

# Invisible Injuries: The Experiences of College Students with Histories of Mild Traumatic Brain Injury

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## Abstract

This qualitative study explored the college life phenomenon as experienced by students with mild traumatic brain injury (MTBI). Previous research about such students has focused on topics including study strategy use, access of support services, and insights from caregivers or instructors. However, little attention has been paid to the perceptions of postsecondary students, and available data stems almost exclusively from structured survey items and quantitative research studies. The lack of direct input from students with MTBI means professionals have limited insight into perceptions about students' challenges and successes associated with college experiences. To address this research gap, we asked five college students with MTBI to discuss their college experiences, factors mediating those experiences, and perceived similarities and differences between themselves and other college students with and without disabilities. Each interview lasted approximately one hour and used a semi-structured interview protocol. Data were analyzed using established phenomenological methods. Results suggested that the students experienced cognitive, physical, and social-emotional changes that altered their academic experiences, necessitated academic accommodations, and required self-advocacy skills. In addition, family and teacher support, self-determination, and academic accommodations positively affected students' college experiences, whereas factors such as injury invisibility, coursework difficulty, and teacher misconceptions or lack of support had negative effects. The findings highlight the need for additional education and support for college students with MTBI and the educators who serve them.

*Keywords:* Mild traumatic brain injury, college experiences, academic accommodations, support services, self-advocacy

Traumatic brain injury (TBI) has gained recognition among the general public over recent years primarily because of two phenomena: (a) the large number of military personnel returning from areas of conflict with blast injuries or other forms of TBI (Warden, 2006; Zoroya, 2005) and (b) the growing number of professional athletes who have reported histories of multiple concussions (i.e., mild traumatic brain injuries [MTBIs]) resulting in persistent cognitive and physical deficits (Guskiewicz et al., 2005; McKee et al., 2009). Awareness of the potential negative ramifications associated with MTBIs may be of particular interest to postsecondary institutions as they experience increasing enrollments of students with this diagnosis. As defined by the WHO Collaborating Centre Task Force:

MTBI is an acute brain injury resulting from mechanical energy to the head from external physi-

cal forces. Operational criteria for clinical identification include: (i) 1 or more of the following: confusion or disorientation, loss of consciousness for 30 minutes or less, post-traumatic amnesia for less than 24 hours, and/or other transient neurological abnormalities such as focal signs, seizure, and intracranial lesion not requiring surgery; (ii) Glasgow Coma Scale score of 13–15 after 30 minutes post-injury or later upon presentation for healthcare. These manifestations of MTBI must not be due to drugs, alcohol, medications, caused by other injuries or treatment for other injuries (e.g. systemic injuries, facial injuries or intubation), caused by other problems (e.g. psychological trauma, language barrier or coexisting medical conditions) or caused by penetrating craniocerebral injury. (Carroll, Cassidy, Holm, Kraus, & Coronado, 2004, p. 115)

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The surge in military veterans and athletes identified with TBIs has serious implications for colleges and universities. This is because large numbers of military personnel enroll in colleges to prepare for civilian careers following their deployments (McBain, Kim, Cook, & Snead, 2012), and many aspiring athletes participate in college sporting events either as the culmination of their athletic careers or as a preliminary step before entering into professional sports (Beamon & Bell, 2002; Brown, Glastetter-Fender & Shelton, 2000; Lally & Kerr, 2005). As the diagnosis of MTBI becomes more common within military and athlete populations, an increase is also likely in the diagnosis of such injuries in other populations of young adults because of greater awareness. Hence, colleges and universities can expect a growing volume of students identified with TBI-related disabilities (Daneshvar et al., 2011; Grossman, 2009; Madaus, Miller, & Vance, 2009). This phenomenon is likely to add substantial numbers to what has previously been a relatively uncommon disability category within postsecondary education institutions. In particular, increasing numbers of individuals with MTBIs are likely to join existing groups of college students with histories of more severe TBIs stemming from traditional causes such as motor vehicle accidents and falls (Church, 2009; Daneshvar et al., 2011; MacLennan & MacLennan, 2007). Because of this trend, a critical need exists for college educators and disability service providers to understand the factors that lead to successful academic and social experiences for college students with TBIs (Grossman, 2009; Kennedy, Krause, & Turkstra, 2008; Madaus et al., 2009).

Previous researchers have examined various facets related to the experiences of college students with differing severities of TBI. They have used quantitative measures, case studies, surveys, and interviews to explore topics such as high school transition and/or post-high school experiences (Haag, 2009; Todis & Glang, 2008; Todis, Glang, Bullis, Ettl, & Hood, 2011), learning and study strategy use (Bush et al., 2011), study skill and accommodation implementation (Hux et al., 2010), the nature of academic challenges faced (Kennedy, et al., 2008), and factors relating to work or postsecondary education success (Dawson, Schwartz, Winocur, & Stuss, 2007). How students with histories of MTBI perceive their college experiences or what factors they believe contribute to positive or negative college experiences remains largely unexplored, however. Hence, the purpose of this study was to explore the phenomenon of col-

lege life as experienced by students with histories of MTBI. The overarching research questions were:

1. What are the perceptions of students with histories of MTBI about their college experiences?
2. What factors mediate these perceptions?

### Literature Review

Individuals with TBIs of all severities report cognitive impairments in areas such as memory, attention, and executive function (Kennedy & Krause, 2011; Rødset, 2008). Unless individuals exhibit overt physical disabilities, however, the cognitive and psychological repercussions of their injuries may be overlooked both by professionals and lay people (Schutz, Rivers, McNamara, Schutz, & Loboto, 2010). Because of this tendency, TBI is often referred to as an “invisible injury” (Brain Injury Association of America, n.d.) or a “silent epidemic” (Klein, 1982, p. 1). For college students with histories of MTBI, the cognitive deficits they face as well as the hidden nature of these deficits may affect both academic performance and social participation (Beers, Goldstein, & Katz, 1994; Konrad et al., 2011). In many ways, the dilemmas encountered by students with MTBI may be comparable to those documented for students with other types of hidden disabilities such as attention deficit/hyperactivity disorder, learning disability, or psychiatric disability (Eckes & Ochoa, 2005; Wolf, 2001).

The actual number of students with TBIs enrolled in postsecondary education settings remains unknown, which presents a challenge for educational disability service providers. A key barrier is that students with TBIs are frequently under-identified or mislabeled at the elementary and secondary levels (Schutz et al., 2010). For example, according to the U.S. Department of Education, National Center for Education Statistics (2016), approximately 26,000 elementary and secondary students received special education services because of verification through the TBI disability category during the 2013-2014 school year. This number, however, falls far below the documented rate of emergency room visits (i.e., 3082.5 per 100,000) and hospitalizations (i.e., 80.8 per 100,000) for TBI in children from birth to age 14 as reported between 2009 and 2010 alone (Centers for Disease Control, 2012) and does not account for the plethora of students who sustained mild TBIs but never obtained medical intervention.

In response to this gap in extant literature, two separate groups of researchers have recently sought to identify the occurrence of TBI in college students. Krause and Richards (2014) surveyed undergraduate students and found that 16.4% self-reported a history of at least one “brain injury” or “concussion” (p. 1302). Brown, Hux, and Schmidt (2015) used terminology such as “blows to the head,” “whiplash injuries,” and “loss of consciousness” rather than the potentially stigmatizing terms “brain injury” and “concussion” to solicit similar information from undergraduate students. They found that approximately 28% of the undergraduate students self-reported at least one possible brain injury event and that 19% of those students had also experienced an associated loss of consciousness. Although neither research group related students’ reports of possible TBI events to their receipt of disability services or classroom accommodations, the results confirm that the presence of students with histories of TBI on college campuses is not uncommon.

Few colleges employ staff and faculty experienced in providing services to individuals with TBI despite the fact that such students sometimes attend postsecondary institutions. For example, a survey of disability service offices in Ohio colleges showed that only 39% employed individuals qualified to address deficits directly related to TBI (Harris & DePompei, 1997). Plus, findings from the same study revealed that the mechanism for identifying college-based services and initiating academic accommodations appeared to rest with the affected students. Even as recently as 2008, a survey of 35 college students with TBI showed that approximately 45% were unfamiliar with or had never used student disability services, and, of the remaining students, only half reported using the services “pretty often” or “all the time” (Kennedy et al., 2008, p. 517).

The frequency with which students with MTBI are unaware of or fail to take advantage of college-based disability supports is troubling. Todis and Glang (2008) reported that students who received high school transition supports directly linking them to college student disability services experienced a greater likelihood of completing college successfully than those not receiving such supports. Many students with histories of one or more MTBIs, however, never receive an official diagnosis (Beers et al., 1994; Segalowitz & Lawson, 1995). Thus, although some students with MTBIs continue to demonstrate physical and cognitive deficits for months and even years

post-injury (Beers et al., 1994; Marschark, Richtsmeier, Richardson, Crovitz, & Henry, 2000; Ryan, O’Jile, Gouvier, Parks-Levy, & Betz, 1996; Ryan & Warden, 2003; Segalowitz & Lawson, 1995), they may not be aware of their eligibility for student disability services or academic accommodations (Kennedy et al., 2008; Tincani, 2004).

When college students with MTBI do seek out evaluation or intervention, methods such as cognitive testing and surveys highlight persistent challenges. For instance, when completing behavioral assessments, individuals with MTBIs frequently demonstrate cognitive deficits such as diminished memory for spatial information (Beers et al., 1994; Chuah, Maybery, & Fox, 2004), decreased divided attention skills (Blanchet, Paradis-Giroux, Pépin, & Mckerral, 2009), working memory deficits (Kumar, Rao, Chandramouli, Pillai, 2009), and impairments in general attention, problem-solving, and memory skills (Beers et al., 1994). Students with MTBIs responding to surveys also reported decreased memory and attention skills and physical changes including headaches, nausea, and sleep disturbances (LaForce & Martin-MacLeod, 2001; Segalowitz & Lawson, 1995; Triplett, Hill, Freeman, Rajan, & Templer, 1996). Results from evoked-response potential measurements also suggest that, although students with MTBIs often performed similarly to peers on all but the most complex tasks, they achieved the comparable results only through expenditure of higher cognitive effort than their non-injured peers (Potter, Bassett, Jory, & Barrett 2001; Potter, Jory, Bassett, Barrett, & Mychalkiw, 2002; Segalowitz, Bernstein, & Lawson, 2001).

Further complicating the challenges faced by college students with MTBIs is the fact that they must contend not only with cognitive and physical challenges but also with the social and emotional changes resulting from their injuries (Konrad et al., 2011). Results from surveys and interviews have shown that students with all severities of TBI may experience changes including mood alterations, irritability, poor anger management, depression, and anxiety (Kennedy et al., 2008; Konrad et al., 2011; LaForce & Martin-MacLeod, 2001; Ryan et al., 1996; Segalowitz & Lawson, 1995; Stewart-Scott & Douglas, 1998). Such shifts in personality and behavior are likely contributors to the narrowing of circles of social support, the destruction of existing friendships, and the prevention of new friendship development so often reported among survivors of TBI (Hux et al., 2010; Ylvisaker, 1998). Kennedy and her colleagues

(2008) confirmed this phenomenon through a survey in which they found approximately 50% of college students with TBIs of varying severities reported difficulty with relationships, and close to 30% indicated they had problems maintaining friendships.

College students with MTBIs routinely experience academic, cognitive, and social-emotional challenges that have the potential to affect their postsecondary experiences. However, perceptions of these students remain largely unexplored. As such, the purpose of this research was to obtain information about the phenomenon of being students with MTBIs in postsecondary settings.

## Methodology

### Participants

Five students with self-reported histories of MTBI participated in the study. These students came from a larger group of 15 part-time or full-time undergraduate and graduate students enrolled at a large state university who had previously identified themselves either to us or to the Services for Students with Disabilities (SSD) office as having sustained one or more TBI. Students received information about the study either through the SSD office or word-of-mouth, and interested students self-selected to participate.

All participants met individually with us and completed research and clinic consent documents and demographic and brain injury background forms before participating in the interview. They also received a TBI Symptom Checklist to complete at their leisure. As shown in the Appendix, this form listed possible persistent symptoms within the categories of intellectual impairments (32 items), psychological consequences (16 items), mood disorders (3 items), physiological impairments (14 items), personality alterations (21 items), and neurological problems (12 items). Four participants returned the checklist during subsequent visits with us, and the fifth opted to send the checklist via electronic mail. Two participants also provided us with results of post-injury neuropsychological evaluations administered previously by other professionals. The following paragraphs provide specific information about each of the five participants with MTBI.

**Gabe.** Gabe was a 24-year-old, Caucasian, full-time, second-year graduate student majoring in American History who lived alone in an off-campus apartment. He sustained his MTBI during a physical altercation during his senior year of college. He opt-

ed not to seek medical attention at that time and continued his coursework without interruption. Approximately one month post-injury, however, he sought diagnostic services to address persisting issues (e.g., headaches, memory deficits). He was diagnosed with post-concussion syndrome (PCS) at that time, although a computed tomography (CT) scan of his brain revealed no damage.

Gabe identified ten intellectual impairments, no psychological consequence, one mood disorder, six physiological impairments, nine personality alterations, and two neurological problems on the TBI Symptom Checklist. Verbally, he reported persistent intellectual difficulties at the time of the study including poor concentration, idea repetition during writing assignments, and memory problems. He also noted decreased task initiation, disorientation, and uncertainty about his level of knowledge about topics. Gabe reported experiencing mood swings exacerbated by the MTBI as well as inconsistent routines and fluctuating, and sometimes excessive, caffeine consumption. He stated he had decreased tolerance for alcohol and drugs, difficulty relaxing, and trouble falling and staying asleep at night. Despite these challenges, he chose not to register for accommodations through the SSD office, although he reported the chair of his department was aware of his injury. Gabe reported expending greater amounts of energy on his coursework following his injury than before, but his grades remained comparable.

**Mason.** Mason was a 20-year-old, Caucasian, full-time, second-year undergraduate student who lived on campus with a roommate and had not yet declared a major field of study. He sustained a short period of unconsciousness as the result of a motor vehicle accident occurring between his junior and senior years of high school. Following the accident, he spent four days in the hospital where, according to self-report, Mason was diagnosed with a severe concussion. Because Mason's MTBI occurred during summer break, he entered his senior year without interruption in the fall but received accommodations consisting of one-on-one assistance for examinations and extended time on homework.

Mason participated in a neuropsychological evaluation approximately one month prior to study participation. Performance on validity indices (i.e., *Computerized Assessment of Response Bias* and *Test of Memory Malingering*) administered at that time suggested non-neurological factors were adversely affecting his task performance; hence, all evaluation

scores must be interpreted with caution. Mason's performance on the Ward short form of the *Wechsler Adult Intelligence Scale-III* yielded scaled scores ranging from 6 to 9 on verbal subtests and 6 to 8 on performance subtests. His Verbal IQ score of 89 fell in the low average range, his Performance IQ score of 77 was in the borderline range, and his Full Scale IQ of 82 corresponded with the low average range. This contrasted with estimated premorbid intellectual ability in the average range based on Mason's current reading skills, educational level, and other demographic variables. Mason's performance on the *Rey Auditory Verbal Learning Test* yielded standard scores ranging from 70 to 73 and corresponding with verbal memory in the borderline range. His visual memory as measured by the *Rey Complex Figure Test* fell in the extremely low range (i.e., standard scores from 22 to 64). Mason also performed in the borderline or extremely low range on tests of word retrieval (i.e., *Animal Naming Test*, *Controlled Oral Word Association Test*, and *Boston Naming Test*). This contrasted with his high average (i.e., standard score of 110) receptive language performance on *Token Test* and his average performance (standard scores from 95 to 106) on the *Finger Tapping Test* and *Finger Localization Test*.

Mason endorsed five intellectual impairments, two psychological consequences, no mood disorder, one physiological impairment, no personality alteration, and no neurological problem on the TBI Symptom Checklist. Verbally, Mason reported persistent attention and memory deficits as well as struggles with panic attacks and anxiety at the time of this study. His SSD accommodations included extended time to complete assignments and tests, a quiet testing location, and early class registration. Mason expressed uncertainty about changes in grades or academic performance after his MTBI. He reported spending greater amounts of time completing assignments than before his injury, although he thought this change might be attributable to the increased demands associated with college versus high school curriculum rather than to his MTBI.

**Julie.** Julie, a full-time, African-American, third-year undergraduate student who lived alone in on-campus housing, sustained her MTBI while participating in an athletic practice session during her freshman year of high school. She experienced a brief period of unconsciousness followed by extreme grogginess. Julie's mother took her to the emergency room where Julie received a CT scan; she did not recall the results of the scan. One day after Julie's

injury, she returned to school but, for the remainder of her freshman year, remained on high levels of medication to address attention deficits, severe migraines, and depression. She was given an IEP with a designation of MTBI and received extended time to complete assignments. Julie transferred from her private high school to a public one at the start of her sophomore year but left before the end of the first semester because of continued physical and cognitive problems. During this time, she met with a counselor to re-learn study skills and cognitive compensation strategies, and she worked with a neurologist to manage the physical symptoms persisting from her MTBI. In Julie's third year of high school, she enrolled in an intensive on-site program through her school district that allowed her to complete all of her sophomore and junior credits over the course of a single year. She received "A" grades for all of her work in the program and then returned to the regular public school program where she successfully completed her senior year.

Julie participated in a psycho-educational evaluation approximately 1.5 years after sustaining her injury. Results revealed performance generally in the average to high average range on standardized measures assessing visual processing (*Motor Free Visual Perception Test – 3rd edition*: 90th percentile), visual-motor integration (*Beery-Buktenica Developmental Test of Visual-Motor Integration*: 30th percentile), auditory processing (*Comprehensive Test of Phonological Processing*: average range), conceptualization (*Woodcock-Johnson III, Quantitative Concepts*: 61st percentile; *Test of Auditory Processing Skills*, Auditory Cohesion Index: 50th percentile), association (*Woodcock-Johnson III, Academic Knowledge*: 82nd percentile), acquiring and remembering general knowledge (*Woodcock-Johnson III, General Knowledge*: 82nd percentile), and verbal reasoning (*Test of Auditory Processing Skills*, Auditory Reasoning: 37th percentile; *Cognitive Assessment System*, Planning: 79th percentile; Simultaneous Processing: 73rd percentile; Attention: 50th percentile; Successive Processing: 91st percentile). The testing revealed no areas of substantial cognitive impairment.

Julie identified ten intellectual impairments, three psychological consequences, one mood disorder, four physiological impairments, two personality alterations, and two neurological problems on the TBI Symptom Checklist. She described a variety of persistent intellectual impairments at the time of the study including difficulty concentrating, processing information, and solving problems. Emotional chal-

allenges included emotional lability, feelings of depression and anxiety related to her injury, and a sense that others did not understand her difficulties. Physically, she reported struggles with fatigue, tension, sleep regulation, and sensitivity to sound, noise, and light.

Julie's SSD accommodations included classroom note-takers or permission to audio-record class lectures, extended testing time in a quiet location, and priority class registration. She reported spending long hours on her coursework. Although many of Julie's grades were "A's" or "B's," she had failed or withdrawn from several courses over the past three years. She also changed majors during her sophomore year from Textiles, Clothing, and Design to Hospitality, Restaurant, and Tourism Management because of the rigorous nature of the coursework in her first major. She reported that her current major was less stressful and demanding and that she was enjoying the courses.

**Molly.** Molly was a 27-year-old, African-American, full-time doctoral student in Psychology who lived alone in an off-campus apartment. She sustained her MTBI when she fell and hit her head on the counter and floor of her home shortly before beginning graduate school. Shortly after her injury, Molly's mother took her to see a medical practitioner because of repeated episodes of dizziness that were especially prevalent while she was driving. Molly was diagnosed with PCS at that time. During the first semester of graduate school, Molly's mother took her for diagnostic services to address persisting physical and cognitive issues (e.g., attention difficulties, emotional lability). As a result of testing, Molly received brief outpatient occupational and physical therapy services, neurofeedback from a neuropsychologist, and approximately four months of speech therapy to address organization difficulties. At the time of the study, Molly continued to meet with her neuropsychologist to address ongoing cognitive and emotional challenges.

Molly identified four intellectual impairments, no psychological consequence, no mood disorder, one physiological impairment, three personality alterations, and no neurological problem on the TBI Symptom Checklist. Molly stated having persistent difficulties with time management, task initiation, emotional lability, and hypervigilance. Despite these challenges, she chose not to register for accommodations through the SSD office, although she indicated she asked professors for extensions on papers as needed. Because of differences in undergraduate and graduate coursework, Molly felt com-

parison of her pre- and post-injury effort regarding schoolwork was not possible. Her grades, however, remained comparable.

**Dana.** Dana was a 34-year-old, African-American, part-time, fourth-year undergraduate student who was majoring in Public Affairs and Community Service and lived off-campus with dependents. She sustained a MTBI as the result of a physical assault occurring five years after high school. Immediately after her MTBI, Dana declined medical treatment but visited the emergency room one to two days later to have the bump on the right side of her head examined. She returned to the hospital approximately two years after her injury because of persistent cognitive challenges; an MRI performed at that time revealed no apparent brain damage. Approximately two years after that, she saw a neuropsychologist for a neurocognitive evaluation, and he diagnosed her as having sustained a MTBI. Dana did not, however, pursue recommended treatment from the neuropsychologist because of financial constraints. She enrolled part-time in an undergraduate program at her local university seven years after her injury.

Dana endorsed thirteen intellectual impairments, four psychological consequences, no mood disorder, two physiological impairments, three personality alterations, and no neurological problem on the TBI Symptom Checklist. Verbally, she described persistent intellectual impairments including difficulty with attention, memory, and information processing as well as struggles expressing her thoughts verbally. She also noted emotional changes including increased agitation and irritation, anxiety, discouragement, and apathy. Physically, she reported ringing in her ears and numbness and tingling in parts of her body. Her SSD accommodations included extended testing time in a quiet location. Because of the time lapse between Dana's high school attendance and her return to college, changes in grade performance were unknown. Since her return to college, Dana reported expending large amounts of time and energy to complete assignments and needing to review information repeatedly to learn it. She felt this process was more difficult than prior to her injury, although she questioned the impact of her age as well.

## Materials

**Interview questions.** We developed a three-item semi-structured interview. Questions one and two were designed to elicit responses from participants about their experiences as college students with

MTBI and factors that shaped these experiences. We also created probes for these questions to encourage participants to clarify and expand their comments. The third question allowed participants to contribute any additional information they felt was relevant to the topic or to comment on gaps in the line of questioning.

**Equipment.** Audio recording of the interviews was completed using an Olympus Digital Voice Recorder VN-8100PC.

## Procedures

**Study design.** We used a phenomenological approach to structure the research, because an investigative technique focusing on unique events meshed well with the highly-individualized life experiences of college students with MTBI. In addition, phenomenological information analysis leading to descriptions highlighting the essence of individuals' experiences aligned with our desire to identify commonalities as guides for educators attempting to develop and implement effective college accommodations. Finally, phenomenology's close association with post-positivist thinking and its view that reality requires the melding of internal experiences and external events and involves both inquiry and reflection (Creswell, 2007; Denzin & Lincoln, 2011) made it an ideal approach to explore the realities of students as mediated by their internal MTBI experiences and the external events of college life.

**Our role as the researchers.** We have background experiences researching and working with individuals with TBIs. Given our experiences, we exerted caution to avoid biasing the study findings with our preconceived notions about the life experiences of individuals with MTBI. We did this by developing a semi-structured interview that included broad, non-leading questions and follow-up queries encouraging the free description and exchange of ideas. In the last portion of each interview, following the guidelines of Creswell (2007) and Moustakas (1994), we encouraged participants to share any additional information related to their experience about being a college student with MTBI that they felt had not been adequately addressed during the previous part of the interview.

**Interviews.** Individual interviews with study participants lasted approximately one hour each and took place in a quiet room with a one-way mirror through which a second person observed and took online field notes. During the interviews, the participants described their experiences as college stu-

dents with MTBIs and discussed factors influencing those experiences. Follow-up questions addressed topics commonly related to college experiences (e.g., coursework, social life) as well as ideas emerging from earlier responses. At the end of each interview, participants had the opportunity to provide additional details or information they felt relevant to expressing the experience of being a college student with a MTBI. Artifacts included our field notes taken during the interviews and demographic, symptom, and injury data collected via questionnaire, checklist, and structured interview questions. All interviews were digitally recorded for later transcription and analysis.

## Data Analysis

We used a phenomenological methodology outlined by Moustakas (1994) and Creswell (2007) to analyze statements from transcribed interviews. We first read through each transcript twice, writing critical statements in the margins. Next, we reviewed the critical statements, giving them all equal weight, and began to group them into "clusters of meaning" (Creswell, 2007, p. 61). After that, we compared our initial findings with one another and used them to reach consensus on the clusters of meaning most representative of all participants. We used the final clusters of meaning to generate a textual description of participants' experiences as college students with MTBIs. We identified structural factors—such as aspects relating to teachers, family, and social life—that mediated the reported experiences (Moustakas, 1994, Creswell, 2007). Finally, we used the information from the textual and structural descriptions to ascertain the "essence" of the participants' college experiences (Creswell, 2007, p. 62).

## Validation and Validity Checks

Coding and analysis of the transcripts served as the first form of validation confirmation of the interview data, and member checking by survivor participants functioned as the second form. Validity was assessed through triangulation with seven studies where researchers asked college students with TBIs (Haag, 2009; Kennedy et al., 2008; LaForce & Martin-MacLeod, 2001; Stewart-Scott & Douglas, 1998) or differing combinations of college students, their families, friends, educators, and medical providers (Bush et al., 2011; Hux et al., 2010; Todis & Glang, 2008) about challenges associated with postsecondary education. We focused on students with different severities of TBI: mild (LaForce & Martin-MacLeod,

2001), mild-to-moderate (Haag, 2009), moderate-to-severe (Todis & Glang, 2008), severe (Bush et al. 2011; Hux et al., 2010; Stewart-Scott & Douglas, 1998), and unspecified (Kennedy et al., 2008). Two of the studies (LaForce & Martin-MacLeod, 2001; Kennedy et al., 2008) involved surveys, and the remaining five studies (Bush et al., 2011; Haag, 2009; Hux et al., 2010; Stewart-Scott & Douglas, 1998; Todis & Glang, 2008) involved participant interviews.

## Results

Our analysis of the participants' transcripts led us to discover an overarching theme of *change* and two subthemes (i.e., changes to self and changes in the college experience). Each subtheme contained three areas further defining the types of changes experienced by participants. *Changes to self* included (a) cognitive changes, (b) physical changes, and (c) social/emotional changes; and *changes to the college experience* included (a) academic changes, (b) accommodation changes, and (c) advocacy changes. The participants' college experiences were further mediated by positive and negative factors. Positive mediating factors were (a) self-determination, (b) support from family and friends, (c) teacher support, and (d) academic accommodations; negative mediating factors were (a) injury invisibility and (b) coursework difficulty.

### Changes to Self

**Cognitive changes.** All participants experienced persistent cognitive difficulties as a result of their MTBIs. A majority reported diminished information processing speed. For instance, Dana avoided group work, because she felt that she needed "extra time to really process the information." Gabe, too, stated, "I think things take me longer...than they did for me in the past; longer than...they do for my peers, generally."

Attention deficits also emerged as challenges for some participants. For example, Gabe noted, "I will get distracted...when I'm doing research on the Internet. I'm supposed to be looking up journals, [and] like I'll just subconsciously go to Facebook or something." Even Mason, who attributed the majority of his academic challenges to his transition from high school to college, acknowledged that he could "maybe get sidetracked and maybe that's [an] attention thing."

Several participants spoke about memory difficulties following their MTBIs. For example, Molly

commented, "After my head injury, I would just...not...encode things. So it was like the forgetfulness was still there but was just a little bit more." Dana echoed this sentiment, saying, "Classroom settings, sometimes they can just be a challenge....You have to go in there, you have to listen, you have to try to retain all this information. A lot of times writing notes is just like, 'Okay, I wrote them but what did we talk about?'" Gabe, too, struggled with issues related to memory, reflecting, "I used to have this passive, like latent memory of the things that I did over...a window of five or six days. I could say immediately what I did two days ago, as where after the injury,...I haven't been able to do that. I have to actively sit down and think about it, and the day, instead of being a singular day, sometimes seems like it's made up of several conjoined parts."

**Physical changes.** The participants experienced various physical changes resulting from their injuries. For example, Mason sustained an arm injury that prevented him from resuming his athletic endeavors, and Molly experienced vision changes that interfered with her ability to track written words; Gabe and Julie reported persistent headaches.

A majority of the participants also mentioned sleep cycle disturbances. Dana remarked, "I would say the biggest thing would be sleep. I wasn't sleeping well....Or if I did get to sleep, it was like my mind just wasn't ready to rest." Gabe, too, reported difficulty getting his mind to rest, commenting, "I also develop...this kind of mania at night where—I think it's because I'm tired—my...thoughts seem to accelerate." Julie's sleep issues frequently resulted in physical and academic consequences. As she put it, "It's like, something's gotta give there....This week was bad, because I stayed up way too late like for the last two weekends, so my brain's like, 'You really can't keep doing this,' and I missed class because I slept through the alarm."

Mental and physical fatigue were also common participant complaints. For example, Molly reported, "The second year I had it [the MTBI],...things like reading an article...made me really tired....I would read something, and I would be like, 'I need to take a nap.'" Julie's mental and physical fatigue frequently affected her emotional state. For instance, she described a difficult day saying, "Finally I just wanted to burst into tears, because I just was like, 'I'm tired.'...I turn into a two-year-old—honestly—where I'm like, 'I don't wanna.'" I get really whiney and really tired, and I space really bad."



Three of the participants also reported less stamina for the rigors of college than students without disabilities. Julie remarked, "I think I'm Wonder Woman, but I'm not. I think that's the biggest thing, is just like trying to do everything, and I can't." She went on to say, "I feel like they're [peers] able to balance everything out and juggle it more." Gabe too remarked, "I mean I have a much lower threshold for stress and work which...it's all relative to other people."

**Social-emotional change.** Social and emotional changes were evident for all participants, but they were expressed in unique ways. Gabe, for example, struggled with negative emotions. He reflected, "I've become a much more angry person...I...tend to be very caustic in critiques of other people's work." Molly, too, struggled to interact with others, commenting, "[I] tend to be emotionally expressive, so...like if I'm bored or I'm kind of disgusted with something, it's hard for me to hide it. And having a head injury just makes all that worse." In contrast, Julie had many friends and interacted well with others. However, she struggled with an underlying fear of rejection fostered by her negative experience with her friends at the time of her injury. As she put it, "I overbook myself socially a lot,...or say yes to something when I know I have a paper due. But it's like I don't wanna be left out, because I don't want them [peers] to stop being my friends." She also struggled with emotional lability commenting, "I've always been emotional, but, like since my accident, like someone can do something, and I'll just start crying. There is no reason for me to cry, and then I start focusing more on like emotional stuff. And it totally affects my school stuff way more than it should." Dana's challenges with social interaction stemmed from her post-injury difficulties organizing and expressing her thoughts. For instance, she stated that before her BI she could, "engage in...debated conversations," but that after the accident, she avoided them. As a result, she became "a listener, because it just...becomes too much." Even Mason reported he had become more aware of the potential negative outcomes of risk-taking which affected his behavior during social situations with peers.

### **Changes to the College Experience**

**Academic.** One of the key academic changes in the college experiences of the participants revolved around the time and effort required to complete coursework. For example, Mason commented, "If, for our test, I have to memorize so many things, I'd have to start probably earlier," and Gabe reported that

the writing process took longer for him than for his peers. Julie, too, struggled, reflecting, "I think I may need an hour to do stuff, but it really takes me three hours to do it, and I didn't comprehend that." Dana, on the other hand, recognized her decreased information processing speed and compensated by spending extra time to "write everything down and go over things more than once."

Some of the participants also noted difficulties with task initiation. For example, Molly commented that, prior to her injury, she was "really, really concerned" if she turned a paper in late, but, after her injury, she was unconcerned about submitting work in a timely fashion. She commented, "There are some days when I do not do any work at all...I know in grad school, in order to be productive, you need to get something done every day. But there are some days where...I'll just be sitting there in my office." Gabe echoed this sentiment, saying "I never had...the difficulty I have now in approaching my work. [It is]...like a mental obstacle to get started on it."

The participants responded to their academic challenges in different ways. Julie changed to a less rigorous major. Dana enrolled part time, and she and Mason both routinely used SSD accommodations. Molly moved to a different department where she felt the professors understood the academic implications of her MTBI, and Gabe purposely enrolled in less demanding credits. The results of these self-initiated modifications varied. Mason transitioned off academic probation after beginning to receive SSD services, but Dana continued to struggle with one of her courses. Julie reported increased satisfaction and academic performance in her new major; whereas, Molly and Gabe continued to report no change in their performance, which they described as comparable to that of their peers.

**Accommodations.** The participants identified registration with the SSD office and/or access to accommodations as a factor distinguishing their college experiences from those of their peers without disabilities. For example, Mason reported he routinely approached professors about his accommodations and Dana stated, "It is a challenge I think for me, not only being older but, with...a lot of the professors obviously I have to go to them and tell them,...'Okay,...I'm registered with the SSD office.'" Julie, too, felt the process added an extra layer of complexity commenting that it was "hard finding...a balance...and...learning how to take...advantage of them [resources]."

Molly and Gabe saw their need for accommodations as setting them apart from their peers without disabilities. Molly, for instance, commented that the professors in her first program routinely gave her easier research responsibilities like literature reviews instead of more complex tasks like data analysis. In her words it was "...like not getting the same training." In contrast, Gabe's concerns revolved around using extended time on a standardized entrance exam. As he put it, "I was looking into extended time...and I guess they qualify your school in some way if you get [it]. You just get an asterisk attached to it [the result]. So I don't know what kind of implication that would have in terms of [an] admission committee."

**Advocacy.** The participants acknowledged the need for self-advocacy as they sought services and support related to their MTBIs from professors. For Mason and Gabe, the process appeared to be relatively neutral. Gabe reported he rarely discussed his MTBI with individuals in his department, but that the chair of the department, "might know about it [the brain injury], because it was included in my application materials." He went on to say, "We might have talked about it once or twice, but it hasn't been the consequence of...any course work." Mason, on the other hand, reported freely talking with a number of his professors about his academic needs. In contrast, Julie's experience was stressful. She reported difficulty getting "the courage to go talk to a professor and tell him like, 'Hey I need extra time on this.'" Even Dana, who relied heavily on academic accommodations, acknowledged that she found approaching her professors challenging. Interestingly, although Molly expressed distress related to her need for accommodations, she reported that her self-advocacy skills with professors and others had improved over time.

The participants readily acknowledged the presence of personal, social, and environmental influences that colored their perceptions about their college experiences. Some of these influences were positive, and others were distinctly negative.

### Positive Mediating Factors

**Self-determinism.** The participants identified their personal resolve, beliefs, and actions as positively affecting their perceptions of their experiences as college students. Dana, for example, pursued academic success by honing her note-taking skills and becoming "more organized" to meet her academic challenges; whereas, Mason reported spending more

time planning commenting, "[I] try and make sure I...do whatever I can to succeed."

Julie's self-determinism was rooted in her desire to demonstrate her intelligence and academic worth. She recalled, "My freshman year [of high school], I remember the principal of our high school told me that...'You need to understand that you're never going to college.'...So he's a big motivator in the fact that I'm gonna prove him wrong, and I'm gonna graduate." Similarly, Molly's decision to enroll in a complex statistical modeling course stemmed from her desire to prove to her professors that she was capable of completing challenging post-graduate work. Even Gabe reported being motivated to exceed the expectations of his professors by producing noteworthy academic projects.

**Support from family and peers.** Each of the participants listed some type of family and/or peer support as positively affecting their college experience. Support from mothers topped the list for four of the five participants. Mason, for instance, credited his mother with helping him receive accommodation services, and Molly commented, "My mom...is like my biggest advocate....I think I probably got better care than most people, because my mother made sure of it." Julie, too, reflected, "She's very helpful and supportive still, like when I'm stressed,...she'll come over at two o'clock in the morning if I need her to."

Gabe acknowledged the role of his parents but felt that peers, especially members of the opposite sex, strongly contributed to his positive experiences. He related that both his former girlfriend and last female roommate had provided support and structure for his life. Dana, too, reported she relied heavily on individuals outside of her immediate social circle because her parents and closest friend felt she was "fine." Specifically, she reported, "With a couple of students that...I feel comfortable with,...I can ask them, 'Well what...are we doing? What's going on?' And you know they'll just [say], 'This is what we're doing.'"

**Educator support.** The participants defined educational support in different ways. Julie reported her current college experience was positively affected by educational rehabilitation and supports provided by a teacher and a counselor during her high school education. She commented that her counselor had helped her "learn how to...think different, and learn how to learn again, 'cause that was the biggest struggle." Mason appreciated the access to necessary academic supports his postsecondary teachers provided stating, "They're really helpful, and they understand. They..."

meet my accommodations that I need.” Dana appreciated the professors who were “more structured” and went “by the syllabus.” Similarly, Gabe mentioned that his teachers’ class structure and expectations led to his positive views of postsecondary education, because it enabled him to complete course requirements without seeking formal accommodations. For Molly, the emotional support from her department and her academic mentor related strongly to her positive views of her college experience. She reflected, “I feel like I can be like, ‘I am really stressed out. I haven’t gotten a lot of sleep....I don’t feel like I know what I’m doing.’ And I don’t feel like he’s [the mentor] gonna hold that against me.”

**Academic accommodations.** The participants identified registration through the SSD office or access to academic accommodations as a positive factor mediating their college experiences. Mason commented, “I wasn’t [associated with] the Students with Disability [Office] my first year in college....That year didn’t go well. I got put on...academic probation....I registered [with the SSD office], and I got off academic probation after.” Dana, too, commented, “Just going...[to the SSD office] to take my tests, the pressure...is...almost gone. If I’ve taken the...test in the [class] room, it’s like an anxiety...I lose my focus.” Gabe, Julie, and Molly relied on accommodations to a lesser degree but still felt they were helpful. Julie, for instance, commented, “I really don’t have to use my services through SSD...like ever honestly...but this one class I’m like, “No, I need to do that [use accommodations].”

### Negative Mediating Factors

**Injury invisibility.** The primary negative factor reported by all five participants was the perceived invisibility of their MTBIs. As Gabe put it, “I think...outwardly [I’m] the same in many respects. I don’t think it’s evident [the MTBI], but it’s very evident to me at times.” Molly, too, commented, “It’s almost easier to have like a broken leg or to be in a wheelchair, because people can see the obvious limitation. But when you have a brain injury, it’s not always obvious.” Julie echoed this sentiment reflecting, “If I had some head gear on,...[professors] would probably be like, ‘Oh yeah! You’re right. You do have a head injury.’ But because I look and I talk just fine,...they’re always shocked that something could be wrong inside.”

**Coursework difficulty.** A number of the challenges the participants faced related directly to

coursework expectations. For instance, Julie stated, “...it [college] was hard...mostly because...I was in a stressful major with a lot of critique...and it...affected me, it would stress me out emotionally too.” Dana, too, reported difficulty meeting postsecondary academic demands commenting, “It’s a challenge, because there is a lot of work, a lot of reading, and then you have to memorize these rocks [for geology class].” She then described her criminal procedure class saying, “...you have to not necessarily know the definitions, you have to apply, and that’s very challenging for me.” Mason, on the other hand, struggled with the general transition from high school to college coursework expectations.

Gabe and Molly’s difficulties with coursework performance related directly to their self-perceptions and the expectations of others. For example, Gabe remarked, “There’s been that looming concern that you need to obviously distinguish yourself,...so...that’s certainly exacerbated the course load that I’ve had. I could have arranged it so it was more manageable, less stressful on myself.” Molly, too, commented, “You had the added factor of having a brain injury, but you also had the added factor of ‘Oh great, I’m the only African American in this department.’ So,...I feel...the pressure of ...I have to be really, really good at this.”

### Triangulation Results

We compared the results of the current study with findings from seven studies of postsecondary students with differing TBI severities (Bush et al., 2011; Haag, 2009; Hux et al., 2010; Kennedy et al., 2008; LaForce & Martin-MacLeod, 2001; Stewart-Scott & Douglas, 1998; Todis & Glang, 2008). Three of the studies (Bush et al., 2011; Hux et al., 2010; Todis & Glang, 2008) also included feedback from individuals associated with the participants with TBI (e.g., family, instructors, and peers).

Many of the findings from the validation studies aligned with those of the current study. For instance participants in all studies, including LaForce and Martin-MacLeod’s (2001) study examining post-injury symptoms in college students with MTBI, reported physical, cognitive, and social-emotional changes following their TBIs. One difference that emerged was that the current study participants reported long-standing *subtle* physical changes (e.g., fatigue, sleep cycle disturbances) following their MTBIs; whereas, individuals in the validation studies reported combinations of persistent *subtle* (Hux et al., 2010; LaForce

& Martin-MacLeod, 2001; Kennedy et al., 2008; Stewart-Scott & Douglas, 1998) and *overt* (e.g., poor coordination, impaired limb movement) (Haag, 2009; Hux et al., 2010; LaForce & Martin-MacLeod, 2001; Kennedy et al., 2008; Stewart-Scott & Douglas, 1998) symptoms.

Participants both in the current and validation studies mentioned academic changes either in the form of increased difficulty with coursework or with the implementation of academic accommodations following TBI. However, only participants in the current study and Haag's (2009) study discussed how the process of advocacy changed their perceptions of their college experience. Current study participants focused on factors such as finding courage to self-advocate and the negative impact of asking for help on self-perceptions of academic competency; this contrasted with Haag's participants who reported feeling guilty about asking instructors for support.

Haag's participants also identified patterns of power imbalance, oppression, bureaucratic barriers, and privilege at the instructional, departmental, and institutional levels that affected their college experiences. In contrast, although all participants acknowledged the need for support from instructors and several participants experienced difficulty obtaining needed accommodations and supports from single instructors, no established practices of mistreatment emerged. In fact, participants in the current study spoke positively of the supports provided through the SSD office and did not mention institutional barriers beyond the need for broader education about MTBI for faculty and staff.

Positive mediating factors were consistent between the current participants and those in the validation studies. However, differences in negative mediating factors emerged. Specifically, only two validation studies mentioned injury invisibility (Haag, 2009; Hux et al., 2010) and coursework difficulty (Bush et al., 2011; Todis & Glang, 2008). In contrast, current study participants identified both factors as integral to their college experiences.

## Discussion

The number of postsecondary students with TBI is increasing (Daneshvar et al., 2011; Grossman, 2009; Madaus et al., 2009). Although the majority of individuals who sustain MTBIs fully recover within a period of several weeks or months, a small subset

experience ongoing challenges (Carroll et al., 2004). The findings from participants in the current study suggest that postsecondary students with persistent symptoms post-MTBI may face fundamental *changes* to their self-perceptions and to their college experiences. Specifically, participants identified negative cognitive, physical, and social-emotional changes coupled with academic challenges, accommodation needs, and advocacy roles that they felt set them apart from their peers without TBIs.

Internal and external mediating factors may affect the perceptions of college students with MTBIs. The participants in the current study identified self-determination to succeed, access to accommodations, and family and educator support as factors that positively affected their college experiences. In contrast, they identified injury invisibility and coursework difficulty as negative mediating factors.

Factors beyond those specifically identified by the participants may have contributed to perceptions about college experiences. First, the participants attended a large university with robust SSD services and supports. However, postsecondary SSD supports and services vary among institutions and are generally less comprehensive in smaller colleges and universities (Raue & Lewis, 2011). Thus, had the participants attended a smaller institution or one with limited services, their perceptions about the positive role accommodations played in their college experience might have differed. On the other hand, had the students attended a smaller institution, their struggles with self-advocacy, injury invisibility, and coursework management might have been less pronounced, because they knew their instructors better and felt more comfortable sharing their accommodation needs with them.

The results of seven validation studies (Bush et al., 2011; Haag, 2009; Hux et al., 2010; Kennedy et al., 2008; LaForce & Martin-MacLeod, 2001; Stewart-Scott & Douglas, 1998; Todis & Glang, 2008) provided strong confirmatory support for the current study findings. The differences that emerged, however, suggest that college students with MTBIs may struggle with subtle or invisible deficits and find the process of self-advocacy more challenging than their counterparts with more severe TBIs. In part, this may reflect a heightened self-awareness of cognitive and physical deficits and the need to advocate with instructors more frequently than is necessary by individuals with more apparent deficits.

The physical, cognitive, and social emotional challenges reported by college students with MTBI in LaForce and Martin-MacLeod's (2001) study aligned with those of the participants in the current study. However, the current participants did not report the overt symptoms detailed by LaForce and Martin-MacLeod. In addition, the quantitative nature of the study precluded LaForce and Martin-MacLeod from exploring the personal perceptions, experiences, and mediating factors addressed in the current study.

Many of the results from Haag's (2009) study of college students with mild to moderate acquired or TBI correspond with those reported herein. For example, participants in both studies valued academic accommodation and self-advocacy and found others' lack of knowledge about TBI problematic. However, Haag's participants described systemic institutional problems such as organizational structure and impersonal processes that negatively affected their experience; whereas, the participants in the current study did not report such issues and, in fact, reported support from professors as a positive mediating factor. The reasons for this difference are unclear. They could relate to variations in educational systems in Canada—where Haag's study took place—and the United States. Meaningful distinctions may also have been present between the two participant groups. For example, all participants in the current study had MTBIs, but participants in Haag's study had a mixture of mild to moderate acquired and traumatic brain injuries. Also, at least three of Haag's participants had distinct physical impairments that might have contributed to their challenges.

### **Implications for Postsecondary Institutions and Educators**

Current study participants identified academic and educator supports as key positive mediating factors to their college experience and coursework difficulty and injury invisibility as negative factors. Postsecondary institutions and educators can take a number of steps to address these factors and improve outcomes for students with MTBIs. For example, research shows that outcomes are better for students with TBIs who are linked directly to disability services at the postsecondary level (Todis & Glang, 2008). As such, a focus on streamlining transition services for students with MTBIs who have received academic accommodations at the secondary level may be beneficial. Although current study participants reported awareness

of their eligibility for academic accommodations, this is not necessarily the norm (Kennedy et al., 2008). Developing methods for information dissemination (e.g., class announcements) about available academic supports and eligibility criteria to all students may be an effective means of addressing this problem. Postsecondary institutions may also find it beneficial to employ professionals with expertise in TBI who could then provide disability service providers, educators, and other postsecondary personnel with valuable education about MTBI characteristics, educational implications, and efficacious interventions. Once given the tools to work more effectively with students with MTBIs, educators are likely to feel better prepared to identify and develop individualized classroom supports that will facilitate academic success.

### **Study Strengths and Limitations**

The phenomenological approach of this study provided the opportunity to hear directly about the perceptions of postsecondary students with MTBIs regarding their college experiences. Limitations include the relatively small number and the self-selection of participants. Both factors limit the generalizability of the findings and contribute to the possibility that the participants were not representative of the broader population of students with MTBI on university campuses. A third limitation is that the participants experienced MTBIs, which likely limits the applicability of findings to individuals with more severe injuries. Finally, the findings reflected the perceptions of students attending a large, Midwestern, public university. As such, the results may not generalize to other geographical regions, private institutions, or smaller colleges and universities.

### **Suggestions for Future Research**

Advances in the identification of people with MTBIs and in the treatment of individuals with more severe injuries have led to improved outcomes for survivors as a whole. In turn, improved outcomes have prompted an increase in the number of survivors seeking or continuing higher education pursuits. Given this scenario, future research seeking to elucidate more clearly the struggles faced by college students with TBIs is critical. In particular, professionals need to determine methods of tailoring academic accommodations to meet individual student needs and designing interventions to aid with persistent cognitive, physical, and psychosocial challenges. They should

also further investigate the impact of internal factors—such as self-determinism, culture, and race—and external factors—such as support systems, institution characteristics, available supports and services, and faculty and staff MTBI training—on students' perceptions about college experiences.

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### About the Authors

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## Appendix

### TBI Symptom Checklist

Name:

Date:

#### Persistent Intellectual Impairments

- Memory problems
- Difficulty concentrating
- Attention Difficulties
- Easily Distracted
- Misplacing or difficulty tracking things
- Difficulty making decisions
- Difficulty solving problems
- Difficulty understanding spoken instructions
- Difficulty understanding written instructions
- Difficulty finding words
- Difficulty communicating thoughts/feelings
- Unintentionally repeating the same remarks
- Unintentionally repeating the same activities
- Stuttering or stammering
- Difficulties doing simple math
- Impaired abstraction or literalness
- Mental rigidity
- Deficits in processing information
- Deficits in sequencing information
- Difficulty executing or doing things
- Difficulty starting or initiating things
- Difficulty handling work requirements
- Difficulty handling school requirements
- Having to check and re-check what you do
- Disoriented by slight changes in daily routine
- Unsure about things that you know well
- Difficulty learning new things
- Doing things slowly to ensure correctness
- Impaired ability to appreciate details
- Impaired ability to benefit from experience
- Difficulty taking care of yourself
- Difficulty taking care of children

#### Persistent Psychological Consequences

- Easily agitated or irritated
- Easily startled
- Feelings of paranoia
- Spells of terror or panic
- Feelings of depression
- Persistent anxiety
- Anxiousness or feelings of fear and dread
- Feelings of discouragement
- Withdrawal or social isolation
- Feeling others do not appreciate your difficulties
- Feeling everything is an effort
- Feeling inept or worthless
- Laughing or crying without apparent cause

- Worrisome thoughts won't leave your mind
- Insensitive to others and social context
- Diminished insight

#### Persistent Mood Disorders

- Mood swings
- Shouting or throwing things
- Temper outbursts that you cannot control

#### Persistent Physiological Impairments

- Headaches or head pains
- Increased sensitivity to touch
- Ringing in ears
- Easily fatigued
- Numbness or tingling in parts of your body
- Weakness or loss of strength
- Feeling tense or keyed up
- Restlessness, unable to sit still
- Lessened ability to perform physically
- Decreased tolerance for alcohol and drugs
- Appetite disturbances
- Trouble falling asleep
- Awakening during the night
- Sleep that is restless or disturbed

#### Persistent Personality Alterations

- Passivity or submissiveness
- Aggressiveness
- Apathy, lack of interest or emotion
- Overly sensitive
- Discouragement or demoralization
- Increased emotional distress
- Chronic frustration
- Grandiosity or boastfulness
- Excessively talkative
- Compulsive writing
- Egocentricity
- Childishness
- Silliness
- Overly responsible
- Irresponsibility
- Impulsively
- Self-indulgent
- Indiscreet comments and acts
- Obscene comments or acts
- Increased shame or guilt
- Religiosity