

10-21-2013

Impact of co-occurring psychiatric disorders and traumatic brain injury on speech-language treatment: Speech-language pathologists' perspectives

Janis Whitney Neal

Follow this and additional works at: <http://commons.emich.edu/theses>



Part of the [Clinical Psychology Commons](#)

Recommended Citation

Neal, Janis Whitney, "Impact of co-occurring psychiatric disorders and traumatic brain injury on speech-language treatment: Speech-language pathologists' perspectives" (2013). *Master's Theses and Doctoral Dissertations*. 545.
<http://commons.emich.edu/theses/545>

This Open Access Thesis is brought to you for free and open access by the Master's Theses, and Doctoral Dissertations, and Graduate Capstone Projects at DigitalCommons@EMU. It has been accepted for inclusion in Master's Theses and Doctoral Dissertations by an authorized administrator of DigitalCommons@EMU. For more information, please contact lib-ir@emich.edu.

Impact of Co-occurring Psychiatric Disorders and Traumatic Brain Injury on Speech-Language
Treatment: Speech-Language Pathologists' Perspectives

by

J. Whitney Neal, B.S.

Thesis

Submitted to the Department of Special Education

Eastern Michigan University

As a component for the degree of

MASTER OF ARTS

in

Speech-Language Pathology

Thesis Committee:

Ana Claudia Harten, Ph.D., CCC-SLP, Chair

Bill Cupples, Ph.D., CCC-SLP

Sheila Bentrum, M.A., CCC-SLP

October 21, 2013

Ypsilanti, MI

DEDICATION

To my husband, Justin

ACKNOWLEDGMENTS

I could not have completed this thesis without my amazing support system. I'd like to thank my husband, Justin, who leads by example and who provides for me faithfully and lovingly. Thank you to my dad, Gil Fremont, who ingrained in me from childhood that I need to "Finish the job!" Thank you to my mom, Julie Fremont, for being my sounding board and cheerleader. Thank you to my in-laws, Randy and Janet Neal, for giving me confidence and having me over on late nights.

Special and abundant thanks must go to Dr. Ana Claudia Harten, my thesis chair. In the past year, she has spent an insane amount of time working with me, shaping my ideas, guiding my writing, and reviewing, reviewing, and reviewing my work. I admire her greatly, and I could not have made it this far without having her as a role model and a mentor. Thank you also to my thesis committee, Dr. Bill Cupples and Ms. Sheila Bentrum, who have not only been excellent professors, but also wonderful examples of professionalism and kindness.

Abstract

Previous studies have associated traumatic brain injury (TBI) with higher rates of psychiatric disorders. This study investigated speech-language pathologists' (SLPs) perspectives on the prevalence of co-occurring psychiatric disorders in the TBI population and its impact on speech-language treatment. Interviews were conducted with twelve SLPs working with a TBI population. Results revealed a lack of standard measures to assist SLPs in distinguishing between the symptoms of psychiatric disorders versus the neuropsychiatric symptoms of TBI. Also, results indicated the heavy reliance on a multidisciplinary team to provide comprehensive and individualized treatment for the TBI clientele, and the negative consequences of untreated psychiatric disorders on both the SLP's presentation of treatment and the client's response to treatment. The data presented here are a valuable source of information for SLPs anticipating field work with a TBI population, as they discuss clinical implications associated with the co-occurrence of psychiatric disorders in this population. The data also suggest directions for future research on the impact of psychiatric disorders on treatment for the TBI population.

Table of Contents

Dedication	ii
Acknowledgments	iii
Abstract	iv
Chapter 1: Introduction	1
Background, Problem Statement, Justification, and Significance.....	1
Purpose of the Study.....	3
Research Questions	4
Chapter 2: Review of the Literature	5
Understanding TBI.....	5
Differential Diagnosis: Symptoms of TBI and Psychiatric Illness	5
TBI: A Risk Factor for Psychiatric Disorders and Criminality.....	8
Psychiatric Disorders.....	8
Depression and Suicide	9
Criminality.....	11
Children and Adolescents.....	12
Treatment and Counseling.....	13
SLPs Dealing with Co-occurring Disorders	16
Chapter 3: Methodology.....	19
Participants	19
Materials and Data Gathering Procedure	22
Chapter 4: Results	24
The Importance of Differential Diagnosis.....	24

The Importance of a Team Approach to Diagnosis and Treatment	29
Information Gained from Multiple Disciplines.....	30
Collaborating with Mental Health Professionals.....	31
Settings and Mental Health Services.....	32
Possible Responses to Recommendation	32
Negative Impact of Untreated Psychiatric Disorders	33
Impact on Client	33
Impact on SLPs and Treatment	34
The Importance of Individualized Treatment.....	35
The Importance of Keeping within the Scope of Practice and Developing Experience ..	37
Chapter 5: Discussion.....	40
Chapter 6: Conclusion	43
Limitations of the Study and Direction for Future Studies	44
References	46
Appendix A: Human Subjects Permission Letter.....	53

List of Tables

<u>Table</u>	<u>Page</u>
1: Participant Demographic Characteristics.....	20
2: Common Co-occurring Psychiatric Disorders	25
3: Behavioral Symptoms Possibly Indicating Need for Mental Health Involvement.....	29

Chapter 1: Introduction

Background, Problem Statement, Justification and Significance

The American Speech-Language-Hearing Association (ASHA) defines traumatic brain injury (TBI) as “an insult to the brain caused by an external force such as the following: head being struck by an object, head striking an object, acceleration/deceleration movements without direct external trauma to the head, foreign body penetrating the brain, and forces generated from blast or explosion” (ASHA, 2009). Each year in the United States, an estimated 1.7 million people sustain a TBI (Centers for Disease Control and Prevention [CDC], 2012). The Brain Injury Association of America estimates that TBI has resulted in long-term disability for approximately 5.3 million Americans. TBI can be mild, moderate, or severe. Common causes include falls, blows, assaults, and motor vehicle accidents (Brain Injury Association of America, 2012).

Symptoms of TBI vary between individuals and depend on the type and severity of the sustained injuries (Gainer, 2004). The plethora of possible symptoms can be assigned to three main categories: physical, cognitive (also encompassing communication), and behavioral/emotional (ASHA, 2009). Behavioral and emotional problems have been recently highlighted due to research regarding TBI and psychiatric disorders and/or depression. Increased incidences of psychiatric diseases, including anxiety disorders, psychotic disorders, post-traumatic stress disorder (PTSD), and major depression are associated with a TBI diagnosis (Masel & DeWitt, 2010; Bombardier et al., 2010; Timonen et al., 2002; Shoumitro, Lyons, Koutzoukis, & McCarthy, 1999). Some studies have reported suicide attempt rates as high as 17% in the TBI population (Simpson & Tate, 2002).

Populations at risk for TBI are frequently divided by sex and age. Males are significantly more likely to sustain a TBI than females across all age groups, although it has been reported that females with TBI have a higher mortality rate (Teasdale & Engberg, 2001). A higher risk of TBI is associated with children under 4 years of age, young adults between 15-24 years of age, and adults over the age of 65 (CDC, 2010). It is often difficult to determine which comes first: pre-existing social, emotional, and psychiatric disorders which lead to a TBI, or a TBI which causes the development of such disorders (Luukkainen, Riala, Laukkanen, Hakko, & Pasanen, 2012). Vassallo, Proctor-Webber, Lebowitz, Curtiss, and Vanerploeg (2007) reported that pre-existing disorders, specifically psychiatric disorders (e.g., depression, anxiety, and conduct disorders), do increase the risks of incurring a TBI. Substance abuse is also a significant TBI risk factor, with an increased incidence of TBI noted in heavy drinkers (Schwarzbold et al., 2008). Socioeconomic status, substance abuse, risk-taking, pre-existing psychiatric symptoms, and the social and behavioral predisposition of an individual could all be risk factors leading to a TBI. In most studies, however, researchers are unable to control for these pre-morbid factors (Timonen et al., 2002). Retrospective studies have found a TBI prevalence of 5.1% in patients currently diagnosed as mentally disordered, and 3.9% in individuals with a criminal record (Timonen et al., 2002). Whatever the cause of TBI, research continues to find that a history of TBI is associated with the post-injury development of psychiatric disorders, depression, substance abuse, or criminality both in children and adults (Diaz, 1995; Kim et al., 2007; León-Carrión et al., 2001; Loge, 2008.; Luukkainen et al., 2012; Max et al., 2012; Max, Sharma, & Qurashi, 1997; McKinlay, Grace, Horwood, Fergusson, & MacFarlane, 2009; Schwarzbold et al., 2008; Stoddard & Zimmerman, 2011; Teasdale & Engberg, 2001).

As treatment for TBI can be shaped in some ways by the potential development or presence of psychiatric illness, it is important to differentiate between the neuropsychiatric symptoms of TBI and symptoms of a psychiatric illness. These distinct disorders, especially when co-occurring, may impact rehabilitative and speech-language treatment for this population. Psychiatric disorders can impact not only the patient's response to treatment, but also how treatment itself should be presented (Luukkainen et al., 2012; Tsaousides, Cantor, & Gordon, 2011; Simpson, Tate, Whiting, & Cotter, 2011; Simpson, Winstanley, & Bertapelle, 2003; Timonen et al., 2002). An examination of the risks associated with co-occurring psychiatric disorders and TBI is relevant for speech-language pathologists providing intervention for this population. This study aimed to examine current speech-language pathologists' (SLPs) perspectives on whether and how co-occurring psychiatric disorders impact speech-language treatment of a TBI population.

Purpose of the Study

The purpose of this study was to gain a better understanding of the impact that co-occurring TBI and psychiatric disorders have on speech-language treatment and patient response. More specifically, this study aimed to investigate whether and how SLPs working with a TBI population distinguish between the symptoms of psychiatric disorders versus the symptoms of TBI, and to gain insight into the SLPs' practices and experiences addressing psychiatric problems that co-occur with cognitive-communication disorders.

The incidence of psychiatric disorders in the TBI population is significantly higher than the incidence in the general population. SLPs working with a TBI population can expect to see symptoms of psychiatric illness in their practice. Although differential diagnosis in cases of TBI with co-occurring psychiatric conditions is not clear cut, it might be necessary for effective

treatment. Understanding SLPs' perspectives on the impact of co-occurring psychiatric disorders in TBI cases may provide insight on how practices could be shaped to adjust for such co-occurring conditions, and on any specific needs of this population which should be addressed to ensure treatment success.

Research Questions

This study intended to answer the following research questions: Does a co-occurring psychiatric diagnosis in a TBI population impact speech-language treatment? If so, how? Do SLPs believe a differential diagnosis between symptoms of psychiatric disorders and TBI is important to developing a treatment plan? Are there any distinguishing symptoms of TBI versus psychiatric disorders which would assist in a differential diagnosis? If so, which ones? What do SLPs do to address the needs of clients with TBI who have co-occurring psychiatric conditions?

Chapter 2: Review of the Literature

Understanding TBI

In 2006, the TBI Task Force was established by the Army Surgeon General to examine Army procedures and aspects of TBI care. In their report released on January 17, 2008, TBI is defined as

A traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force that is indicated by new onset or worsening of at least one of the following clinical signs, immediately following the event-

- a. Any period of loss of or a decreased level of consciousness.
- b. Any loss of memory for events immediately before or after the injury.
- c. Any alteration in mental state at the time of the injury (such as confusion, disorientation, slowed thinking).
- d. Neurological deficits (such as, weakness, balance disturbance, praxis, paresis/plegia, change in vision, other sensory alterations, aphasia) that may or may not be transient.
- e. Intracranial lesion. (pp. 19-20)

Differential Diagnosis: Symptoms of TBI and Psychiatric Illness

Different symptoms have been associated with TBI (ASHA, 2009). Physical symptoms may include headache, nausea, dizziness, disorders of swallowing and movement, or seizures. Cognitive symptoms may include problems with attention, awareness of self and environment, memory, reasoning, self-control, and language. Behavioral/emotional symptoms may include depression, anxiety, irritability, impulsivity, aggression, and poor frustration tolerance. ASHA

(2011) also notes that TBI can affect social communication, causing problems with skills such as turn-taking and topic maintenance in conversation, responding to non-verbal communication, and making inferences. Social communication deficits can become a major hindrance to the TBI population with regard to reintegration at pre-injury work and social environments (Gainer, 2004). Rollin (2000) further comments that specific personality and behavioral changes in more severe TBIs can include impaired judgment, denial, apathy and withdrawal, paranoia, and regression to childlike behavior and dependency.

Due to the presentation of TBI, cognitive and behavioral symptoms often resemble and overlap with symptoms of a psychiatric illness, especially in the early stages of recovery and in severe cases (Gainer, 2004). Examples of the possible psychiatric features of TBI include changes in personality, behavior, and emotion, mood disorders, anxiety disorders, denial, confusion, and mania (Brain Injury Rehabilitation Directorate [BIRD], 2011; Gainer, 2004). Differentiating between TBI and psychiatric illness thus becomes complicated. According to Gainer (2004), this overlap of symptoms is due to the “timing between injury and emergence of symptoms” (p. 33), and a psychiatric diagnosis would be more likely in the instance where new behavioral problems emerge after one year of recovery. For example, an individual would more likely be diagnosed with Major Depressive Disorder (a psychiatric illness) if his depressive symptoms appeared 2 to 3 years following the actual structural injury incurred at time of TBI (BIRD, 2011). In addition to timing, the use of shared terminology can confuse diagnosis. For example, “personality disorder” can not only be used to describe TBI symptoms, but also to label a psychiatric disorder. In their online self-study course on TBI and mental health comorbidities, the Brain Injury Rehabilitation Directorate (2011) suggests distinctions in this term when using it for differential diagnosis. As a psychiatric illness, personality disorders can cause a substantial

amount of grief to individuals as they realize the distress it causes within themselves and to their environment. As a symptom of TBI, personality disorders can cause more stress to the environment than to the individuals as they may be unable to recognize their own deficits. However, even with this distinction, complications arise as both TBI patients and psychiatric patients can have deficits in self-awareness and awareness to environment. According to BIRD, the biggest challenges in establishing a differential diagnosis stem from the individual with TBI (e.g., individual differences and difficulties inherent to the disease) and from the environment (e.g., from within psychiatric services or related to social aspects) (BIRD, 2011). Gainer (2004) suggests five questions to assist in the differentiation between TBI symptoms and a psychiatric illness:

- (1) When did the symptoms emerge, before or after the TBI?
- (2) What were persons like before injury?
- (3) What were their coping styles?
- (4) How have they adjusted to disability?
- (5) What new symptoms/behaviors have developed? (p. 32)

A TBI patient may be at risk for a full-blown psychiatric diagnosis if, in addition to presenting with overlapping TBI and psychiatric symptoms, he has a personal or familial history of psychiatric illness (Gainer, 2004). A history of drug and alcohol use, cultural background, unemployment, and a lack of social and familial support are also predictors for a psychiatric disorder post-TBI (BIRD, 2011). It is possible that many individuals with TBI are overdiagnosed with a psychiatric illness because of the overlap of symptomatology. Elias, Weider, and Mustafa (2011) note the importance of recognizing a TBI in a patient's case history to prevent misdiagnosis of symptoms as a psychiatric illness rather than a TBI symptom. For example,

delusions or hallucinations may not be indicators of psychiatric illness; rather, they may be symptoms of impaired memory, executive functions, or disinhibition due to a TBI. It is also possible that many individuals with TBI are not receiving proper treatment for a psychiatric illness due to the very same overlap of symptoms. According to BIRD (2011), another problem with assigning a psychiatric diagnosis is that psychiatrists frequently rely on the individual's testimony to make a diagnosis; yet, in individuals with TBI, language deficits may partially or completely impair a person's ability to communicate the difficulties he is experiencing. Or, deficits in self-awareness and memory may result in an individual denying the presence of any difficulties. The location of the brain lesion also assists in a differential diagnosis (Elias et al., 2011; BIRD, 2011). Although TBIs can cause diffuse lesions to the brain, localized lesions to different lobes would result in different symptoms. For example, damage to the frontal lobe would impact executive functioning and could result in many of the cognitive symptoms listed previously. Another example would be damage to the parietal lobe, which "is implicated to the onset of delusional disorders" (BIRD, 2011, module 11.3).

TBI: A Risk Factor for Psychiatric Disorders and Criminality

Psychiatric disorders. Timonen et al. (2002) defines mental disorders as "any psychiatric disorders other than alcohol dependence or alcohol abuse" (p. 219). Psychiatric disorders can include, but are not limited to, such disorders as substance-related disorders, conduct disorders (including ADHD), affective disorders, anxiety disorders, and psychotic disorders such as schizophrenia or personality disorders (Luukkainen et al., 2012). The study by Schwarzbald et al. (2008) reports that the most common psychiatric disorders following a TBI are depression, post-traumatic stress disorder, and personality changes (e.g., apathy, affective lability, aggression, behavioral disinhibition, aberrant sexual behavior, paranoia, and lack of self-

awareness). Less common disorders include mania, obsessive-compulsive disorder (OCD), and psychotic disorders.

Gainer (2004) states the severity of the TBI “relates to the potential for the emergence of psychiatric disorders in the first 24 months post injury” (p. 29). Studies have sought to identify the prevalence and incidence of psychiatric disorders in the TBI population. Shoumitro et al. (1999) interviewed 164 TBI patients one year post-injury and reported that 18.3% had a diagnosis of some psychiatric illness. When considering only the adult participants ($n=120$), over 21% were diagnosed with a psychiatric illness. This rate is higher than the rate of psychiatric illnesses in the general population (16.4%). The interviews also revealed a higher prevalence of depression (13.9%) in TBI patients than in the general population (2.1%), and a higher prevalence of panic disorders (9%) than in the general population (.8%). Vaishnavi, Rao, and Fann (2009) reviewed much of the literature regarding neuropsychiatric symptoms following a TBI and found a wide range of prevalence statistics regarding psychiatric problems within the TBI population, including: major depression (25-50%), mania (1-10%), psychosis (3-8%), cognitive impairment (25-70%), anxiety (10-70%), apathy (10%), insomnia (30-70%), and aggression (30%). Although the reported prevalence statistics have a wide variation, in almost every instance the lowest rate for the TBI population is higher than the rates for the general population.

Depression and suicide. In their study on psychiatric disorders and TBI, Schwarzbald et al. (2008) found that “psychiatric comorbidity may become common in depression after TBI” (p. 800). Many studies have indicated the heightened risk of psychiatric disorders and suicide attempts following a traumatic brain injury (Silver, Kramer, Greenwald, & Weissman, 2001). Major Depressive Disorder (MDD) has been considered the “the most common and disabling

psychiatric condition in individuals with TBI” (Bombardier et al., 2010, p. 1,938). Via phone interviews, Bombardier et al. (2010) surveyed 559 TBI patients nine times over the course of their first year post-TBI. Results revealed that approximately 53% of the participants met criteria for MDD at least once during that time frame. Kim et al. (2007) reported a post-TBI depression incidence of 15.3 to 33%, and a prevalence of 18.5 to 61%. Depression and hopelessness are often indicated as predictors of suicidal ideation and suicide attempts (Loge, 2008).

Simpson and Tate (2002) screened a group of TBI outpatients of a brain injury rehabilitation unit for suicidal ideation and hopelessness. The authors used the Beck Hopelessness Scale (BHS), a self-reported scale measuring future expectations and feelings of hopelessness. Out of 172 participants in the study, 23% reported suicidal ideations, and 35% reported feelings of hopelessness (Simpson & Tate, 2002). The authors also reported a suicide attempt rate of 18% among the participants. León-Carrión et al. (2001) evaluated 39 TBI patients for depression and suicidality 1.5 years post-hospital discharge. Thirty-three percent of those participants were clinically depressed and at risk of committing suicide, and of all participants meeting criteria for depression, only 15.6% indicated depression without risk of suicide. When examining the mortality rate of TBI patients, Ventura et al. (2010) determined that patients who were 2 to 5 years post-hospital discharge had a risk of death close to 2.5 times higher than a demographically matched non-TBI population. Risk of death was even higher in the first year post-discharge, but lowered considerably (almost by half) after one year post-discharge. However, Teasdale and Engberg (2001) found that the risk for suicide is constant. Within their study, all suicides occurred approximately 3 to 3.5 years post-TBI.

Teasdale and Engberg (2001) noted that only the more severe TBIs affect the rate of suicide, with cerebral contusion/traumatic intracranial hemorrhage having the highest percentage

of mortality and suicides regardless of sex or age. Their study also reports higher rates of suicide among the TBI population than the general population. Ventura et al. (2010) also found that the highest mortality predictor was injury severity.

Mild TBI (often synonymous with “concussion”) is not necessarily a predictor of suicidality, and Teasdale and Engberg (2001) note that “the association [of suicide and mild TBI] must have arisen from concomitant and perhaps premorbid characteristics” (p.439).

Interestingly, Tsaousides et al. (2011) did not find a correlation between severity of injury and suicidal ideation, or between suicidal ideation and a pre-TBI psychiatric diagnosis, except when the diagnosis was substance-related. They identify five risk factors for suicidality: “demographic and injury-related variables, premorbid characteristics, post-injury psychiatric disorders, and post-injury psychosocial functioning” (p. 226). Using the Beck Depression Inventory Second Edition (BDI-II), their study reported a suicidal ideation (SI) prevalence of 28.3% in a diverse group of 356 post-TBI adults who lived in a community. Participants with a history of alcohol abuse had a much higher rate of SI than their peers without a history of alcohol abuse. For those diagnosed with a psychiatric disorder (especially depression or anxiety) at the time of the assessment, rates of SI were significantly higher than their peers without a current psychiatric diagnosis.

Criminality. Diaz (1995) studied traumatic brain injury and criminality, with results indicating that severe TBI may alter an individual’s psychopathology so far as to increase the risk of nonviolent and violent criminal behavior. Risk of criminality is not limited to adults with TBI. Stoddard and Zimmerman (2011) assessed substance abuse, delinquency, and interpersonal violence of urban young adults, and reported that a history of head injury consistently predicted higher levels of self-reported interpersonal violence in adolescents. Timonen et al. (2002) used

the population data established in The Northern Finland 1966 Birth Cohort Study to examine the long-term effects of TBI on individuals who had incurred a TBI before the age of 15. Members of the cohort identified as having a diagnosed TBI before the age of 15 were cross-checked with cohort members who were admitted to a hospital for a mental disorder or alcoholism up to the age of 31. The authors also collected data on crime records. Their study revealed that, in males, childhood or adolescent TBI doubles the risk of developing psychiatric disorders as an adult. The study also indicated that TBI correlates with an increase in criminal offenses, and almost quadruples the risk of developing co-existing psychiatric disorders and criminal behaviors. Their data did not indicate that TBI increased the risk of alcoholism or heavy alcohol use post-injury. This point of data conflicts with the findings of Teasdale and Engberg's (2001) study, which reports that 5% out of 145,440 TBI patients participating in the study had a concurrent psychiatric diagnosis related to substance abuse.

Children and adolescents. In the population of children and adolescents with TBI, studies have indicated that injury severity does not predict development of depression or anxiety, but that age at injury does (Max et al., 2012). The study of 177 child participants by Max et al. (2012) indicated that the older the child is at time of injury, the more likely he is to become depressed or anxiety ridden. This particular study also revealed that anxiety disorders co-occurred with depressive disorders in 40% of the participants. One Finland study examined the association of substance abuse, conduct disorders, and criminality with TBI in 508 adolescent psychiatric patients (Luukkainen et al., 2012). Compared to adolescent psychiatric patients without TBI diagnoses, the patients with TBI had a significantly higher prevalence of criminality (53.8% compared to 14.7%). Also, the risk of developing conduct disorders after a childhood TBI increased by five-fold. Another study, using maternal and self-reports from a birth cohort

population of children, found that children with a history of mild TBI resulting in hospitalization were more likely to develop the psychiatric disorders of attention deficit hyperactivity disorder (ADHD), conduct disorders, and substance abuse during adolescence. Max et al. (1997) also examined a young TBI population but found differing results. Pulling from a children's inpatient psychiatric unit, they compared children with a history of TBI to demographically matched peers and found that "patients with a history of TBI were virtually indistinguishable from matched children without TBI" (p. 1,595). They caution that in a population of children with psychiatric disorders, the psychiatric disorders cannot definitely be attributed to a prior TBI. However, a similar presentation of psychiatric disorders in TBI vs. non-TBI patients does not diminish the extensive literature linking a heightened risk of psychiatric disorders, regardless of age, with a history of TBI.

Treatment and Counseling

According to Vaishnavi et al. (2009), "The goal of cognitive and behavioral rehabilitation is to improve the patient's ability to process information and to increase functionality" (p. 200). Both restorative training (targeting a specific deficit) and compensatory training (for adaptive purposes) are recommended to treat the loss of cognitive functioning. Treatment for low self-esteem, anxiety, and depression is also vital for patient safety and wellbeing. Care should be taken to capitalize on social supports and reduce social isolation, especially when the patient is known to have suicidal ideations (Tsaousides et al., 2011). In conjunction with restorative and compensatory trainings, psychotherapy and/or pharmacological treatment can be propitious for treatment of depression, aggression, and manic, anxiety, and psychotic disorders. According to Elias et al. (2011), psychotherapy encompasses "personal counseling conducted by a psychotherapist, medical specialist, social worker or other licensed and trained professional who

understands the challenges of TBI” (p. 35). As far as pharmacological treatment, literature reviews have not revealed a consensus on treatment standards or guidelines for pharmacological intervention for the above neurobehavioral symptoms of traumatically brain injured patients (Warden et al., 2006). Gainer (2004) reminds clinicians that, in individuals with a psychiatric illness diagnosed prior to TBI, medication changes may be in order as the individual may not respond the same way due to the brain’s injury. Ultimately, treatment should seek to improve the patient’s quality of life post-TBI.

Simpson et al. (2011) examined the outcomes of 17 severe TBI patients who participated in a 20-hour group program aimed at preventing suicide by treating chronic hopelessness. The program utilized techniques drawn from cognitive behavior therapy. The primary outcome measure was the Beck Hopelessness Scale (BHS). Following completion of the program, 75% of treated patients reported reductions in feelings of hopelessness. All patients maintained or improved scores on the BHS at three months post-treatment. The authors note that while treating depression might have produced similar results, the participants’ scores on the secondary outcome measure, the Hospital Anxiety and Depression Scale, did not significantly change over the course of treatment. This indicates (1) the importance of targeting and treating specific psychological symptoms (in this case, hopelessness rather than depression) and (2) that a TBI population with cognitive deficits can benefit from psychotherapy directed towards reducing hopelessness. The authors note the importance of “psychological interventions that reduce risk [of suicide] by ameliorating suicidal distress and strengthening coping mechanisms” (p. 290). A TBI with a co-occurring psychiatric disorder may impact not only the patient’s response to treatment, but also a clinician’s treatment of this population (Timonen et al., 2002).

The need for such cognitive intervention also creates a need for clinicians and healthcare providers that are well-educated and prepared for the psychiatric and psychological problems present in a TBI population. With a child population specifically, Luukkainen et al. (2012) stresses that “clinicians working with mentally ill adolescents who have experienced head injuries should be aware of the increased risk for delinquency and violent tendencies” (p. 771). Negative predictors for treatment outcome may include a poor response to pharmacological intervention and a prior involvement with the criminal justice system (Gainer, 2004). Workshops on suicide prevention have proven effective for at-risk TBI patients and their healthcare providers. Simpson et al. (2003) studied the TBI and suicide knowledge of the staff of several rehabilitation and community brain injury service agencies before and after a suicide prevention workshop. Immediately following and six months after workshop completion, participants who attended the workshop scored significantly higher on scales of objective knowledge and clinical skills self-assessment than the participants who had not completed the workshop. Although this workshop was specific to TBI and suicide, its results indicate that training clinicians to recognize specific psychiatric disorders can have a positive impact on treatment and prevention, as opposed to clinicians relying solely on personal experience.

In a publication for the Neurologic Rehabilitation Institute of Brookhaven Hospital in Tulsa, Oklahoma, Gainer (2004) notes that many typically used rehabilitation therapies for TBI are less than effective. He comments, for example, that while many clinicians use a cognitive-behavioral therapy approach with the TBI population, deficits in memory and an inability to generalize may limit the therapy’s impact. Memory deficits may also yield reinforcement strategies ineffective during a behavior modification program. He notes that psychotherapy approaches (individual or group) or insight-oriented approaches may be ineffective due to the

patient's inability to relate with problems experienced by other people, or to identify the problems he himself is experiencing. That is not to say that such programs do not have their place in a rehabilitation treatment program, or that they would not be helpful in a TBI population. Rather, this indicates that care must be taken to target specific deficits so that such behavioral, cognitive, and psychological remediations can have the highest level of impact. Gainer (2004) suggests an emphasis on psychosocial aspects to enable an individual to reintegrate into society and relearn their social role. Emphasizing the relearning of social contexts is extremely important due to the negative ramifications (e.g., maladjustment, rejection, and a host of psychiatric symptoms) resulting from any failed social and work reintegration attempts. In Simpson et al.'s (2011) study of suicide prevention, the authors utilized compensatory strategies to further tailor any remedial program to the TBI population. Compensatory strategies for cognitive deficits (e.g., learning and memory) and any comprehension or visual impairments included providing participants with a folder to keep handouts, using larger text size and an appropriate reading level, reviewing content from precious sessions, limited group size, and taking breaks.

SLPs Dealing with Co-occurring Disorders

Banotai (2004) notes that in acute care, the SLP's initial role will be to assess cognitive, communicative, and swallowing abilities as part of a multidisciplinary team of clinicians. As a patient's critical needs improve, he may be transferred to an in-patient rehabilitation center. There, an SLP would also work on sensory stimulation, orientation, attention, and basic communication. Eventually, the SLP should assess and target cognitive-linguistic skills (e.g., problem solving, memory, and reasoning) (Banotai, 2004). Given the rates of suicide attempts and depression following a TBI, an SLP working with this population should also anticipate the

population's need for psychological counseling. According to ASHA (2007), it is within an SLPs scope of practice to provide counseling services for his/her patients. Andrews (2004) observed that treatment cannot be successful in any population without the use of appropriate counseling techniques. Andrews defined these techniques as attending (eliminating distractions and providing the patient your full attention), creative listening (which should be genuine, empathetic, respectful, positive), silence (giving the patient time to process), neutral questioning (allowing a greater understanding of the client), and tracking (creating a picture of the clients interactions with others).

Gough (2004) notes that SLPs function as counselors in order to understand the client's perceptions and situations at that current point and time. While the SLP must quietly and empathetically listen to the client's history, according to Ouellette (2004), the SLP must have a solution-focused approach which helps the client realize "that the future is not always determined by the past but also by what one desires to happen in the future" (p. 9). Thus, it becomes apparent that SLPs function as counselors by (1) having a correct understanding of the client's problems and perceptions and by (2) targeting coping mechanisms and adaptation skills to facilitate the healing and treatment process. With that need for counseling in mind, it is important to differentiate between the ways an SLP can counsel from the way a healthcare professional in mental health services can counsel. Mental health services do not fall under the scope of practice for an SLP, neither does diagnosing a psychiatric illness. Rollin (2000) emphasized the team approach to counseling stating that "The psychotherapist or neuropsychologist... ideally should be primarily responsible for the patient's cognitive and psychodynamic treatment in conjunction with the speech-language pathologist" (p. 70). An SLP cannot ethically bear the complete weight of counseling TBI patients in the face of co-occurring

psychiatric disorders which are best served by psychological or psychiatric counseling. The SLP must always use clinical judgment to know when a client is best served by working in collaboration with or referring patients to other healthcare professions such as a psychologist or psychiatrist. A team approach to treatment insures the best care for the patient, and also assists in establishing realistic goals. While a rehabilitation team (SLP included) may aim for a return to pre-morbid functional, social, and vocational roles, mental health providers may aim for symptom management and illness control (BIRD, 2011). Such mental health gains may be compromised by the gains made in other rehabilitations: in other words, a return to pre-morbid environments may increase stressors and thus cause a regression into negative psychiatric symptoms (BIRD, 2011). Thus, a team approach should entail thorough communication between clinicians and the negotiation of appropriate goals.

Especially in the instance of co-occurring TBI and psychiatric disorders, an SLP can serve as the bridge between the mental health professional and the patient. As the Brain Injury Rehabilitation Directorate (2011) indicates, many individuals with TBI have cognitive deficits (e.g. memory) and thus may forget psychiatric appointments, new coping strategies, or any prescribed pharmacological intervention. Many mental health providers not acquainted with the behavioral and emotional symptoms of TBI may see such actions as noncompliance or disinterest to receiving treatment. This uninformed attitude toward TBI patients could result in discontinuation of mental health services or cause the mental health provider to refrain from offering treatment at the very start. The SLP can advocate for the patient by providing information regarding TBI to the mental health professional while also actively targeting the patient's functional memory to prevent such occurrences.

Chapter 3: Methodology

Participants

A total of twelve certified SLPs participated in this study. They were recruited via email across mid- and southeast- Michigan. Contact information was derived from company webpages, ASHA's database of professionals, and word-of-mouth. Informed consent was obtained from all participants and no incentive was offered for participation. No participant was excluded based on years of work experience, TBI severity level of their clientele, or clientele age.

As described in Table 1, participants' years of experience in the field of speech-language pathology averaged 22 years (range: 9 to 37 years). Years of experience specific to a TBI population averaged 19 years (range: 9 to 35 years). All participants were currently working part-time or full-time positions to serve adults (18+) or older adolescents. Seven of the participants worked in facilities dedicated to TBI rehabilitation; the remaining five SLPs worked with a general adult neurogenic population (which includes TBI) in private practices, hospitals, and rehabilitation facilities. Eleven centers/facilities were represented from a total of eight different organizations. Current caseloads of each participant varied widely with a range of 5 to 20 clients.

Table 1

Participant Demographic Characteristics

Participants	Description of facility	Employment status (hours weekly)	Caseload	Years as SLP	Years as SLP working with TBI population
SLP1	TBI rehabilitation - <i>Residential and outpatient</i>	32	9-15 Adults with TBI	35	35
SLP2	Hospital system - <i>Intensive care, acute care, inpatient and outpatient evaluation in rehabilitation</i>	40	up to 15 Adults with neurogenic disorders	30	24
SLP3	Contingent/PRN - <i>Services vary depending on location: adult neurogenic populations</i>	15-32	Varies Adults with neurogenic disorders	22	20 Intermittently
SLP4	Private Practice - <i>Home care, extended Care</i>	40	Varies Adults with neurogenic disorders	37	30
SLP5	Rehabilitation - <i>Outpatient facility</i>	40	19-20 Adults with neurogenic disorders	16	16
SLP6	Rehabilitation - <i>Outpatient, acute rehabilitation</i>	32 hours	6-7 Adults and older adolescents with neurogenic	20	20

			disorders		
SLP7	TBI Rehabilitation - <i>Subacute care, inpatient, outpatient, and residential</i>	40	9-11 Adults and older adolescents with TBI	9	9
SLP8	TBI Rehabilitation - <i>Subacute care, inpatient, outpatient, and residential</i>	40	9-15 Adults and older adolescents with TBI	18	7
SLP9	TBI Rehabilitation - <i>Transitional, inpatient, residential, outpatient, community-based</i>	40	5-6 Adults and older adolescents with TBI	28	25
SLP10	TBI Rehabilitation - <i>Inpatient, transitional, residential, outpatient, community based</i>	32	10-15 Adults with TBI	16	15
SLP11	TBI Rehabilitation - <i>Residential and outpatient</i>	40 hours	10-14 Adults with TBI	13	13
SLP12	TBI Rehabilitation - <i>Inpatient, transitional, residential, outpatient, community based</i>	24-32	9-13 Adults with TBI	19	15

Materials and Data Gathering Procedure:

This study adopted a qualitative research approach. Data was collected via semi-structured interviews consisting of open-ended questions paired with follow-up inquiries to expand on and clarify participant response. Six interviews were conducted via phone and six were in person. Interviews were 45-60 minutes in length. Interviews were audiotaped with the permission of each participant, then transcribed by the researcher to allow for analysis and interpretation.

Interview questions included:

1. Current employment status?
2. What is your caseload like?
3. How many years of experience do you have as an SLP? How many years have you worked with a TBI population?
4. Is it common in your practice for patients to have co-occurring disorders in cases of TBI? If so, what kind of disorders?
5. What diagnostic tools do you utilize for your TBI patients?
6. How important do you feel it is to differentiate between the psychiatric symptoms and overall symptoms associated with TBI? If so, how do you differentiate those symptoms? Do you use any specific protocol?
7. In your experience, is there a distinguishable difference between the way TBI symptoms and psychiatric disorders present?
8. Would a co-occurring diagnosis of a psychiatric disorder impact the way you present treatment for the TBI population?
9. What are the circumstances that lead to a referral for mental health?

10. What training or preparation would you recommend for SLPs in anticipation of such situations?
11. If a patient doesn't follow through with the recommended mental health services:
 - a. How does that impact treatment tactics? How do you proceed?
 - b. How does that impact the patient's response to treatment?
12. How often do you work with the mental health providers to serve a TBI population? Is there any interdisciplinary service in place in your work setting? If so, what type?
13. Do you follow any specific remediation program in your treatment?

Chapter 4: Results

The qualitative data gathered from these interviews was transcribed and analyzed with respect to common themes and perspectives. Interview questions guided the development of data categories. Participant responses were cross-referenced to assist with the identification of common themes. The data was interpreted with regards to characteristics of this population and implications for future treatment, recommendations, and research. Analysis of interviews revealed five main themes, which are discussed in the following sections.

The Importance of Differential Diagnosis

All participants in the present study stated that the co-occurrence of psychiatric conditions was common in their professional experience while working with the TBI population. These findings correlate with current reports in the literature regarding the prevalence of psychiatric conditions in this population (Shwarzbold et al., 2008; Silver, Kramer, Greenwald, & Weissman, 2011; Bombardier et al., 2010; Vaishnavi, Rao, & Fann, 2009). A compilation of the co-occurring disorders mentioned by participants is seen in Table 2. A wide variety of disorders were listed, with the most common ones being Major Depressive Disorder and Bipolar Disorder.

Table 2

Common Co-occurring Psychiatric Disorders

Disorder	# of participants who named the disorder
Anxiety	5
Apathy	1
Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD)	2
Behavioral/Impulse Control	2
Bipolar	8
Conversion	1
Major Depressive Disorder (MDD)	8
Manic	4
Multipersonality	1
Post-traumatic Stress Disorder (PTSD)	1
Schizophrenia	4
Substance abuse	5
Suicidality	2

All participants also stated that differentiating between the symptoms of those respective disorders was important. Such differentiation is essential in deciding the best mode of treatment for the client, to ensure that the client or facility receives reimbursement, and, as SLP12 stated, to determine “what you [the SLP] are able to help improve and what you can’t.”

The SLPs highlighted a key aspect involved in making a differential diagnosis, which is related to the fact that most insurance companies will not fund treatment for any pre-existing conditions during a client’s TBI rehabilitation. Only those symptoms which are a direct result of the injury are usually covered. However, all SLPs reported that a TBI can exacerbate many pre-existing psychiatric symptoms (e.g. personality disorders, depression, anxiety). As noted in SLP1’s remarks when referring to anxiety and depression specifically, psychiatric disorders “can

be pre-existing and then totally exacerbated by the injury and the circumstances that people find themselves in.”

In the realm of speech-language pathology services, formal diagnostic tools can be used in the diagnostic process and serve to help assess TBI severity and reveal strengths and deficits. Participants reported a total of 25 standardized tests used for their TBI clientele. The most frequently mentioned tests (named by at least 5 participants) were the Rivermead Behavioral Memory Test-III (RBMT-3), Scales of Cognitive Ability for Traumatic Brain Injury (SCATBI), and the Woodcock Johnson Test of Cognitive Abilities-III. All participants stated that they do not necessarily administer standardized tests in their entirety; rather, they pick and choose sections as relevant to the client. One SLP noted that this aspect of diagnostics is important “for the issue of time and for understanding who and what your reimbursement sources are” (SLP3). The issue of limited assessment time was also brought up by other SLPs. For instance, SLP3 noted that, “In TBI, a lot of the standardized tests are so cumbersome and so lengthy that it’s hard to get through more than one.” While formal assessments can give you measurable levels of the client’s cognitive linguistic skills, the SLP must remember the potential that confounding psychiatric factors could skew the test results. For instance, SLP1 remarked that “the emotional or psychiatric state is going to skew all of that [results], no matter what.” Because of this potential, some participants mentioned using standardized tests solely for purposes of reimbursement and relying more on informal measures to guide goal setting and to alert them to the possibility of mental health issues.

All participants stated that differentiating between symptoms was not only important, but also very difficult to do. Notably absent from the list of tests utilized by the SLPs was any type of protocol or standardized assessment specific to differentiating between common

neuropsychiatric symptoms of TBI and symptoms of actual psychiatric disorders. With the absence of any formal measure, SLPs must rely on case history and current symptomatology to alert them to the potential for co-occurring disorders. Some SLPs stressed the use of case histories, medical records, patient and familial testimony, or client interviews to inform them of the presence or possibility of mental health issues. When background information is received pre-intake, sometimes the SLP can recommend a neuropsychological evaluation prior to seeing the client for the first time. That is not always the case, however, as SLP7 noted that she often sees clients for the first time with no background history or information on pre-existing conditions. Even when case histories are available, a TBI can change the way a pre-existing psychiatric disorder presents. In those scenarios, the SLP must rely heavily on the client and family interviews. Even then, SLP12 commented that “family is not always observant or bipartisan. They’re going to be either distant from the relative because of the mental health issues, or they might be covering or enabling.” SLP11 commented that differentiating between symptoms is “all informal observation.” Inevitably, SLPs rely on symptomatology to get a better picture of the client’s current state.

Symptomatology presents difficulties for SLPs as well. Apart from a lack of training in the area of psychiatric disorders, the overlap between some psychiatric disorders and the neuropsychiatric symptoms of TBI make basic diagnostic observation a challenge. Several SLPs stated that differentially diagnosing the symptoms of TBI versus psychiatric disorders was not possible for them. One participant commented that, even though she had available resources regarding depression, she was still unable to name any distinguishable differences in the way depressive symptoms present in the TBI population. Experience was cited as an important aspect for differential diagnosis, as exemplified in this quote: “there’s not always a distinct difference”

between TBI and psychiatric symptoms and that “it takes a trained eye to distinguish between them” (SLP4). SLP10 did discuss a subjective way of differentiating between depressive symptoms, stating that a client with depression as a psychiatric disorder would not make progress. In her words, “the period of time where they ‘come out of it’ doesn’t happen.”

It is important to note that although all participants stated that diagnosing or labeling psychiatric disorders was ultimately not within an SLP’s scope of practice, they all stressed the importance of being aware of those conditions in the TBI population. All participants stressed a reliance on a team mental health professional, saying it was vital in establishing differential diagnoses and ensuring the client received proper treatment. However, noting the necessity of (and reliance on) a mental health provider’s involvement still requires the SLP to evaluate the client’s presentation and be aware of any psychiatric symptoms.

Each participant named one to two behavioral symptoms that might alert them to a potential mental health problem and lead them to make a recommendation for a mental health services. However, the list of symptoms varied widely among the participants, as depicted in Table 3. These symptoms, or similar symptoms, are congruent with symptoms present in psychiatric conditions commonly cited in the literature referent to the TBI population (ASHA, 2009; ASHA, 2011; BIRD, 2011; Gainer, 2004; Rollin, 2000).

Table 3

Behavioral Symptoms Possibly Indicating a Need for Mental Health Involvement

- Aggressive behaviors
- Apathy following a period of good alertness
- Depressed affect
- Emotional lability
- Fatigue
- High level of anxiety that doesn't dissipate
- High speech volume
- Hypervigilance of deficits
- Inconsistent and sudden changes in behavior
- Inconsistent performance
- Increasing frustration
- Outbursts of Anger
- Paranoia
- Rapid rate of speech
- Reports of poor sleep

More objective signs noted by SLP1 and SLP2 included clients confiding suicidal ideations to them. SLP1 noted the importance of taking suicidal comments seriously and reporting them to the appropriate person. The appropriate person may be anyone from a mental health professional, behavior analyst, or case manager for the client. SLP9 stated that, “When those psychiatric issues interfere with our ability to have a successful session...then I need to seek out people and get some help.” Overall, participants lumped neuropsychologists, psychologists, psychiatrists, substance abuse counselors, and sometimes social workers into the “mental health professional” category.

The Importance of a Team Approach to Diagnosis and Treatment

Several SLPs noted that clients who come in as outpatients may have been referred for only one discipline. In that instance, having an awareness of key psychiatric symptomatology is

vital to assuring the client gets appropriate treatment. When a client is assigned multiple therapies however, an SLP has the benefit of team collaboration. As SLPs do not have the option of differentiating between symptoms of TBI and psychiatric disorders via formal assessment, receiving input from other disciplines can be instrumental when deciding whether a client needs a recommendation for mental health services. Every participant mentioned the importance of having a multidisciplinary team of professionals with which to exchange information on client performance.

Information gained from multiple disciplines. Information from other disciplines can shed light on some behaviors seen in speech treatment. SLP1 stated that many clients with psychiatric symptoms act the same way “across the board in all therapies,” so a team meeting can be beneficial in alerting the SLP that certain symptoms are consistent and need to be addressed. For example, when a client is cancelling speech therapy, “team communication is important so you can discern whether it’s just an interpersonal conflict, maybe with that particular therapist, or if it’s across the board with everyone” (SLP4). All SLPs participating in this study worked in an environment which had interdisciplinary services in place. Type (in-person, phone, or written) and amount of team interaction varied according to setting. Some of the TBI rehabilitation centers met weekly to discuss their clients, while the hospital setting was more likely to have team meetings monthly. The question of interdisciplinary teamwork was posed to the participant who works with both ICU and rehabilitation clients, and she stated “that there’s more collaborative discussion on our rehab unit for outpatients than you would have in the acute care setting” (SLP2). SLP5 commented that the benefit of having a team is that “everyone has different perspectives and ideas and sometimes pooling those ideas together is more beneficial for the patient.” There were many therapy disciplines available at the various

facilities represented in this study, including occupational therapy (OT) (e.g., cognitive-perceptual-motor, visual, prewriting, vocational), physical therapy (PT), recreational therapy (TR), music therapy, art therapy, hippotherapy, behavior specialists, counseling, social work, psychology, and psychiatry.

Collaborating with mental health professionals. Overall, the level of interaction between the SLPs and mental health care providers depended on the client and facility. Ten participants stated that they communicated with mental health professionals at least weekly, if not daily. There is the possibility that clients with premorbid psychiatric disorders may already be under the care of a mental health provider prior to entering the SLP's caseload and wish to continue working with their pre-morbid mental health professional. As SLP1 stated, "A lot of people have their own [mental health professional] and they stick with their own." As many mental health providers do not have much experience with TBI and the plethora of post-TBI symptoms, it might be beneficial for the client to switch to the providers located within their rehabilitation facility. SLP 5 highlighted that the mental health providers who work onsite at her location are "ready to go" when working with the TBI population, because they are already familiar with compensatory communication strategies (e.g., asking yes/no questions, providing alphabet boards, using rating scales) and potential symptoms of the TBI clientele. However, some clients choose not to switch to the onsite mental health provider and the SLP must ensure that there is proper communication established between the offsite provider and the rehabilitation facility in order to keep all members of the team informed. Regardless of their location, the SLP may find it necessary to serve as a bridge between the client and the mental health professional, especially when a client has significant speech intelligibility, language, structure, or function deficits causing communication breakdowns. The SLP may also need to interact with the mental

health professional to educate them on compensatory strategies or interaction styles that are more beneficial to the TBI population (SLP5).

Settings and mental health services: As noted earlier, treatment setting plays a role in the type of services and treatment deliveries available to the TBI clientele. Several SLPs indicated that they rarely need to refer a client to other disciplines because of the protocols in place at their facility. Namely, that a whole multidisciplinary team is automatically assigned to the client upon admittance into the program. That is frequently the case when a client enters inpatient, subacute, and residential therapies. One SLP in residential TBI rehabilitation noted: “It’s rare that someone is not on [psychiatric] medication that lives here” (SLP1). Setting also comes in to play when receiving case history/background on the client. One of the TBI rehabilitation facilities represented in this study often required the SLP to begin evaluation without having received any medical, familial, or general case history form. Setting may also dictate interaction with the mental health profession. SLP2 noted psychiatry is “not frequently seen with patients in Intensive Care Unit.” In contrast, SLP1, who works in an outpatient and residential TBI rehabilitation center, commented that most of her clients are already receiving mental health services by the time she sees them for cognitive treatment. SLP8, who works in a similar facility as SLP1, stated that most of her clients have already taken a neuropsychological evaluation, or have one pending, upon admittance to the program.

Possible responses to recommendation. Some SLPs noted that a referral for mental health services occasionally causes a client to get defensive or upset. This situation is avoided in some settings, as SLP5 highlighted, by having “a psychosocial support individual who’s responsible for passing information on.” Ultimately, there are two responses a patient can make when given a recommendation to seek mental health services: compliance or noncompliance. In

some settings, such as inpatient acute care, there may be less of an issue with clients refusing treatment, as stated by SLP2: “In inpatient acute care setting... usually patients are willing to talk with whoever comes into the room.” In other settings, however, non-compliance can be more prevalent. There are a variety of possible reasons for noncompliance. In outpatient rehabilitation, for instance, some clients are simply overwhelmed with the number of services they are receiving and don’t want to add one more appointment to the mix, as indicated by SLP4. SLP10 expressed that refusal may be more likely if the client is his own guardian or is an outpatient referred for only one therapy discipline. SLP12 commented that a client’s home environment could be so chaotic that “they’re not able to attend even though they have the best intention.” Difficulties with transportation, home environment, and family dynamics were also mentioned to account for a lack of follow through. Noncompliance to the recommended mental health services, for whatever reason, can impact both the SLP’s treatment tactics and also the patient’s response to treatment.

Negative Impact of Untreated Psychiatric Disorders

Impact on client. All participants listed slower progress, a plateau in progress, or no progress at all as typical consequences seen in clients who don’t follow through with recommended mental health services. The participants noted that untreated psychiatric disorders can set off a chain of negative consequences. For example, emotional stress can result in problems sleeping, which causes a decreased ability to attend, which affects memory, which affects overall cognitive skills. SLP6 reported that her clients with untreated psychiatric disorders may have highly variable performance during sessions.

An important point raised by the participants is the fact that, prior to TBI, a person may be able to “handle” a psychiatric issue by utilizing cognitive skills: especially acceptance,

compensation, and awareness. However, if those capacities are damaged because of a brain injury, the individual no longer has those cognitive resources to manage their issues. In other words, co-occurring psychiatric conditions and current deficits due to brain trauma have the potential to impact each other, and consequently, the overall recovery and treatment will be affected.

Impact on SLPs and treatment. As highlighted in the previous paragraph, all participants noted that progress in speech therapy is hindered when there is an underlying, untreated psychiatric disorder. SLP10 remarked that speech therapy cannot solve psychiatric symptoms, but that the symptoms can certainly affect the outcome of treatment. Eight of the 12 participants stated that where there was no progress there could be no treatment. SLP4 said, “If the mental health issue is dominating and standing in the way of progress, then sometimes therapy has to be discontinued.” All participants expressed that discontinuation of treatment was the last resort, and that other attempts would be made to continue treatment in hope that a change could be seen in the client’s presentation. SLP8 stated that her first response to this situation might be to educate the client on what impact a psychiatric disorder can have on therapy. Other possible options included holding a trial period of therapy, decreasing number/length of sessions, or putting a client on hold. In the initial diagnostic stage, some outpatient rehabilitation settings can “refuse treatment for a patient unless they’re agreeable to receiving psycho-social support” (SLP5) in the instance that a treatment team decides that speech therapy would be unsuccessful (even with multiple sessions over an extended period of time) without mental health intervention. When an SLP decides to complete a trial run, SLP4 said, “You have to consider that those [psychiatric] issues are there, they may be impacting therapy, but sometimes you have to work around them or in spite of them.” Six participants expressed that they would “revisit” the topic of

mental health involvement at a later time, and “try to make them believe in it: that this can make them better” (SLP7). However, when the psychiatric disorder does continue to prevent progress, a decision about treatment continuation must be made. According to SLP11, “One of the hardest things [SLPs] do is seeing when there’s nothing more we can do- whether because of psychosocial issues or premorbid diagnosis- and the client is good as he’s going to get and we can’t make it better.” When facing discharge from speech as the only or best option for her client, SLP6 stated, “I always want to make sure we have a community-based support group or some kind of discharge plan for them that is taking up the slack of what I’m not able to provide.”

The Importance of Individualized Treatment

The participants in the study emphasized that treatment for TBI needs to be extremely tailored to the client, his needs, and his situation regardless of the presence of psychiatric disorders. None of the participants reported using a specific remediation program in their treatment. They reported they may use modifications of or parts of different protocols (e.g., Oral Reading for Language in Aphasia [ORLA], Melodic Intonation Therapy [MIT]), just as they may utilize subtests of standardized assessments depending on the client’s needs. SLP7’s comment on the prevalence of individualized treatment is a good example of participant views on treatment for the TBI population: “TBI treatment is just like the injury: the injury’s diffuse, the treatment’s diffuse.”

However, a common thread in treatment approach among the participants was functionality. The participants pointed out that, regardless of a co-occurring psychiatric disorder, functionality is essential to individualized TBI treatment. SLP3 remarked, “It might be remediation, it might be compensation, but you’re always looking at function even when you can’t figure [the psychiatric disorder] out.” SLP4 stated that treatment should be “appropriate for

their life and their lifestyle, something that's interesting to them, something that doesn't just seem like drudgery but that they really can believe in." Therapy sessions performed in a real-life, community-based setting is one way to ensure functionality in treatment. As SLP3 noted, "There's a whole lot of information that you get in the community that you don't get when you're at the table with someone." For instance, cueing cycles can differ when working in a clinic room or community setting. The level of cues needed in the clinic room may be lower than the level of cueing needed in real-life scenarios. The SLPs also noted the benefit of working with other disciplines when choosing functional therapy tasks for the clients. Functional co-treatment sessions can allow the SLP to address his/her goals and the other discipline to address theirs within the same activity. SLP3 listed personal examples of co-treating: with the PT for a client who had difficulty with verbal instructions, with the OT for money management, cooking, and medication management, and with the music therapist to calm a volatile client.

Another issue that came up in each participant's interview was how or if speech-language treatment was affected when the co-occurring psychiatric disorder was pre-existing versus one which developed post-TBI. Analysis of participant interviews revealed that a pre-existing disorder would not change treatment tactics any more or differently than a disorder developing post-TBI. SLP3 noted, "Regardless of where it [the psychiatric disorder] is coming from, I'm responsible for looking at their cognitive and communicative ability." SLP3 said her basic approach in these scenarios is to determine whether the client was "able to function in a way that they are no longer able to function."

However, understanding who the client was before the injury can prevent the clinician from being too idealistic while setting goals or from underestimating the client's potential. As with a disorder that develops post-TBI, a pre-existing psychiatric disorder may impact the

client's response to treatment and overall recovery. The SLP may need to adjust his/her expectations with regard to how much progress he/she expects his/her TBI clientele with psychiatric disorders to make. For instance, substance abuse as a pre-existing condition can impact the client's ability to recover: if the client's underlying cognitive functions have been compromised by narcotic use, cognitive treatment for processing speed (a common area of treatment in TBI) may yield limited or no improvement at all.

In addition, treatment delivery should reflect careful consideration of the client's psychiatric state. As SLP11 noted, she may adjust "not necessarily what I'm doing, but how I'm doing it." SLP5 noted that sometimes treatment cannot be as highly structured with a person with a known psychiatric disorder. In her words, "When it's a mental illness... it's like they come in and whatever they're throwing at me that day, I'm dealing with it." The mental condition can also impact how a client views or responds to measures of progress. SLP6 stated that many of her TBI clientele with co-occurring disorders are more easily discouraged. SLP11 remarked, "If it's a premorbid issue [depression], it's so much harder for them to feel good about any of the small milestones, because overlying the premorbid depression you have the awareness-TBI-depression that sets in." SLP6 also stated that a clinician should enter treatment trying to be "overly positive and demonstrate how effective they are versus how ineffective they feel they are." The participants also highlighted the importance of educating the family "to not put down any of the errors or mistakes they're making, but rather, bolster the good things."

The Importance of Keeping within the Scope of Practice and Developing Experience

As mentioned previously, all participants stated that diagnosing, labeling, or treating psychiatric disorders was ultimately not within an SLP's scope of practice. They emphasized the importance of staying within the scope of practice for this field. In the words of SLP12, the

clinician “needs enough knowledge to recognize [psychiatric symptoms], but not too much knowledge that you try to do that job [psychology].” They also pointed out that, although the SLP is an active, consistent source of treatment who often builds rapport faster and sees the client more often than the client’s mental health professional, he/she needs to keep his/her role in perspective.

It is important to remember that the overlap of symptoms between psychiatric disorders and TBI is especially evident as the client’s awareness increases. SLP11 noted that during recovery, her clients “go through the stages of grief. There’s shock and denial, and then they start to become more aware, and as the awareness sets in then you can see the depression starting.” Thus, the combination of a grieving process, life situation, and awareness of change can all result in clients confiding in and leaning on the SLP for counseling. As stated by SLP3, clients may see them [SLPs] as a “sounding board” for their personal problems. SLP6 made a general comment that “the mentally ill population latches on....They finally have support, they have somebody who understands them, and they don’t want to let go.” As counseling can play a vital role in speech-language treatment of this population (Andrews, 2004; ASHA, 2007; Gough, 2004; Rollin, 2000), SLP7 suggested that SLPs turn the role of “counselor” into a problem-solving and collaborative therapy activity. SLP11 warned against suggesting solutions to clients based on personal experience, because “what may have worked for you might become a complete disaster for them.” To avoid situations like that, SLP11 emphasized that a clinician should set up boundaries and maintain professionalism from the onset of treatment. A professionalism which, as SLP12 stated, “builds rapport: where they can tell you stuff but they don’t think it’s in confidence. They understand it would have to be shared.”

The participants had two main recommendations regarding SLP preparation to work with a TBI population with co-occurring psychiatric conditions: a background in psychology and counseling, and hands-on experience. SLP2 noted that her Baccalaureate degree in Psychology helps her recognize when things are “off” in a client’s behavior; in addition, she said the counseling principles she learned through those psychology courses have also proven helpful. Hands-on experience allows SLPs to learn and build much needed experience to work with such a unique population. SLP 7 stated, “There’s no better advice than being on the job... you learn.” The participants suggested other ways to help prepare SLPs working with the TBI population, including: attending seminars, conferences, and webinars, keeping up with current literature, pursuing a brain injury specialist certification, training in behavior de-escalation, and finding a mentor.

Chapter 5: Discussion

The findings in the present study corroborate with other studies indicating a prevalence of co-occurring psychiatric disorders among the TBI population (Masel & DeWitt, 2010; Bombardier et al., 2010; Timonen et al., 2002; Shoumitro, Lyons, Koutzoukis, & McCarthy, 1999). The SLPs who participated in the study identified psychiatric symptomatology as pervasive and common in their TBI clientele. The participants also indicated that differentially diagnosing between the psychiatric disorders and the neuropsychiatric sequelae of TBI was important but difficult. The most frequently discussed reason for the importance was that in order for a client to receive comprehensive and appropriate treatment, he must have the correct diagnoses to precipitate the involvement of other therapeutic disciplines. This echoes the findings reported in the study by Elias, Weider, and Mustafa (2011).

The process of differential diagnosis can be difficult as the neuropsychiatric sequelae of TBI can overlap with the symptoms of psychiatric disorders (BIRD, 2011; Gainer, 2004; Schwarzbald et al., 2008). There is no formal screening measure or assessment that can facilitate the SLP while he/she is determining what, if any, recommendations to make when faced with the possibility of overlapping psychiatric symptoms. While informal measures (e.g., observation, interviews, reviews of case histories) can assist the SLP in this process, they are not sufficient for SLPs to differentially diagnosis between the symptoms of psychiatric disorders and the symptoms of TBI, or, to make referrals for mental health services based on symptomatology. Although participants stated the importance of recognizing psychiatric symptoms, each SLP named only 1 to 2 symptoms that they would consider as triggers for them to make a recommendation to a mental health professional.

The lack of formal assessment protocols and the variation in cited symptomatology makes it even more important to have a team approach to TBI treatment. All participants indicated that a team approach is essential to providing comprehensive treatment for TBI. Team collaboration facilitates the exchange of information about a client's performance across a range of therapeutic settings. Participants noted that collaboration with the mental health profession in particular is essential in the process of differential diagnosis and treatment, as untreated psychiatric disorders can negatively impact speech-language treatment. Untreated psychiatric disorders can hinder the progress a TBI client can make, affect the overall outcome of treatment, and impact diagnostic decisions about continuation of treatment. The participants in this study noted that while their therapeutic activities may remain unchanged in the face of co-occurring psychiatric disorders, the presentation, length, and goals of treatment may need to be adjusted accordingly. Such impact on both client and SLP is congruent with findings reported in other studies, such as, Luukkainen et al., 2012; Tsaousides, Cantor, and Gordon, 2011; Simpson, Tate, Whiting, and Cotter, 2011; Simpson, Winstanley, and Bertapelle, 2003; and Timonen et al., 2002.

An important point raised by the participants in this study is the potential reciprocal impact between psychiatric conditions and the cognitive deficits associated with a TBI. As highlighted by the participants, a client's ability to compensate for and accept a co-occurring psychiatric illness may be compromised by brain damage. A person may be able to "handle" a psychiatric condition by utilizing cognitive skills, especially acceptance, compensation, and awareness. However, if those capacities are damaged because of a brain injury, the individual may no longer have those cognitive resources to manage their issues. The SLPs emphasized that their role in facilitating psychiatric treatment goes beyond assessing the need for referrals, as it

may also involve educating mental health professionals in the cognitive aspects that might be compromised as a consequence of a TBI.

Regardless of the presence of psychiatric disorders, the speech pathologist is responsible for treating cognitive-communicative deficits in their TBI clientele (Banotai, 2004; Vaishnavi et al., 2009). Treatment is most beneficial for the client when it is functional and when it equips them, as much as possible, to function at their pre-morbid stage (Gainer, 2004). Participants in this study again stressed the importance of a team approach, and emphasized co-treating with other disciplines in real-life community settings as imperative for achieving a functional outcome.

Above all, this study highlighted the importance of keeping within the scope of practice for speech-language pathology. As neuropsychiatric symptoms are a natural result of TBI, counseling may play an important part in treating and making progress with this population (Andrews, 2004; ASHA, 2007; Gough, 2004). Participants stated that a background in psychology or counseling had been or would have been helpful in navigating this aspect of TBI treatment. However, an SLP must be vigilant to establish boundaries and to recognize warning signs of a potential psychiatric disorder that requires the treatment of a mental health professional. SLPs are not trained or equipped to handle psychiatric disorders and must know when a referral is necessary for a client (BIRD, 2011; Rollin, 2000).

Chapter 6: Conclusion

This study provides some insight to SLPs' perspectives on the prevalence of co-occurring psychiatric conditions in the TBI population and its impact on treatment. The participants in this study reported a high prevalence of co-occurring psychiatric conditions in their caseload, which is congruent with previous reports in the literature. In addition, the SLPs identified the co-occurrence of psychiatric conditions as one important factor which impacts their practice and outcomes when working with the TBI population.

The SLPs reported that the impact seems to be reciprocal; indicating that individuals who suffer a TBI might have their cognitive resources compromised, which could impact their ability to manage their psychiatric issues. Such reciprocal impact has important clinical implications, as it further emphasizes the need for interprofessional relationships and collaboration in order to guarantee appropriate care for the TBI population. The participants also reported an important reliance on a multidisciplinary team, especially with mental health providers, to provide comprehensive treatment for this clientele. This seems to be the case regardless of the setting at which the SLP is working.

As participants noted their frequent role as a counselor, or "sounding board," for their TBI clientele, another clinical implication of this study is that SLPs would benefit from continuing education in counseling and psychology that could equip them to appropriately handle difficult situations (e.g., grief or aggression) with their clients. Education in these areas might allow the SLP to recognize possible symptoms and behaviors that indicate a need for the involvement of other professionals. While all participants noted that hands-on experience is ultimately the best way to learn, from the very onset of treatment the SLP must be able to build rapport and provide cognitive-linguistic treatment in the face of co-occurring disorders.

Education in counseling and psychology, paired with a firm grasp of the limitations in speech-language pathology's scope of practice, could support the SLP in his/her role as therapist and counselor without over-stepping his/her bounds.

The SLPs also indicated that differentially diagnosing between the psychiatric disorders and the neuropsychiatric sequelae of TBI was important but difficult. They seemed to rely on limited symptomatology to identify the need for referral to a mental health professional. As indicated in the results, the participants in the study listed only 1 to 2 symptoms as triggers for a referral. In addition, the list of symptoms varied considerably among the participants in the study. These results seem to point to the lack of a standard procedure in the field of speech-language pathology to assess the mental health needs of the TBI population. The development of a standardized screening and additional training in recognizing symptoms of psychiatric disorders seems to be important to facilitating a differential diagnosis and ensuring an appropriate referral process.

Limitations of the Study and Direction for Future Studies

While the findings of this study are partially generalizable to reflect SLPs' perspectives regarding their service to the TBI population, qualitative studies, as defined by Bogdan and Biklen (1998), are not always generalizable in the truest sense of the word. The limited number of participants and the small geographical region are all limiting factors of this study. A similar, survey-based study performed on a larger group of SLPs representing a wider region would be beneficial to determine whether the findings of this study accurately reflect the perspectives of the majority of SLPs who work with a TBI population with co-occurring psychiatric disorders.

The SLPs in this study clearly indicated a high reliance on a multidisciplinary team approach, including mental health professionals, to provide comprehensive treatment for this

clientele. They specifically mentioned the reciprocal impact between psychiatric conditions and cognitive deficits in the TBI population. Future studies should focus on investigating the dynamics underlying the multidisciplinary approach through the perspectives of other professionals, especially mental health professionals. A cross-reference between the perspectives of all professionals involved may enhance differential diagnosis and improve intervention services to the TBI population.

References

- American Speech-Language Hearing Association [ASHA]. (2007). *Scope of practice in speech-language pathology*. doi: 10.1044/policy.SP2007-00283. Retrieved January 5, 2013 from <http://www.asha.org/docs/html/SP2007-00283.html>
- ASHA. (2009). *Current perspectives on traumatic brain injury*. Retrieved December 2, 2012 from <http://www.asha.org/aud/articles/currentTBI.htm>
- ASHA. (2011). *Traumatic Brain Injury (TBI)*. Retrieved January 21, 2013 from <http://www.asha.org/public/speech/disorders/tbi.htm>
- Andrews, M. A. (2004, March). Counseling Techniques for Speech-Language Pathologists. *Perspectives on Language, Learning, and Education*, 11(1), 3-8. doi: 10.1044/lle11.1.3
- Banotai, A. (2004). TBI in today's military: Challenges in acute care and rehabilitation. *Advance for Speech-Language Pathologists and Audiologists*, 14(32), 6-7. Retrieved January 21, 2013 from <http://speech-language-pathology-audiology.advanceweb.com/Article/TBI-in-Todays-Military-1.aspx>
- Bogdan, R. C., & Biklen, S. K. (1998). *Qualitative research in education: An introduction to theory and methods* (3rd Ed.) Boston: Allyn and Bacon.
- Bombardier, C. H., Fann, J. R., Temkin, N. R., Esselman, P. C., Barber, J., & Dikmen, S. S. (2010). Rates of major depressive disorder and clinical outcomes following traumatic brain injury. *The Journal of the American Medical Association*, 303(19), 1,938-1,945. doi:10.1001/jama.2010.599.
- Brain Injury Association of America. (2012). *Brain injury statistics*. Retrieved February 25, 2013 from <http://www.biausa.org/glossary.htm>

Brain Injury Rehabilitation Directorate [BIRD]. (2011). TBI staff training for mental health problems and TBI: Diagnosis and management, module 11. Retrieved February 25, 2013 from http://www.tbistafftraining.info/selfstudy/Module_11/11.1.htm

Centers for Disease Control and Prevention [CDC], National Center for Injury Prevention & Control: Traumatic Brain Injury (2012, March 23). How many people have TBI?. Retrieved January 1, 2013 from <http://www.cdc.gov/TraumaticBrainInjury/statistics.html>.

CDC. (2010 March). *Traumatic brain injury in the United States: Emergency department visits, hospitalizations and deaths 2002-2006*. Retrieved February 9, 2013 from http://www.cdc.gov/traumaticbraininjury/pdf/blue_book.pdf

Diaz, F. G. (1995). Traumatic brain injury and criminal behavior [Abstract]. *Medicine and Law*, 14(1-2), 131-140. Abstract retrieved from American Psychological Association PsycNET.

Elias, E., Weider, K., & Mustafa, R. (2011, June). Understanding the differences between traumatic brain injury and psychiatric disorders. *The Exceptional Parent*, 41(6), 34-35.

Gainer, R. B. (2004, October 21). *Psychiatric issues in traumatic brain injury: Establishing a differential diagnosis and identifying effective treatment for individuals with TBI and behavioral health problems* [PowerPoint slides]. Retrieved February 25, 2013 from Neurologic Rehabilitation Institute at Brookhaven Hospital website: <http://www.traumaticbraininjury.net/files/resources/Psychiatric%20Issues%20in%20Traumatic%20Brain%20Injury.pdf>

- Gough, D. (2004, March). Disability, loss, and grieving: Implications and suggestions for speech and language professionals. *Perspectives on Language, Learning, and Education*, 11(1), 18-25. doi: 10.1044/lle11.1.18
- Kim, E., Lauterbach, E. C., Reeve, A., Arciniegas, D. B., Coburn, K. L., Mendez, M. F., Rummans, T. A., & Coffey, E. C. (2007). Neuropsychiatric complications of traumatic brain injury: A critical review of the literature (a report by the ANPA Committee on Research). *The Journal of Neuropsychiatry and Clinical Neurosciences*, 19(2), 106-127.
- León-Carrión, J., De Serdio-Arias, M. L., Cabezas, F. M., Roldán, J. M., Domínguez-Morales, R., Martín, J. M., & Sanchez, M. A. (2001, February). Neurobehavioural and cognitive profile of traumatic brain injury patients at risk for depression and suicide. *Brain Injury*, 15(2), 175-181. doi: 10.1080/02699050117879
- Loge, J. H. (2008, May). *Depression and hopelessness- similarities and differences* [PowerPoint slides]. 5th Research Forum of the European Association for Palliative Care, Trondheim, Norway. Retrieved February 25, 2013 from www.eprc.org/meeting_getfile2.php?id=aVHt1N2umSuaF3gfdIpQ
- Luukkainen, S., Riala, K., Laukkanen, M., Hakko, H., & Pasanen, P. (2012). Association of traumatic brain injury with criminality in adolescent psychiatric inpatients from Northern Finland. *Psychiatry Research*, 200(2), 767-772.
- Masel, B. E., & DeWitt, D. S. (2010). Traumatic brain injury: A disease process, not an event. *Journal of Neurotrauma*, 27, 1,529-1,540. doi: 10.1089/neu.2010.1358
- Max, J. E., Sharma, A., & Qurashi, M. I. (1997, November). Traumatic brain injury in a child psychiatry inpatient population: A controlled study [Abstract]. *Journal of the American*

- Academy of Child and Adolescent Psychiatry*, 36(11), 1,595–1,601. Abstract retrieved from National Center for Biotechnology Information.
- Max, J. E., Keatley, E., Wilde, E. A., Bigler, E. D., Schachar, R. J., Saunders, A. E., Ewing-Cobbs, L., Chapman, S. B., Dennis, M., Yang, T. T., & Levin, H. S. (2012, May). Depression in children and adolescents in the first 6 months after traumatic brain injury. *International Journal of Developmental Neuroscience*, 30(3), 239-245. doi: 10.1016/j.ijdevneu.2011.12.005.
- McKinlay, A., Grace, R., Horwood, J., Fergusson, D., & MacFarlane, M. (2009). Adolescent psychiatric symptoms following preschool childhood mild traumatic brain injury: Evidence from a birth cohort. *Journal of Head Trauma Rehabilitation*, 24(3), 221-227.
- Ouellette, S. E. (2004, March). Applications of solution-focused concepts to the practice of speech-language pathology. *Perspectives on Language, Learning, and Education*, 11(1), 8-14. doi: 10.1044/lle11.1.8
- Rollin, W. J. (2000). *Psychological considerations for the traumatically brain-injured and their families*. In *Counseling individuals with communication disorders: psychodynamic and family aspects* (2nd ed., pp. 65-96). Boston: Butterworth-Heinemann.
- Schwarzbold, M., Diaz, A., Matins, E. T., Rufino, A., Amante, L. N., Thais, M. E., Quevedo, J., Hohl, A., Linhares, M. N., & Walz, R. (2008, August). Psychiatric disorders and traumatic brain injury. *Journal of Neuropsychiatric Disease and Treatment*, 4(4), 797-816. Retrieved on February 5, 2013, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2536546/>.
- Shoumitro, D., Lyons, I., Koutzoukis, C., Ali, I., & McCarthy, G. (1999). Rate of psychiatric illness 1 year after Traumatic Brain Injury [Abstract]. *American Journal of Psychiatry*,

156(3), 374–378. Abstract retrieved from National Center for Biotechnology Information.

Silver, J. M., Kramer, R., Greenwald, S., & Weissman, M. (2001, November). The association between head injuries and psychiatric disorders: Findings from the New Haven NIMH Epidemiologic Catchment Area Study. *Brain Injury, 15*(11), 935-45. doi: 10.1080/02699050110065295

Simpson G. & Tate R. (2002, May). Suicidality after traumatic brain injury: Demographic, injury and clinical correlates. *Psychological Medicine, 32*(4), 687–98.

Simpson, G., Winstanley, J., & Bertapelle, T. (2003). Suicide prevention training after traumatic brain injury: Evaluation of a staff training workshop. *Journal of Head Trauma Rehabilitation, 18*(5), 445-456.

Simpson, G. K., Tate, R. L., Whiting, D. L., & Cotter, R. E. (2011). Suicide prevention after traumatic brain injury: A randomized controlled trial of a program for the psychological treatment of hopelessness. *Journal of Head Trauma Rehabilitation, 26*(4), 290-300. doi: 10.1097/HTR.0b013e3182225250

Stoddard, S. A. & Zimmerman, M. A. (2011). Association of interpersonal violence with self-reported history of head injury. *Pediatrics, 127*, 1,074–1,079. DOI: 10.1542/peds.2010-2453

Teasdale, T. W., & Engberg, A. W. (2001). Suicide after traumatic brain injury: A population study. *Journal of Neurology, Neurosurgery, & Psychiatry, 71*, 436-440. doi: 10.1136/jnnp.71.4.436

Timonen, M., Miettunen, J., Hakka, H., Zitting, P., Veijola, J., Wendt, L., & Rasanen, P. (2002). The association of preceding traumatic brain injury with mental disorders, alcoholism,

- and criminality: The Northern Finland 1966 birth cohort study. *Psychiatry Research*, 113, 217-226.
- Traumatic Brain Injury Task Force. (2008). *Report to the surgeon general*. (pp.19-20). Retrieved February 25, 2013 from <http://www.armymedicine.army.mil/reports/tbi/TBITaskForceReportJanuary2008.pdf>
- Tsaousides, T., Cantor, J. B., & Gordon, W. A. (2011) Suicidal ideation following traumatic brain injury: prevalence rates and correlates in adults living in the community. *The Journal of Head Trauma Rehabilitation*, 26(4), 265-275. doi: 10.1097/HTR.0b013e3182225271
- Vaishnavi, S., Rao, V., & Fann, J. R. (2009). Neuropsychiatric problems after traumatic brain injury: Unraveling the silent epidemic. *Psychosomatics*, 50(3), 198-205. doi: 10.1176/appi.psy.50.3.198.
- Vassallo, J. L., Proctor-Weber, Z., Lebowitz, B. K., Curtiss, G., & Vanderploeg, R. D. (2007, June). Psychiatric risk factors for traumatic brain injury [Abstract]. *Brain Injury*, 21(6), 567-573. Abstract retrieved from National Center for Biotechnology Information.
- Ventura, T., Harrison-Felix, C., Carlson, N., Diguseppi, C., Gabella, B., Brown, A., Devivo, M., & Whiteneck, G. (2010, January). Mortality after discharge from acute care hospitalization with traumatic brain injury: A population-based study. *Archives of Physical Medicine and Rehabilitation*, 91(1), 20-29. doi: 10.1016/j.apmr.2009.08.151
- Warden, D. L., Gordon, B., McAllister, T. W., Silver, J. M., Barth, J. T., Bruns, J., Drake, A., Gentry, T., Jagoda, A., Katz, D. I., Kraus, J., Labbate, L. A., Ryan, L. M., Sparling, M.B., Walters, B., Whyte, J., Zapata, A., & Zitnay, G. (2006, October). Guidelines for the

pharmacologic treatment of neurobehavioral sequelae of traumatic brain injury. *Journal of Neurotrauma*, 23(10), 1,468–1,501.

Appendix A: Human Subjects Permission Letter

Eastern Michigan University
College of Education
Review Committee on Student Research
Involving Human Subjects Committee Action

Project Title: Impact of Co-occurring Psychiatric Disorders and Traumatic Brain Injury on Speech-Language Treatment: Speech-Language Pathologists' Perspectives

Principal Investigator (must be a faculty member): Dr. Ana Claudia Harten

Department: Special Education

Co-PI / Student Investigator: Janis W. Neal

Approved]

Conditional Approval]

Disapproved]

Exempt]

Not exempt]

Reasons, if disapproved:

N/A

Comment:

Well set up. Cleared to collect data.

Signature for the Committee:

12, 2013



Date: April

* Please note that all Human Subjects Proposals need to be submitted well in advance of scheduled solicitation of potential participants and that **no data involving Human Subjects should be collected prior to approval.**

NOTE

1. Investigators are obligated to advise the review committee of any change in protocol that might bring into question the involvement of human subjects in a manner at variance with the considerations on which the prior approval was based.
2. Every 12 months from the date of this approval or at shorter intervals where specified by the committee, the investigator must submit the proposal to the committee for re-review.