

A Qualitative Examination of College Disability Services for Students with Traumatic Brain Injuries

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Abstract

Adolescents and young adults are at relatively high risk for sustaining traumatic brain injuries (TBIs). These injuries can result in persistent disabilities, including a range of cognitive, physical, and social-emotional deficits that can be particularly challenging for college age students. This qualitative study explored disability services for college students with TBIs through interviews with directors of 18 college Offices of Disability Services (ODS). Respondents provided general information regarding their service model, the most common disabilities served, as well as the number of students with TBI served, and more specific information pertaining to services for students with TBI. Results indicated ODS staff members possess a varied range of training and knowledge about TBI and the number of students with TBIs they reported serving at their colleges was not proportional to their enrollment numbers. Five themes emerged regarding services for college students with TBI, and included: self-identification or disclosure of the TBI, cognitive/academic accommodations and services, social and emotional support, transition support, and unique needs of students with TBI. Implications and recommendations are provided for ODS personnel to better meet the needs of students with traumatic brain injuries in the college setting.

Keywords: traumatic brain injury, college, support, disability services

A traumatic brain injury (TBI) is a disruption to the normal function of the brain caused by an external force, such as a bump, blow, or jolt to the head, or by a penetrating head injury (Centers for Disease Control and Prevention, 2017). TBIs are a leading cause of death and disability in the United States (Centers for Disease Control and Prevention, 2017; Faul, Xu, Wald, & Coronado, 2010; Taylor, Bell, Breiding, & Xu, 2017). Older adolescents and young adults (ages 15-24) are a particularly vulnerable age group, second only to the elderly in terms of TBI-related hospitalizations and second behind preschoolers for emergency room visits (Faul et al., 2010). Thus, colleges and universities must be prepared to identify and respond to the needs of students with TBIs.

TBIs can range in severity from mild (including those described as concussions) to severe. Most TBIs in college students are mild (about 80%). Such individuals typically are not hospitalized and require a temporary medical plan and academic adjustments during recovery. However, for individuals hospitalized after a TBI, 43% have a related disability one year post-injury (Selassie et al., 2008).

Effects of TBI on College Students

A student who has sustained a TBI may experience physical, cognitive, and/or social-emotional symptoms (Broshek, Demarco, & Freeman, 2015). *Physical symptoms* include headache, nausea, fatigue, light and/or noise sensitivity, sleep disturbances, and ringing in the ears. Students may easily tire after completing tasks for which they once had more stamina, such as taking tests or doing homework. *Cognitive symptoms* include confusion, memory impairment, inability to concentrate, inattention, slowed processing, and trouble finding words. *Social-emotional symptoms* include irritability, nervousness, emotional dysregulation, social withdrawal, decreased motivation, and becoming easily overwhelmed. Any or all of these issues can adversely affect a college student's academic performance.

A survey of college students with TBI indicated that the majority of respondents had experienced fatigue and headaches, memory loss, executive functioning impairment (i.e., difficulties with organization, attention, and decision-making), and trouble with academics (Kennedy, Krause, & Turkstra,

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2008). These academic difficulties included difficulties understanding assignments, difficulties remembering content from class lectures, and trouble with time-management. Almost all (97%) reported needing to review class material more than they did before their injury, and most (75%) said they did not feel understood by others. Additionally, relatively high numbers of students reported a change in their academic status (67%), a change in their major (44%), and a change in colleges (32%). Students provided a written explanation of the reasons behind these changes, and 69% reported that these changes were due to the TBI. Thus, there is a need for improved understanding of college services and supports provided for students with TBI.

TBI in College Students

The post-9/11 G.I. Bill created an incentive for veterans to attend college (Tanielian & Jaycox, 2008). However, this population of student veterans has experienced a relatively high number of TBIs, as recent military conflicts exposed military personnel to improvised explosive devices, landmines, and rocket-propelled grenades. These explosive mechanisms can lead to traumatic brain injuries through direct hits or indirect blast-related pressure waves (Taber, Warden, & Hurley; 2006; Warden et al., 2005). It is estimated that 25% of veterans enrolling in higher education have hidden disabilities, one of which includes traumatic brain injury (Madaus, 2011; Tanielian, et al., 2008). The intense cognitive demands of college can deplete required mental energy in student veterans who have sustained TBIs, and ultimately lead to relatively high college dropout rates (Smee, Buenrostro, Garrick, Sreenivasan, & Weinberger, 2013). Further, this student population often has comorbid psychiatric issues, including post-traumatic stress disorder (PTSD), compounding their need for disability services (American Council on Education, 2010). Unfortunately, student veterans often do not report difficulties associated with their TBIs because of the negative stigma associated with having a disability.

Student athletes also have disproportionately high numbers of TBIs and tend to underreport their injuries (McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004). Less than half of student athletes report their concussive injuries, often because they do not believe their injuries require medical attention or they do not want to be taken out of games (Davies & Bird, 2015).

In addition to understanding the needs of student veterans and student athletes who have sustained TBIs, personnel in college disability services offices must be aware that other college students may suffer from this invisible injury. College students sustain

TBIs in all kinds of ways, including vehicle accidents, bicycling, intermural activities, gunshot wounds, intentional self-harm, falls, and fights. Most commonly, college students sustain TBIs as a result of motor vehicle accidents. In 2013, an estimated 469,517 people in the 15-24 age group received emergency care for TBIs (Taylor et al., 2017).

College Disability Services

A scoping review of postsecondary education for students with acquired brain injury and other invisible disabilities revealed that most interventions were individualized and focused on building skills, increasing confidence, and developing compensatory strategies via educational adjustments (Venville et al., 2016). However, the study designs generally lacked rigor or were exploratory in nature with small sample sizes (see Childers & Hux, 2016; Hux et al., 2010), making it difficult to compare efficacy of intervention strategies. Further, the need for academic accommodations can fluctuate for years after a brain injury, contributing to the challenge of appropriately serving this study population (Hux et al., 2010).

Twenty years ago, Harris and DePompeii (1997) surveyed 74 public, private, and community colleges in Ohio using a 19-item questionnaire pertaining to college services for students with TBI. Students with TBI accounted for 3% of the population of students with disabilities in public institutions, 5% at community colleges, and less than 1% at private institutions. Two-thirds (66.6%) of the institutions surveyed reported having a manual or pamphlet detailing services provided for students with disabilities; however, less than 7% reportedly listed TBI in the manual as a disability. In that study, many respondents emphasized the need for student self-identification, but they acknowledged that some students with TBI were identified because of an academic issue or a referral from faculty/ student advisors, parents, or pre-service interviews. Few reported that their counselors had sufficient training to work specifically with students with TBI (38% of the public colleges; 23% in community colleges; 6% at private institutions). Common academic supports identified by Harris and DePompeii included: tutors, modification of test formats (e.g., an oral test instead of a written test; multiple choice test instead of essay test; alteration of print size or spacing on the exam), increasing exam time, and the taping/recording of lectures to serve as a memory aid. However, this information represented the practices in one state and is now dated, thereby providing impetus for a current study on college disability services for students with TBI.

Methods

Research Design

The goal of this study was to gather information from offices of disability services (ODS) staff members about college support services for students who have sustained a TBI. This study used an exploratory, grounded-theory, qualitative research design in order to gain a holistic understanding of this issue. The researchers selected this design because generalizations and theory about services and accommodations provided to college students with TBI were limited at the outset of the study (Corbin & Strauss, 2008). Semi-structured interviews were used to obtain information about ODS directors' experiences with college students with TBI, to arrive at the approximate number of students with TBI who were served in different types of institutions, and to gather information on the perceived needs of students with TBI in post-secondary educational settings.

The study was approved by the Institutional Review Board (IRB) at the University of Dayton prior to recruitment of participants. Emails were sent to the coordinators of randomly selected college ODS offices inviting them to participate in the study. This email described the purpose of the study, confidentiality assurances, and the voluntary nature of their participation.

Participants

Participants included a national sample of 18 ODS directors responsible for overseeing accommodations for college students. The researchers obtained a database of schools with offices for disability services from the Association on Higher Education and Disability (AHEAD), as well as through Internet searches. ODS directors who responded to recruitment emails with a willingness to participate in the study were included in the sample and scheduled for interviews until the initially desired sample size of 10 was reached. After an initial round of analysis, the researchers contacted eight additional institutions to arrive at a satisfactory point of saturation whereby much information obtained was redundant. Six participating schools were private; twelve were public. Using the Carnegie Classification of Institutions of Higher Education, participating colleges were designated by size and setting. Of the 18 participating colleges, four were two-year institutions; 14 were four-year institutions. Seven (39%) of the participating colleges were large public four-year institutions. Three (17%) of the colleges were large public two-year institutions. Three (17%) participating colleges were categorized as small private four-year institutions. Two partici-

pating schools were categorized as medium private four-year institutions. The remaining three schools in the sample included a very small public four-year institution, a very small private four-year institution, and a medium sized public two-year institution.

Instrument

Based on prior professional experiences with TBI and the fields of school psychology and higher education, the primary researcher and research assistants developed a semi-structured interview guide. The researchers developed the instrument based on questions raised through the literature review (e.g., some were loosely based on the line of inquiry posed by Harris & DePompeii, 1997). Instrument development occurred through discussions and a series of meetings. Questions were piloted with disability services professionals at the researchers' home institution and were refined accordingly for clarity, sequence, and flow. The guide included a list of questions asked in each interview, and which encouraged participants to talk freely, in line with the exploratory nature of the study. Question topics included: (1) areas in which students with TBI might need assistance, (2) services the ODS provides for students with TBI, and (3) types of professional development received on TBI. After consenting to participation, trained research assistants interviewed the participants by phone. Research assistants were trained through practice interviews. They first conducted a practice interview with the researcher, after which she gave corrective feedback on how to ask questions in a neutral tone and to allow ample wait time before proceeding to the next question. Research assistants then audio recorded practice interviews with individuals at their university. Each interview lasted approximately thirty minutes. Responses were audio-recorded and later transcribed for analysis.

The researchers' role. The primary investigator, currently employed at a higher education institution, has had experience studying and working with school-age youth with TBIs. Thus, she took care to avoid biasing the findings with preconceived notions about what disability services office staff members should know and do when working with students who have sustained TBIs. This was done by having trained research assistants administer the interviews rather than doing them herself. She trained the research assistants to deliver questions in a neutral way that allowed respondents to reveal their true thoughts and feelings. The semi-structured interview format facilitated this process because it included general questions and follow-up prompts that encouraged free discussion of ideas.

Data Analysis

Interpretation of the interview data used an inductive analysis; this involved searching the transcripts for meaningful fragments. These fragments helped develop a categorization scheme and matching codes to sort the data so the researchers could discover patterns and themes. Two reviewers conducted separate analyses, which eliminated potential bias and ensured a high level of inter-rater agreement. They independently reviewed the interview transcripts to initially make sense of the data; they then communicated with each other in order to identify and arrive at consensus regarding overarching categorical themes.

Researchers then coded and extracted each participant's statement(s) relating to the identified categories. Following a preliminary analysis, the researchers reworked and re-coded themes and existing data. The researchers analyzed data yet again to ensure identification of all categories. This resulted in an in-depth, holistic understanding of responses.

In qualitative studies, it is essential to establish trustworthiness of data analysis. In this study, investigator triangulation was utilized wherein each investigator on the evaluation team examined the same interview data (Elo et al., 2014). The findings from each evaluator were compared and discussed in order to develop a deeper understanding of college services for students with TBIs. Different evaluators arrived at similar conclusions based on the same data set, thereby increasing our confidence in the following results.

Results

Qualitative analysis of interview data resulted in five major thematic categories regarding college services for students with TBI. Themes included self-identification or disclosure of the TBI, cognitive/academic accommodations and services, social and emotional support, transition support, and unique needs of students with TBI.

Content Analysis

Participants first reported how many students with TBI their office assisted. Some respondents gave exact numbers of students served, others provided an estimate, and still others reported that they did not track the number of students with TBI, so they could only guess how many such students they served. To provide context, total enrollment for each participating college is provided (see Table 1).

Four participating institutions reported that they did not serve any students with TBIs—and one of those universities enrolled nearly 16,000 students. Seven schools (see Table 1) reported having fewer than ten students with TBI or were unsure (e.g., “not sure,

maybe one,” “not sure, a small handful.”). A respondent from a medium-sized private school, for example, reported having only one possible student with TBI:

I worked with one particular student that had been involved in an accident that I guess would qualify as having traumatic brain injury of some sort. Primarily, we track specifically learning disabilities and physical disabilities. We don't really have any records specifically of students that have had a traumatic brain injury.

The broader content analysis further revealed that 67% of the study respondents reported having received little or no education or training related to TBI. Twenty-eight percent reported conducting their own research and in-house training on TBI. Additionally, one respondent from a very small public institution reported that their university's main source of education on TBI came from working one-on-one with students with TBI:

We had a student on campus who had just recently had a traumatic brain injury and had returned to school. He had been in a car accident, and he had some severe cognitive impairments. So, I worked one-on-one with this student, trying to develop some strategies so that he could be successful in school.

Others reported that their education on TBI came from conferences or workshops. A respondent from a two-year community college reported, “I attend conferences on a regular basis, do reading, keep up to date on research.” And a respondent from a large public university also reported attending yearly conferences:

I wanted to make sure that I did enough professional development for myself to be prepared in working with the population, so we're very fortunate. We have, probably within a 5-mile radius, two rehab centers within the area...and I quickly became connected with the state brain injury association and attended, I would say probably in the last 10 years, averaging about 1-2 workshops or conferences a year to really hone my skills and to help me feel prepared working with this population and to be able to assess appropriate and reasonable accommodations as well.

One respondent from another large public university emphasized the importance of professional organizations and national conferences for professional development:

We do professional development all the time on a variety of different things. We're members of the AHEAD association, we are constantly doing professional development in a lot of areas. You know, specific to TBI, spectrum disorders, emotional service animals, whatever the hot topic is, we're reaching out and doing webinars, going to national AHEAD conferences...So I think TBI is included in a lot of things we do.

Thematic Analysis

Based upon the insights gained from these interviews, five themes surfaced related to college services for students with TBI. These included self-identification or disclosure of the TBI, cognitive/academic accommodations and services, social and emotional support, transition support, and differentiation of services.

Disclosure/self-identification of disability. In order to serve students with TBIs, the disability services office needs to know such students exist. Unlike K-12 schools, which are responsible for "child-find" (actively seeking and identifying students with disabilities who require special education), offices of college disability services generally wait for students to come to them through self-disclosure of the disability (McGregor, et. al., 2016). Outside agencies refer some students; however, it is still the student's responsibility to seek and utilize services offered by the college. For example, a respondent from a large four-year public institution explained that students "would schedule with us and bring documentation and then we use an interactive process between us... the faculty or staff on campus, and the student."

This process was reported fairly consistently across institutions, as was the fact that it is the student's responsibility to initiate this process. A participant from another large four-year public school elucidated:

We do a lot of publicity during orientation, it's on our website, on the University's website, but because of the way the laws are written for post-secondary education, they have to come to us. So, yep, they walk in, they call, they send emails. But they contact us, we never contact them.

A participant from a small private four year school elaborated thusly:

If a student were to come, which they have, and request accommodations because they have a traumatic brain injury...I would talk with them about their disability and the impact it has on their

learning, and the kind of accommodations they have received in the past...I would give them the application for services and also the disability verification form...We would talk about possible accommodations that might be helpful for them at the college level.

Once students connect with disability services, they are also responsible for talking with professors about the services and accommodations they need, as a respondent from a very small private institution noted:

The students are expected to speak with faculty, tell them they're interested in using the accommodations. Things will not be done for them anymore. Students will have to take responsibility for...whatever it is they're requiring, they have to take ownership of that. Also, anybody in the post-secondary setting is considered an adult, so even if you know their parents are paying for their education, they will be on their own. We can't even talk to the parents unless the student explicitly allows us to. So I'm telling students they have to take ownership of the process.

In addition to identifying students with TBIs via self-disclosure, a participant from a large public two-year institution indicated that "local rehabilitation agencies, home and community, inpatient/out-patient, and transitional living centers that are local to us and familiar with us" refer some students. This college also reported serving relatively high numbers of students with TBI. The respondent emphasized that "Those are our best referrals because they know when someone is ready."

A participant from a large public four-year institution specifically described their college's referral practices for students who have sustained concussions, a type of mild TBI:

We actually have someone in our intercollegiate athletic department who works with athletes with concussion. So if they're going to have symptoms for a week or two, they're going to work with that individual who works with their instructor to provide temporary accommodations. If it looks like it's going to be an ongoing issue, then they're referred to our office for additional types of resources.

The fear of stigma or the desire to seem "normal" may affect a student's decision to disclose a disability and, therefore, affect access to services. For example, the participant from the very small private school called attention to this:

A mindset that I guess is prevalent in high school is that you don't want to have diagnosis because you'll be labeled, so we have some students... they have school counselors who told their parents and then their parents kind of told them not to tell anyone you have a disability because you'll be labeled. And then they go without proper assistance or accommodations so when they get to college, we have to undo that mentality and tell them there is no labeling here.

Similarly, but contextually different, the respondent from a large public four-year school also reported that students did not want to identify themselves or take advantage of accommodations: "the big issue, even with TBI, is the kids don't think they need the help. It's embarrassing to say they need the help, and so they try to avoid coming to get help."

Cognitive/academic accommodations and supports. Respondents discussed a range of cognitive and academic accommodations for students with TBI; however, some did not see these needs as potentially different from students with other disabilities (i.e., learning disabilities, ADHD, etc.). A respondent from a large public institution said this about what a student with a TBI may receive: "not anything beyond what is available to them based on their documentation. The main thing kids with TBI need...is they need to be able to do the brain rest right after the injury." The respondent from another large public school reported only one thought, that "memory and vision tend to be the biggest things" requiring accommodations for students with TBI.

The remaining respondents, however, reported multiple areas of need, including cognitive accommodations that help students concentrate, learn, and organize. The respondent from the very small private school discussed how students with TBI often benefit from academic skill coaching, and went further to describe a specific case example:

After the [car] accident she noticed that she could not process certain information and couldn't remember formulas and stuff. I'm thinking that it had some sort of impact on her brain so I had to work with her to coach her how to memorize information without relying on actual numbers. So I'm thinking that potentially it affects the way a person processes information, that it can take different forms so there has to be flexibility in coaching students in how to deal with difficult situations.

The respondent from one of the large public two-year institutions—specifically the one that reported serv-

ing a relatively high number of students with TBI—identified several specific strategies and cognitive processes needed to be a successful student after experiencing a TBI:

Sometimes we'd really like them to just step out of the academics completely and work for a couple semesters with us on memory and reasoning, attention, all of those different areas that we work with, as well as having time to look at some of the assistive technology with them. Some of them really benefit from the screen readers for their books, so that they are hearing the book as well as reading it at the same time [further description of a specific program, in detail]. It really helps their attention and keeps them moving, which really helps their comprehension and retention.

The respondent from one of the large public four-year institutions observed student needs regarding focus, memory, and comprehension, framing this observation within the accommodations her institution provides:

They might need a note-taker or other accommodations such as second set of notes or a peer note-taker, which we can initiate that with the student. They can also use the Smart Pen that we lend out to students. We can provide read-and-write goals software that helps them with comprehension. Extended time for exams, because they often have difficulty with stamina and concentration, allows them to have enough time to refocus attention.

Social and emotional support. Associated with the need for cognitive and academic accommodations is the need for social and emotional support. As the respondent from the medium-sized private school explained:

Students with TBI might need access to professional counseling. I think a lot of students with TBI benefit from like a coach counselor, if you will, which is a term for someone who works with the students on academic skill sets that they might be struggling with, like note-taking or test-anxiety.

Likewise, the respondent from the small private institution elaborated, describing a specific case:

Another area would be psychological support, emotional support. This was a very strong student with very high ACT scores and [the student] sustained a blow to the head in an athletic game

and suddenly can't remember a thing of what he's doing. He was totally together, organized, and very independent prior to that, so he also experienced some personal frustration and trying to keep his spirits up about what happened to him. So, for some students, meeting with a counselor too would be very beneficial.

A respondent from a large public four year school also understood that students with TBI are often mourning the loss of their previous skills and identity:

If they just got the TBI, they may not know that it can have long-term effects. Students go through, it's almost like the stages of grief in terms of how you're dealing with learning in a different way. That you're not learning how you used to learn, that you're not the same person you used to be in terms of your skill set. We also have counselors because of this who work with students.

The respondent from another large public institution emphasized the importance of linking the student to multiple campus resources, indicating:

If they're struggling with mental health, mood disorders, referring them to the counseling center, connecting them with a member of a support group and so forth, connecting them with the writing center, learning resource center for tutoring, you know speaking with their academic advisor, speaking with financial aid, housing staff... You know, academics, they're a student first, but what comes with being a university student, you need to have a balance. You need to have a social life, you need to take care of yourself mentally, physically, emotionally, while utilizing the academic supports as well.

The respondent from a third large public institution discussed how a student may need to re-learn who he or she is after experiencing a TBI, an observation highlighting how a student's identity may change after a TBI and how important it is for the student to find out about their changed abilities:

Who am I now? Who am I in the context of my disability? How have I changed? What does that change mean for me and for my cognition, my cognitive abilities? How do I adjust to the new person that I've become?

Transition from high school. Fifty percent of respondents discussed the need for a strong transition

process from high school to college. The respondent from one of the large public four-year schools emphasized the importance of self-advocacy in transition:

You have individuals who are in high school that may have already received those accommodations or 504 plans, and those services have always been implemented and they've always had that support. And then you come to college, and they have to self-identify and it puts more ownership and responsibility on the student to really understand okay how do I advocate for myself? How do I utilize these accommodations? And how do I communicate appropriately with my faculty?

Another common point raised when discussing transition was knowing and understanding the differences between academics in high school versus academics in postsecondary education. The respondent from another large public four-year college reported, "probably just the biggest barrier is understanding the differences between what high school is and that K-12 model and the university model. Which is you know, no one is going to call you if you don't come to class." A respondent from a different large public university reported the feeling that this conversation happens too late or not at all prior to postsecondary education, adding that too few people are aware of what all is available to students in college:

Well the biggest issue with transition that we see here as a program is that it begins too late. I contend that if transition processes haven't started by the time a kid is in 6th grade, it's going to be a real uphill battle. So we see families all of the time that come in during the Senior year, and they say, "We're here, you know, ahead of the curve" and I mean we can't obviously say anything, but they are way behind the curve.

The respondent from one of the large public two-year schools also noted challenges with the differences between high school and college expectations and types of programming provided:

With those particular students and their families, one of my roles is to educate them about how the rules of the game change. They may be used to having a program that allowed that particular student that guaranteed them, or tried to guarantee them success. And when they come to the community college system they have to realize that we can provide services and accommodations for them but we aren't going to reduce the workload,

we're not going to extend deadlines to submit a course, we don't have that kind of flexibility, the course has a specific beginning and end . . . Mom and dad calling the professors and expecting to get a response is probably not realistic and it's certainly not going to happen without a release.

Unique needs of students with TBI. Respondents from all of the colleges reported how they addressed the unique needs of students with TBI through differentiated accommodations and services. The respondent from one of the large public four-year schools simply said that there was no differentiation in accommodations. The respondent from another large public four-year school said, "there's nothing set out especially for TBI." The respondent from a large public two-year institution reported that, while they do not differentiate for TBI, they do look at and accommodate some unique needs that students with TBI may have:

A student with TBI who might still be having seizure issues might need an attendance flexibility, or even in some cases an attendance contract in which assignments and tests get alternate due dates, in case a person is not able to come that particular day. They may be more likely to get approval for a memory card than some of the other students.

The remaining 83% of the respondents indicated that they provide different services and accommodations for students with TBI than for other categories of disabilities. For example, the respondent from the very small public four-year school discussed how the cause of the brain injury might affect needed accommodations:

If you have an individual who's been in a car accident that has a traumatic brain injury, they may not have the psychological [trauma]...like that of a student who may have returned from a war zone. And they may not have the same type of physical injuries, so it really does depend. But, a lot of times those individuals will need support, and that's the key component.

Another elaborated on how they mapped specific accommodations to symptoms:

I had one guy who had chronic headaches, and he had requested to have cold drinks during his exams. And so I was able to clear that, as it seemed to help his headaches. I have more that have been

sensitive to noise, and they may be approved to listen to headphones with relaxation music that we provide.

A respondent from a large public four-year school gave a detailed response on matching accommodations to symptoms. While this is typical for any student with a disability, the respondent gave a number of specific examples related to TBI, including the following:

A student who is presently having difficulty getting through the reading material because they can't exert that mental effort without getting extremely fatigued, we'll make them eligible for electronic text, which is essentially like an audiobook.

Most of the respondents reiterated these types of supports, some indicating that "many of the accommodations are similar for students with learning disabilities or psychological disabilities, it just depends on the student," or "really, well it would depend on what the student needs...a lot of that again goes back to assessing that student; that allows us to craft something on a case-by-case basis that might assist that student."

Discussion and Implications

Interviews with lead staff members in college offices of disability services revealed a wide-range of understanding and available services for students with TBI. Respondents had inconsistent perceptions about the needs of students with TBI. Some believed students with TBI have the same needs as students with any other disability. Conversely, respondents who demonstrated greater knowledge of TBI better understood that students with TBI have unique needs.

Improve training through professional development. Although colleges are required to follow the Americans with Disabilities Act (ADA) and the legislation included as part of the Rehabilitation Act of 1973 (United States Government Accountability Office, 2011), most participants in a previous study of college students with TBI reported receiving inadequate or no services at all during college (Tobis & Glang, 2008). This may be because personnel in their college's Offices of Disability Services (ODS) received little or no training to help them understand and serve students with traumatic brain injuries. Participants in this study discussed developing their professional skills by attending conferences, workshops, and webinars, by staying up to date on professional literature regarding postsecondary education and students with disabilities, and by holding membership in professional organizations. Professional develop-

ment for ODS personnel is vital in maintaining up-to-date professional knowledge and developing skills to best serve students with TBI (Glang, Todis, Sublette, Brown, & Vaccaro, 2010). In addition, it is the responsibility of the ODS to provide training and expertise regarding disability issues to members of the campus community.

Improve number of students served. The number of students with TBI identified at participating institutions varied considerably. This is due to the wide range of institution sizes represented in this study, from small colleges to large universities, as well as differences in academic rigor from college to college. Students in less rigorous programs may not demonstrate as great a need for accommodations.

Interestingly, respondents from smaller colleges generally had more knowledge of TBI and reported serving relatively higher numbers of students with TBI than did those respondents from many of the large four-year institutions. This could be the result of having smaller caseloads and more opportunities to participate in a student's postsecondary transition plan during high school (Joshi & Bouck, 2017; Newman, Madaus & Javitz, 2016). A smaller caseload would allow staff members to have a stronger connection with students to better individualize accommodations to their identified needs. In addition, this might allow for more targeted professional development for staff members regarding their legal obligations to provide accommodations, which can lead to services that are better tailored for students with TBI.

One participating university, a large public two-year institution, provided an entire specialized program for students with TBI. This program featured non-credit classes to help students adjust to the postsecondary setting while focusing on functional life skills, an accommodation recommended in some studies (Hillary et al., 2003). This yearlong program provides structured cognitive retraining focused on improving attention, concentration, memory, language skills, and reasoning skills. Counseling helps students form personal, realistic goals as well as combat feelings of depression, isolation, and alienation through teaching critical thinking skills, organization, and emotional adjustment and applying them to real-life situations. Replication of such a program at other institutions could help improve the number of students with TBI served and the services provided.

Self-advocacy. TBI is typically an invisible injury; the areas of deficit are not always readily apparent to others. Often students with TBI "seem fine" and have many skills and abilities that are intact—or even above average. A potential barrier for college students with TBIs identified in this study is that they

must self-advocate, which can be particularly difficult when one has a hidden disability and wants to appear "normal."

During high school, many students with TBI received help from their parents and through individualized classroom experiences. College classes tend to be larger and less individualized, making it more difficult for students to access professors for extra help (Tobis & Glang, 2008). The help students previously received from their parents may have included advocacy, which college students are expected to do independently. For many students, college involves less structure and more unsupervised free time. The lack of structure can lead to confusion and/or frustration, particularly for students with TBI (Kennedy & Krause, 2011). The unsupervised free time can lead to students participating in activities, such as intramural sports, that could re-injure the brain while it is still healing. Self-determination, or the ability to motivate and provide for oneself, is an important predictor of postsecondary satisfaction. Financial independence, job security, and community engagement are all parts of a healthy and productive life, and are all affected by self-determination (Shogren et al., 2015). Thus, actively teaching students to self-advocate and self-regulate can assist them in accessing and utilizing helpful services as well as protect them against re-injury.

Academic accommodations. Many colleges provide individualized accommodations for students with disabilities. Such accommodations include testing in distraction-reduced environments, providing breaks as needed, arranging for extended time on tests, providing priority seating, recording lectures, and offering priority registration. Other common accommodations and methods of assistance include allowing alternate answer format, delaying exams, providing frequent instructor feedback, allowing a longer response time for questions, reducing course loads per semester, offering course substitutions, tutoring, and vocational counseling (Gioia, Glang, Hooper, & Brown, 2016). Some assistive technologies that might be provided include audio recorded lectures, computer software, and scribes. Such accommodations may also be useful for students with TBI, but few experimental design studies have specifically examined the efficacy of accommodations for college students with TBI.

For students with TBI who are still experiencing fatigue while recovering from a recent TBI or who are still experiencing long-term symptoms of a TBI, accommodations such as attendance flexibility, adjusted due dates, and a reduced workload can be important (Maclennan & Maclennan, 2008). A few respondents

mentioned assisting students with scheduling to help them plan a reasonable course load for their specific needs. Consistent with previous research, participants frequently reported accommodations such as audio recorders for classes, volunteer note takers, memory aids, and extended time as helpful and important for students with TBI in helping them cope with related cognitive deficits and memory impairment (Kim, Lee, & Jang 2015; Maclennan & Maclennan, 2008).

Social-emotional support. In addition to academic accommodations, it is important that colleges provide social-emotional support for students who have sustained TBIs. As one respondent indicated, students may not understand who they are after sustaining a TBI. They may now struggle with social skills and/or have difficulty regulating their emotions. To address these issues, some participants reported providing counseling for students. Brain injury counseling can help establish the cause of emotional changes and reassure family and friends, while equipping the student with better coping skills. Efficacy of counseling after TBI can depend on the student's level of cognitive functioning. It is important to consider how counseling/therapy can be adapted for each person with TBI, depending on the pattern and severity of cognitive difficulties. Over time, counseling can lead to improvements in relationships, solutions to specific problems, and decreased feelings of distress.

Transition planning. In addition to students with TBI who had IEPs in high school, colleges may also have two other types of students with TBIs on their campus: (1) Those who sustain TBIs during college, and (2) Those who previously sustained brain injuries but were not identified for K-12 services. Such students may face significant difficulties once they transition to college, largely due to the increased expectations for self-regulation and higher-level thinking. Other students falling into this category include veterans who sustained TBIs in combat prior to going to college.

Service providers must place emphasis on family engagement in the transition planning process, as the family of the student will be the main support system after he or she leaves high school. Martinez, Conroy, and Cerreto (2012) found that 60% of parents reported they did not know of or never saw a transition plan for their child. School psychologists and school counselors can facilitate family engagement in post-secondary planning, encouraging full participation in decision-making.

School psychologists can also collaborate with teachers to promote regular classroom contribution from their students who have disabilities (Shogren et al., 2015). Providing direct intervention for students

and consultation to families and teachers facilitates the development of self-determination skills and prepares students with TBI for postsecondary success.

Differentiation of services. It is essential for faculty and staff working closely with students with TBI to have a sound understanding of the needs of the student. Disability service offices should be in contact with professors, coaches, and other administration in order to relay important information about the student and his or her needs. In addition, advanced planning to incorporate universal design for learning (UDL) into the curriculum may be a help to students with traumatic brain injuries. UDL describes a system of setting up the learning environment in a way that supports all students, especially those with disabilities, and gives equal opportunities to be successful (Scott, McGuire & Foley, 2003). UDL recognizes that building flexibility into the course syllabus and course expectations up front may mean more effective learning opportunities for all students. In the long run, using UDL may also lessen stress for students who require accommodations, but who may not identify such a need until the semester is underway (Griful-Freixenet, Struyven, Verstichele, & Andries, 2017). Preparing for flexibility leads to improved retention and ultimately greater student success.

Limitations

While an important goal of qualitative research is to reach theoretical saturation, it is unlikely that this current study succeeded in doing so. The goal of saturation is to continue interviewing more participants until every possible answer is recorded. Despite discovering some common themes, it is impossible to tell if all possible responses and themes were uncovered, and it is unlikely researchers will reach this ideal (Guest, Bunce, & Johnson, 2006).

An important limitation that may have affected the results of the current study pertains to the sampling method employed. Some ODS recruitment leads were likely more apt to respond to the initial email because they have programs for students with TBI or a special interest in this topic area. Further, the nature of the semi-structured interview could have led participants to tailor their answers to what they expected the researcher wanted to hear. Phone interviews, rather than face-to-face, further complicated this potential limitation, as the interviewers could not observe respondents' non-verbal communication behaviors. Finally, several of the interviewees ran out of time due to participants' schedules. Unlimited time may have led to more rich and varied data.

Implications for Future Research and Training

This study explored college disability services for students with TBIs; results are valuable for college ODS providers, professionals involved in transition to postsecondary institutions, and students with TBI. Future studies might examine other stakeholders' perspectives such as parents, students, and professors, rather than only from disability services directors. This data triangulation could help strengthen the validity of our results by providing data from different sources of information. Another approach might be to utilize methodological triangulation by including focus groups or quantitative methods, such as surveys. Next, researchers should conduct further examinations of services and accommodations for successful completion of postsecondary degrees. With these studies, researchers can develop a guide for students and universities to help students with TBI be successful in post-secondary education settings.

Lead ODS staff members reported a wide range of training and experiences in serving students with TBIs. Educating respondents from offices of disability services on the specific needs of students with TBIs might enhance the quality of services and accommodations provided. Increasing awareness of TBI and the unique needs of students with TBI in a college setting through online training and webinars, as well as in-person training sessions, is an achievable starting point. Offices of disability services should examine and evaluate their services offered and determine if improvements are needed in order to adequately serve students with traumatic brain injuries on their campus.

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Table 1

Reported TBIs by Participating Colleges¹

Participant	Total Enrollment ²	Reported Number of Students with TBI
College 1	51,150	About 50
College 2	21,860	15 to 20
College 3	960	1
College 4	13,430	6 to 8
College 5	11,315	200 ³
College 6	29,045	100 to 120
College 7	58,325	Not Sure
College 8	50,080	About 65
College 9	18,620	30
College 10	1,200	2
College 11	4,575	Not sure; maybe 1
College 12	760	Not Sure; don't know of any
College 13	3,475	0
College 14	3,980	0
College 15	2,200	0
College 16	15,670	0
College 17	1,675	Not many; a small handful
College 18	19,205	9

Notes.

¹According to the interview respondent.

²Obtained from <http://carnegieclassifications.iu.edu/lookup/lookup.php>; rounded to nearest 10.

³Institution has a specific acquired brain injury (ABI) program.