MENTAL HEALTH AND TRAUMATIC BRAIN INJURY SURVIVORS:
THE RELATIONSHIP BETWEEN SELF-ESTEEM, SHAME, AND DEPRESSION TO
QUALITY OF LIFE AFTER MILD AND MODERATE TRAUMATIC BRAIN INJURY

by

Lisa Marie Ansell

Liberty University

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education
School of Behavioral Sciences
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ABSTRACT

Self-esteem, shame, and depression are three factors which can impact quality of life. Mental health counseling and perceived satisfaction of mental health services can also have an impact on quality of life. This study focused on the how mild and moderate traumatic brain injury survivors within a small sample population perceived how self-esteem, shame, and depression were predictors of quality of life. Through survey research, an online survey was utilized to solicit responses to questions related to self-esteem, shame, depression, quality of life, counseling services, and counseling service satisfaction among mild and moderate traumatic brain injury survivors who participate in brain injury support groups within the State of Colorado. Responses indicated mild and moderate traumatic brain injury survivors did seek more counseling services and were more satisfied than dissatisfied with the services they received post-injury. The research also indicated that while shame and depression do have a small predictor proportion to quality of life, self-esteem was the greatest predictor of the three independent variables to perceived quality of live among mild and moderate traumatic brain injury survivors who participated in the survey for this study.

Keywords: Mild Traumatic Brain Injury, Moderate Brain Injury, Self-esteem, Shame, Depression, Quality of Life
Dedication

To those who live with the effects of traumatic brain injury.
Acknowledgments

First, and foremost, I wish to thank my Lord and Savior, Jesus Christ whose sacrifice and love have been a guiding force in my life. Thank you for loving and believing in me when I did not.

I wish to thank Liberty University for providing me an opportunity to continue my education at the graduate and doctorate levels. Along the way, there has been great instruction from many knowledgeable professors. There are a few professors I would like to express my gratitude toward for their assistance not only with this dissertation, but with my academic growth as well. Dr. Cynthia Doney, and Dr. Hill, I thank you for providing me the opportunity to prepare this dissertation. Dr. Karin Dumont, though you were not part of my dissertation committee, I thank you for taking those few minutes of your time, several years ago, when you listened and explained what didn’t make sense. I am so grateful the Lord allowed our paths to cross.

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List of Abbreviations

Brain Injury Alliance of Colorado (BIAC)
Cognitive Behavioral Therapy (CBT)
Cognitive Rehabilitative Therapy (CRT)
Computed Tomography (CT)
Glasgow Coma Scale (GCS)
Health-Related Quality of Life (HRQoL)
Life Satisfaction Scale (LISAT-11)
Magnetic Resonance Imaging (MRI)
Mild Traumatic Brain Injury (mTBI)
Other as Shamer Scale (OAS)
Positron Emission Tomography (PET)
Post-traumatic Amnesia (PTA)
Quality of Life After Traumatic Brain Injury Scale (QOLIBRI)
Single Photon Emission Computed Tomography (SPECT)
Traumatic Brain Injury (TBI)
United States Brain Injury Alliance (USBIA)
CHAPTER ONE: INTRODUCTION

Though this dissertation and research has been written as a partial fulfillment of the requirements for the Degree Doctor of Education, it is also written for, and dedicated to those who live with the effects of traumatic brain injury. Much of the content is expressed in academic form with some content being repeated or simplified so those with traumatic brain injury who have an interest in this work, may understand the content presented.

Overview

Many studies have been conducted in relation to how traumatic brain injury (TBI) can impact a survivor from neurochemical and neuropsychological stances. Research is limited or lacking when it comes to how self-esteem, shame, and depression can impact the mental well-being of a TBI survivor. These effects can impact the level of motivation and willingness for the survivor to work toward physical, psychosocial, occupational, interpersonal, academic and emotional rehabilitation (Martone, 2006; Konrad, Geburek, Rist, Blumenroth, Fischer, Husstedt, Arolt, Schiffbauer, & Lohmann, 2010). This study explores whether negative mental aspects such as self-esteem, shame, and depression impact quality of life from the perspective of the TBI survivor.

Background

The following section will provide information pertaining to services and issues surrounding traumatic brain injury. Included in this section are prevalence of TBI in the United States, TBI Awareness, Loss of Self, Model of Care for Survivors, Traumatic Brain Injury Act of 1996, the estimated costs of TBI, Pharmacological Bandages, and finally, information pertaining to the accuracy of the number of reported traumatic brain injuries in the United States. This
information will present an awareness of some of the physical, emotional, financial, and provider challenges associated with traumatic brain injury.

Prevalence of TBI in the United States

Each year, more than 10 million people globally, including 5.3 million Americans are diagnosed with a brain injury with approximately 2.5 to 6.5 million people sustaining permanent or long-term traumatic brain injury (TBI) consequences (Ahmed, Venigalla, Mekala, Dar, Hassan & Ayub, 2017; Kennedy, 2008). These figures are derived from reported TBIs by medical providers but do not include TBIs sustained by military personnel or unreported TBIs (Langlois, Rutland-Brown, & Wald, 2006). Approximately 90% of all TBIs are considered mild (Vos, Alekseenko, Battistin, Ehler, Gerstenbrand, Muresanu, …von Wild, 2012), meaning symptoms including headache, double vision, dizziness, short-term memory impairments, speech and processing difficulties, and sensitivity to light, to name several examples are present. It is common for symptoms to resolve over time, though some individuals can experience long-term symptoms resulting in disability (Brain Injury Association of America, 2013; Centers for Disease Control and Prevention, 2014).

Nearly 61% of individuals diagnosed with TBI met diagnostic criteria from The Diagnostic and Statistical Manual for Mental Disorders, (5th ed.), for at least one psychiatric disorder within the first post-injury year (Hsieh, Ponsford, Wong, Schönberger, Taffe, & McKay, 2012). Of those, 42.2% were diagnosed with mood disorders, while 44.1% were diagnosed with an anxiety disorder. Mood and anxiety disorders were the conditions most common and correlated with impaired function execution and psychosocial impairments and/or issues associated with TBI (Hsieh, et al., 2012; Centers for Disease Control and Prevention, 2014).
TBI Awareness

TBI is not a new diagnosis but TBI has become a recently-observed phenomenon (Centers for Disease Control and Prevention, 2014). The media has brought TBI into the spotlight because of the Persian Gulf War, Operation Desert Freedom, and with the wars in Iraq and Afghanistan. Soldiers have returned home with more TBIs, which has brought TBI into a bigger spectrum, with a bigger audience (Vaishnavi, Rao, & Fann, 2009). A few examples of TBI mechanisms of injury in both the military and civilian populations include falls, sports injuries, vehicle accidents, physical assaults, and blast-incurred brain injuries (Ahmed, et al., 2017; Buck, 2011; Vaishnavi, et al., 2009; Czubaj, 1996). Seizures, dementia, Alzheimer’s disease, and cranial nerve injuries are noted neurological complications while depression, posttraumatic stress disorder (PTSD), generalized anxiety disorder, obsessive-compulsive disorder, and cognitive and behavioral issues are noted psychiatric complications commonly found following TBI (Ahmed, et al., 2017; Czubaj, 1996).

Further, are statistics regarding underreported traumatic brain injuries which can include potentially 200,000 people in the United States who may have been treated for their injury in settings other than emergency room or military personnel. Information from these resources is not provided in the annual reported statistical data for individuals who sustained a head injury (Langlois, et al., 2006). Other areas of consideration are undiagnosed TBI though a patient may have received medical care, as well as individuals who may have sustained a TBI but did not seek care. It is not known how many individuals may fall into the underreported or non-reported category, so the effects of TBI can stem greater than the potential 200,000 people noted in a 2006 study (Langlois, et al., 2006).
While there are many aspects to consider regarding TBI, one focus needing further research and study is within mental health (Ahmed, et al., 2017; Draper & Ponsford, 2008; Buck, 2011, Cope, Mayer, & Cervelli, 2005; Charmaz, 1983). Depending on the severity of the trauma, the mental affects can be life-changing physically, spiritually, and emotionally (Draper & Ponsford, 2008; Tate, Shenton, & Bigler, 2012). Such emotional, physical, psychological, and spiritual changes can impact quality of life for the mild and moderate traumatic brain injury survivor, the population of focus in this study. Specifically, this study will evaluate how self-esteem, shame, and depression can impact quality of life for the mild and moderate traumatic brain injury survivor.

**Loss of Self**

Charmaz (1983), presented the concept of the loss of self through chronic illness. Charmaz asserted that the chronically ill doubt their self-value, live restricted lives, experience social isolation, lose their self-identity, and fear being a burden to others (Charmaz, 1983). A common issue for many survivors is the loss of who they were prior to the injury and having to accept who they are after the injury (Haskins, et al, 2012; Vasterling, et al., 2012). For example, a survivor may have been a successful business executive who oversaw important decisions and prepared reports and presentations for stakeholders. Injury may have impaired cognitive and processing functioning where the survivor can no longer function at the business executive level. The survivor may be at a level where driving or bagging groceries may be too challenging. A prisoner of injury; being trapped in an impaired body that once functioned normally. Self-esteem, shame, and depression have the potential to roost nests and impact quality of life for survivors (Charmaz, 1983; Herman, 1997; Haskins, et al., 2012).
Model of Care for Survivors

In 1987, The Traumatic Brain Injury Model Systems (TBIMS) was created through a grant provided by the United States Department of Education, National Institute on Disability Rehabilitation and Research (NIDRR). From the initial development of TBIMS, the goals were to develop a quality system of care while also collecting data relating to research of quality of care for TBI survivors. The goals of care continue to evolve to research including quality of life after brain injury, causes of brain injury, residual effects of brain injury, effectiveness of treatments being used, and short-term and long-term outcomes. The data collected is stored into a national database for analysis of TBI treatment and outcomes (Brain Injury Association of America, 2016). A goal for the national data base is to work toward a standard of care, evaluate which treatments are effective, and work toward better outcomes for survivors (Brain Injury Association of America, 2016).

Traumatic Brain Injury Act of 1996

In 1991, an amendment was introduced to Congress which was the first legislation presented to Congress which specifically and exclusively addressed TBI from a civilian standpoint. The act provides for agencies such as the National Institutes of Health and the Centers for Disease Control and Prevention to authorize grants to be used for research and studies related to brain injury and outcomes. Five years after initial presentation, The Brain Injury Act of 1996 was enacted. The law also includes funding at the state and federal level available through grants, for protection, advocacy, and to improve access for quality services for TBI survivors and their families (Brain Injury Association of America, 2016).

TBIMS and The Brain Injury Act of 1996 are two examples of how awareness of TBI and the need to improve services to survivors and family members are not going unnoticed.
There are several state and federal resources conducting research, collecting data, and offering services for the TBI community and their families.

**A High Price to Pay**

It is estimated that due to loss of productivity and medical costs associated with TBI, $76.5 billion is lost annually, while inappropriate diagnostic instruments, lack of training screening techniques among providers, and ineffective care have shown to be causes for behavioral issues and long-term disability for survivors of TBI (Brain Injury Association of America, 2016; Haskins, Cicerone, Dams-O’Connor, Eberle, Langenbahn, & Shapiro-Rosenbaum, 2012; Cope, et al., 2005; Centers for Disease Control, 2014).

**Pharmacotherapy as a Bandage?**

Pharmacotherapy was the common method of treatment for mild and moderate traumatic brain injury during early practice and identification of diagnoses for traumatic brain injury. Pharmacotherapy is still commonly used for mild and moderate traumatic brain injury treatment to provide mood stabilization, behavior stabilization, while also assisting with seizure activity in survivors with seizure characteristics (Waldron-Perrine, Hanks, & Perrine, 2008). A disadvantage to pharmacotherapy for some mild and moderate traumatic brain injury survivors, can be, while the neurochemical effects of the therapy may produce desired changes, mental health issues may not be addressed if the survivor is unable to effectively communicate either due to injury, or the medication may present the survivor with a false sense of stabilization without triggers or memories of a traumatic event leading to injury being addressed with psychotherapeutic intervention (Waldron-Perrine, Hanks, & Perrine, 2008; Arciniegas, et al., 2013; Zasler, et al., 2013).
When pharmacotherapy is monitored and used in conjunction with other therapeutic means such as psychotherapy, cognitive rehabilitation therapy, vocational therapy, and occupational therapy, to give several examples, many mild and moderate traumatic brain injury survivor can have a more positive outcome and quality of life than if pharmacotherapy was the sole intervention of treatment (Zasler, et al., 2013). There are however, some circumstances where due to severity of injury, pharmacotherapy is the appropriate option for treatment for impaired symptoms. Survivors in the higher moderate to severe TBI range generally require more pharmacotherapy than survivors in the mild and moderate traumatic brain injury range (Waldron-Perrine, Hanks, & Perrine, 2008; Arciniega, et al., 2013; Zasler, et al., 2013).

**Accurate Numbers**

Research has indicated the actual numbers associated with traumatic brain injury reporting may be difficult to report. Some people who have sustained a mild traumatic brain injury may not seek medical attention, not all medical providers report mild traumatic brain injuries, and the number of military personnel who sustain a traumatic brain injury is not fully disclosed. Traumatic brain injury was more common among military personnel serving or who had served in combat. Due to lack of reporting, it is estimated that nearly 200,000 TBIs go unreported annually; this figure does not include military personnel (Brain Injury Association of America, 2016; Wilson & Keane, 2004). As more awareness has been brought to light by social media and media outlets alike since the beginning of the Persian Gulf War, studies have primarily focused on neuroimaging and neuropsychological assessment tools to evaluate structural and executive functioning of TBI, as previously noted, with more research needed on the emotional and mental health aspects of the impacts traumatic brain injury can have on the quality of life for TBI survivors (Vos, et al., 2012; Vaishnavi, et al, 2009; von Steinbuchel,

**Problem Statement**

While there is much research regarding neurobiological, neuroscience, and neuropsychological issues for TBI, the research surrounding quality of life and mental health issues for survivors is, according to von Steinbüchel, et al, (2009), “poorly investigated” (p. 1167). Research aimed at identifying the traumatic brain injury survivor’s perspective on how self-esteem, shame and depression can impact quality of life after traumatic brain injury can help providers understand where more comprehension, training, and services are needed to further assist mild and moderate traumatic brain injury survivors to help enhance their quality of life. Many of the assessments currently used in the evaluation process of post-TBI status are general and may not address Health-Related Quality of Life (HRQoL) specifically related to TBI. Thus, limiting understanding of the effects of negative emotions, such as self-esteem, shame, and depression on one’s quality of life (Martone, 2006; von Steinbüchel, et al, 2009). Without this understanding and proper training on the part of the mental health professional, treatments rendered to the client may be insufficient or inappropriate. How a TBI survivor cognitively processes information, regulates behavior, or communicates verbally and socially is often impaired and unique to the individual (Arciniegas, et al., 2013). As a result, standard therapeutic approaches such as cognitive behavioral therapy (CBT) or eye movement desensitization and reprocessing (EMDR) may not be appropriate or effective for a client with TBI, leaving them with mental health needs unmet (Trevena & Cameron, 2011; Shapiro & Forrest, 2016; Brain Injury Association of America, 2016; National Research Council, 2011). This study seeks to add to existing research surrounding quality of life and mental health issues for survivors of TBI by
incorporating self-reported and self-perceived responses from mild and moderate TBI survivors responding to a survey which uses three previously validated and determined to be reliable questionnaires (Quality of Life after TBI Scale, Life Satisfaction Scale – 11, & Other as Shamer Scale) surrounding quality of life, self-esteem, shame, and depression issues. This study addresses a gap in the literature surrounding three emotional components which may impact quality of life for the mild and moderate traumatic brain injury survivor.

**Purpose Statement**

The purpose of this study is to investigate the relationship between self-esteem, shame, and depression and quality of life among mild and moderate traumatic brain injury survivors. Though there are many areas in the mental health realm which can be taken into consideration, this study specifically explores self-esteem, shame, and depression and the impact on quality of life from the perspective of mild and moderate traumatic brain injury survivors. It is believed that understanding the impact self-esteem, shame, and depression have on quality of life for mild and moderate traumatic brain injury survivors can lead to the development of strategies to help providers and survivors alike, to enhance quality of life for survivors, and provide services to better meet the needs of the client, with awareness and specified training for mental health providers who work with mild and moderate traumatic brain injury survivors.

**Significance of the Study**

Research is limited in terms of the mental health dynamics for survivors of TBI. Understanding the impact of self-esteem, shame, and depression on quality of life for the TBI survivor will provide insight into the effectiveness, as well as any needs for improvement, in current mental health approaches utilized in clinical work with the TBI survivor community. As previously noted, much research has been done from neurochemical, neurobiological, and
neuroscientific stances (Simpkins & Simpkins, 2013; Lezak, et al., 2012; Luke, 2016; Uhernik, 2017). Psychosocial, interpersonal, intrapersonal, employment, academic, and communication issues are just a few examples of executive impairment challenges for the mild and moderate traumatic brain injury survivor (Luke, 2016; Uhernik, 2017; Zasler, et al., 2013). Many of the noted impairment challenges may correlate with neurological deficits related to location and severity of injury (Zasler, et al, 2013), but can also be enhanced or magnified by self-esteem, shame, and depression. This is particularly true if the mild and moderate traumatic brain injury survivor is either not participating in or receiving the quality of care specific to impairment adaptability or improved emotional well-being (Lezak, et al., 2012; Teroni & Deonna, 2008).

In addition to its significance for mental health providers, Certified Brain Injury Specialists, Vocational and Occupational therapists, this study is also valuable to students studying in the mental health field, traumatic brain injury survivors, and loved ones of traumatic brain injury survivors.

**Research Questions**

The following research questions are a result of literature gathered in conjunction with gaps in the literature indicating more research needs to be done in the aspect of mental health and quality of life after TBI for survivors.

**RQ1:** Are mental health counseling services a factor to quality of life based on participants’ responses to questions related to pre-injury and post-injury counseling experiences from the Demographic Questions from the survey?

**RQ2:** Are the independent factors of self-esteem, shame, and depression predictors of quality of life based on the responses of the mild and moderate traumatic brain injury survivors who participated in this study?
Definitions

In closing of the introduction section, terms associated with the literature and research throughout the dissertation are provided. The following definitions are provided to understand the terminology used within the study and for purposes of clarification associated with the literature review, data analysis, or discussion sections of this research.

1. **Apathy** – lack of motivation; self-initiation to perform a task or skill (Lezak, Howieson, Bigler, & Tranel, 2012).

2. **Executive Function** – Having the ability to cognitively use organizational and goal-oriented behavior to accomplish a task for personal and professional daily living (Lengenfelder, Arjunan, Chiaravalloti, Smith, & DeLuca, 2015).

3. **Mean** – Sum of group values divided by the number of values in the group (Salkind, 2017).

4. **Median** – The midpoint in a set of scores (Salkind, 2017).

5. **Mild Traumatic Brain Injury** – Varying definitions exist for Mild Traumatic Brain Injury (mTBI) ranging from biomechanical changes, sudden neurological impairments, and changes diagnosed from neurological imaging studies. mTBI can result from falls, whip-lash, sports injuries and motor vehicle accidents (Konrad, et al., 2011).

6. **Mode** – The most frequently occurring value (Salkind, 2017).

7. **Moderate Traumatic Brain Injury** – An alteration in brain functioning as a result of an injury or medical condition where the degree of functioning is impacted to a greater degree than the symptomology associated with mTBI (Zasler, Katz, & Zafonte, 2013).

8. **Multicollinearity** – the degree in which there is intercorrelation among the predictor variables (Warner, 2013).
9. **Multiple Regression** – more than one predictor or dependent variable is used to predict a quantitative variable independent or outcome variable (Warner, 2013).

10. **Pearson’s r** – a parametric statistical correlation which provides information pertaining to the strength of a relationship between two quantitative variables (Warner, 2013).

11. **Standard Deviation** – In a set of scores, the standard deviation is the amount of variability (Salkind, 2017).

12. **Traumatic Brain Injury** – General term referring to an acceleration/deceleration, impact, or blunt trauma to the brain which alters the way the brain functions (Lezak, Howieson, Bigler, & Tranel, 2012).

13. **Variation** – a measure used to evaluate how scores are different from one another (Salkind, 2017).

**Summary**

Chapter one introduced the study of how negative mental aspects such as self-esteem, shame, and depression can impact quality of life for mild and moderate traumatic brain injury survivors. An overview of the study was presented in addition to purpose and significance of study statements, which outlined why there is a need for this study and potential outcomes as a result of the findings associated with this study. Such outcomes included awareness of the impacts of negative mental aspects and quality of life for mild and moderate traumatic brain injury survivors, which could then develop into strategizing better care options and training options for mental health providers to better serve the mild and moderate traumatic brain injury population of clients who enter counseling. Research questions were presented which assisted in the development of hypotheses for this study.
CHAPTER TWO: LITERATURE REVIEW

Overview

There is limited peer-reviewed or empirical research available in the literature regarding self-esteem, shame, and depression and the impact on quality of life for mild and moderate traumatic brain injury survivors. Past and current research has focused on neurobiological, neuroscientific, and neuropsychological aspects of impairment associated with traumatic brain injury, while survivors report struggling with impairment, emotions, and deteriorating personal and professional relationships which can lead to self-esteem, shame, and depression (Johnson & O’Brien, 2013). Some survivors seek counseling from mental health providers, yet, studies indicate that many clients leave counseling with unmet needs having paid for ineffective treatment (CereScan email and attachments, 10-16-2018). Other survivors may turn to substances, rather than seeking counseling, in an attempt to ease the physical and emotional pain associated with traumatic brain injury (Parry-Jones, Vaughan, & Miles-Cox, 2006).

Gaining insight directly from the affected population of mild and moderate traumatic brain injury survivors may provide mental health providers, researchers, survivors, loved ones of survivors, and educators with a greater understanding of the struggles associated with quality of life for the mild and moderate traumatic brain injury survivor. Factors such as self-esteem, shame, and depression can hinder the survivor’s willingness to improve their quality of life. Further consideration would be given for mental health providers to strategize in educating other providers, survivors, loved ones of survivors, and educators on the need to develop and implement better services and treatment practices that are cost effective, beneficial, and appropriate in assisting the mild and moderate traumatic brain injury survivor/client enhance
their quality of life, while increasing levels of self-esteem, reducing the level of shame, and reducing the level of depression.

There are different types of head injuries which can affect different areas of the brain. Though two people may sustain an injury to the same region of the brain, the effects of injury may be different. Chapter two examines literature which lays a foundation for understanding of the levels of injury, levels of healthy and impaired functioning, and how mental health can be affected relating to quality of life, and mental health treatments past, present, and current, and why it would be beneficial for mental health providers to gain insight from survivors on the struggles with mental health issues associated with TBI.

**Theoretical Framework**

Traumatic brain injury research in the civilian sector, is relatively new. Past and present studies have been conducted from neuroscientific, neurochemical, and neuropsychological perspectives, in part, regarding how neurons, axons, and dendrites fire, function, misfire, and identify structural abnormalities of the brain (Charmaz, 1983; Ahmed, et al., 2017; Cope, et al., 2005). While there is much research regarding the neurobiological and neuropsychological ramifications for TBI, the research is limited-to-non-existent in terms of quality of life for survivors of TBI (von Steinbüchel, et al., 2009). Neuroimaging and neuropsychological assessment are tools which enable evaluation of structural abnormalities in the brain, as well as executive functioning skill evaluation through task and processing exercises (Lezak, Howieson, Bigler, & Tranel, 2012; Zasler, Katz, & Zafonte, 2013). One study found neuropsychological tests commonly used to assess severity of TBI and psychological issues surrounding TBI to be a poor indicator of frontal lobe impairment, executive functions, and neurobehavioral symptoms of TBI survivors, especially in the moderate to severe levels (Sbordone, 2010).
Varying mental health approaches such as cognitive behavioral therapy (CBT), art therapy, music therapy, equine therapy, cognitive processing therapy (CPT), spirituality, and motivational interviewing (MI) are considerations for treatment with TBI survivors. Location and severity of injury may make it difficult for survivors to describe or be aware of their emotions, but self-esteem, shame, and depression have outward indicators familiar to most mental health professionals. Though common indicators may be evident, ways of working with the survivor to improve self-esteem, decrease shame and lessen depression may prove challenging for the provider who has limited understanding of cognitive impairment associated with injury and/or depression related to the TBI which can also impact cognition function (Rapoport, McCullagh, Shammi, & Feinstein, 2005: Field, Jones, & Russell-Chapin, 2017).

**Tangible Assessments**

Technological advances such as Single Photon Emission Computed Tomography (SPECT) scans, which allows for neuro-imaging of brain function during a relaxed stage and another set of imaging while the brain is active. One state provider for SPECT scans and neuroimaging is CereScan. The provider uses two sets of imaging completed on separate days. The first scan and image are completed, following an injection of a radioisotope, is conducted while the brain is active. The second scan is completed the following day while the brain is not engaged in an active process. Other imaging tools include Positron Emission Tomography (PET) which, like the SPECT imaging, uses radioisotopes to detect abnormalities that Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scans may not be able to visualize (Zasler, et al., 2013). While an MRI assessment is a tangible assessment tool which can reveal potential structural issues, it cannot provide deeper knowledge of cognitive functioning or dysfunction (Byrne, Coetzer, & Addy, 2017; Arciniega, et al, 2013). PET Scans are commonly
used with diagnostic assessments associated with TBI but there are few studies which address how functional imaging relates to cognition issues after a TBI injury. Additionally, the accuracy of the assessment may be skewed due to the elapsed time from the initial injury to the time of the imaging (Zasler, et al., 2013). While the imaging instruments provide critical insight and information about the brain, more research is needed to assist in assessing cognitive impairment through neuroimaging (Byrne, et al., 2017; Arciniegas, et al., 2013; Lezak, et al., 2012; Zasler, et al, 2013).

**Mental Health Concerns**

Concern lies within the lack of research regarding mental health issues such as self-esteem, shame, and depression, which can impact quality of life for the mild and moderate TBI survivor. For some survivors, their voice (ability to express oneself; apathy; structural impairment) may have been lost due to impairment, while others’, due to comprehension and speech issues. Other survivors may have lost their voice due to stigma, ineffective therapeutic approaches, or lack of training on the part of those professionals providing diagnoses and services for survivors (Brain Injury Association of America, 2016).

From the Iraq and Afghanistan wars, research has provided evidence of comorbid relationships between TBI and PTSD (Friedman, Keane, & Resick, 2014). The symptomology between TBI and PTSD mimic one another, with TBI also including loss of consciousness and specific injury region impairment. This is one example of the difficulty clinicians face when attempting to diagnose clients with comorbid issues, or symptomology, which can be explained by more than one set of diagnostic criteria (Friedman, et al, 2014; American Psychiatric Association, 2013).
The underlying component of this research is to understand the impact negative mental health aspects (self-esteem, shame, and depression) have on the quality of life for mild and moderate traumatic brain injury survivors. Instead of focusing on the neuroimaging and neuroscientific components which have been significantly researched, this study is designed to understand the impact of quality of life from the perspective of the mild and moderate traumatic brain injury survivor. Research must address whether negative mental aspects such as self-esteem, shame, and depression do impact quality of life for the mild and moderate traumatic brain injury survivor. New awareness can be brought to the forefront with the potential of turning awareness into the development of more mental health strategies and training to assist mental health providers in providing more effective services to mild and moderate traumatic brain injury survivors who wish to enhance their quality of life.

**Related Literature**

In the following section, information will be provided related to the components associated with this study. While this work is not presented to advocate for one therapeutic approach over another, or to focus on one level of lobe impairment over another, it is important to lay a foundation through previous literature and data from an empirical basis. Initially, the levels of TBI will be briefly discussed, followed by the individual lobes of the brain where healthy and impaired executive functioning occur. The literature will then move from a tangible dynamic (physical indicators of health or impairment) to the mental health realm. Though there are numerous emotional and behavioral issues which can be impacted by TBI, this study has three mental health foci: self-esteem, shame, and depression. Following the emotional foci components for the study is a brief overview of past, present, and future treatment considerations for mild and moderate traumatic brain injury survivors. Medication management, various
therapeutic approaches, support groups, and spirituality will be discussed. Future studies will also be discussed based on the limited amount of research currently on this subject matter. Finally, a summary of the information from the related literature, the importance of gaining helpful information from TBI survivors, and a general perspective of the negative mental health aspects of self-esteem, shame, and depression, and how these factors can hinder quality of life post-TBI will be presented.

Levels of Traumatic Brain Injury

Before discussing potential limitations on cognitive, mental, physical, and psychosocial issues for survivors of TBI, it is important to discuss how the levels of TBI: mild, moderate, and severe are classified from a medical perspective. From the American Congress of Rehabilitation Medicine, Special Interest Group on Mild Traumatic Brain Injury (1993) Diagnostic Criteria for Mild Traumatic Brain Injury (mTBI) is as follows:

A traumatically induced physiological disruption of brain function, as manifested by at least one of the following:

- Any loss of consciousness
- Any loss of memory for events immediately before or after the accident
- Any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented, or confused) and focal neurologic deficit(s) that may or may not be transient.

But where the severity of the injury does not exceed the following:

- Loss of consciousness of approximately 30 minutes or less
- After 30 minutes, an initial Glasgow Coma Scale (GCS) score of 13-15 and Post-traumatic amnesia not greater than 24 hours (Lezak, et al., p. 183).
Factors considered when TBI is a possible diagnosis include GCS scores: Minor (GCS = 13-15), Moderate Brain Injury (GCS = 9-12), and Severe Brain Injury (GCS = 3.8). The point assessments are initially evaluated by first responders, which are then re-evaluated by other providers at the emergency room and specialty offices such as a neurologist (Lezak, et al., 2012). Another factor considered is Post-Traumatic Amnesia (PTA) Duration (the time it takes to recall the traumatic event), which is considered the better indicator of TBI and potential outcome than the GCS. Scores for the PTA: Less than 5 minutes is considered very mild; 5-60 minutes is considered mild; 1 – 24 hours is considered Moderate; 1-7 days is considered Severe; 1-4 weeks is considered very Severe, and more than 4 weeks is considered Extremely Severe (Lezak, et al., 2012). A final assessment (though there are many more assessment tools), for consideration is the Rancho Los Amigos Scale of Cognitive Functioning. There are ten levels on this scale ranging from 1 to 10, with one being the most severe and ten being an individual who can function independently and presents with few, if any TBI symptomology (Zasler, et al., 2013; Brain Injury Association of America, 2016). Patients in the first three levels are generally Intensive Care Unit (ICU) patients who are either unresponsive to any stimuli or are inconsistent to stimuli. Once a patient is out of the ICU, hospitals such as Craig Hospital of Denver, one of the nation’s leading Spinal Cord and Traumatic Brain Injury rehabilitation facilities, work with patients in the level four to level seven ranges. Patients range from being disoriented with agitated and bizarre affect (level four) to having purposeful and appropriate responses though the patient may struggle with emotional dysregulation issues, anger issues, and intolerance of stressful situations. Patients in the level nine and ten realms tend to work with outpatient providers to continue their rehabilitative process (www.craighospital.org; Donna Hagan, Craig Hospital, face-to-face conversation, 11-3-2018; Brain Injury Association of America).
**Brief Overview of Executive Functions**

Providing a brief overview of the different lobes of the brain and the executive functions commonly associated with a region of the brain can assist with understanding how injury can alter the regular functions of the brain, and how impairment can create physical, emotional, and behavioral issues. A general understanding can potentially help identify challenge areas for mental health providers while working with a client who has the desire to improve their quality of life by looking at cognitive and/or other impaired social communication skills which may play a role in self-esteem, shame, and depression (Martone, 2006).

Depending on the area of the brain which sustained an injury, impairments can affect the quality of life for the survivor in physical, neurological, and psychological areas (Draper & Ponsford, 2008; Tate, et al., 2012; Haskins et al., 2012). A brief review of the lobes of the brain, the normal executive functioning level, and impaired functions can assist the clinician by giving a general indication of what they may be dealing with when working with a TBI survivor (Ahmed, et al, 2017; Draper & Ponsford, 2008; Charmaz, 1983). These impairments can have a life-changing effect on a survivor’s psychosocial skills, interpersonal relationship skills, and mental health (Draper & Ponsford, 2008; Tate, et al., 2012). Particularly, for this literature review, self-esteem, shame, and depression, from negative mental health aspects, will be discussed in more detail.

**Parietal Lobe.** The Parietal Lobe is located on the upper posterior section on both sides of the head. Healthy functions and behaviors associated with the Parietal Lobe of the brain include touch and tactile perception. Tactile perception gives an individual a sense of whether something is soft or hard, rough or smooth; this could be by skin or oral touch. Many people base decisions on whether they want to hold something or eat something based on how it feels.
With TBI, people may become hypersensitive to touch, have no change in perception, or hyposensitive to touch, which can affect decision making skills (Lezak, et al, 2012; Zasler, et al., 2013). Academic skills are also a function of the parietal lobe, though this is not to say that lack of studying or class participation is a direct result of a head injury, when motivation and procrastination may play a major role. Sensory awareness, such as sense of smell, hearing, and the hair standing straight up on your arms when you are scared or stimulated are some other examples of the parietal lobe. Other normal functions within the parietal lobe include somatosensory functions (e.g., feeling ill) and awareness of spatial relations (Lezak, et al., 2012).

When there is an injury to the parietal lobe functions and behaviors which may be impaired can include (but not limited to): frequently getting lost, inability to put names to objects, right or left confusion, issues solving math problems, problems with coordination, visual attention focusing difficulties, confusion with sensory processing, and a disconnect sense with body parts. Hyperosmia (increased sense of smell), hyperacusis (increased sense of hearing), and tinnitus (ringing in the ears) are common symptomologies among many individuals with TBI (Lezak, et al., 2012; Zasler, et al., 2013).

**Frontal Lobe.** The frontal lobe is the most susceptible to injury post-head injury due to location and connections to other areas of the brain (Hartikainen, Waljas, Isoviita, Dastidar, Liimatainen, Solbakk… & Ohman, 2010). Executive function, when intact, an individual can cognitively use organizational and behavioral skills to accomplish daily living tasks within personal and professional realms (Lengenfelder, et al., 2015). Concentration, attention, emotional/impulse control, psychosocial behavior, judgement, problem solving, personality, empathy, insightfulness, language expression, empathy, motor skills, and voluntary movement
are other functions and behaviors, but not all inclusive within the Frontal Lobe (Lezak, et al., 2012; Haskins, et al., 2012).

When executive functions are impacted by impairment, cognitive and behavioral changes can have long-term effects on the person’s ability to multi-task and maintain interpersonal relationships. Though impairment may be present, the individual can still function as an independent person, but it is also important to note cognitive impairments in one area of the brain do not affect behavior in all lobes of the brain (Lezak, et al., 2012; Haskins, et al., 2012; Lengenfelder, et al., 2015). Other areas in the frontal lobe which can be affected by injury or impairment, can include but are not limited to, cognitive fatigue, personality changes, attention and focus issues, easy distractibility, loss of spontaneity, loss of verbal expression skills, loss of control of emotion expression, disorganization, and confusion (Lezak, et al., 2012; Ahmed, et al., 2017; Draper & Ponsford, 2008). Many mental health issues including self-esteem, shame, and depression may be impacted by a traumatic brain injury to the frontal lobe (Ahmed, et al., 2017; Lezak, et al., 2012; Czubaj, 1996).

Research has shown that nearly 90% of head injuries are considered mild and that while many people fully recover from mTBI, there are other individuals who may have organic or pre-injury psychosocial factors which research has shown to contribute to slower recovery and permanent impairment (Vos, et al., 2012). The terms Post-Concussion Syndrome (PCS) and mTBI have been used interchangeably, but it is important to note that with PCS and mTBI clinical parameters evaluated immediately after the injury do not necessarily predict the severity or outcome of the injury (Hartikainen, et al., 2010).

Occipital Lobe. The Occipital Lobe deals with visual aspects such as perception, reading and visual processing. When injured, temporary or permanent loss of sight are possible
and many survivors who sustain an injury to the occipital lobe also become photophobic (sensitive to light). Vision defects are possible in addition to difficulty for the survivor to identify colors or locate objects. Additionally, some survivors have experienced changes in vision, double vision, temporary or permanent loss of vision, hallucinations and distortions because of injury to the occipital lobe. Over time, some of the symptoms may revert to normal function, though healing is an individual process, with individual results (Lezak, et al., 2012; Czubaj, 1996).

**Temporal Lobe.** Normal functions and behaviors within the Temporal Lobe include memory, language comprehension, sequencing skills, musical aptitude, and receptive language. When impaired some examples for executive dysfunction in the temporal lobe include but are not limited to, memory loss, anomic aphasia (loss for words), changes in sexuality (less interest), aggressive behavior (increase), persistent talking (may be more than usual for some), increased difficulty identifying objects and faces, and difficulty with object categorization and object location (Ahmed, et al., 2017; Lezak, et al., 2012).

**Cerebellum.** Balance and equilibrium, coordination of voluntary movement, and inputs to cognition and language are some of the primary functions within the cerebellum. Some examples for areas of impairment can include: loss of ambulatory capabilities, sudden movement, coordination issues, concentration difficulties, speech problems, slurred speech, inability to grasp things, tremors, and dizziness (Lezak, et al., 2012). These impairments can also intensify pre-existing or newly developed shame, self-esteem, and depression issues associated with TBI (Bogod, Mateer, & MacDonald, 2003; Lezak, et al., 2012).

**Brain Stem.** The brain stem controls involuntary functions (autonomic nervous system; ANS) such as heart rate, respiration, and homeostasis. Alertness and integration of the visual
and spatial pathways are also functioning of the brain stem. Serious complications from injury and/or impairment can impact the respiratory system, visual/spatial processing, balance, movement, swallowing, sleep, and dizziness (Lezak, et al., 2012; Haskins, et al., 2012).

**Negative Mental Health Aspects of TBI**

Though there are numerous negative mental health aspects associated with traumatic brain injury (TBI), this study will focus on three aspects: self-esteem, shame, and depression, as they relate to perceived quality of life from the perspective of the mild and moderate traumatic brain injury survivor. The following provide a brief overview of the negative mental health components associated with this study.

**Overview: Self-Esteem, Shame, and Depression**

Negative effects from a traumatic brain injury, include (among many), invisible disabilities such as those discussed in the previous section, cognitive and processing issues, interpersonal relational skills, and a sense of loss of self (Buck, 2011; Cope, Mayer, & Cervelli, 2005; Garzon, 2007; Draper & Ponsford, 2008; Haskins, et, al., 2012). The loss of self in terms of the way the survivor remembers who they were prior to injury and the inability to return to that image (the old self), can create many psychosocial and interpersonal conflicts resulting from the survivor remembering who they once were, but not able to be that person again. Conflict can be further deepened when the survivor has not yet accepted how their life is after injury and who they are now (the new self), which not only creates conflict for the survivor, but also for the loved ones of the survivor who do not know how to communicate with the survivor (Charmaz, 1983; Coetzer, 2008; Draper & Ponsford, 2008).

As a result of these conflicts and other conflicts not identified, studies have shown clinical depression symptoms have impacted 15-40 percent of TBI survivors (Buck, 2011). For
many survivors, there are struggles and limitations/restrictions within their post-injury abilities. Some examples (but not limited to) include: adapting to restrictions such as communication and comprehension issues, the social isolation which comes from loved ones, friends, and caregivers lacking understanding of the struggles of the survivor, and how to work with the survivor to develop a means of communication (Charmaz, 1983; Johansson, Berglund, & Ronnback, 2009; Haskins, et al., 2012). Personal and professional relationships can be affected in addition to limitations on cognitive, mental, physical, and psychosocial skills and abilities (Buck, 2011). A known diagnosis of traumatic brain injury presents an unspoken stigmatism for survivors from friends, family, providers, and others that this person cannot think clearly or they may need more time and patience, which many people do not freely offer as was once given, which can provide a sense of being a burden to others in the eyes of the survivor (Charmaz, 1983).

**Self-Esteem.** For many survivors, it is difficult to let go of the life, abilities, career, and friends and family they once had prior to injury (Buck, 2011). Survivors struggle with a fractured identity (Carroll & Coetzer, 2011) and impaired self-awareness which can hinder the survivor’s motivation and desire to interact with others or participate in their own rehabilitative process (Coetzer, 2008). As research studies on this issue are limited in addition to there being limited resources from medical and mental health providers to work with the survivor to heal the loss of who they are, and who they have become, more survivors deal with isolation and loneliness as a result of lack of services for TBI specific issues (Martone, 2006; Johansson, et al., 2009; Coetzer, 2008). Psychosocial impairment affects the survivor’s ability to maintain interpersonal and intrapersonal relationships impacting self-esteem, which usually results in withdrawal and depression (Fletcher, 2011; Karlsson, & Sjooberg, 2009). Caregivers, loved ones, and friends grow weary of the negativity, or lack understanding of the survivor’s inability
to effectively communicate (non-treated) which leads to the caregivers, loved ones, and friends distancing themselves from the survivor (Charmaz, 1983; Johansson, et al., 2009; Haskins, et al., 2012; Buck, 2011). In a research study, respondents indicated feeling disconnected from themselves, the community, God, and the ability to have effective social communication with others (Sorajjalool, Aja, Chilson, Ramirez-Johnson, & Earll, 2008).

**Shame.** For some survivors, they are unable to embrace their new life circumstances and their view of themselves being unacceptable and somewhat of a shock. Shame can come in many forms such as at a social event where one person may feel judged by others and shame can guide behaviors and attitudes while shaping self-image and perceived abilities (Matos & Pinto-Gouveia, 2010; Trumbull, 2003; Johnson & O’Brien, 2013). Further, difficulties with relationships post-injury are common, though shame can influence how the survivor deals with interpersonal relationship conflicts (Behrendt & Ben-Ari, 2012; Black & Dyer, 2013). Another way shame can arise is when a person feels they are not living up to standards set by themselves or others, and when those standards are not perceived as being met, the individual may view themselves as a failure (Fletcher, 2011). Research has shown post-injury survivors not only feel a sense of loss in identity, but also feel a loss of control, fueling shame issues. The shame can influx with anger, resentment, aggression, anxiety, depression, interpersonal and intrapersonal issues and psychosocial withdrawal (Behrendt & Ben-Ari, 2012; Karlsson, & Sjooberg, 2009; Luyten, Corveleyn, & Fontaine, 1998). Traumatic memories associated with shame have also been found to influence cognitive and emotional processing and are related to numerous psychological symptoms, including depression (Matos & Pinto-Gouveia, 2010).

Research correlating with shame and TBI is insufficiently studied due to the complexities associated with psychosocial impairment and social communication impairment skills (Parker &
Thomas, 2009; Behrendt & Ben-Ari, 2012; Haskins, et al., 2012). While other studies have shown a relationship between shame and human functioning in terms of psychological symptomology, interpersonal issues, and intrapersonal issues (Matos & Pinto-Gouveia, 2010).

**Depression.** Many survivors of TBI show a clear change in psychosocial behavior and skills. Such deficits can be the most impairing and damaging as poor social skills can contribute to interpersonal relational issues, feelings of isolation, few employment opportunities, and a reduced quality of life (Haskins et al., 2012; Al-Adawi, Dorvlo, Bruke, Huynh, Jacob, Knight, Shah, & Al-Hussaini, 2004). Survivors who have continual negative psychosocial interactions may withdraw, strain relationships, and may discourage friends and family from maintaining relationships with the survivor (Haskins, et al., 2012; Charmaz, 1983; Behrendt & Ben-Ari, 2012). Post-injury, survivors try to re-integrate, but cognitive impairments may hinder their progress. Initially, the survivor may look to those they feel most comfortable around, such as friends and family but such individuals may be struggling with personality and behavior changes of the survivor and may disconnect with them (Draper & Ponsford, 2009). The person they once knew is no longer there and, in a sense, is no longer wanted. Self-esteem, shame, and depression issues become an intertwining factor for the survivor (Freed, 2002; Farrin, Hull, Unwin, Wykes, & David, 2003).

Studies have estimated major depression occurs in approximately 27% of TBI patients and TBI sufferers are 1.5 times more likely to have depression during their lifetime (Trevena & Cameron, 2011; Langlois, et al., 2006). In a 2011 study conducted by Konrad, et al., their findings showed that, 10-20% of all patients diagnosed with mild and moderate traumatic brain injury, met the criteria for Major Depressive Disorder as listed in the *Diagnostic and Statistical Manual of Mental Disorders, (5th edition, 2013)*. Common symptoms associated with depression
and TBI survivors include (but are not limited to) hopelessness, loss of enjoyment in hobbies and activities, and a sense of worthlessness (Trevena & Cameron, 2011).

Shame and self-esteem can lead to depression, which can have a negative impact on the mental health of the survivor (Haskins et al., 2012; Han, Duhachek, & Agrawal, 2014). Research supports depression being a consequence of TBI (Williams, Rapport, Millis, & Hanks, 2014). In a 2001 study conducted by Teasdale & Engberg, TBI survivors were found to have been four times more likely at attempting suicide than non-brain injured peers (Buck, 2011).

**Mental Health Treatments**

As research lacks in quality of life after traumatic brain injury for survivors (Andrews, Qian, & Valentine, 2002; Behrendt & Ben-Ari, 2012; Haskins, et al., 2012; Vos, et al., 2012; Coetzer, 2007; von Steinbüchel, et al., 2010), mental health providers struggle with treatment of clients who present with traumatic brain injury. There are to date, no clinical theoretical framework guidelines available specifically for TBI, which presents a gap in mental health treatment to enhance quality of life for the TBI population (Vos, et al., 2012; Coetzer, 2007; von Steinbüchel, et al., 2010). Mental health providers have relied on a combination of theoretical practices generally used with trauma such as Cognitive Behavioral Therapy (CBT) and Eye Movement Desensitization Reprocessing (EMDR) with little to no benefit to the progress of the client (Coetzer, 2007; Coetzer, 2009; van der Kolk, 2014). Some TBI survivors who attempt to seek mental health counseling are not able to fully identify their issues or have impaired self-awareness (ISA), which can create a barrier to both the client and provider when working through issues and assessing goals for treatment (O’Keeffe, Dockree, Moloney, Carton, & Robertson, 2007).
In the following section, several examples of past, present, and future treatments will be briefly discussed. These treatments are presented in a general manner; not specific to TBI directly as there are no specific theoretical frameworks currently available (Coetzer, 2007). Factors that can play a role on which approach to use with a client presenting for services who has identified themselves as a TBI survivor include: level of injury: mild, moderate, or severe TBI, location of injury and what executive functions may have been impaired by injury, the client’s level of self-awareness, communication skills level, processing impairment level, and the motivation level of the client to participate in the therapeutic process (O’Keeffe, et al., 2007; Miller & Rollnick, 2013; Courtois, 2004). Though research is limited or non-existent in the area of adapting common treatment approaches to be effective for the TBI population, controlled studies (very scarce) have shown that adaptations to treatment delivery show more effectiveness than non-adapted approaches (Hsieh, et al., 2012).

**Past Treatments**

**Medication Management.** Early treatment for TBI was administered by psychiatrists or practitioners with a doctoral level degree, usually at an asylum or mental institution. Medication was the primary source of treatment which controlled mood and behavior disorders but did not have a significant impact on psychosocial or social communication skills (Stoler & Hill, 1998; Cope, et al., 2005). Traditional counseling was provided to survivors in a supportive function such as teaching coping skills for the time-period (era), but it was also recognized that such traditional counseling was challenging among the TBI clients (Cope, et al., 2005).

**Cognitive Remediation.** As with medication management, during the early treatment of TBI, cognitive remediation was practiced by doctoral level practitioners in the asylum or mental institution setting. The treatment was based on the idea of teaching the survivor to adapt their
thinking reasoning and understanding instead of re-learning how to function in a productive psychosocial or social communicative aspect. The therapy also included helping the survivor modify their environment to reduce the strains of everyday living with TBI (Cope, et al., 2005; Stoler & Hill, 1998).

Current Treatments

**Pharmacotherapy.** Medication management has been the long-standing treatment practice for TBI though, there are no clear clinical guidelines for treatment protocol in relation to TBI (Waldron-Perrine, et al., 2008). Research in this area has been limited due to potential comorbidity issues, severity of injury, and the survivor’s ability to be consistent with medication compliance. Another issue for psychiatrists is the concern for poly-pharmacological aspects in addition to potential cognitive and functional side-effect the medications can have on the survivor (Atkins, 2014; Waldron-Perrine, et al., 2008; Haskins, et al., 2012). As noted throughout this work, there are few methodological studies due to the complexities surrounding the TBI impaired population in clinical research (Waldron-Perrine, et al., 2008).

**Art / Drawing Therapy.** Art therapy provides the client the outlet of expression for survivors who may have speech impairments, or for the survivor who is filled with shame and is insecure in verbal expression of feelings. Drawing is a form of safe communication; a way to define an experience or explore and share their view of the environment around them. Art therapy also provides the therapist a way to better understand their client’s worldview. Drawing therapy can be effective in both individual and group therapy settings (Oppawsky, 2001).

**Music Therapy.** Music is another form of expression and means for therapy. Varying tones, beats, and sounds can either stimulate or soothe emotional receptors. In a controlled rehabilitation setting, such as Craig Hospital in Denver, music therapy is used as an effective tool
to de-escalate an overstimulated patient who is using anger and aggression toward staff, family, or a person the patient is interacting with (Donna Hagan, face-to-face conversation, 11-03-2018). More research is needed to study the effects of music therapy as an effective treatment for TBI survivors though complexities exist in relation to injury severity and social interaction skills which have the potential to make a study inconclusive or difficult to accomplish (Haskins, et al., 2012; Trevena & Cameron, 2011).

**Writing Therapy.** If verbal communication barriers prevent progress in the therapeutic process, writing may become an option to consider bringing into the counseling environment. Verbal communication skills may be impaired, while written skills may not for some survivors. The survivor may develop strong writing skills which may help in the therapeutic process to strengthen the client’s ability to process and communicate thoughts. Writing has been shown to promote positive changes in thought processes and can encourage positive life changes while instilling hope to a survivor who, through writing, may be able to express thoughts and feelings, injury may have been preventing them from doing (Kerner & Fitzpatrick, 2007).

**Speech Therapy.** Speech therapy is usually provided by an Occupational Therapist or Speech Therapist. In some incidences, survivors may have to re-learn how to speak (moderate to severe cases, mostly), while in mild and moderate cases, survivors may struggle with slurred speech and word annunciation. Clients are given exercises to work with the therapist on speech, communication, hearing, and language deficits (Stoler & Hill, 1998).

**Vocational Therapy.** As previously discussed, TBI survivors with impaired psychosocial and social communication impairment can have difficulty maintaining employment. The impairments of their injury may also make it difficult to perform tasks they were once able to perform (Kennedy, 2008; Haskins, et al., 2012). Vocational Rehabilitation is
facilitated through a licensed rehabilitation counselor who evaluates the client’s past employment and educational experiences. If the client is unable to perform like duties from previous experience and capabilities, then the client is offered the opportunity to be trained in skills comparable to their abilities (Haskins, et al., 2012; Kennedy, 2008; Stoler & Hill, 1998). Though the survivor may obtain the training and federal laws prevent such practice, many survivors find it difficult to successfully obtain employment after TBI due to employers choosing to hire candidates other than survivors. Not being able to find employment can impact self-esteem, shame, depression, and quality of life for the survivor (Johnson & O’Brien, 2013; Hale & Clark, 2013; Draper & Ponsford, 2009; Matos & Pinto-Gouveia, 2010).

Peer Support Groups. Peer support groups offer survivors to be in a community with other survivors. Studies have shown improved long-term outcomes for survivors who can connect with others with similar issues and can freely communicate with others with like conditions and quality of life struggles (Haskins, et al., 2012; Trevena & Cameron, 2011; Cope, et al., 2005).

Individual Therapy. There is no guarantee for a TBI survivor to be properly diagnosed or that the provider will recognize or understand problems associated with TBI and thus, the individual may not receive the appropriate cognitive re-training or services (Czubaj, 1996). Neuropsychological exams that evaluate cognitive and behavior functions, provide the provider an insight as to common behavior traits which can be misleading in the case of a TBI survivor due to impairments and injury (Haskins, et al., 2012). Whether during neuropsychological testing, group, or individual treatment, it is important to consider the emotional state of the survivor may have an impact on the level of participation and treatment outcomes (Haskins, et al., 2012; Hsieh, et al, 2012). Impaired coping skills and anger management issues which are
common in early or untreated TBI, may create barriers with treatment and application practices offered by providers. Anxiety, which is also common in TBI survivors may impact the individual’s willingness to buy into, or accept new tasks, challenges or viewpoints (Haskins, et al., 2012; Trevena, & Cameron, 2011; Hsieh, 2012). The following are treatments which can be considered for individual and group therapies when working with TBI survivor(s).

**Social Communication Skills Treatment.** Depending on the location of injury, as previously noted, many TBI survivors struggle with psychosocial and social communication skills (Lezak, et al., 2012; Haskins, et al., 2012). Social Communication Skills Treatment for TBI survivors can be facilitated by trained providers such as an Occupational Therapist, Cognitive Rehabilitative Therapist, Neuropsychologist, or Psychotherapist (Haskins, et al., 2012; Trevena, & Cameron, 2011). Skills which may need therapeutic intervention can include but are not limited to: redevelopment or retraining of skills in the areas of listening and understanding others, comprehension of non-verbal body and facial expressions, emotion regulation, problems solving, assertiveness, and verbal expression of thoughts and needs (Bornhofen & McDonald, 2008). Frontal lobe injuries are characteristic of impairment with these traits, but impairments can be intra-lobe connected (Haskins, et al., 2012; Kennedy, 2008; Cope, et al., 2005). Low levels of self-esteem, high-levels of shame, and depression can impact progress with survivors depending on their ability to learn and comprehend the treatment (Hsieh, et al., 2012). There are some TBI survivors who make limited to no improvement with social communication treatment, which some researchers suggest is because of the severity of impairment and the survivor’s inability to interpret social cues such as facial expression, body language, and varying voice tones (Bornhofen & McDonald, 2008). Set-backs or continued inability to communicate also

**Cognitive Behavioral Therapy.** In relation to TBI, posttraumatic stress disorder (PTSD) and TBI have mimicking symptomology and have a high comorbid rate (APA, 2013; Vasterling, et al., 2012). Cognitive Behavioral Therapy (CBT) has empirical evidence to be an effective practice for the treatment of PTSD and some mild and moderate TBI survivors (Vasterling, et al., 2012; Lonergan, 2014). CBT emphasizes the use of self-talk and redirection of negative thought processes while teaching the survivor to become aware of triggers that instigate overstimulation, and appropriately deal with emotions and reactions (Buck, 2011; Kennedy, 2008; Trevena, & Cameron, 2011; Ozen, et al., 2016). CBT can also offer the survivor to look at old behaviors and actions in response to moodiness, anxiety, self-esteem, and depression; while exploring more productive ways of dealing with emotions and reactions which may ease shame, self-esteem, and depression (Haskins, et al., 2012; Stoler & Hill, 1998). Another role CBT can play in healing work for survivors is to help them adjust to living with a long-term disability, and grieving the loss of who they once were, though, the degree of injury and impairment may be a factor to consider when determining whether to use CBT (Haskins, et al., 2012). Modifications would need to be made to accommodate survivors with more severe TBI impairments such as attention, memory and / or executive functioning, which would assist them in learning and applying the treatment (Hsieh, et al., 2012). Of the varying CBT practices, mindfulness-based practices in forms of meditation have been shown to improve quality of life and depression post-injury among mild and moderate traumatic brain injury survivors (Ozen, et al., 2016; Simpkins & Simpkins, 2013). A study conducted by Johnson and O’Brien (2013), noted that mindfulness in
conjunction with other self-compassion skills such as self-kindness and common humanity are examples of soothing characteristics that can assist in reducing depression and shame.

Cognitive Rehabilitation. Cognitive Rehabilitation Therapy (CRT) for TBI offers the survivor intervention strategies which may include working with a Vocational Rehabilitation Counselor on educational and occupational needs to include re-training, or training to meet the abilities for the survivor in their current circumstances. Cognitive Rehabilitative Therapy to include working with an Occupational Therapist on issues such as goal-setting, cognitive and motor skill synchronization, and learning internal and external compensatory means; these can also be worked in collaboration with a mental health therapist, where applicable and within specialized training credentials (Hallock, Collins, Lampit, Deol, Fleming, & Valenzuela, 2016; Haskins, et al., 2012).

CRT has two phases, comprehensive assessment and rehabilitation planning, and the other phase is implementing the treatment plan. Within the two phases, there are three stages of treatment: Acquisition, Application, and Adaptation (Haskins, et al., 2012). The Acquisition Stage is where the survivor is taught varying concepts of a chosen treatment, problem orientation and awareness, and lastly, the survivor learns to recognize triggers and origins for behavioral and cognitive issues. The Application Stage is where the survivor will use role-playing to practice new skills in a safe environment building up self-esteem and self-confidence while attempting to integrate the skills into their daily lives. Finally, the Adaptation Stage is where the survivor can apply what they have learned into daily living and are able to live more independently. Returning to a more independent lifestyle for those who can undertake and succeed with CRT treatment increases self-esteem, reduces shame, and improves depression symptomology (Haskins, et al., 2012; Stoler & Hill, 1998; Kennedy, 2008; Hallock, et al., 2016).
Neuroplasticity. Recent discoveries have shown how much the brain is able to change beyond what was previously recognized (Simpkins & Simpkins, 2003; van der Kolk, 2014). Neuroplasticity suggests the brain can be changed and new neural pathways can be developed through training the mind and interactive relationships (Clinton & Sibcy, 2012). With neuroplasticity approaches, the survivor needs to have some awareness of mind, brain, and body, in addition to be an active participant in the process. The health care provider is not only evaluating for deficits, but he/she would also be looking for strengths and healthy areas of the brain to assist the client in using other areas of the brain to aid in the recovery process (Doidge, 2016). This is not to say this process will be guaranteed to work for all survivors seeking assistance (Doidge, 2016). The stimulation of neurons firing from areas of the brain which are not damaged, helps the hippocampus (the area of the brain where forming new memories and learning are just a few of its functions), which may have shown shrinkage due to a traumatic experience. As the survivor works through and resolves traumatic experiences in therapy, the hippocampus can regrow (Simpkins & Simpkins, 2013).

Neuroplasticity approaches, in combination with other approaches may provide healing to a survivor (depending on impairment / injury limitation which may prevent treatment), to bring a better quality of life with the hope of increasing self-esteem, lowering shame, and improving depression symptoms. A cognitively impaired client, even with minimal response to neuroplasticity treatment approach, can have more approaches gradually added to improve skills, confidence and self-esteem. But again, there is no guarantee these approaches will work for all survivors, or that all survivors are candidates for these treatments (Doidge, 2016).

Spirituality. For some survivors, their relationship with God can play a pivotal role when there is conflict among the interpersonal relationships. When people do not understand
something or someone, there is a tendency for people to walk away from something they do not understand, leaving the survivor with feelings of abandonment and isolation (Charmaz, 1983; Johansson, et al., 2009; Sorajjalool, et al., 2008). Communication and connection with other people cease, leaving no relationship energy (Clinton & Sibcy, 2012) or sense of belonging to the survivor. For those who believe in Christ, there is assurance that through the sacrifice Christ made on the cross, that God the Father will never leave or forsake them (Deuteronomy 31:6, NIV).

Integration of psychotherapy and Christian counseling have been a focus of consideration for therapeutic treatment for mental health providers who are trained and aware of ethical considerations when practicing psychotherapy in a secular practice (Clinton & Sibcy, 2012; Garzon, 2005; Moriarty, Thomas, & Allmond, 2007). Integration does not come without challenges though as clinical care does not provide many opportunities for the Word of God to enter into the counseling setting when the boundaries between secular counseling and Christian counseling may not be evident in a community-based counseling setting as they may be in an identified Christian Counselor setting (Clinton & Sibcy, 2012; Garzon, 2005). Another consideration would be how the client has been dealing with their issues prior to seeking counseling; what defense mechanisms has the client engaged in? Such as, thought control to block out intrusive thoughts (Hale & Clark, 2013). With TBI, this may not be applicable to many clients who may have processing impairments or emotional dysregulation (Lezak, et al, 2012; Lengenfelder, et al, 2015).

TBI survivors with strong faith can benefit from integrating spirituality into their therapeutic process. Seventy percent of social workers have indicated the use of spiritual interventions in practice settings according to research (Hodge, 2006). Other studies have
indicated clients with a faith background would like to include spirituality into the counseling process, but the research also indicates there is a gap in between faith-based providers and clients (Saenz & Waldo, 2013).

**Future Studies / Treatments**

With the use of Cognitive Behavioral Therapy, Mindfulness, and Cognitive Rehabilitation, some survivors could come to terms with their post-injury life situations, though these techniques do not work for all TBI survivors (Sorajjalool, et al., 2008). During the therapeutic processes, survivors were shown how to replace their negative self-image / self-talk, with positive self-talk and more realistic self-concepts (Sorajjalool, et al., 2008). When a survivor can embrace who they are within their new life circumstances, acceptance of who they have become may be an easier task. (Charmaz, 1983; Matzat, 2007; Haskins, et al., 2012).

Research pertaining to self-esteem and TBI is needed. Though there are many Quality of Life and Life Satisfaction surveys available, comprehension and emotional perception may have complexities, limiting further study (Andrews, et al., 2002; Behrendt & Ben-Ari, 2012; Haskins, et al., 2012).

Much has been studied and written on varying therapeutic frameworks and practices when dealing with clients in the therapeutic process. Though there is a lack of theoretical framework in terms of interventions specifically for the benefit of survivors of TBI and clinical practice (Coetzer, 2007). Currently used theoretical approaches such as Cognitive Behavioral Therapy (CBT) or Eye Movement Desensitization and Reprocessing (EMDR) are commonly combined (eclectism) with some positive results, some negative results, and no change in results (Nguyen, Bertoni, Charvat, Gheytanchi, & Beutler, 2007) but little effectiveness with such
practices without adaptation for the TBI survivor have been noted (Coetzer, 2007; Hsieh, et al., 2012).

Among the assessments used for neuropsychological evaluations, such as the Minnesota Multiphasic Personality Inventory – 2 (MMPI-2), Millon Clinical Multiaxial Inventory – III (MCMI-III), Beck Depression Inventory (BDI), and Behavioral Assessment of the Dysexecutive Syndrome (BADS), for example (Weiner & Greene, 2008), measures are used to evaluate behaviors and personality characteristics. While there are adjustments in place to accommodate for the TBI symptoms, there is no clear assessment in place to depict whether current symptomatology is related to recent impairment from injury or if there had been a previous behavioral or cognitive disorder (Weiner & Greene, 2008; Groth-Marnat & Wright, 2016; Trevena, & Cameron, 2011).

Research is limited, lacking, or in the early stages when attempting to outline or form guidelines to TBI mental health therapeutic treatment from a general perspective in addition in the realms of CBT, CRT, and neurobiological correlations between TBI and depression, self-esteem, and shame (Francati, Vermetten, & Bremner, 2006; Hallock, et al., 2016; Lezak, et al., 2012; Draper & Ponsford, 2008). Additionally, there appears to be a lack of use within the executive measures involving cognitive outcome studies, which is a major contributor to long-term disability post-TBI (Draper & Ponsford, 2008). With other studies showing the need for continuing and uncharted research into treatments for TBI survivors who struggle with depression, self-esteem, and shame issues post-injury (Ponsford, et al., 2016; Trevena, & Cameron, 2011). Treatment methods for TBI other than depending solely on pharmacotherapy need to be developed for the complex TBI group, where appropriately trained healthcare
resources can be provided to aid in the recovery and healing process for survivors (Ponsford, et al., 2016; Snell, Surgenor, Hay-Smith, & Siegert, 2009; Ozen, et al., 2016).

Two ideas for future studies would be evaluating and structuring a theoretical framework with guidance principles specifically for the TBI population and evaluating whether Cognitive Processing Therapy (CPT) would be an adaptative approach for integration of TBI theoretical framework practice. CPT is a twelve-session process with written activities in conjunction with communication skills to process trauma associated with PTSD. Areas of focus include goal setting, finding stuck points, working with thoughts, feelings, and events associated with the trauma, processing the event, use of challenge questions, looking at problem thinking patterns, challenging beliefs, safety and trust, esteem and intimacy, and processing impact statements (Resick, Monson, & Chard, 2017). Cognitive Processing Therapy, Mindfulness and Acceptance would also be approaches to consider using with TBI survivors in a counseling setting with modifications and adaptations. The effectiveness of the processes before and after modification would be of research consideration to evaluate how modifications to modern approaches may be able to serve the TBI mental health community.

Summary

The literature reviewed for this project provided anatomy and physiological components of the brain from a healthy functioning perspective in addition to impaired functioning perspectives. Tangible assessments such as SPECT Scans, MRI, CT, and PET neuroimaging are resources which aid in the detection of structural abnormalities of the brain, but do not provide adequate assessment for behavioral or cognitive impairment assessment. Mental health components such as self-esteem, shame, and depression were briefly discussed as each component separately or combined may relate to quality of life issues for the TBI survivor.
Further review of the literature provided a brief summarization of varying treatments past, present, and future studies/consideration. With an overall need for more research in the area of mental health and quality of life after TBI. Further noted within the literature was the evidence of lack of study in the area of quality of life after TBI and the negative effects associated with mental health for the TBI survivor.
CHAPTER THREE: METHODS

Overview

Items to be discussed in this chapter will include presentation of rationale for the research and study designs associated with the formulation of the research questions and hypotheses evaluation of this study. There were two research questions, which will be discussed in a later section for this study in addition to two hypotheses, which will also be discussed in a later section of this chapter. Additionally, participants and setting will be presented in terms of the reason for selecting the type of participants desired for the study, and the setting for the study. Instrumentation description and study procedures will provide structural foundation for the study and how the process lead to applying for Institutional Review Board approval to conduct the study. Finally, choice of data analysis will be discussed and how the analysis best suits the study in terms of evaluating the research questions and hypotheses.

Design

In relation to the social science, survey or epidemiological research design has been the widest and oldest research design used (Heppner, et al., 2016). Survey research is a way for a researcher to study the needs of a specific population by using self-report instruments to evaluate if one variable has a relationship with another through the opinions, views, and behaviors (Heppner, et al., 2016). In this study, self-esteem, shame, and depression were variables of focus in evaluating if there is a relationship between these three variables and of quality of life for TBI survivors. The online survey design was used to reach a sample population which can provide insight into mental health perspectives of survivors, that can potentially assist in the development of better strategies, encourage new research, and potentially provide better training for mental health providers to be more effective when working with the TBI population to improve quality of life.
The use of nonexperimental research using a simple survey provided an opportunity to evaluate similarities in quality of life perception of mild and moderate TBI survivors who responded to the survey. Results from the survey provided data which either supported or did not support evidence of correlations between self-esteem, shame, and depression, to quality of life after TBI. This correlation study used descriptive statistics drawn from convenience samples of TBI support group participants using the Brain Injury Alliance of Colorado support group list and list of support group facilitators in the State of Colorado. The research was post-facto with severity of injury, location of injury, and level of impairment having potential to influence results. Since this study employed correlation and had more than two variables, Multiple Regression with Pearson’s $r$, Frequency, Distribution, and Scatterplots were used as data analysis tools for this study.

**Research Questions**

As previously noted in Chapter One, this study seeks to evaluate if there is a relationship between self-esteem, shame, and depression in relation to quality of life, post-injury, for the mild and moderate traumatic brain injury survivor. The following research questions were a result of literature gathered in conjunction with gaps in the literature indicating more research needing to be done in the aspect of mental health and quality of life after TBI for survivors. In terms of the research questions, confirmation or disqualification of the questions assisted in evaluating if there were links between quality of life and negative mental aspects such as self-esteem, shame, and depression. Though there are factors which cannot be controlled in a survey study such as this, the feedback from mild and moderate traumatic brain injury survivors may bring insight to an area where there is limited research and awareness. The following research questions will be
considerations as components of the study in relation to the data collected and the hypotheses for this project:

**RQ1:** Are mental health counseling services a factor to quality of life based on participants’ responses to questions related to pre-injury and post-injury counseling experiences from the Demographic Questions from the survey?

**RQ2:** Are the independent factors of self-esteem, shame, and depression predictors of quality of life based on the responses of the mild and moderate traumatic brain injury survivors who participated in this study?

**Hypotheses**

The preliminary research for this study identified varying aspects of negative associations of self-esteem, shame, and depression. Comparison with like data was difficult due to the limited amount of empirical research associated with quality of life for survivors of traumatic brain injury. One Health-Related Quality of Life assessment specific to quality of life after brain injury has been in use since 2010. Prior to the Quality of Life after Brain Injury (QOLIBRI), global general assessments such as the Life Satisfaction-11 (LiSat-11) and the Satisfaction With Life Scale (SWLS) were used to address quality of life issues surrounding mild and moderate traumatic brain injury (von Steinbüchel, et al., 2010; Jacobsson & Lexell, 2016). With the use of survey research, there are two expectations of this study:

**Ha1:** The factors of post-injury counseling and level of satisfaction of services will predict more counseling services were sought with a lower satisfaction level for services (Demographic Questions) among the mild and moderate traumatic brain injury survivors who participated in this study.
**Ha2:** Participant responses to the factors of self-esteem, shame, and depression will predict self-esteem, shame, and depression levels impact quality of life (QOLIBRI, LiSat-11, and OAS instruments) among the mild and moderate traumatic brain injury survivors who participated in this study.

**Participants and Setting**

Permission from the Brain Injury Alliance of Colorado was obtained to recruit a sample population from the organization’s TBI support groups throughout the State of Colorado. As of June 1, 2018, there were 70 brain injury support groups throughout the State of Colorado (Brain Injury Alliance of Colorado: website). TBI participants included survivors who sustained a mild or moderate TBI within the last ten years and were able to communicate by themselves or through another means of communication such as another individual reading or speaking with the survivor, (to name a few examples of eligibility criteria for participants). A minimum of forty participants and a maximum of 150 participants were the sample parameters for this study.

The desired setting for the study was where a computer would be available for the survivor to complete the online survey. For participants who did not need assistance with reading comprehension or processing issues, the group facilitator provided the participant with the link to the survey for the participant to complete on their own. Participants who needed assistance with reading and/or comprehension of the survey questions were able to seek the assistance of a group facilitator (if taken in the group setting) or a support person such as a caregiver, spouse, or friend but the person providing the assistance cannot answer the questions for the participant. Though there were no measures in place to safeguard who answers the question, this was a known limitation which could not be detected in a non-experimental study (Warner, 2013; Heppner, et al., 2016). The survey was online-based with no controlled setting.
**Instrumentation**

Three assessment instruments and demographic questions were presented to respondents who participated in the study. The initial part of the survey was the consent form where information regarding the study was provided. If the participant elected to continue with the survey, they responded “yes” to providing consent and moved on with the survey. The three assessments included in the survey, were the Quality of Life After Brain Injury (QOLIBRI) (von Steinbüchel, et al., 2010), the Life Satisfaction Scale – 11 (LiSat-11) (Adapted from Fugl-Meyer AR, Branholm IB, and Fugl-Meyer KS, 2002), and the Other as Shamer Scale (OAS) (Allan, Gilbert & Gross, 1994). This section will provide an overview of the Demographic Questionnaire in addition to a review of each assessment used in the survey. Though the participants completed all the questions within the instruments, not all questions asked within the survey were used in the data analysis of this study.

**Demographic Questionnaire**

Using a simple survey research design, it was understood demographics can play a role in the outcome responses from research study participants. Due to the varying complexities and location of injury of potential respondents, it was not possible to have control measures in place for mental health issues, cognitive and behavioral issues, and comprehension issues as each individual and injury are unique. It is also acknowledged that the independent variables (self-esteem, shame, and depression) may impact some respondents differently than others and that quality of life can mean one thing to one person, and something completely different to another.

Questions from the Demographic Questionnaire were created using content from SurveyMonkey with some of the wording adapted to brain injury to connect with the TBI sample population. For example, instead of using, “Are you a survivor of a traumatic event?”, the
adaptation read, “Are you a survivor of a mild and moderate traumatic brain injury?” The Demographic Questionnaire obtained general information pertaining to eligibility of the participant such as whether the TBI was mild or moderate or if assistance was needed in completing the survey (Please see Appendix C for a copy of the Demographic Questionnaire). Decisions regarding question selection for the Demographic Questionnaire were based on elements to assist in evaluating if the participants met the criteria for the study in addition to complimenting the other instruments used for the study. The basic demographic questions associated with SurveyMonkey have been proven to be valid and reliable for research study use. Further, SurveyMonkey is a survey service which has been approved for student/candidate use for research studies.

Quality of Life after Brain Injury Instrument

The Quality of Life after Brain Injury (QOLIBRI) was the first measure created for health-related quality of life (HRQoL) specific to traumatic brain injuries. Prior to the QOLIBRI, there was no research available regarding instruments specific to TBI (von Steinbüchel, et al., 2010). The QOLIBRI is a relatively new cross-cultural developed measure which was created by international researchers and international task forces to measure quality of life for TBI survivors, specific to TBI (von Steinbüchel, et al., 2010). The QOLIBRI is a 37 self-report questionnaire divided into six scales as they relate to cognitive (e.g., How satisfied are you with your ability to make decisions?), self (e.g., How satisfied are you with your self-esteem, how valuable you feel?), daily life and autonomy (e.g., How satisfied are you with your participation in work or education?), social relationships (e.g., How satisfied are you with your relationships with members of your family?), emotional (e.g., How bothered are you by feeling sad or depressed?), and physical problems (e.g., How bothered are you by effects of any other
injuries you sustained at the same time as your brain injury?), as they relate to well-being and quality of life from the perspective of the survivor. The instrument uses a five-selection rating (Not at all, Slightly, Moderately, Quite, and Very). Reliability and validity for the QOLIBRI were tested using a cross-cultural study among nine countries which included Australia, Belgium, Finland, France, Germany, Italy, the United Kingdom, the Netherlands, and the United States. Internal Consistency was assessed for each scale and language (six different language translations) with a reported Cronbach’s alpha range of 0.75 to 0.89, meeting criteria to use in research studies since the Cronbach’s alpha is greater than 0.70 (von Steinbüchel, et al., 2010). The QOLIBRI is the first instrument of three used in the survey questionnaire for this study. Questions from both the LiSat-11 and the QOLIBRI were used to evaluate the outcome variable (Y) quality of life. Additionally, questions from all three instruments used in this study were used for the factors of self-esteem, shame, and depression.

Life Satisfaction Scale – 11

The Life Satisfaction Scale (LiSat – 11) and Satisfaction with Life Scales (SWLS) have been used with quality of life for traumatic brain injury survivors as measurement tools with relatively good success. The Life Satisfaction Scale and Satisfaction with Life Scales are not HRQoL specific to traumatic brain injury and are general quality of life scales used for self-reporting assessment by the patient. Though both the Life Satisfaction Scale and the Satisfaction with Life Scales have been used to measure life satisfaction after traumatic brain injury, it is important to note that both scales assess global satisfaction; an individual’s satisfaction with life (Jacobsson & Lexell, 2016). Both instruments have been internationally validated, but for this study, the focus will remain on the secondary instrument to be used in the study, the Life Satisfaction Scale – 11 (Adapted from Fugl-Meyer AR, Branholm IB, and Fugl-Meyer KS,
2002), as it closely matches the quality of life research questions for this project. The LiSat - 11 is an 11-item self-report questionnaire with no subgroups (e.g., My psychological health is), where participants rate their level of satisfaction in areas of their lives ranging from 1 = Very Dissatisfying to 6 = Very Satisfying (Jacobsson & Lexell, 2016). Questions from both the LiSat-11 and the QOLIBRI were used to evaluate the outcome variable (Y) quality of life. Additionally, questions from all three instruments used in this study were used for the factors of self-esteem, shame, and depression.

**Other as Shamer Scale**

The Other as Shamer Scale (OAS) was created by Allan, Gilbert & Gross in 1994 considering adaptations from the Internalized Shame Scale created by Cook (1993), as a measure to evaluate how others perceive being viewed by the people around them. The OAS has three dimensions within the 18 – item self-report evaluation: inferiority (e.g., I feel other people see me as not good enough), emptiness (e.g., Others see me as empty and unfulfilled), and mistake (e.g., Others are critical and punishing when I make a mistake), as the respondent perceives others have judged them (Balsamo, Macchia, Carlucci, Picconi, Tommasi, Gilbert, & Saggino, 2015). The dimension of inferiority has seven items, the dimension of emptiness has four items, and the dimension of mistake has six items. While the dimensions of inferiority and emptiness may appear more obvious, the dimension associated with mistake may not be. The mistake dimension pertains to how the respondent to the questionnaire perceives how others keep track of the mistakes the individual makes. There is one question which does not fall into the three dimensions, but the authors of the OAS chose to keep the question in the scale (Balsamo, et al., 2015).
When respondents take the OAS, there are 18 items to be evaluated using a five-point Likert-type scale ranging from 0 (Never) to 4 (Almost always). The scores are then added up and totaled. Ranges for the scores are from 0 to 72 with the higher score indicating greater levels of external shame (Balsamo, et al., 2015; Matos, Pinto-Gouveia, Gilbert, Duarte, & Figueiredo, 2014). The OAS has a high internal consistency with a Cronbach’s alpha of 0.92 with a high alpha level of 0.96 (Balsamo, et al., 2015; Matos, et al., 2014). The items on the OAS closely match the shame and self-esteem research questions for this project and will be the third and final instrument used within the online survey for this study. Questions from both the LiSat-11 and the QOLIBRI were used to evaluate the outcome variable (Y), quality of life. Additionally, questions from all three of the instruments used in this study were used for the factors of self-esteem, shame, and depression.

**Procedures**

Upon review of literature and instrument consideration, in preparation for the proposal defense, research questions and hypotheses for this study were developed based on a gap in the literature where limited research has been conducted regarding quality of life for TBI survivors (von Steinbüchel, et al, 2009). The instruments which closely matched areas of focus for this study include a Demographic Questionnaire (Appendix C) composed from valid and reliable general demographic questions from SurveyMonkey.com, Quality of Life after Brain Injury (QOLIBRI), Life Satisfaction Scale -11 (LiSat-11), and the Other as Shamer Scale (OAS). An online survey was created using SurveyMonkey.com after subscription for services. Upon payment, options to create and open the survey were provided; to include a link for participants to take the survey. The survey began with a consent question. If the participant desired to participate in the study, they agreed and if they did not, instruction was given to close the
browser and leave the survey to discontinue participation. Six questions included in the Demographic Questionnaire followed the consent question which focus on eligibility questions related to the remaining three instruments used for the study. When obtaining a copy of the QOLIBRI, a one-time registration and contract agreement provided permission to use the instrument in the research process. All the questions within the QOLIBRI were entered into the survey, following the Demographics Questionnaire. The LiSat-11 (Adapted from Fugl-Meyer AR, Branholm IB, and Fugl-Meyer KS, 2002), and OAS (Allan, Gilbert & Gross in 1994) were found on open domains with questions from both instruments being added to the survey in their entirety.

After successful presentation and completion of the proposal defense, permission from the Dissertation Chair was granted to complete, submit for review by the Dissertation Committee for approval, and upon approval by the committee, submit the Institutional Review Board application and supplemental documents to the Liberty University Institutional Review Board (LUIRB). The application and supplemental documentation included the application, consent form, completed CITI-Training certificate, instruments to be used in the study, permission requests and responses, and a signed signature page. The preliminary review found minor editing and submission of an additional document needed. Additional documentation and revisions were requested by the LUIRB. Revision documentation resubmitted to the LUIRB included revised initial email to group facilitators, edits to the follow-up letter to the group facilitators, edits to the IRB application, and edits to the consent form. Resubmission of edited application and the requested document was completed within the same day of receipt of the revision requests from the LUIRB. A second revision was requested by the LUIRB after another two-week waiting period, where the follow-up letter to the group facilitators was recommended
for removal and replaced with a recruitment letter (Appendix H) to be attached with the initial email to the group facilitators. The group facilitators would then distribute the recruitment letter to interested group members who expressed interest in participating in the study. The link to the survey is included in the recruitment letter. Resubmission of edited application and requested documentation was completed within the same day of receipt of the revision requests from the LUIRB. A third revision was requested from the LUIRB with minor revisions to the recruitment letter. Resubmission of the revised recruitment letter was completed within the same day of receipt of the revision request from the LUIRB. LUIRB approval was obtained one day after the minor revisions to the recruitment letter were made (Appendix A).

Once LUIRB approval was obtained, (Appendix A) and with the permission of the CEO of the Brain Injury Alliance of Colorado (BIAC), Gavin Attwood (Appendices D & F), the initial email to group facilitators and recruitment letter (Appendices G & H) were sent to brain injury support group facilitators associated with the BIAC. Within the initial email, a description of the study, participant eligibility, and an invitation for support group members with a mild and moderate traumatic brain injury to participate in the study (survey) were included. After the participants completed the online survey, there was no other involvement needed by participants or support group facilitators. This researcher is also a support group facilitator and made other arrangements for interested members to participate in the survey by recruiting another facilitator to provide participants access to the link to the survey. It is now known whom, or if any members from said support group participated in the study. The survey was anonymous with no identifying information in terms of name or location requested.

The survey link remained open for a four-week period, allowing for all groups to have the opportunity to participate since group meeting dates and times vary. The optimal sample size
population was a minimum of 40 participants with a maximum of 150 participants for this study. These figures came from the number of support groups (70 as of June 1, 2018) and the estimation of 1 to 2-member responses to the survey from each group. Two out of the forty-two group members needed assistance with reading and comprehension issues. There were no measures in place to control who answered the questions, as this would not be possible. Responses to the survey were handled and initially accessed through SurveyMonkey.com. Data was downloaded to SPSS 25.0 data analysis software for further evaluation.

**Data Analysis**

This section will provide information pertaining to the methodology used in the data analysis process for this study. Included are aspects pertaining to the variables within the study related to the research questions and hypotheses presented for exploration of this research. As previously noted, this study was a non-experimental study utilizing a survey or epidemiological approach by reviewing quantitative responses from participants responding to the same set of questions presented in an online survey. The initial analysis of data such as demographic questionnaire responses and instrument questions was done through SurveyMonkey. The data was downloaded from SurveyMonkey in three forms: PowerPoint, Excel, and SPSS files. The SPSS file was exported to SPSS 25.0 software for further evaluation and analysis.

**Variables and Research Models**

Variables and research models will briefly be discussed as the results and discussion sections of this dissertation will go into more detail with graphs and data analysis. This study looked at four areas: Quality of Life, Self-esteem, Shame, and Depression (*Figure 1*) as they relate to the mild and moderate traumatic brain injury population within the sample size of brain injury support group members associated with the Brain Injury Alliance of Colorado (BIAC).
Each variable was evaluated with the use of Multiple Linear Regression, Multiple Regression Assumption Testing, Pearson’s $r$ and Cronbach’s Alpha to determine if there was a statistical significance between the individual independent variables and the dependent variable, quality of life. Detailed data analysis and results will be discussed in Chapter Four of this dissertation.

*Figure 1. Research Model Overview*
Quality of Life and Self-esteem. A Multiple Regression analysis of the independent variables of self-esteem with the dependent variable of quality of life provided a question relating to self-esteem which closely matched the criteria to serve as the dominate independent variable to analyze with the dependent variable: Quality of Life (See Figure 2). From the QOLIBRI, the independent variable (*How satisfied are you with your self-esteem, how valuable you feel?*) was chosen, and from the LiSat-11 questionnaire, (*Life as a whole*) was chosen as the dependent variable, with participants’ responses based on a Likert Scale. Considerations for self-esteem can include some of the following examples: the way one views their relationships with people close to them, the sense of security or lack of security, and how the person feels towards the way others think about them can impact levels of self-esteem (Arciniegas, et al., 2013; Lezak, et al., 2012). Detailed data analysis and results will be discussed in Chapter Four of this dissertation.

![Research Model: Self-esteem](image)

*Figure 2. Research Model: Self-esteem*
Quality of Life and Shame. Participants’ responses were evaluated to see if shame, as an independent variable, was a predictor for the dependent variable, quality of life (Figure 3. Research Model: Shame). Multiple Regression was used to determine which question from the three instruments used in this study closely matched the criteria to be used as the independent variable for shame. The question which best matched the criteria came from the QOLIBRI, (How satisfied are you with the way you perceive yourself?) and was selected as the independent variable for shame. The same dependent variable, from the LiSat-11 questionnaire (Life as a whole), was used throughout the data analysis process. Considerations for shame can include examples such as: not feeling others see an individual as being good enough, other people see the person as not measuring up to them, and other people perceiving a person as small and insignificant (Gilbert, Allan, & Goss, 1994). Detailed data analysis and results will be discussed in Chapter Four of this dissertation.

Figure 3. Research Model: Shame
Quality of Life and Depression. The factors of quality of life and depression were also evaluated using both Multiple Regression and Pearson’s $r$ (see Figure 4. Research Model: Depression). Cronbach’s Alpha was used to determine which question from the three instruments used in this study closely matched the criteria to be used as the independent variable for depression. The question which best matched the criteria came from the QOLIBRI, *(How bothered are you by feeling sad or depressed?)* and was selected as the independent variable for depression. The same dependent variable, from the LiSat-11 questionnaire *(Life as a whole)*, was used throughout the data analysis process. Considerations for depression can include examples such as: satisfaction levels of relationships with friends, family members, and having a partner or not having a partner (von Steinbüchel, et al., 2010). Detailed data analysis and results will be discussed in Chapter Four of this dissertation.

![Figure 4. Research Model: Depression](image-url)
Hypotheses and Research Questions

Non-experimental research and survey or epidemiological research designs are widely used and one of the older research designs within social science research (Heppner, et al., 2016). Self-reporting by respondents who participate in survey research is used to gather data and information to document the nature and frequency of one variable with another. Survey results can provide researchers with means to explore beliefs, accessibility to services, satisfaction of services, and potential needs within a population (Heppner, et al., 2016). Some variables can be evaluated by using linear regression to see if a relationship exists between variables (Pearson’s $r$), or variables can be evaluated using linear regression to measure one predictor variable to a predicted outcome variable (Multiple Regression). Pearson’s $r$ is commonly used with non-experimental research such as the survey or epidemiological research for this study (Warner, 2013). When more than one predictor variable is used to predict an outcome, it is called Multiple Regression (Warner, 2013; Salkind, 2017). Pearson’s $r$ and Multiple Regression will be discussed in more detail in Chapter 4 of this dissertation.

Research Question One. Are mental health counseling services a factor to quality of life based on participants’ responses to questions related to pre-injury and post-injury counseling experiences from the Demographic Questions from the survey? To evaluate this question, Frequencies, Multiple Regression and Pearson’s $r$ were used with SPSS 25.0 software to analyze the responses of the mild and moderate traumatic brain injury survivors who participated in the survey for this study.

Hypothesis One. The first hypothesis evaluated the perceived effectiveness of post-injury counseling rated responses from the participants of the survey. It is hypothesized that the factors of post-injury counseling and level of satisfaction of services will predict more
counseling services were sought with a lower satisfaction levels for services (Demographic Questions) among the mild and moderate traumatic brain injury survivors who participated in this study. Frequencies, Multiple Linear Regression, Multiple Regression Assumption Testing, Pearson’s $r$ and Cronbach’s Alpha Reliability Testing were used with SPSS 25.0 software to analyze the responses of the mild and moderate traumatic brain injury survivors who participated in the survey for this study.

**Research Question Two.** Are the independent factors of self-esteem, shame, and depression predictors of quality of life based on the responses of the mild and moderate traumatic brain injury survivors who participated in this study? To evaluate this question, both Multiple Linear Regression and Pearson’s $r$ were used.

**Hypothesis Two.** Participant responses to the factors of self-esteem, shame, and depression will predict self-esteem, shame, and depression levels impact quality of life (QOLIBRI, LiSat-11, and OAS instruments) among the mild and moderate traumatic brain injury survivors who participated in this study. Multiple Linear Regression, Multiple Regression Assumption Testing, Pearson’s $r$ and Cronbach’s Alpha Reliability Testing were used with SPSS 25.0 software to analyze the responses of the mild and moderate traumatic brain injury survivors who participated in the survey for this study.

**Analysis Procedures**

This study was designed to gain insight from mild and moderate traumatic brain injury survivors pertaining to the variables of self-esteem, shame, and depression and how each individual variable may relate to quality of life for mild and moderate traumatic brain injury survivors who participated in the survey research study. This study represented a small convenience sample drawn from a group of TBI support groups affiliated with the Brain Injury
Alliance of Colorado. With feedback from one sample population, the goal was to provide awareness of how self-esteem, shame, depression, and quality of life can impact the mild and moderate traumatic brain injury community. Awareness can lead to the development of mental health practices directly aimed for the mild and moderate traumatic brain injury community. The following are brief overviews of the analyses used in the study and include the assumptions for each analysis process.

**Frequency Distribution.** Frequency lists the variables and the scores (Warner, 2013). For example, in this study, participants were asked if they were a mild or moderate traumatic brain injury survivor. Utilizing the frequency tool within SPSS 25.0, a frequency table (Table 1) was created, which listed the number of mild traumatic brain injury participants, number of moderate traumatic brain injury participants, and percentages of each participant. Frequency Distribution was used as a data analysis tool to answer research questions and hypotheses.

**Multiple Regression.** Multiple regression includes more than one predictor variable or independent variable in an equation where the scores are used to predict the outcome or dependent variable. Multiple regression was used with the SPSS 25.0 software to evaluate if the individual factors of self-esteem, shame, and depression were predictors of quality of life for mild or moderate traumatic brain injury survivors in this study. Multiple regression was also utilized to evaluate if the combined factors of self-esteem, shame, and depression as predictor variable to the outcome variable of quality of life ($X_1 + X_2 + X_3 = Y$).

**Multiple Regression Assumptions.** There are four assumptions associated with Multiple Regression which need to be met. The first assumption pertains to the number of records needed for each predictor variable. If the dependent or outcome variable is normally distributed, then 20 records for each variable are needed (Warner, 2013; Salkind, 2017). The second assumption is
there needing to be an absence of outliers in all the variables (Warner, 2013). The third assumption states that a linear relationship between the independent and dependent variables is present. SPSS 25.0 offered an assumption check tool to evaluate if dependent variables were normally distributed. The fourth assumption is an absence of multicollinearity (degree of intercorrelation) between the independent variables (Warner, 2013).

**Pearson’s r.** Pearson’s *r* is the most commonly used data analysis tool used with non-experimental research. Survey or epidemiological research is an example of non-experimental research. In non-experimental research, the researcher does not control or manipulate the results. For example, in this study, the survey was anonymous, and the researcher was not able to determine who responded to the survey or individual questions. There was no interaction between the survey participants and the researcher other than the recruitment letter and the pre-designed survey which provided participants information regarding the study. When two quantitative and normally distributed variables are evaluated, Pearson’s *r* provides information regarding the strength of the relationship between the variables (Warner, 2013).

**Pearson’s r Assumptions.** There are four assumptions associated with Pearson’s *r*. First, the scores on X should be independent of other X scores and Y scores should be independent of other Y scores. Second, the X and Y scores should be quantitative and normally distributed (normal distribution histograms are within the frequency tables throughout the results section of this dissertation). Third, there should be linear relation to the scores on Y to the scores on X, and the fourth assumption is that there should be bivariate and normally distributed among X and Y scores (Warner, 2013; Salkind, 2017).

**Cronbach’s Alpha.** Cronbach’s Alpha is the most commonly used reliability assessment tool as it measures internal consistency reliability and the degree by which responses are
consistent within multiple measures such as self-report items (Warner, 2013). Cronbach’s Alpha was used in this study to measure the reliability and consistency of the responses from participants pertaining to the three instruments used in the study (QOLIBRI, LiSat-11, and OAS). Except for the LiSat-11, the Cronbach’s Alpha or the instrument’s reliability as a research instrument was obtained within the Literature Review section of this dissertation. Responses from the participants from each instrument were evaluated with Cronbach’s Alpha utilized through the SPSS 25.0 software and compared to Cronbach’s Alpha reported by the authors of each instrument (LiSat-11 excepted). The reported Cronbach’s Alpha for the QOLIBRI by the authors ranged between 0.75 to 0.89 (von Steinbüchel, et al., 2009) and the Cronbach’s Alpha for the participants’ responses to the QOLIBRI in this study was 0.88 (Figure 5). The Cronbach’s Alpha for the participants’ responses to the LiSat-11 was 0.87 (Figure 5), and the Cronbach’s Alpha for the participants’ responses to the OAS were 0.96, (Figure 5) which were comparable to the original score for the instrument published by the authors of the instrument that reported a Cronbach’s Alpha of 0.92 to 0.96 (Matos, et al., 2014).

<table>
<thead>
<tr>
<th>Scale: QOLIBRI</th>
<th>Scale: LiSat-11</th>
<th>Scale: OAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case Processing Summary</strong></td>
<td><strong>Case Processing Summary</strong></td>
<td><strong>Case Processing Summary</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td><strong>%</strong></td>
<td><strong>N</strong></td>
</tr>
<tr>
<td><strong>Cases</strong></td>
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<tr>
<td></td>
<td>Excluded</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>42</td>
</tr>
<tr>
<td><strong>Reliability Statistics</strong></td>
<td><strong>Reliability Statistics</strong></td>
<td><strong>Reliability Statistics</strong></td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Cronbach’s Alpha</td>
<td>0.879</td>
<td>Cronbach’s Alpha</td>
</tr>
<tr>
<td>Cronbach’s Alpha Based on Standardized Items</td>
<td>0.887</td>
<td>Cronbach’s Alpha Based on Standardized Items</td>
</tr>
<tr>
<td>N of Items</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cronbach’s Alpha</td>
<td>0.962</td>
<td>Cronbach’s Alpha</td>
</tr>
<tr>
<td>Cronbach’s Alpha Based on Standardized Items</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>N of Items</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 5. Cronbach’s Alpha Instrument Scores from this Research Study.*
Statistical Validity

Non-experimental research studies such as this study, are known to have weak internal validity. This is due to insufficient means for causal inference which is usually not present with survey or epidemiological studies (Warner, 2013; Heppner, et al., 2016). For this study, data was collected via self-reported means where participants responded to survey questions in an anonymous domain (online survey). There were limited controls in place as participants of the study were given a link to participate in the study by a TBI support group facilitator. Participants were anonymous and were able to participate in the study based on identifying themselves as either a mild or moderate traumatic brain injury survivor. Previous research with TBI survivors noted difficulty with validity issues due to research design differences, assessing confounding variables, and the lack of consistency within the research community of the definition of mild traumatic brain injury (Konrad, et al., 2011). Participants of the study were recruited through convenience sampling of TBI support groups within the State of Colorado which had an affiliation with the Brain Injury Alliance of Colorado.

The observation of variables (internal validity) came from survey responses which were analyzed with computer software (SPSS 25.0). External validity was non-existent with this study as there was no natural observation of behaviors, events or actions (Warner, 2013). Another challenge with non-experimental research is rival explanations. If a strong relationship is detected within the $X$ and $Y$ variables, there may be other variables, including comorbid or pre-existing conditions which can influence the correlation between variables (Warner, 2013).

While this study may have weak internal and external validity, it is important to note that the study was designed to solicit feedback from anonymous mild and moderate traumatic brain injury survivors to create awareness of the struggles and issues mild and moderate traumatic
brain injury survivors deal with daily. As neuroscience and neuroimaging can provide a biological, chemical, and visual component to brain injury, quality of life feedback from TBI survivors can provide awareness to mental health professionals, and a voice to survivors who may not have had an opportunity to realize their voice matters.
CHAPTER FOUR: FINDINGS

Overview

The purpose of this study was to explore how factors such as self-esteem, shame, and depression impact quality of life post-injury, for the mild and moderate traumatic brain injury survivor. A survey or epidemiological design utilized the Quality of Life after Brain Injury (QOLIBRI) (von Steinbüchel, et al., 2010), the Life Satisfaction -11 Scale (LiSat-11) (Adapted from Fugl-Meyer AR, Branholm IB, and Fugl-Meyer KS, 2002), and the Other as Shamer Scale (OAS) (Gilbert, Allan, & Goss, 1994). Responses from mild and moderate traumatic brain injury survivors associated with brain injury support groups through the Brain Injury Alliance of Colorado were used to evaluate two research questions and two hypotheses for this study. This chapter will discuss the results, descriptive statistics, and hypotheses of the study.

Descriptive Statistics

The following section will provide an overview of the descriptive statistic findings from this study. Frequency tables and descriptive statistics such as mean, median, frequency, and standard deviation will be discussed. For clarification, as noted in the Instrumentation section, answer choices were coded numerically (defined within the Instrumentation section) separately per instrument for data analysis.

Participants

There were 22 responses or 52.4% of the participants who were survivors of a mild traumatic brain injury and 20 responses or 47.6% of the participants who were survivors of a moderate traumatic brain injury, for a total of 42 responses to the survey. The Mean (sum of all values in the group divided by the number of values in that group) (Salkind, 2017) was 1.48 with a Standard Deviation (average amount of variability in a set of scores) (Salkind, 2017) of .505. Two of the forty-two or 4.8% of the participants reported needing assistance completing the survey. There were no measures in place to
identify the type of assistance needed other than within the context of the Informed Consent which described reading and comprehension assistance may be needed to assist the participant with the survey. The Mean associated with whether participants needed assistance was 1.05 with a Standard Deviation of .216 with normal distribution.

**Pre-Injury Counseling and Satisfaction**

Prior to injury, nearly 67% of the participants reported not seeking mental health services. There were 11 of the 42 (26%) participants who reported seeking pre-injury counseling for depression, 2 participants (nearly 5%) who sought pre-injury counseling for shame, and 1 participant (2%) who sought pre-injury counseling for self-esteem issues. The mean for pre-injury counseling was 3.57 with a Standard Deviation of .703 with normal distribution (See Table 1).

Responses from the survey indicated 4 participants (9.5%) were very satisfied with their pre-injury counseling services, 13 participants (31%) were satisfied with their pre-injury counseling services, 6 participants (14%) reported being dissatisfied, and 1 participant (2%) reported being very dissatisfied with pre-injury counseling services. Prior to injury, nearly 67% of the participants reported not seeking mental health services. The mean for pre-injury counseling satisfaction was 3.38 with a Standard Deviation of 1.529 with normal distribution (See Table 2).
Table 1. Pre-Injury Counseling

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>4</td>
<td>9.5</td>
<td>9.5</td>
<td>9.5</td>
</tr>
<tr>
<td>Satisfied</td>
<td>13</td>
<td>31.0</td>
<td>31.0</td>
<td>40.5</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>6</td>
<td>14.3</td>
<td>14.3</td>
<td>54.8</td>
</tr>
<tr>
<td>Very Dissatisfied</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
<td>57.1</td>
</tr>
<tr>
<td>Does Not Apply</td>
<td>18</td>
<td>42.9</td>
<td>42.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Pre-Injury Counseling Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Self-esteem</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>Shame</td>
<td>2</td>
<td>4.8</td>
<td>4.8</td>
<td>7.1</td>
</tr>
<tr>
<td>Depression</td>
<td>11</td>
<td>26.2</td>
<td>26.2</td>
<td>33.3</td>
</tr>
<tr>
<td>I did not seek mental health services prior to my injury</td>
<td>28</td>
<td>66.7</td>
<td>66.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Post-Injury Counseling and Satisfaction

According to the responses, participants who sought counseling services after sustaining a mild or moderate traumatic brain injury included 4 participants (9.5%) who sought services for self-esteem issues, 4 participants (9.5%) who sought services for shame issues, and 21 participants (50%) who sought counseling services for depression. There were 13 participants (31%) who reported they had not sought counseling services since sustaining a mild or moderate traumatic brain injury. The Mean of post-injury counseling was 3.02 with a Standard Deviation of .897 with normal distribution (See Table 4).

Survey responses indicated 5 participants (nearly 12%) were very satisfied with their post-injury counseling services, 17 participants (nearly 41%) were satisfied with their pre-injury counseling services, with 3 participants (7%) reported being dissatisfied, 2 participants (nearly 5%) were very dissatisfied, and 4 participants (9.5%) were neither satisfied or dissatisfied with post-injury counseling services. The mean for post-injury counseling satisfaction was 3.31 with a Standard Deviation of 1.867 with normal distribution (see Table 3).

Overall, nearly 32% of the participants had received prior mental health services for self-esteem issues, shame, or depression before injury and 68.29% of participants sought counseling post-injury. While post-injury satisfaction increased from 9.5% pre-injury to 12% post-injury at the “Very Satisfied“ level, and the “Satisfied” level also increased from 31% pre-injury to 41% post-injury. Pre-injury “Dissatisfied” level was 14% and the post-injury level decreased to 7%, but the “Very Dissatisfied” level increased slightly from the pre-injury mark of 2% to 5% post-injury satisfaction level. The “Neither Satisfied or Dissatisfied” level was not measured in the pre-injury counseling satisfaction but in the post-injury counseling satisfaction, 9.5% of participants reported neither satisfied or dissatisfied with post-injury counseling services.
Table 3. Post-Injury Counseling

| Have you sought mental health counseling for low self-esteem, shame, or depression since your injury? |
|-------------------------------------------------|----------------|---------|----------|---------------|
| Valid                                          | Frequency | Percent | Valid Percent | Cumulative Percent |
| Low Self-esteem                                | 4         | 9.5     | 9.5       | 9.5            |
| Shame                                          | 4         | 9.5     | 9.5       | 19.0           |
| Depression                                     | 21        | 50.0    | 50.0      | 69.0           |
| I have not sought mental health counseling     | 13        | 31.0    | 31.0      | 100.0          |
| Total                                          | 42        | 100.0   | 100.0     |                |

Table 4. Post-Injury Counseling Satisfaction

| How satisfied are you with the mental health services you are currently receiving? |
|----------------------------------------------------------------------------------|----------------|---------|----------|---------------|
| Valid                                                                          | Frequency | Percent | Valid Percent | Cumulative Percent |
| Very satisfied                                                                 | 5         | 11.9    | 11.9      | 11.9           |
| Satisfied                                                                      | 17        | 40.5    | 40.5      | 52.4           |
| Neither satisfied nor dissatisfied                                             | 4         | 9.5     | 9.5       | 61.9           |
| Dissatisfied                                                                   | 3         | 7.1     | 7.1       | 69.0           |
| Very dissatisfied                                                              | 2         | 4.8     | 4.8       | 73.8           |
| I have not sought mental health services since my injury                       | 11        | 26.2    | 26.2      | 100.0          |
| Total                                                                         | 42        | 100.0   | 100.0     |                |
Quality of Life – Dependent Variable Selection

There were two dependent variables to consider as the Quality of Life variable for this study. A frequency analysis was done to evaluate if the LiSat-11 question (*Life as a whole*) would be a more effective variable than the QOLIBRI question (*Overall, how bothered are you by the effects of your brain injury*?). Though both variables (LiSat -11 and QOLIBRI question) were normally distributed, the LiSat-11 question presented with stronger emphasis on quality of life in contrast to how a mild or moderate traumatic brain injury survivor is bothered by the effects of their brain injury.

Table 5. Quality of Life Outcome Variable Selection

<table>
<thead>
<tr>
<th>(QoL) Overall, how bothered are you by the effects of your brain injury?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Not at all</td>
<td>2</td>
<td>4.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Slightly</td>
<td>3</td>
<td>7.1</td>
<td>7.1</td>
<td>11.9</td>
</tr>
<tr>
<td>Moderately</td>
<td>10</td>
<td>23.8</td>
<td>23.8</td>
<td>50.0</td>
</tr>
<tr>
<td>Quite</td>
<td>10</td>
<td>23.8</td>
<td>23.8</td>
<td>73.8</td>
</tr>
<tr>
<td>Very</td>
<td>11</td>
<td>26.2</td>
<td>26.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

| (QoL) Life as a Whole |
|---|---|---|---|
| Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid Very Dissatisfied | 1 | 24 | 24 | 24 |
| Dissatisfied | 7 | 16.7 | 16.7 | 19.0 |
| Rather Dissatisfied | 10 | 23.8 | 23.8 | 42.9 |
| Rather Satisfied | 11 | 26.2 | 26.2 | 69.0 |
| Satisfied | 10 | 23.8 | 23.8 | 92.9 |
| Very Satisfied | 3 | 7.1 | 7.1 | 100.0 |
| Total | 42 | 100.0 | 100.0 |

The data shows that 37 of the 42 participants (88%) were moderately to very bothered by the effects of their brain injury, the LiSat-11 indicated that 24 participants (57%) were rather
satisfied to very satisfied with *Life as a whole*. There were 18 participants (43%) who reported being very dissatisfied to rather dissatisfied with life as a whole. The LiSat-11 question (*Life as a whole*) as the dependent or outcome variable because the question represents quality of life versus being bothered by the effects of a brain injury. The Mean for the QOLIBRI was 3.60 and the Mean for the LiSat-11 was 3.74 with a Standard Deviation for the QOLIBRI of 1.106 and a Standard Deviation of 1.27 for the LiSat-11. Both variables were normally distributed.

Descriptive statistics for the dependent variable of Quality of Life are shown in Table 6. The Mean for the dependent variable is 3.78 at a 95% Confidence Interval with a Standard. The Median was 4.0.

The assumption check tool within the SPSS 25.0 software was utilized, Table 7, provided a statistical analysis to assess for normal distribution of the dependent variable: Quality of Life. Looking at the Shapiro-Wilk for interpretation, the $P$ value is greater than .005 which indicated a non-statistically significant result. The Komogorov-Smirnov $P$ value was also greater than .005 which also indicated a non-statistically result. Both the Shapiro-Wilk and Komogorov-Smirnov scores with non-statistically significant scores were indicative or normal distribution of the dependent variable: Quality of Life. A histogram also showed normal distribution for the Quality of Life dependent variable.
Table 6. Descriptive Statistics for Dependent Variable: Quality of Life

<table>
<thead>
<tr>
<th>Descriptives</th>
<th>Statistic</th>
<th>Std. Error</th>
</tr>
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<tbody>
<tr>
<td><strong>(QoL)_LIFE AS A WHOLE</strong></td>
<td>Mean</td>
<td>3.7381</td>
</tr>
<tr>
<td>95% Confidence Interval for Mean</td>
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<td></td>
</tr>
<tr>
<td>Lower Bound</td>
<td>3.3424</td>
<td></td>
</tr>
<tr>
<td>Upper Bound</td>
<td>4.1338</td>
<td></td>
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<tr>
<td>5% Trimmed Mean</td>
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<td>3.7354</td>
</tr>
<tr>
<td>Median</td>
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<td>Variance</td>
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<tr>
<td>Std. Deviation</td>
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<td>1.26991</td>
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<tr>
<td>Minimum</td>
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</tr>
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<td>Kurtosis</td>
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<td>-.768</td>
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Table 7. Assumption Check for Normal Distribution of Dependent Variable

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<tr>
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<th>Kolmogorov-Smirnova</th>
<th>Shapiro-Wilk</th>
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</thead>
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<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td><strong>(QoL)_LIFE AS A WHOLE</strong></td>
<td>.153</td>
<td>42</td>
</tr>
</tbody>
</table>

a. Lilliefors Significance Correction
Table 8. Descriptive Statistics for Dependent and Independent Variables

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>(QoL)_LIFE AS A WHOLE</td>
<td>3.7381</td>
<td>1.26991</td>
<td>42</td>
</tr>
<tr>
<td>SELF-ESTEEM_Satisfaction</td>
<td>2.8333</td>
<td>1.24776</td>
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</tr>
<tr>
<td>(SHAME)_Self-perception_Satisfaction</td>
<td>2.9524</td>
<td>1.14663</td>
<td>42</td>
</tr>
<tr>
<td>BOTHERED by feeling sad or DEPRESSED</td>
<td>3.3571</td>
<td>1.35829</td>
<td>42</td>
</tr>
</tbody>
</table>

Self-esteem – Independent Variable

The independent variable question for self-esteem asked participants of the study how satisfied they were with their self-esteem and how valuable they felt (QOLIBRI, Question B3) according to selected numeric coded responses. Survey responses indicated 7 participants (nearly 17%) were not at all satisfied, 11 participants (26.2%) were slightly satisfied, with 10 participants (nearly 24%) reported being moderately satisfied, 10 participants (nearly 24%) were quite satisfied, and 4 participants (9.5%) were very satisfied with their levels of self-esteem at the time of the survey. The mean for the independent variable self-esteem, was 2.83 with a Standard Deviation of 1.248 and normal distribution.

Shame – Independent Variable

The independent variable question for shame asked participants of the study how satisfied they were with the way they perceived themselves (QOLIBRI, Question B6) based on selected numeric coded responses. Survey responses indicated 5 participants (nearly 12%) were not at all satisfied, 9 participants (21.4%) were slightly satisfied, with 15 participants (nearly 36%) reported being moderately satisfied, 9 participants (nearly 21.4%) were quite satisfied, and 4
participants (9.5%) were very satisfied with their levels of shame at the time of the survey. The mean for the independent variable shame, was 2.95 with a Standard Deviation of 1.147 and normal distribution.

**Depression – Independent Variable**

The independent variable question for depression asked participants of the study how bothered they were by feeling sad or depressed (QOLIBRI, Question E4) with responses presented in a numeric coded forum. Survey responses indicated 5 participants (nearly 12%) were not at all bothered, 8 participants (19%) were slightly bothered, with 6 participants (nearly 14%) reported being moderately bothered, 13 participants (31%) were quite bothered, and 10 participants (nearly 24%) were very bothered by feeling sad or depressed at the time of the survey. The mean was 3.36 with a Standard Deviation of 1.358 with normal distribution.

**Results**

There were two research questions and two hypotheses for this study. The following section will discuss the results of each hypothesis. For each hypothesis both descriptive and inferential statistics will be used to discuss the results. Tables, charts, scatterplots, and normal probability plots (Normal P-P) will be used within the results to aid in the results section.

**Hypothesis One**

The first hypothesis evaluates the perceived effectiveness of post-injury counseling rated responses from the participants of the survey. It is hypothesized that the factors of post-injury counseling and level of satisfaction of services will predict more counseling services were sought with a lower satisfaction levels for services (Demographic Questions) among the mild and moderate traumatic brain injury survivors who participated in this study. Participant responses from the survey indicate 1 individual sought mental health services for self-esteem prior to
injury, while 4 individuals sought mental health services for self-esteem issues post-injury. The data indicated there was an increase in mental health services sought by survivors post-injury from the pre-injury mental health services sought data (Tables 1-4). Prior to injury, 2 participants sought counseling services for shame issues and 4 participants sought mental health services for shame issues post-injury. Another increase in mental health services sought post-injury. Mental health services post-injury also increased for depression issues, up from 11 participants who reported seeking counseling prior to injury to 21 participants post-injury. Twenty-eight participants reported they did not seek mental health services prior to injury, and 13 participants reported not seeking counseling post-injury. Thus, the first part of the hypothesis is supported as participants reported seeking more counseling post-injury than pre-injury.

The second aspect of the hypothesis suggested participants would have less satisfaction with counseling services post-injury than pre-injury. This aspect of the hypothesis was not supported by the data. Pre-injury counseling satisfaction found that 17 participants reported either being very satisfied or satisfied with the counseling services they had received with 7 participants reporting being very dissatisfied or dissatisfied with the counseling services they had received. Post-injury counseling found that 22 participants reported being very satisfied or satisfied with the counseling services they were receiving with 5 participants reporting a level of very dissatisfied or dissatisfied with counseling services they were receiving. Fifteen participants reported their counseling needs were being met with 12 participants reporting the counselor understands how to work with a brain injury survivor. There were 6 participants who indicated their needs were not being met and that the counselor did not understand how to work with a brain injury survivor. Three participants indicated counseling was not working and substance use was utilized to ease physical and emotional pain (See Table 8).
Hypothesis Two

Participant responses to the factors of self-esteem, shame, and depression will predict self-esteem, shame, and depression levels can have an impact on quality of life (QOLIBRI, LiSat-11, & OAS instruments) among the mild and moderate traumatic brain injury survivors who participated in this study. Multiple Linear Regression, Multiple Regression Assumption Testing, and Cronbach’s Alpha Reliability Testing were used with SPSS 25.0 software were used.
to analyze the responses of the mild and moderate traumatic brain injury survivors who participated in the survey for this study.

**Multiple Linear Regression.** Multiple Linear Regression was utilized within the SPSS 25.0 software to analyze data for this hypothesis. It is hypothesized in Hypothesis Two that participant responses to the factors of self-esteem, shame, and depression will predict self-esteem, shame, and depression levels impact quality of life (QOLIBRI, LiSat-11, and OAS instruments) among the mild and moderate traumatic brain injury survivors who participated in this study. Multiple Linear Regression, Multiple Regression Assumption Testing, Pearson’s $r$ and Cronbach’s Alpha Reliability Testing were used with SPSS 25.0 software to analyze the responses of the mild and moderate traumatic brain injury survivors who participated in the survey for this study. There were four assumptions associated with Multiple Linear Regression which will be discussed in relation to this study.

**Multiple Linear Regression Assumption One.** The first assumption pertains to the number of records needed for each predictor variable. If the dependent or outcome variable is normally distributed, then 20 records for each variable were needed (Warner, 2013; Salkind, 2017). As previously noted, there were 42 records for the dependent variable of Quality of Life, which was normally distributed. The first assumption for Multiple Linear Regression was met for this study.
**Multiple Linear Regression Assumption Two**. The second assumption is there needing to be an absence of outliers in all the variables (Warner, 2013). *Figure 6* is a Scatterplot of the independent and dependent variables. None of the marks fall out of the -3 to 3 range on either axis $X$ or $Y$ indicative of no outliers which meets the second assumption criteria of Multiple Linear Regression.

*Figure 6*. Scatterplot of Independent and Dependent Variables

Table 10. Residual Statistics

<table>
<thead>
<tr>
<th>Residuals Statistics&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Value</td>
<td>2.2122</td>
<td>5.6203</td>
<td>3.7381</td>
<td>.98703</td>
<td>42</td>
</tr>
<tr>
<td>Std. Predicted Value</td>
<td>-1.546</td>
<td>1.907</td>
<td>.000</td>
<td>1.000</td>
<td>42</td>
</tr>
<tr>
<td>Standard Error of Predicted Value</td>
<td>.134</td>
<td>.460</td>
<td>.247</td>
<td>.068</td>
<td>42</td>
</tr>
<tr>
<td>Adjusted Predicted Value</td>
<td>2.2354</td>
<td>5.7095</td>
<td>3.7305</td>
<td>.97888</td>
<td>42</td>
</tr>
<tr>
<td>Residual</td>
<td>-1.71928</td>
<td>1.57835</td>
<td>.00000</td>
<td>.79902</td>
<td>42</td>
</tr>
<tr>
<td>Std. Residual</td>
<td>-2.072</td>
<td>1.903</td>
<td>.000</td>
<td>.963</td>
<td>42</td>
</tr>
<tr>
<td>Stud. Residual</td>
<td>-2.109</td>
<td>1.987</td>
<td>.004</td>
<td>1.016</td>
<td>42</td>
</tr>
<tr>
<td>Deleted Residual</td>
<td>-1.78141</td>
<td>1.72211</td>
<td>.00755</td>
<td>.89210</td>
<td>42</td>
</tr>
<tr>
<td>Stud. Deleted Residual</td>
<td>-2.214</td>
<td>2.071</td>
<td>.003</td>
<td>1.034</td>
<td>42</td>
</tr>
<tr>
<td>Mahal. Distance</td>
<td>.089</td>
<td>11.602</td>
<td>2.929</td>
<td>2.230</td>
<td>42</td>
</tr>
<tr>
<td>Cook's Distance</td>
<td>.000</td>
<td>.205</td>
<td>.030</td>
<td>.042</td>
<td>42</td>
</tr>
<tr>
<td>Centered Leverage Value</td>
<td>.002</td>
<td>.283</td>
<td>.071</td>
<td>.054</td>
<td>42</td>
</tr>
</tbody>
</table>

<sup>a. Dependent Variable: (QoL)_LIFE AS A WHOLE</sup>
Evaluation of the Residual Statistics Table 9 found the Standard Residuals within the minimum of -3 and maximum of +3 or -2.072 and 1.903 respectively, which supported the data on the scatterplot identifying there were no outliers. Cook’s Distance is also another measure for identifying outliers. Distances greater than one can be indicators of outliers. For this study, the minimum Cook’s Distance was .000 and the maximum Cook’s Distance was .205, further supporting assumption two of Multiple Linear Regression of an absence of outliers had been met for this study (Warner, 2013; Salkind, 2017).

**Multiple Linear Regression Assumption Three.** The third assumption is a linear relationship between the dependent and independent variables exists. *Figure 7* shows a linear relationship between the dependent variable: quality of life and the independent variables of self-esteem, shame, and depression. Table 9 also offers linear relationship between the variables. The Standard Residual (Std. Residual) minimum -2.072 is not outside of the minimum of -3 and the maximum of 1.903 is not outside of 3. Thus, assumption three has been met.

*Figure 7. Normal P-P of Independent and Dependent Variables*
**Multiple Linear Regression Assumption Four.** The fourth assumption is an absence of multicollinearity (degree of intercorrelation) between the independent variables (Warner, 2013). Quality of life deals with more than just one aspect of life. Self-esteem, shame, and depression were three variables out of many choices chosen for this study. It would be pointless to conclude the variables used in this study or other variables which could have been selected for the study would not have some degree of intercorrelation. Table 11 is a Pearson Correlation between the independent and dependent variables. Multicollinearity in Multiple Regression is represented by a value greater than .7 between the predictor variables (Warner, 2013). The predictor variables of shame and self-esteem present with a small amount of multicollinearity with a value of .744. In a Pearson Correlation, the strength of a relationship between two variables is evaluated between a range of +1 (a perfect linear relationship) and -1 (a perfect negative linear relationship). When scores on X (predictor variable) increase, the scores on Y (outcome variable) increase in a positive linear relationship and a negative linear relationship has X scores increase and Y scores decrease (Warner, 2013). The correlations in Table 11 indicate both positive and negative linear relationships among the independent variables, and among the independent and dependent variables with no values greater than +1 or lower than -1. In summary of assumption four, though the value of the predictor variables was .744, which is greater than .7, this is not a significant increase to warrant disqualification of the assumption not being met but does indicate a small degree of intercorrelation between the independent variables of shame and self-esteem (Warner, 2013).

From Table 11, positive and negative correlation results were as follows: the independent variable of self-esteem in relation to the dependent variable was \( r = .757, p = .000 \), which was greater than .3. The independent variable of shame in relation to the dependent
variable of quality of life was \( r = .594, p = .000 \); both within the +1 to -1 range of a Pearson Correlation. The independent variable of depression in relation to the dependent variable of quality of life had a negative linear relationship as depression had a value of \( r = -.567, p = .000 \), (See Table 11) but still within the +1 to -1 range for Pearson Correlation. The independent variable of self-esteem showed the highest correlation to the dependent variable \( r = .757, p = .000 \), the independent variable of shame showed the second highest correlation to the dependent variable, \( r = .594, p = .000 \), and the independent variable depression showed a negative correlation to the dependent variable, \( r = -.567, p = .000 \).

Table 11. Pearson’s Correlation of Independent and Dependent Variables

<table>
<thead>
<tr>
<th>Correlations</th>
<th>SELF-ESTEEM_Satisfaction</th>
<th>(SHAME)_Self-perception_Satisfaction</th>
<th>BOTHERED by feeling sad or DEPRESSED</th>
<th>(QoL)_LIFE AS A WHOLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELF-ESTEEM_Satisfaction</td>
<td>Pearson Correlation</td>
<td>.744**</td>
<td>-.564**</td>
<td>.757**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>(SHAME)_Self-perception_Satisfaction</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.537**</td>
<td>.594**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>BOTHERED by feeling sad or DEPRESSED</td>
<td>Pearson Correlation</td>
<td>-.554**</td>
<td>.537**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>(QoL)_LIFE AS A WHOLE</td>
<td>Pearson Correlation</td>
<td>.757**</td>
<td>.594**</td>
<td>.567**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
Since this study had a small sample population, the Adjusted $R^2$ will be used to explain the percentage of variance of the dependent variable (quality of life). Predictor variables in this correlation with the outcome variable greater than .3 were indicative of a relationship between the independent and dependent variable. The Adjusted $R^2$ is .573, $p = .000$, which is greater than .3 indicative the dependent variable is compatible with the predictor variables of self-esteem, shame, and depression. The $p$ value is .000, which is less than .005, making the finding statistically significant (See Table 12).

Table 12. Adjusted R Square – Effect Size

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.777$^a$</td>
<td>.604</td>
<td>.573</td>
<td>.8296</td>
<td>.604</td>
<td>19.329</td>
<td>3</td>
<td>38</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), BOTHERED by feeling sad or DEPRESSED, (SHAME)_Self-perception_Satisfaction, SELF-ESTEEM_Satisfaction

b. Dependent Variable: (Col)_LIFE AS A WHOLE

ANOVA (Table 13) was evaluated for a slope of the line is zero, which would test the Null Hypothesis. If the slope of the line is zero, then the null hypothesis would be rejected. In this study, the slope of the line was 19.329 with a $p$ value of .000, which is a statistically significant finding. The null hypothesis was not rejected in this study.
Table 13. Test of the Null Hypothesis

![ANOVA Table]

The coefficients table (See Table 14) provided data on the contributions of all three predictor variables: self-esteem, shame, and depression. Review of the Standardized Coefficients Beta column allowed for the comparison of the three predictor variables.

Table 14. Coefficients Table

![Coefficients Table]
Beta is a means to compare the three variables with the dependent variable (predictor variable of self-esteem). Further, Alpha or $p$ values less than .05 represented statistical significance. The scores for the three independent variables from this study included: ($Beta = .632$, $t = 3.978$, $p = .000$), the predictor variable of shame ($Beta = .010$, $t = .066$, $p = .947$), and the predictor variable of depression ($Beta = -.211$, $t = -1.675$, $p = .102$). Thus, the predictor variable of self-esteem had a higher predictor score than the predictor score for depression and shame to the outcome variable of quality of life. The predictor variables of shame and depression yielded a non-statistically significant finding to quality of life.

Further review of the Coefficients Table in the “Part” column, which provided a unique contribution of each predictor value (value is not squared) to the outcome variable were evaluated. The highest value identified the greatest predictor variable. The highest “Part” value was .406 for the variable of self-esteem. The second highest predictor variable was .007 for the variable shame, and the least high value was -.171 for the predictor variable of depression.

The data from the Coefficients Table also supported the data from the Pearson Correlation which indicated hypothesis two was supported in the respect that self-esteem is the greatest predictor variable among those in the study to the outcome variable of quality of life. While shame and depression did not yield statistical significance as predictor variables to quality of life from the data evaluated from the Coefficients Table, but the predictor variable of shame did show a small correlation with the outcome variable of quality of life within the Pearson Correlation among mild and moderate traumatic brain injury survivors.
CHAPTER FIVE: CONCLUSIONS

Overview

This research explored whether self-esteem, shame, and depression impact quality of life from the responses and perspectives of mild and moderate traumatic brain injury survivors who participated in an online anonymous survey. Research in the area of mental health and quality of life after traumatic brain injury is limited or “poor” (von Steinbüchel, et al, 2009). Few studies have been conducted due to challenges such as impairment, comprehension, and internal and external validity issues associated with the sample population (Zasler, et al, 2013). While research has been conducted to evaluate the effectiveness of instruments such as the Quality of Life after Brain Injury (QOLIBRI) instrument (von Steinbüchel, et al, 2009), there is limited research to cross-reference data collected from this study with studies similar in nature.

Discussion, implications, and limitations, from this study will be presented in this section, in addition to recommendations for future research. Three variables of self-esteem, shame, and depression were considered to impact quality of life for the mild and moderate traumatic brain injury survivor. This study presented insights regarding emotion, mental health practice, and satisfaction levels not expected when this study began.

Discussion

Two questions brought this study to light. Are mental health counseling services meeting the needs for mild and moderate traumatic brain injury survivors? The other question was what emotions impact quality of life? With so many variables to consider, three were chosen to research if self-esteem, shame, and depression were factors in quality of life after traumatic brain injury for the mild and moderate traumatic brain injury survivor. The initial questions were revised several times until two research questions were developed as the basis of this study.
The first research question asked if mental health counseling services were a factor to quality of life based on the responses from participants of the online survey pertaining to demographic questions surrounding pre/post-injury counseling and satisfaction levels of those survivors who sought counseling services pre/post brain injury. Of those participants who responded to seeking post-injury counseling, whether they were satisfied with the counseling services they had received, most of the participants reported their counseling needs were being met. The first hypothesis was based from the first research question, which speculated more mild and moderate traumatic brain injury survivors would seek more counseling services post-injury than pre-injury, which was supported. However, the hypothesis expected there to be less satisfaction with the counseling services post-injury, which was not supported as respondents not only had higher counseling services satisfaction but also reported their counseling needs were being met.

Research question number two asked if the independent factors of self-esteem, shame, and depression were predictors of quality of life. While each factor can impact quality of life and in fact, shame can impact self-esteem and levels of depression, depression can impact quality of life, etc. (Martone, 2006; Johansson, et al., 2009: Coetzer, 2008). The resultant hypothesis of self-esteem, shame, and depression were predictors of quality of life after traumatic brain injury for the mild and moderate survivor originated. While the research indicated that of the three independent variables, self-esteem showed to be the greatest predictor of quality of life after traumatic brain injury among the responses of the mild and moderate traumatic brain injury survivors who participated in the study, there were other factors which can impact self-esteem which may have a multicollinear impact on quality of life. The research from this study did not support the hypothesis that the three variables contributed to predicting quality of life for mild
and moderate traumatic brain injury survivors, but the research did support that the independent factor of self-esteem was a predictor to quality of life.

**Implications**

While the list of implications has the potential to be exhaustive, there are four areas of implications which will be briefly discussed. They include Implications for Counseling, Implications for Counselor Training and Education, Implications for Christian Counselors, and Implications for Advocacy. As previously noted throughout this study, research on mental health and traumatic brain injury is limited with limited research to compare, contrast, and supplement with this data.

**Implications for Counseling**

While the data from this study did find that most mild and moderate traumatic brain injury survivors who participated in the study reported being satisfied or very satisfied with the counseling services, they have received post-injury, it is important to consider the misdiagnosis concerns. Comorbid and pre-existing mental health conditions, location of injury, severity of impairment as a result of injury, and diminished psychosocial skills can hinder the perception of satisfaction with services and quality of life reported by clients; non-traumatic brain injured clients and traumatic brain injured clients alike (Czubaj, 1996; Haskins, et al., 2012; Haskins, et al., 2012; Hsieh, et al, 2012). Due these possible complications, common treatments such as Eye Movement Desensitization Reprocessing (EMDR) or some forms of Cognitive Behavioral Therapy (CBT) may be ineffective with the mild and moderate traumatic brain injury population (Buck, 2011; Haskins, et al., 2012, & Cope, et al., 2005; Hsieh, et al., 2012).
Implications for Counselor Training and Education

Training and education for counselors in the field of traumatic brain injury are focusing on neuroscience for the clinician. Neuroscience is an informative tool for the clinician to learn about the regions of the brain, executive functioning, and neurochemical balances and imbalances which may contribute to neuropsychological issues (Simpkins & Simpkins, 2013; Luke, 2016). The Brain Injury Association of America offers training to mental health providers or persons who are interested in working with the traumatic brain injury population. The training for providers or individuals to become Certified Brain Injury Specialists includes all aspects of traumatic brain injury. Mechanism of injury, types of brain injuries, military population types of injuries and levels of reported and estimated non-reported traumatic brain injuries, levels of service available, types of providers, case management, referral, peer support groups, and advocacy are just some examples of the training offered to become a Certified Brain Injury Specialist with the Brain Injury Association of America (Brain Injury Association of America, 2016).

Training and educating counselors on the above-mentioned elements of traumatic brain injury can have the potential to provide more efficient services for brain injury clients, reduce the number of misdiagnosed clients, and provide awareness of the challenges not only faced by the brain injury survivor but the mental health provider community to serve the best interest of a client who presents as a survivor of traumatic brain injury. Education and training have the potential to integrate modern treatment modalities with modifications which can potentially enhance the quality of service and quality of life for the traumatic brain injury client who comes to the counseling room seeking assistance to improve their quality of life. As more research is
done, training and education of providers should be ongoing and with the latest treatments and approaches which may be applicable to their clients’ individual needs.

**Implications for Christian Counselors**

As with most people, faith can be a key component to the willingness to heal and overcome obstacles which can seem overwhelming. Christian counselors are not exempt from misdiagnosis of clients who present with traumatic brain injury. This research showed self-esteem was the greatest predictor to quality of life and though God made a covenant with man to never leave or forsake His children (Deuteronomy 31.6), people tend to avoid or disengage with people they do not understand or appear different (Charmaz, 1983; Johansson, et al., 2009; Sorajjalool, et al., 2008), which can impact levels of self-esteem, shame, depression, and quality of life. Rejection of anyone, but for the purposes of this dissertation, rejection of the mild and moderate traumatic brain injury survivor can lead to a life of isolation, self-esteem, shame, depression, and quality of life issues.

The integration of faith into the counseling setting with a believing mild or moderate traumatic brain injury counselee when communication and connection with other people are nonexistent, can bring hope when ethically sharing with the counselee of God’s unending love and promise to never leave or forsake His children (Deuteronomy 31.6). One study indicated that 70% of social workers have used spiritual interventions with their clients who are believers (Hodge, 2006), while another study indicated clients of faith would prefer spirituality as part of their therapeutic process (Saenz & Waldo, 2013). Whether brain injured or not, meeting the client where they are at can be a key component for counseling to become a tool to help the client enhance their quality of life (Clinton & Ohlschlager, 2002). Quality of life may not be something to be seen from the outside or evaluated based on factors which may or may not
predict quality of life, but faith is a powerful resource, and with God, all things are possible (Matthew 19:26).

**Implications for Advocacy**

An important finding from this research was not within the dependent and independent variables, predictor values, or correlations. The finding was the willingness of some group facilitators to pass on the survey information to the brain injury support group members, and the lack of willingness of others to do so. Group facilitators who did pass along the information were supportive of the study and of the group members. It is difficult to say which group facilitators participated and which did not, but within the context of 70 support groups within the state of Colorado, there were 42 responses to the survey. It is difficult to advocate if the needs are not known, or the opportunity for survivors to share their voices, experiences, or opinions is not provided by someone who deems something is not important. What may not be important to one person, may be very important to another. The Brain Injury Alliance of Colorado, Craig Hospital of Denver, CereScan, and the Brain Injury Association of America are several examples of supportive advocacy for traumatic brain injury survivors within the state of Colorado. More emotionally-based research is needed to provide advocacy with a broader outreach to those in need, and to educate and train those who provide services to the traumatic brain injury population.

**Limitations**

This section will briefly discuss the limitations experienced during this study. The noted limitations may have influenced the study either by methods of delivery or the under-estimation of chosen sample population’s willingness to participate in the study, or ability to participate in the study.
Distribution of Recruitment Letter

The distribution of the recruitment letter was limited by which TBI support group facilitator chose to pass the information to group participants of their respective groups. Approval for the study came several weeks before the holiday season, with the survey window being open before, during, and after the holidays. Distribution of the recruitment letter may have been affected by the holiday season, lack of interest by group members to forward the information, or the possibility of the recruitment letter going into SPAM filters. Of the initial 52 emails sent to the TBI group facilitators listed on the BIAC website, eight emails were returned undeliverable and two group facilitators asked if there was compensation for participants of the study though the recruitment letter indicated there was no compensation for participants who participated in the study. It is not probable to determine if these factors played a part with participation numbers but are factors to be considered for future research studies.

Sample Population

Prior to the launch of the study and during the study building phase, evaluation of potential willingness upon the parts of the group facilitators and group members who expressed interest and a desire to participate if the study was also considered. From the decision to use the TBI support group member population was made. As of June 1, 2018, there were 70 TBI Support Groups associated with the Brain Injury Alliance of Colorado (www.biac.org) throughout the State of Colorado. With a stated minimum participation of 40 and a maximum participation of 150 for the study, it was assessed the support group participants, even if one or two group members from each group participated, would suffice for the minimum participant amount for the study.
Processing and Comprehension

Consideration of the potential for processing and comprehension issues which exist beyond the TBI community was given in association with this study (Arciniegas, et al., 2013). One potential limitation not considered was the level at which a participant may understand and perceive the questions differently than another participant. For example, if one participant noted “Life as a whole…” (LiSat-11, question 1) and rated their perception of life being “satisfying” while another participant may have like circumstances, but a different perception of life may respond “rather dissatisfying”. Interpretation within the entire survey is a limitation as people with or without a TBI process and comprehend differently.

Apathy

Apathy, the individual’s lack of action to a task or willingness to perform a task (Zasler, et al., 2013), or in this case, participate in the research study can also be a limitation factor. Apathy, associated with depression, shame, or self-esteem levels may have contributed to participation in the survey, though there is no research data to support this assumption. Factors contributing to an individual’s lack of desire to participate may be injury or non-injury related.

Co-Occurring Disorders

Many survivors of TBI also experienced trauma. For some survivors, Post-traumatic Stress Disorder (PTSD) can accompany TBI (Vasterling, Bryant, & Keane, 2012; American Psychiatric Association, 2013). Neurocognitive deficits can be enhanced by substance use or overlapping symptoms of TBI and PTSD (American Psychiatric Association, 2013). Factors associated with mind-altering substances, depression, anxiety, shame, or apathy (to name a few examples) can also be a limitation to participation, comprehension, and processing the questions within the survey content associated with the research for this study.


**Recommendations for Future Research**

This study focused on self-esteem, shame, and depression relating to quality of life after mild or moderate traumatic brain injury for survivors. The instruments used in the study, Quality of Life After Traumatic Brain Injury (QOLIBRI), Life Satisfaction – 11 Scale (LiSat-11), and the Other as Shamer Scale (OAS) provided insight into the relationship between the individual variables (self-esteem, shame, and depression) and quality of life for mild and moderate traumatic brain injury survivors but the instruments also provided insight into other areas for future study. The reported level of satisfaction with respondents’ sex lives included 8% of participants reported a level of satisfaction with their sex lives, 19 of the 42 participants reported a level of satisfaction with their partner, 11 of the 42 participants reported not having a partner, and satisfaction with the family lives also presented another potential facet to quality of life for mild and moderate traumatic brain injury survivors. Responses from the survey indicated 10% of the participants had no level of satisfaction with the family relationships, 20% had slightly good relationships, 30% had moderately good relationships, with the remaining 40% of the participants reported having quite good or very good family relationships. In this respect, a study evaluating the level of satisfaction of mild and moderate traumatic brain injury survivors to level of satisfaction to non- mild and moderate traumatic brain injury survivors in relation to intimacy and quality of life would be an interesting correlative research between the groups and degrees of satisfaction. Would there be a significant difference between the non- mild and moderate traumatic brain injury and mild and moderate traumatic brain injury sample populations and if so, exploring potential reasons for the difference would be an interesting study.
In addition to non-mild and moderate traumatic brain injury and mild and moderate traumatic brain injury intimacy satisfaction and quality of life consideration for future research, adding onto the study of self-esteem, shame, and depression relating to quality of life after mild and moderate traumatic brain injury, it would worth looking at comparing the same variables among both mild and moderate traumatic brain injury survivors and non-mild and moderate traumatic brain injury survivors to evaluate if there is a difference among the groups. Further research between both populations may provide further insight into whether mild and moderate traumatic brain injury is a factor, or if quality of life is the biggest factor? Since there are several populations a study such as this can be conducted, limiting the sample population to individuals who have experienced issues with self-esteem, shame, and depression following a traumatic event with mild and moderate traumatic brain injury being one qualifying and another traumatic event such as serving in combat during military service, domestic violence, or rape for population consideration. Again, co-occurring disorders would be a concern, but those areas would be further researched in a future study.

Future studies such as these two examples have the potential to help identify if mild and moderate traumatic brain injury and impairments to the functions of the brain have a bigger or less impact on coping skills, life satisfaction, and quality of life and the level of services needed or needed to be reduced when focusing on the mild and moderate traumatic brain injury population. As more studies are conducted, potentially, more effective and beneficial mental health treatments will be available to serve the TBI mental health community and provide training to providers to help decrease the number of misdiagnosed survivors and ineffective treatments costing millions of dollars annually.
Conclusion

This study was an addition to the limited but needed research in the field of mental health and traumatic brain injury, as this area has been “poorly investigated” (von Steinbüchel, et al, 2009). Responses from 22 mild traumatic brain injury survivors and 20 moderate traumatic brain injury survivors provided a limited insight into the mental health services and mental health of these survivors through their responses. The study provided findings that more survivors did seek mental health services post-injury and that the survivors’ satisfaction with the services they received was satisfactory.

Findings also included survivors’ responses indicated their needs were being met in the counseling room with many of the survivors having reported they were satisfied with Life as a Whole, though many were unsatisfied with their intimate partner relationships and interpersonal relationships. From the first research question, the findings were not substantial to determine if counseling services were a factor in quality of life after mild or moderate traumatic brain injury. Partial support of the first hypothesis was found that more mild and moderate traumatic brain injury survivors did seek more counseling services but there was no support that survivors were less satisfied with the counseling services they received post-injury.

Research question two found support with one out of the three independent variables being a predictor of the outcome variable: quality of life. Depression was the least predictor value, which was not an expected outcome. Shame was not a significant predictor of quality of life according to the findings, but a small multicollinear relationship was noted between shame and self-esteem as predictor variables to the outcome variable of quality of life. The findings from the second research question showed self-esteem was the greatest predictor of quality of life after mild or moderate traumatic brain injury. The second hypothesis was not supported that
the combination of the predictor variables of self-esteem, shame, and depression would show a correlation among the variables to quality of life. As previously noted, the only variable which showed a prediction to quality of life was self-esteem.

The findings of this study indicate the practices in use to serve the needs of the mild and moderate traumatic brain injury participants of this study were satisfactory. The sample size was small, which may have influenced the results in addition to the study being anonymous and availability of services was not a measure used in this study. A larger sample size may present different findings.

Currently, there is limited research and exploration into mental health and traumatic brain injury from the perspective of the survivor instead of sole reliance on tangible testing through neuroimaging and neuropsychology. There is no doubt these technologies have beneficial factors, the doubt arises when the voices of survivors are not heard due to impairment, lack of training, or lack of appropriate diagnosis and treatment modalities which can potentially enhance quality of life for mild and moderate traumatic brain injury survivors. There are trained professionals who can offer services, there is education to teach providers what traumatic brain injury is and the effects of traumatic brain injury, and though there are guidelines, it is important to remember that each traumatic brain injury survivor has their own impairment, issues, and needs.

Secular counseling offers individual therapy, art therapy, music therapy, Eye Movement Desensitization Reprocessing (EMDR), and vocational therapy to assist in the recovery process which may or may not be appropriate for the client based on the location and impairment of the client’s injury. Christian counseling offers an integration of psychology practice while incorporating spiritual principles and beliefs into the counseling process (Thomas & Sosin,
There are many tools to consider when working in the counseling room with any client, the important aspect of having tools is knowing which tool is appropriate and when to use it. This study looked at three factors which can impact quality of life and counseling satisfaction. Traumatic Brain Injury (TBI) voices matter and as counselors, learning how to interpret what is being shared from the language of TBI will provide more insight on how to be more effective with diagnoses and treatments for this population.
REFERENCES


Brain Injury Alliance of Colorado (website): https://biacolorado.org/support-groups/


Craig Hospital of Denver (N.D.). Website: www.craighospital.org.

http://ezproxy.liberty.edu/login?url=http://go.galegroup.com.ezproxy.liberty.edu/ps/i.do?p=ITOF&sw=w&u=vic_liberty&v=2.1&it=r&id=GALE%7CA18960218&sid=summon&asid=bfac65ecdba19457b91b6cc2800a7c06


APPENDIXES

Appendix A: IRB Approval
(Signature Omitted)

December 4, 2018

Lisa Marie Ansell
IRB Exemption 3546.120418: Mental Health and Traumatic Brain Injury Survivors: The Relationship Between Low Self-esteem, Shame, and Depression to Quality of Life after Mild to Moderate Traumatic Brain Injury

Dear Lisa Marie Ansell,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@ liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

Liberty University | Training Champions for Christ since 1971
Appendix B: Stamped Consent Form
(Contact information omitted)

CONSENT FORM
Mental Health and Traumatic Brain Injury Survivors: The Relationship Between Self-esteem, Shame, and Depression to Quality of Life after Mild to Moderate Traumatic Brain Injury
Lisa Marie Ansell, MA, LPC, NCC, CBIS
Liberty University
School of Behavioral Sciences

You are invited to be in a research study looking specifically at how mental health issues such as low self-esteem, shame, and depression affect quality of life for survivors of mild to moderate traumatic brain injury from the survivor's point of view. You were selected as a possible participant because you have identified yourself as being between 18 and 65 years of age, having sustained a mild to moderate traumatic brain injury (mTBI), being able to process survey questions on your own or with the assistance of your group facilitator, and able to voluntarily consent to participation in the study. Please read this form and ask any questions you may have before agreeing to be in the study.

Lisa Marie Ansell, a doctoral candidate in the School of Behavioral Sciences at Liberty University, is conducting this study.

Background Information: The purpose of this study is to evaluate if there is a relationship between low self-esteem, shame, and depression to quality of life after mild to moderate traumatic brain injury for survivors. Numerous studies have focused on neurobiological and neuropsychological issues, but this study is looking specifically at the here-and-now effects of how low self-esteem, shame, and depression in relation to quality of life impacts TBI survivors from their perspective.

Procedures: If you agree to be in this study, I would ask you to do the following things:
1. Respond to 75 survey questions. The estimated time to complete the survey varies depending on processing and comprehension abilities.
2. Once you have completed the survey questions, you have completed your participation in the study. The survey does not ask for your name or any specific identifying information.

Risks: The risks involved in this study are believed to be minimal. While it is not possible to predict how some of the survey questions may affect you, it is possible some of the questions may trigger negative memories or negative current emotions. If recurrence creates a risk of having a negative or painful impact on you or your family, you are encouraged to seek help from a Professional Counselor who can assist you in dealing with such issues. Risks to confidentiality are minimal since there will be no personal identifiers on the data that is collected.

Benefits: Participants should not expect to receive a direct benefit simply from participating in this study. It is possible that reflection upon the questions presented may help you identify areas in your life needing to be addressed to improve or enhance your quality of life after brain injury. It is also possible for you to reflect upon the growth and recovery you have achieved since beginning the rehabilitative process associated with traumatic brain injury. Benefits to society may include an increased awareness of how emotions such as low self-esteem, shame, and
depression can impact the quality of life or desired change to improve quality of life after TBI for survivors. Awareness for the survivor, family members, loved ones, and mental health providers who serve TBI clients may enrich or improve quality of life in specific or overall areas for the TBI survivor.

Compensation: Participants will not be compensated for participating in this study. Participation in this study is voluntary.

Confidentiality: The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records. The results of this study may be used in reports, presentations, and publications, but the researcher will not be able to identify any participants by name in reporting results.

Conflicts of Interest Disclosure: As a group facilitator for one of the Brain Injury Support Groups, this researcher will provide group members from said group who wish to participate in the study with an alternate facilitator to assist with the survey used in the study and will not be present during such facilitation.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or the Brain Injury Support Groups or Group Facilitators.

How to Withdraw from the Study: If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Contacts and Questions: The researcher conducting this study is Lisa Marie Ansell, MA, LPC, NCC, CBIS. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at lansell2@liberty.edu or 970-509-0321. You may also contact the researcher’s faculty chair, Dr. Cynthia Doney, PhD, LPC, NCC, at cdoney@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in this study.
Appendix C: Demographics Questionnaire – Online Survey

1. If you choose to continue with this survey, you are aware you are giving your consent to participate in this research study?
   - Yes, I consent to participate in the research study and answer the following survey questions.
   - No, I do not wish to participate in the study and will close my browser to exit the survey.

2. Are you a survivor of a mild to moderate traumatic brain injury?
   - Yes, I have a mild traumatic brain injury
   - Yes, I have a moderate traumatic brain injury

3. I am responding to these survey questions:
   - Without assistance
   - With assistance

4. Prior to your injury, had you been in mental health counseling for self-esteem, shame, or depression?
   - Self-esteem
   - Shame
   - Depression
   - I did not seek mental health services prior to my injury

5. How satisfied were you with the mental health services you received prior to your injury?
   - Very satisfied
   - Satisfied
   - Dissatisfied
   - Very dissatisfied
6. Have you sought mental health counseling for self-esteem, shame, or depression since your injury?
   - self-esteem
   - Shame
   - Depression
   - I have not sought mental health counseling

7. How satisfied are you with the mental health services you are currently receiving?
   - Very satisfied
   - Satisfied
   - Neither satisfied nor dissatisfied
   - Dissatisfied
   - Very dissatisfied
   - Does Not Apply

8. The mental health services provided meet my needs in helping me improve my quality of life after traumatic brain injury.
   - My needs are being met
   - My needs are not being met
   - The counselor understands how to work with someone with a TBI
   - The counselor does not understand how to work with someone with a TBI
   - Counseling is not working so I turn to substances to help ease my physical and emotional pain
Appendix D: Permission to Use: Brain Injury Alliance of Colorado
(email addresses omitted)

Gmail - Support Group Survey

Lisa Ansell

Support Group Survey
1 message
Thu, Dec 28, 2017 at 12:10 PM

Lisa Marie,

Mark forwarded your survey request to me. It looks like a very interesting study that you want to undertake. When you are ready with specific survey questions you should contact the support group leaders directly and ask them to let their group know about the survey. All the support group leaders contact information is listed on the BIAC website here.

Good luck!

Gavin

Gavin Attwood / BIAC Chief Executive Officer / United States Brain Injury Alliance Chair

Brain Injury Alliance of Colorado
1325 S. Colorado Blvd. B300
Denver CO 80222
Main: 303-355-9969
BIAColorado.org
Appendix E: Updated Permission to Use Letter – Brain Injury Alliance of Colorado
(email addresses omitted)

Updated Permissions Request

Ansell, Lisa Marie
Sat 10/13/2018 3:37 PM

October 13, 2018

Gavin Attwood
Chief Executive Officer
Brain Injury Alliance of Colorado

Dear Mr. Attwood,

As a doctoral student in the School of Behavioral Sciences at Liberty University, I am conducting research as part of the requirements for a Doctorate Degree in Education: Community Care and Counseling – Traumatology. The title of my research project is: Mental Health and Traumatic Brain Injury Survivors: The Relationship Between Low Self-esteem, Shame, and Depression to Quality of Life After Mild to Moderate Traumatic Brain Injury. The purpose of my research is to evaluate if there is a relationship between low self-esteem, shame, and depression to quality of life after mild to moderate traumatic brain injury for survivors. Numerous studies have focused on neurobiological and neuropsychological issues, but this study is looking specifically at the here-and-now effects of how low self-esteem, shame, and depression in relation to quality of life impacts TBI survivors; from their perspective.

Last year, you provided preliminary approval to contact support group facilitators via contact information from the support group listings on BIAC’s website. I am writing to officially request your permission to utilize your group facilitator list to recruit participants for my research from the Brain Injury Alliance of Colorado brain injury support groups throughout Colorado. This will include contacting support group facilitators via email with like information I have shared with you and seeking interest from the group facilitators whether their members may be interested in participating in the study. I will seek an alternate facilitator to facilitate the survey to members of my support group in Granby without my presence or knowledge of which members participated in the study.

Participants will be asked to go to a survey link provided to participating group facilitators. Once the participant is on the survey site, they will be presented with informed consent information prior to participating. If the member continues on with the survey, consent has been agreed upon. Taking part in this study is completely voluntary, no personal identifying information will be requested of the participants, the survey is anonymous, and participants are welcome to discontinue participation at any time.

Additionally, I would like to request permission to use the region map and support group location information, not to include Group Facilitator names and contact information from the BIAC website to put into my dissertation as appendices to show readers how the regions for support groups are divided and group locations in Colorado.

I wish to once again thank you for allowing me to be a group facilitator for the Granby TBI Support Group with BIAC. Additionally, I thank you for your time and consideration of my requests. If you have further questions and/or choose to grant permissions, please respond by email to lansell2@liberty.edu.

Sincerely,
Lisa Marie Ansell, MA, LPC, NCC, CBIS
Appendix F: Updated Permission to Use – BIAC Granted
(email addresses omitted)

RE: Updated Permissions Request

Gavin Attwood
Mon 10/15/2018 12:23 PM
To: Ansell, Lisa Marie <lansell2@liberty.edu>
Cc: Doney, Cynthia.

Lisa Marie,
Thank you for your email. Yes, you may use the group facilitator list that is on the BIAC website as well as use
the regional map. Thank you for asking.
Good luck with your research!
Gavin
Gavin Attwood /  
BIAC Chief Executive Officer
Appendix G: Email to BIAC TBI Support Group Facilitators
(email addresses and names omitted)

Dear Brain Injury Support Group Facilitator,

As a fellow support group facilitator, a TBI survivor, and doctoral student in the School of Behavioral Sciences at Liberty University, I am conducting research as part of the requirements for a Doctorate Degree in Education: Community Care and Counseling – Traumatology. The title of my research project is *Mental Health and Traumatic Brain Injury Survivors: The Relationship Between Self-esteem, Shame, and Depression to Quality of Life After Mild to Moderate Traumatic Brain Injury*. The purpose of my research is to evaluate if there is a relationship between self-esteem, shame, and depression to quality of life after mild to moderate traumatic brain injury for survivors. Numerous studies have focused on neurobiological and neuropsychological issues, but this study is looking specifically at the here-and-now effects of how self-esteem, shame, and depression in relation to quality of life impacts TBI survivors; from their perspective.

I am writing to you as I would like to send a survey link to group facilitators who may have interested mild to moderate TBI survivors who may be interested in participating in the study. Preferred participant criteria would be: participant has identified themselves as having sustained a mild to moderate traumatic brain injury (mTBI), has identified themselves as being able to process survey questions on their own or with the assistance of a group facilitator, and is able to voluntarily consent to participation in the study. This study is looking for input directly from the TBI survivor. In relation to my group members who may wish to participate in the study, I am seeking an alternate facilitator to facilitate the survey to members of my support group in Granby without my presence or knowledge of which members participated in the study.

Participants will be asked to go to a survey link provided to participating group facilitators where they will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, no personal identifying information will be requested of the participants, the survey is anonymous, and participants are welcome to discontinue participation at any time. Some participants may not have access to a computer or may need assistance in understanding the questions within the survey; any assistance group facilitators would be willing to provide would be appreciated to help members share their voices within the survey responses. Responses will be collected by a secure and anonymous data collection site, with no other participation from the group facilitator needed.

If you have group members who would be interested in participating in this study by completing a survey, please email me at lansell2@liberty.edu and I will send a follow up email with more detailed information with the survey link and survey information.

I thank you for your time and consideration of this email and I look forward to your response.

Sincerely,

Lisa Marie Ansell, MA, LPC, NCC, CBIS
Doctoral Candidate
Appendix H: Recruitment Letter

December 4, 2018

Mild to Moderate Brain Injury Survivor
Brain Injury Support Group Member
Brain Injury Alliance of Colorado
(Various Locations within the State of Colorado)

Dear Brain Injury Support Group Member,

As a graduate student in the School of Behavioral Sciences at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to evaluate if there is a relationship between self-esteem, shame, and depression to quality of life after mild to moderate traumatic brain injury for survivors, and I am writing to invite you to participate in my study.

If you have sustained a mild to moderate traumatic brain injury (mTBI), are able to process survey questions on your own or with the assistance of your group facilitator, are able to voluntarily consent, and are willing to participate in the study, you will be asked to complete a survey. The survey should take approximately 90 minutes to complete. Your participation will be completely anonymous, and no personal or identifying information will be collected.

To participate in the study, go to the following link: https://www.surveymonkey.com/r/62DBQ57.

A consent document is provided as the first page you will see after you click on the survey link and contains additional information about my research. Please click on the survey link at the end of the consent information to indicate that you have read the consent information and would like to take part in the survey.

Sincerely,

Lisa Marie Ansell, MA, LPC, NCC, CBIS
Doctoral Candidate