilities (Lei et al., 2020). A detailed description of the SNaPSS development and validation can be found in Lei et al. (2019).

Social Anxiety Scale for Adolescents (SAS-A) Short Form

The Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998) is a 22-item self-report measure broken down into three subscales—fear of negative evaluation, social avoidance and distress—new social situations, and social avoidance and distress—general social situations. Regarding internal consistency, alpha values ranging from 0.70 to 0.94 have been reported. The measure has been used with adolescents with autism (Lei et al., 2020) and intellectual disability (Hemm et al., 2018). The measure includes subscales for Fear of Negative Evaluation (FNE) subscale; Social Avoidance and Distress for New Situations (SAD-N); and Social Avoidance and Distress for General Situations (SAD-G). To reduce the survey length, we used a shortened format validated by Nelemans et al. (2019). With our sample, the shortened format had good internal consistency (subscale α = 0.81 – 0.87). The shortened format has four items in each subscale and participants rate their responses using a 5-point Likert-type scale, from 0 = *totally not applicable* to me to 4 = *totally applicable to me*. Sample items include, "I worry about what others think of me" and "I get nervous when I talk to peers I don't know very well." Scores range from 0 to 48, and higher scores indicate higher social anxiety symptoms.

Nowicki-Strickland Locus of Control Scale

The Nowicki-Strickland Internal-External Scale (Nowicki & Duke, 1974) consists of 40 items with "yes" or "no" responses. Scores range from 0 – 40 with higher scores reflecting more external orientation. Although there is no set cutoff for classifying scores as internal or external, typical scores for adolescents range from 9 to 13. Example items include, "Is it nearly impossible to change your parent/caregiver's mind about anything?" and "Do you believe that wishing can make good things happen?" The scale has shown good internal consistency ($\alpha = 0.77$) when used with students with intellectual disability (Wehmeyer et al., 1994). With our sample, we found lower internal consistency ($\alpha = 0.50$). However, samples larger than 50 are typically required to obtain a good internal consistency estimation (Bonett & Wright, 2015).

Data Analyses

We analyzed all data using IBM SPSS Statistics for Windows, Version 26. For demographic data, we first calculated descriptive statistics and conducted independent sample T-tests and chi-square tests to determine any significant differences between groups (students enrolled in the IPSE program vs. traditional 4-year degree track) on primary demographic variables including age, gender identity, race/ethnicity, and work status. Then, to understand if the social networks of students enrolled in IPSE vs. TDS programs differed in structure and dynamics, we conducted planned comparisons (using independent samples t-tests) on the characteristics of social networks including network size; network density; the percentage of network members from six different roles including family, friends, romantic partners, college faculty and staff, direct service providers, and unique members (i.e., roles added by participants when they selected "other"); the percentage of friends before college; communication frequency; and social supports provided. To determine the magnitude of any significant differences between groups, we also calculated effect sizes, which were interpreted based on Cohen's d (small 0.2, medium 0.5, and large 0.8). Other network characteristics (e.g., length of relationships, communication mode) were explored descriptively. We constructed social network graphs using the igraph package version 1.5.0 in R version 4.3.0 and the Fruchterman-Reingold layout option.

Results

Differences in the Level of College-Related Distress/Anxiety and LOC Orientations

IPSE students and TDS students scored similarly and within a typical range on the SAS-A Short Form (Nelemans et al., 2019) and the Nowicki-Strickland Locus of Control Scale (Nowicki & Duke, 1974), indicating typical levels of adolescent social anxiety and a balanced LOC orientation (a belief that they are partially in control of their own lives; see Table 1). In addition, overall frequencies of distress (i.e., stress, anxiety, or depressed/low mood) did not differ significantly across groups. Frequency of distress was measured using a scale of 0 = *never* to 4 = *every day*. Across domains, participants reported experiencing distress some days ($M = 1.45$ students in TDS program, $M = 1.50$ students in IPSE program; see Table 1). Students in TDS programs and the IPSE program

experienced the most frequent distress related to academics (*M* = 1.80 TDS, *M* = 1.76 IPSE; some days) and the least frequent distress related to their social lives (*M* = 1.26 TDS, *M* = 1.19 IPSE; rarely).

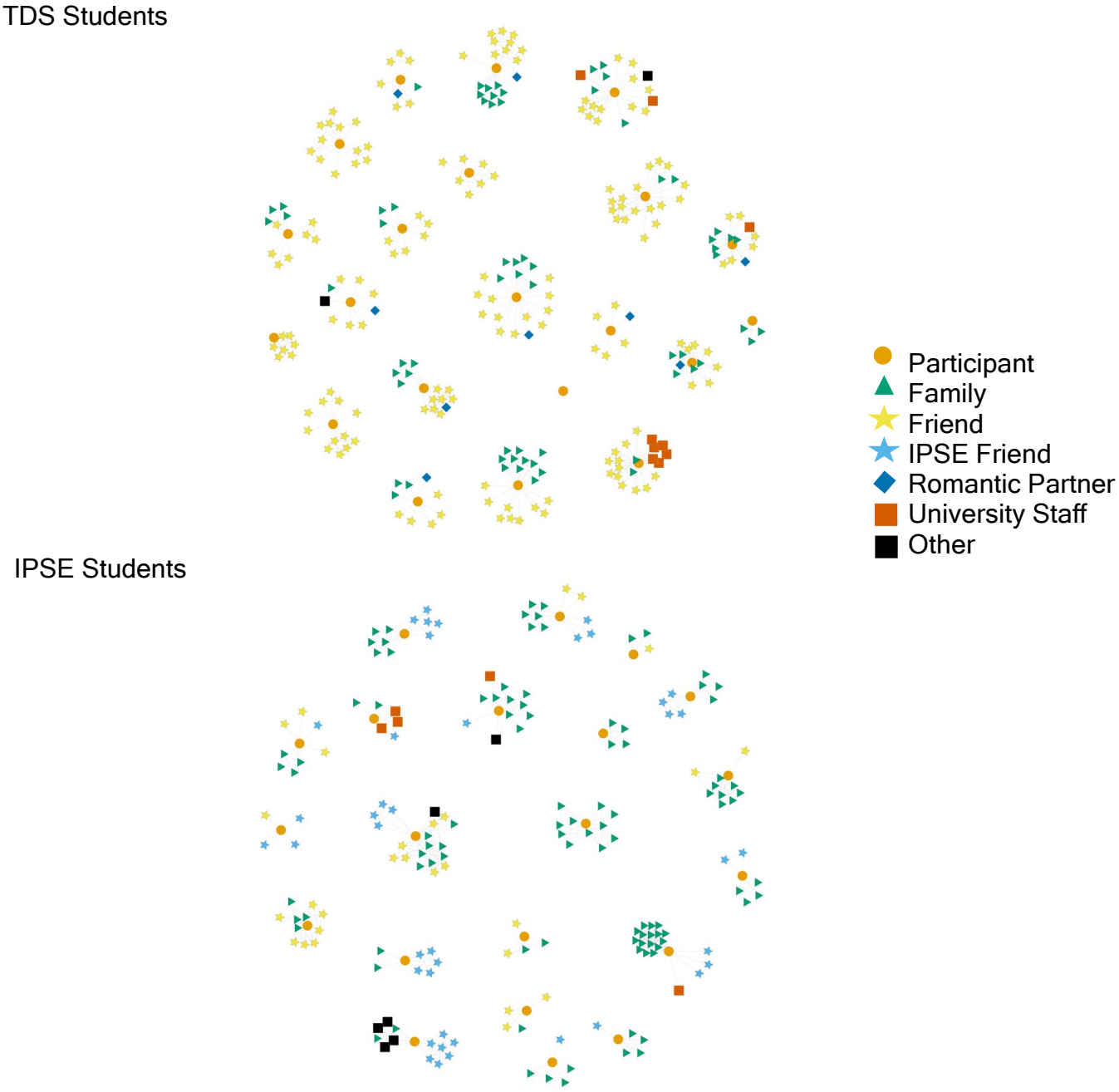
Differences in the Structure of the Social Networks

The characteristics of social networks across student groups are described in Table 2, and network graphs are provided in Figure 1. The average social network size was 12.14 for students in TDS programs and 8.71 for students in the IPSE program. One student in a TDS program reported a social network with no members. Compared with students in the IPSE program, the social networks of students in TDS programs were significantly larger ($t(40) = 2.01$, $p = .05$, Cohen's $d = 0.62$, 95% CI [.02 – 6.92]) and less dense (i.e., fewer network members were connected to or listed as "important" to other members of the network; $t(39) = -2.15$, $p = .04$, Cohen's $d = 0.67$, 95% CI [-.20 – -.01). Students in the IPSE program reported networks with a significantly larger proportion of family members (55.53% vs. 24.94%; $t(40) = -3.82$, $p < .001$, Cohen's $d = 1.18$; 95% CI -.47 – -.14]), while students in TDS programs reported networks with a significantly larger proportion of friends (63.32% vs. 39.36%; $t(40) = 2.85$, $p < .01$, Cohen's $d = 0.88$; 95% CI [.07 – .41) and romantic partners (3.97% vs. 0.00%; $t(40) = 3.43$, $p < .01$, Cohen's $d = 1.06$; 95% CI [.02 – .06]). There were no significant differences between groups related to the proportion of faculty members/university staff, disability service providers, or "other" network members (i.e., pastor, godparent, therapist, high school teacher).

Both groups of students had similar patterns in the ways they developed friendships, but students in TDS programs met a larger percentage of friends in their social network before college, while students in the IPSE program met a larger percentage of friends after the start of college (this difference did not reach statistical significance, see Table 2). Of the friendships reported by students in the IPSE program, 62.97% of them were established within the first few weeks of starting college vs. 46.56% of friendships of students in TDS programs. Further, all of the friendships IPSE students made since college were friendships with other IPSE students. Participants most commonly reported friends who were childhood friends (34.66% of friends of TDS students, 32.85% of friends of IPSE students), neighbors from the dorm (17.07% of friends of TDS students; 19.55% of friends of IPSE students), friends from college classes (10.20% of friends of TDS students; 25.23% of friends of IPSE students), or friends from college clubs and social events (9.39% of friends of TDS students; 14.81% of friends of IPSE students). Remaining friends were known from clubs and social events before attending college (4.56% of friends of TDS students; 0.00% of friends of IPSE students), employment experiences (6.69% of friends of TDS students; 0.00% of friends of IPSE students), religious events (3.26% of friends of TDS students; 0.75% of friends of IPSE students), neighbors from their family home (0.00% of friends of TDS students; 0.48% of friends of IPSE students), or reported as known from "other" before or after college (14.18% of friends of TDS students; 6.34% of friends of IPSE students). Students enrolled in the IPSE program reported longer relationships with their non-family network members (4.65 years vs. 2.54 years).

Figure 1.

Network Graphs of Inclusive Postsecondary Education (IPSE) Student and Traditional Degree-Seeking (TDS) Student Social Networks



Note. In this figure we did not differentiate between friends made before and after college. However, these data are available in Table 2. IPSE students did not report any college friends who were outside the IPSE program.

Differences in the Dynamics of the Social Networks

To understand network dynamics, we explored communication frequencies, modes, and the extent to which respondents leveraged their networks for academic, daily, living, and social support. Communication patterns were similar across groups. Both students enrolled in IPSE and TDS programs communicated with most network members once per week or a couple times per week (see Table 2). Students in the IPSE program reported communicating with a larger proportion of social network members through phone calls or video (e.g., FaceTime or Skype; 70.44% of network members vs. 47.29% of network members for TDS students), and students in TDS programs used "other" modes of communication with a larger proportion of network members (e.g., email, letters; 14.68% of network members vs. 8.21% of network members for IPSE students). Other communication modes had similar patterns across groups (see Table 2).

Social supports were more varied. About a third of social network members provided at least some type of support in the previous three months. Respondents seemed to leverage members of their social network mostly for social supports (52.14% of network members for TDS students, 61.63% of network members for IPSE students). In fact, almost twice the percentage of network members provided social support vs. academic support (see Table 2). Students in the IPSE program accessed supports across all three domains to a greater extent than their peers enrolled in TDS programs.

Discussion

The increase in college opportunities for students with IDD through IPSE programs necessitates a better understanding of the social networks that students with IDD have in place when they begin their college programs, and how they leverage their networks for support as they navigate new settings and responsibilities. This is the first study to compare the social networks and perceived social support of college students with IDD enrolled in an IPSE program with students in a TDS program. We examined the structure of student social networks as well as network dynamics, including patterns of communication, formats of communication, and the supports exchanged within each social network. In addition, we compared levels of social anxiety between groups, LOC orientation (i.e., external vs. internal), and how often students experienced distress related to academic, daily living, and social domains. Our findings extend the literature and offer important implications for IPSE constituent groups.

First, contrary to our hypotheses, students in both IPSE and TDS groups reported similar levels of social anxiety; academic, social, and daily living distress; and their LOC. These results differ from previous research suggesting that young adults with IDD experience more general and social anxiety than their peers without disabilities (Hemm et al., 2018), that IPSE students experience greater levels of stress related to communication and social interactions vs. other life domains (e.g., work, finances; Plotner et al., 2023), and that youth and young adults with IDD have a more external LOC than their peers with learning disabilities and no disabilities (Shogren et al., 2010). One possible explanation for our findings is that IPSE students reported having a higher percentage of individuals in their social networks providing support in academic, social,

and daily living areas compared to TDS students (see Table 2). Despite IPSE students having networks mostly composed of family members, their use of digital communication tools, such as video calls, could have made remote support more accessible. Additionally, IPSE students had significantly denser networks, which could facilitate quicker distribution of support and information (Perry et al., 2018). Regarding LOC, the similarity in scores could be attributed to the nature of IPSE programs, which may attract students with a more internal LOC—those who believe their future is shaped by their own actions and abilities—and this internal LOC might drive their pursuit of higher education more than their peers with a more external LOC.

The similarity in scores between students in IPSE and TDS programs may reflect that, despite their different circumstances, both groups face similar challenges during their educational journey. Both IPSE and TDS students contend with academic pressures, complex social interactions, and the everyday difficulties of growing up. These shared experiences underscore the fundamental similarities between students, regardless of their disability status. Recognizing this common ground can help educators and policymakers create inclusive environments that address the needs of all students effectively.

Second, students enrolled in the IPSE program had significantly smaller social networks than students in TDS programs (8.71 vs. 12.14 network members), and their networks were denser, indicating that a greater number of people in their networks had close relationships (i.e., would report each other as important in their life). IPSE students did not report any college friends outside of the IPSE program, and no IPSE students reported a romantic partner in their network. These findings aligned with our hypotheses, and similar patterns and network sizes were reported when researchers used SNaPSS to compare the social networks of autistic college students and their peers without disabilities (Lei et al., 2019) and when researchers conducted longitudinal analyses of the social networks of IPSE students (Spencer, Van Haneghan, Baxter, Chanto-Wetter et al., 2021; Spencer, Van Haneghan, & Baxter, 2021).

At the same time, other studies have reported much larger networks for IPSE students (e.g., Eisenman et al., 2013; Spruit & Carter, 2021). These differences may arise from factors such as the timing of data collection (e.g., semester or year of the program) or variations in the data collection methods, such as categorizing network members by location (e.g., home, school, work; Eisenman et al., 2013) or by their roles (e.g., family, friends, other peers, paid professionals; Spruit & Carter, 2021). Additionally, variations in network size across IPSE programs might be influenced by campus support structures, including the extent of peer support available, the availability of inclusive on-campus housing, and the level of integration between IPSE students and their TDS peers in academic and social settings.

Small, dense networks offer benefits like strong relationships and increased social support (Coleman, 1988). However, because these networks exhibit high levels of homophily, meaning they consist largely of people who are very similar to one another, they can limit access to new information and perspectives (Perry et al., 2018). In contrast, less dense networks—where individuals are less closely connected—tend to include more

people who can link to other social groups. This broader connectivity can provide access to diverse resources, information, and ideas (Lin, 1999; Perry et al., 2018). Students often naturally gravitate toward peers who have similar backgrounds and interests. This tendency is expected and helps them build supportive networks where they can relate and collaborate effectively. While forming close-knit groups with similar others is beneficial, it is also important for students to connect with a diverse range of individuals. A network that includes people from various backgrounds can enhance campus involvement, offer extra support during difficult times, and provide valuable connections for employment or transitioning to life after graduation (Sanderson et al., 2020).

Third, while there were no significant differences in communication frequency between the groups, IPSE students accessed all three types of support—academic, social, and daily living—from a greater percentage of their network members, with more than half of these members being family. We had hypothesized that IPSE students would communicate more frequently with family members and receive more overall support from their networks. The higher percentage of members providing support and the smaller network size suggest that students might be depending on the same individuals for multiple types of support (e.g., one parent providing academic, social, and daily living support). This heavy reliance on a few people could potentially lead to negative outcomes for support providers (Sanderson et al., 2020), such as stretched resources and lower-quality support if members are overburdened or providing assistance outside their areas of expertise. This situation raises important questions about the role of families in providing support and the need for families to either be equipped to offer a range of supports or to help their child seek support from others. College represents a key opportunity for students to broaden their networks and learn to access support beyond their family.

Implications for Practice

We propose several strategies for IPSE programs to enhance the social capital of students with IDD during college. First, most IPSE students begin their college experience with person-centered planning meetings that outline post-school goals, assess support needs, and address both parent and student concerns. By integrating social network mapping into these meetings, IPSE staff can gain a clearer understanding of students' existing connections and identify areas where additional support may be necessary to help students achieve their postschool goals. Regularly monitoring these networks over time can enable IPSE programs to track changes in student networks in response to program interventions and evaluate the effectiveness of supports such as peer tutoring and other services. To map social networks effectively, programs can use several methods. These include creating a list of important individuals and the types of support they provide (e.g., academic, social, daily living), drawing a network diagram with concentric circles to categorize different types of people and supports (e.g., Spruit & Carter, 2021), or developing an inventory of essential connections and organizations (e.g., Vocational Rehabilitation, future employers, college disability services; Bumble, Carter et al., 2022. These strategies can help IPSE programs identify gaps and set goals for expanding students' social networks over time, thereby supporting their overall college experience.

Second, IPSE students in this study did not report having college friends outside of their IPSE program. Personal connections are a fundamental aspect of social well-being, and individuals with IDD, like anyone else, should be empowered to build relationships based on their own preferences. Homophily, or the tendency to bond with those who are similar, is a common and understandable phenomenon in social networks (Perry et al., 2018). Individuals naturally form friendships with people who share similar interests, experiences, or characteristics. However, we also recognize that there are significant benefits to fostering diversity within social networks. Diverse networks can provide a broader range of perspectives, experiences, and resources. Further, larger, more diverse social networks may act as a protective factor for students who rely on aging parents and other family members for the bulk of their support (Sanderson et al., 2020). IPSE programs should work to connect students to peers without disabilities through peer support programs, campus activities that align with their interests, and inclusive academic and residential options (Bumble, Worth et al., 2022).

Third, in addition to actively helping students expand their social networks in alignment with their postschool goals, IPSE programs should also focus on developing students' coping mechanisms for managing academic, social, and daily living distress. In a study of 17 college students with intellectual disability, Plotner and colleagues (2020) found that when facing stressful situations, these students were less likely to use support-seeking strategies and more likely to rely on problem-focused strategies (e.g., making a plan, concentrating on next steps) or emotion-focused strategies (e.g., self-criticism, trying to see things from others' perspectives). These approaches can sometimes increase stress and anxiety. By mapping out a student's social network, IPSE staff can help students identify and mobilize supportive individuals within their network, encouraging them to use more effective support-seeking strategies to address challenges both during and after college.

Limitations and Future Directions

Findings should be interpreted with several limitations in mind. First, our study focuses on the social networks of first-year students living in the dorms at a single Midwestern commuter university, which may not be representative of other universities or programs. Additionally, the data were collected during COVID-19. Although students were not in quarantine at the start of the semester, the number of students living in the dorms was lower than in previous years, which may impact the generalizability of the findings. The pandemic could also have influenced students' responses related to stress, anxiety, and support. Future research should investigate social networks across multiple IPSE programs and explore how different program characteristics might affect network features and student outcomes.

Second, our name generator asked participants who was "really important" to them. This single name generator may have limited participants from listing individuals who provided supports to them but were not in fact important to them. Future research should use multiple name generators to better understand who might be most important to a student related to specific domains (e.g., academic, social daily living) to better capture the full range of supporters available to a student. Multiple name generators that have

more specific contexts may also support students in identifying a larger number of people in their network. Another limitation of our name generator was that TDS students were not asked to identify whether their college friends were also part of the IPSE program. While we acknowledge the limitation of not asking TDS students this question, we felt that TDS students might not have sufficient familiarity with the IPSE program to provide accurate responses at the start of their college experience.

Third, we used a convenience sample of college students, which limits the generalizability of our findings. Future studies should consider using propensity score matching based on key demographic factors (e.g., age, gender identity, race/ethnicity) to create a more comparable sample. Fourth, while students enrolled in TDS programs completed the online survey independently, the research team provided support for IPSE students during the survey process, either in person or via video conferencing. This support included clarifying questions, defining terms, reading items aloud, presenting one question at a time, and offering motivational encouragement. These additional supports could have influenced participant responses. Furthermore, modifications made to the SNaPSS tool to accommodate students with IDD—such as changing from a 6-point to a 5-point scale for distress items—may require further testing to evaluate any effects on the measurement properties of the scale.

Fifth, our study focused on basic network characteristics such as size, density, roles, and types of supports within each social network. However, some participants might prefer smaller, denser networks as a more efficient means of obtaining support. Future research should help participants reflect on their networks, assess the quality of their support, and identify areas for enhancement to improve their college experience. Sixth, our survey sample was small and predominantly White (88.1%), which limits the generalizability of the findings to the broader college population. This demographic skew highlights systemic barriers that prevent students of color from accessing higher education, such as high costs, limited availability of programs in urban areas, and a lack of programs tailored to the needs of diverse backgrounds.

Conclusion

This study highlights how student distress, social networks, and social support differ between IPSE and TDS students at one university. College is a key period for students with IDD to build their social capital while developing important skills in academics, career preparation, social interactions, and self-determination. These skills can benefit them long after graduation. We hope our findings will encourage further research into IPSE programs to better understand how the social capital students build during college impacts their experiences and outcomes both during and after school.

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Table 1

Student Characteristics

Variables	TDS students (*n* = 21)		IPSE students (*n* = 21)	
Age[a]*	18.33	(1.02)	19.29	(1.38)
Disability[b]				
Intellectual disability	0	-	20	(95.24)
Autism	0	-	13	(61.90)
Mental health disability	0	-	4	(19.05)
ADD/ADHD	0	-	9	(42.86)
Other (e.g., sleep disorder, seizures)	2	(9.52)	1	(4.76)
Gender identity[b]				
Male	7	(33.33)	11	(52.38)
Female	14	(66.67)	9	(42.86)
Non-binary	0	-	1	(4.76)
Race/ethnicity[b]				
White	19	(90.48)	18	(85.71)
Black or African American	2	(9.52)	2	(9.52)
Hispanic/Latinx	0	-	1	(4.76)
Asian	1	(4.76)	0	-
Work status[b]*				
Part-time off campus	6	(28.57)	1	(4.76)
Part-time on campus	5	(23.81)	1	(4.76)
Not working	10	(47.62)	18	(85.71)
Volunteer	0	-	1	(4.76)
Perceived distress frequency[a]				
Academic life	1.80	(0.52)	1.76	(0.87)
Daily life	1.29	(0.48)	1.56	(0.75)
Social life	1.26	(0.63)	1.19	(0.78)
Overall	1.45	(0.43)	1.50	(0.67)
SAS-A short form[a] (max 48)	19.33	(8.28)	19.81	(8.87)
FNE (max16)	6.76	(3.79)	6.19	(4.04)
SAD-N (max16)	7.29	(3.35)	7.57	(3.92)
SAD-G (max16)	5.29	(3.05)	6.05	(3.37)
Locus of Control scale[a] (max 40)	12.10	(3.82)	12.38	(3.87)

Note. TDS = student enrolled in a traditional degree-seeking program; IPSE = student enrolled in an inclusive postsecondary education program. Distress frequencies were based on a scale of 0 = *never* to 4 = *every day*. SAS-A = Social Anxiety Scale for Adolescents; FNE = Fear of Negative Evaluation subscale; SAD-N = Social Avoidance and Distress for New Situations subscale; SAD-G = Social Avoidance and Distress for General Situations subscale.

[a]Mean (Standard deviation).

[b]*n* (percentage).

Table 2

Social Network Characteristics Across Groups

	TDS			IPSE			
Variables	*n*	*M* (SD)	Range	*n*	*M* (SD)	Range	*t*
Social network structure							
Network size	21	12.14 (6.12)	0-20	21	8.71 (4.87)	3-20	2.01*
Network density	20	0.27 (0.17)	0.05-0.75	21	0.37 (0.14)	0.00-0.60	-2.15*
% Family	21	24.94 (24.96)	0-100	21	55.53 (26.95)	0-100	-3.82***
% Friends	21	63.32 (28.13)	0-100	21	39.36 (26.27)	0-100	2.85**
% Romantic partners	21	3.97 (5.30)	0-17	21	0.00 (0.00)	0-0	3.43**
% College faculty and staff	21	2.36 (7.03)	0-30	21	2.62 (10.91)	0-50	-0.13
% Direct service provider	21	0.00 (0.00)	0-0	21	0.40 (0.40)	0-8	-1.00
% Unique (e.g., therapist, pastor)	21	0.81 (2.67)	0-100	21	2.10 (6.89)	0-100	-0.79
Friendships							
% Friendships before college		53.44 (32.60)	0-100		37.03 (44.62)	0-100	1.29
Length of non-family relationships (years)		2.54 (1.55)	.03-4.82		4.65 (5.38)	0.08-18	-
Frequency of communication							
Family	21	3.10 (0.65)	2-4	21	2.99 (0.67)	1.5-4	0.49
Friends/romantic partners	21	3.00 (0.78)	1-4	21	3.00 (1.02)	1-4	0.00
Others	21	2.83 (0.84)	2-4	21	2.07 (1.23)	1-4	1.06
Communication mode							
% Face to face	21	85.91 (21.19)	33-100	21	84.91 (20.83)	0-100	-
% Call (phone or video)	21	47.29 (31.45)	0-100	21	70.44 (23.88)	0-100	-
% Text message	21	75.49 (33.22)	0-100	21	72.97 (25.87)	0-100	-
% Social media	21	38.74 (33.68)	0-100	21	35.84 (32.06)	0-100	-
% Other (email, letter)	21	14.68 (29.23)	0-100	21	8.21 (19.63)	0-100	-
Network members providing supports							
% Academic supports	19	22.39 (32.70)	0-100	21	44.11 (36.01)	0-100	1.99

% Social supports	20	52.14 (28.71)	0-100	21	61.63 (38.50)	0-100 0.89
% Daily living supports	20	28.55 (20.64)	0-75	21	34.77 (25.90)	0-83 0.85

Note. TDS = student enrolled in traditional degree-seeking program; IPSE = student enrolled in inclusive postsecondary education program; percentages represent the proportion of members from each participant's social network; *p ≤ .05, ** p < .01, *** p < .001. Four participants who did not have nonfamily network members were not included in friendship or relationship length calculations. One TDS participant with a network size of 0 was not included in density scores. For communication mode, percentages are the proportion of network members with whom they communicated using that mode (could select more than one). We did not plan a priori to make comparisons across relationship length or communication mode. Due to branching logic, some *n*'s are smaller. For example, participants who did not report ever having stress or anxiety related to academics did not answer questions related to receiving support in that area.