Exploring Posttraumatic Growth and Narratives through a Group Cognitive Rehabilitation Therapy Intervention

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ABSTRACT

Brain injury can lead to short- or long-term problems that may affect all aspects of a person's life including the ability to work, how they build relationships with others, changes in feelings and emotions, and the ability to learn. This study looks to build upon ways to explore posttraumatic growth (PTG) and narratives through an intervention manual with a brain injury population where individuals were at least 5 years post-injury who reside at a residential post-acute brain injury facility. Evidence of PTG has been observed as early as a few months post-injury to more than 20 years post-injury; however, there are a limited number of existing studies and literature connecting this to resilience and personal narratives through intervention research. This dissertation research will pilot and evaluate the efficacy of an intervention through a mixed-method, pre-and post- longitudinal cohort design that will be employed for the initial phase of intervention development for the Group Cognitive Rehabilitation Therapy Program (GCRTP). The findings showed that the GCRTP does increase the PTG of individuals with brain injury through increased PTGI-SF scores post-intervention and that participation in the GCRTP does enhance individual learning outcomes. Further efficacy testing deemed that the GCRTP did attain the desired outcomes, as the components of the intervention were empirically designed and delivered with fidelity by the facilitators. The discussion includes interpretation and triangulation of qualitative data, as well as limitations of the study and implications for social work practice and research.

Key words: brain injury, resiliency, posttraumatic growth, personal narratives, cognitive rehabilitation, group treatment, brain injury neurorehabilitation, social work, and protective factors.

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Chapter 1: Introduction

Prevalence/Incidence of Brain Injury

Acquired brain injury (ABI) typically occurred because of car accidents; assaults or falls; problems in the supply of blood in the brain such as a bleed (hemorrhage) or blockage (stroke); problems in the supply of oxygen (hypoxia); inflammation or swelling of the brain (encephalitis); and tumor to name a few (Howes et al., 2005). ABI was considered one of the most common neurological disorders (Howes et al., 2005). Traumatic brain injury (TBI) was thought to be eight times more common than a combination of breast cancer, AIDS, spinal cord injury, and multiple sclerosis in the USA (Kolb & Whishaw, 2009). There were approximately 223,135 TBI-related hospitalizations in 2019 and 69,473 TBI-related deaths in 2021 among Americans throughout the United States (CDC, n.d.). This represented more than 611 TBI-related hospitalizations and 190 TBI-related deaths per day (CDC, n.d.). Males were nearly two times more likely to be hospitalized and three times more likely to die from a TBI than females (CDC, n.d.). Globally, 69 million people (about twice the population of California) were estimated to sustain a traumatic brain injury each year (Dewan et al., 2019).

A Traumatic Brain Injury (TBI) may have resulted in health effects that vary in intensity, length, and clinical manifestation. These health effects may have persisted and contributed to potential cognitive and social impairments, functional and physical limitations, disability, and reduced quality of life (Riggio & Wong, 2009; Walker & Pickett, 2007). Disrupted cognition was the hallmark symptom of TBI, but the injury also may have affected behavior, emotion, and motor function, leading to changes in identity, long-term disability, and readjustment to everyday life (Gracey et al., 2008). Secondary neurologic disorders such as mood disorders and post-traumatic epilepsy may have occurred following TBI and disrupt health-related quality of life, as

well as headaches, fatigue, and sleep disturbances (Agrawal et al., 2006; Hart et al., 2011; Rosenthal et al., 1998). Given the severity of TBI and the need for both acute/post-acute neurorehabilitation, TBI was being recognized more as a disease process rather than a discrete event because of the potential it presents for non-reversible and chronic health effects (Masel & DeWitt, 2010).

The effects of brain injury were originally seen as irreversible due to a perception that brain injury was a fixed outcome (Masel & DeWitt, 2010). However, current thinking suggested that social and psychological processes can be harnessed to support and improve outcomes with individuals with brain injuries (Walsh et al., 2014). For survivors, a TBI may have led to short- or long-term problems that may have affected all aspects of a person's life including the ability to work; how they build relationships with others; changes in feelings and emotions; and the ability to learn (Dillahunt-Aspillaga et al., 2017; Cuthbert et al., 2015; Hutton & Ownsworth, 2019; Sirois et al., 2017).

Statement of the Problem

This study looked at ways to explore posttraumatic growth and narratives through an intervention manual with the brain injury population. Posttraumatic growth occurred when a person acknowledges an adverse event, such as a brain injury, in a way that allows them to find the positives from the experience, which can impact psychological well-being and functional behavior (Joseph, 2011; McGrath, 2004). This population may have experienced considerable psychological distress in attempting to make sense of what has happened to them. The theme of struggling with and finding meaning in suffering spanned historical and cultural contexts (Tedeschi & Calhoun, 1996). In many ways, the search for and discovery of meaning was central to the psychological processes that can result in posttraumatic growth (PTG), positive

psychological and life changes an individual undergoes because of struggling with highly challenging circumstances (Tedeschi & Calhoun, 1996). Individuals with a brain injury closely examined and reconsidered even their most basic expectations and assumptions about themselves, others, and their futures. This necessitated cognitive work on repeated measures (Tedeschi & Calhoun, 2004). PTG spanned 5 cognitive domains of functioning such as: personal strength, spiritual and existential change, appreciation of life, new possibilities, and relating to others (Tedeschi & Calhoun, 2004).

Tedeschi & Calhoun (2004) have conceptualized that the process of PTG is set in motion by the occurrence of a major life crisis that significantly challenged and shattered the individual's understanding of the world and his/her place in it. Brain injury was a major life crisis. In many ways, the search for and discovery of meaning was a central process to PTG. This necessitated the cognitive work of repeated thinking about the event, the discord between one's existing worldview and one's new reality and recognizing that some beliefs may have been no longer possible (Tedeschi & Calhoun, 2004). Over time, this cognitive thinking prompted rumination. Through rumination, the trauma survivor worked to reconstruct a new assumptive world that incorporated the traumatic experience which made it more comprehensible and meaningful (Tedeschi & Calhoun, 2004). A shift began to occur with goals, beliefs, worldviews, and a sense of resolution. This was where PTG began to occur. Individuals sought to make sense of the specific sequence of events leading to their current distress, as well as contemplated more abstract ideas surrounding what it means to live their new post-trauma life (Tedeschi & Calhoun, 2004). This aligned well with building resiliency and central tenets of existentialism, where there was an opportunity to reconsider how meaning was understood from one's life past, present, and future (Tedeschi & Calhoun, 2004).

When a brain injury occurred, it impacted an individual's core beliefs and framework for perceiving the world around them (Walsh et al., 2014). They felt lost, leading to a feeling of helplessness and loss of meaning in life (Walsh et al., 2014). In the aftermath of brain injury, individuals questioned life and how to move forward to make positive gains (Walsh et al., 2014). It was vital for clinicians and staff working with individuals who have experienced brain injury to focus on PTG to help individuals identify positive changes within their lives, reduce stress, and identify a more satisfying future (Walsh et al., 2014). Without an in-depth understanding of the development of PTG, positive gains through an individual's rehabilitation process with a brain injury may be thwarted (Tedeschi & Calhoun, 2004).

Group cognitive rehabilitation therapy provided an opportunity for peer support and feedback, sharing of ideas and compensatory strategies, a sense of feeling helpful, easing isolation, and allowed for the comparison of one's abilities and limitations with those of similar diagnoses (Langenbahn et al., 1999). Yalom and Leszcz (2005) defined twelve factors that occurred within the context of group treatment: (1) universality, (2) altruism, (3) instillation of hope, (4) imparting of information, (5) corrective recapitulation of primary family group, (6) development of socializing techniques, (7) imitative behavior, (8) cohesiveness, (9) existential factors, (10) catharsis, (11) interpersonal learning, and (12) self-understanding. This connected with the factors explored in posttraumatic growth, particularly relating to others, new possibilities, personal strength, and appreciation for life. Gracey & Ownsworth (2008) noted that brain injury disrupted the sense of self, affecting their cognitive and psychosocial identity. Group interventions were adapted to address these so individuals gained the insight needed to explore personal growth. The goal of group cognitive rehabilitation therapy was to support individuals with the restoration, or compensation for, these deficits (Cicerone et al, 2005;

Flanagan et al., 2008; Silver et al., 2009). These basic skills included (1) awareness, (2) attention/concentration, (3) memory, (4) ability to give and receive feedback, (5) development of interpersonal skills, and (6) exploration of personal narratives for a new identity/sense of self. (Cicerone et al., 2005; Langenbahn et al., 1999; Sherr & Langenbahn, 1992). The intervention manual (see Appendix C) was developed to focus on these skill areas to elicit PTG.

The effects of brain injury were originally seen as irreversible due to a perception that brain injury was a fixed outcome unaffected by the idea of brain plasticity (Walsh et al., 2014). However, current thinking suggested that social and psychological processes were harnessed to support and recover brain function to improve outcomes with individuals with brain injuries (Walsh et al., 2014). Thus, it was important to seek to understand more about the predictors and processes associated with positive psychological outcomes following brain injury. The development and exploration of PTG within individuals with a brain injury in a rehabilitation setting through a group cognitive therapy intervention was the primary focus of the presented phenomenon.

Statement of Purpose of the Study

The goal of this study aimed to pilot and assess the efficacy of an intervention (see Appendix C) to explore posttraumatic growth and narratives. This intervention was designed to be delivered to individuals with a brain injury at least five years or more post-injury who reside at a post-acute brain injury rehabilitation facility. The Posttraumatic Growth Inventory – Short Form (Cann et al., 2010) was given to all individuals in the study before and after the intervention. The intervention's purpose was to explore posttraumatic growth and the narratives of their brain injury rehabilitation experiences. The immediate expected outcomes to be assessed were: 1) enhanced cognitive learning through activities presented in the manual in adults with a

brain injury and 2) increased posttraumatic growth in adults with a brain injury. To test the efficacy of the intervention, additional questions were included in the intervention to address the method of delivery and its components. The efficacy goals to be assessed were: 1) individual learning outcomes were achieved, and 2) attainment of desired outcomes were enhanced if the components of the intervention were empirically designed and delivered with fidelity by the facilitators. Qualitative data was gained through the intervention to prompt/cue for the development of narratives at the end of each exercise.

The researcher hypothesized that the group cognitive rehabilitation intervention (see Appendix C) would be successful in enhancing posttraumatic growth in individuals with a brain injury. When individuals with a brain injury engaged in rehabilitation in a supportive environment and focused on building their strengths and new sense of self, it was expected that posttraumatic growth will occur through continued focus on resiliency.

Conceptualization of Relevant Terms

The following terms were used operationally throughout the study.

Acquired Brain Injury (Kolakowsky-Hayner & Reyst, 2016): An injury to the brain that is not hereditary, congenital, degenerative, or induced by trauma that occurs after birth.

Traumatic Brain Injury (Kolakowsky-Hayner & Reyst, 2016): An alteration in brain function, or other evidence of brain pathology, caused by an external force.

Resiliency (van Breda, 2018): The ability to withstand adversity and bounce back from difficult life events.

Posttraumatic Growth (Tedeschi & Calhoun, 1996): Positive psychological and life changes an individual undergoes because of struggling with highly challenging circumstances.

Cognitive Rehabilitation (Kolakowsky-Hayner & Reyst, 2016): A systematically applied set of medical and therapeutic services that aims to enhance overall functioning and quality of life for persons with a brain injury.

Positionality

This study was completed at a post-acute brain injury rehabilitation facility in Bucks County, Pennsylvania. The rehabilitation facility was a post-acute rehabilitation facility specifically designed for adults who have sustained a brain injury or other neurological impairment. Neurologic impairment, such as a traumatic brain injury, affected virtually every area of an individual's life. The rehabilitation facility carefully integrated its program to provide comprehensive therapeutic and rehabilitative services for both the client and his/her family. The current admission status noted 112 clients were served in the rehabilitation setting, both residentially and on an outpatient basis. The goal of the rehabilitation program was to help clients obtain a realistic, maximum level of independent functioning in the least restrictive community environment; one that advanced individual productivity and well-being. The researcher was actively engaged in the brain injury community for 20 years. The individuals involved in this study were known to this researcher. The rehabilitation facility has employed this researcher for the last 20 years, so she needed to be particularly aware of her biases based on previous experiences. To control for bias, measurement and qualitative data were collected anonymously and no follow-up, interviews, or focus group participation were solicited from participants. The intervention was implemented by four Neurocognitive Instructors and not this researcher.

Theoretical Framework

This dissertation looked to build ways to explore posttraumatic growth and narratives through an intervention manual with the brain injury population. After a thorough literature review, resiliency and existential theory were appropriate to frame this research. These theories addressed key points within the research (positive protective factors, posttraumatic growth, and personal narratives) and addressed the micro (client and clinician) level of the intervention. The theories were widely discussed, written about, and aligned with the social work perspective. Resiliency and existential theory provided a framework for influences of posttraumatic growth and personal narratives. Resiliency theory made the connections between resilience and posttraumatic growth through positive protective factors. Existential theory provided a foundation for exploring personal narratives within an intervention.

Problem Theory: Resiliency Theory

Resilience theory explained how traumatic experiences can negatively affect people, and how resilience develops from dealing with and overcoming those difficult events (van Breda, 2018). If someone was vulnerable or had difficulty coping, it made it harder for them to deal with traumatic experiences in a healthy way, which then led to negative impacts on their social skills, intellectual abilities, and physical development (van Breda, 2018; Zimmerman, 2013). Building and using resilience skills helped protect people from experiencing negative effects after going through traumatic life experiences (van Breda, 2018; Zimmerman, 2013).

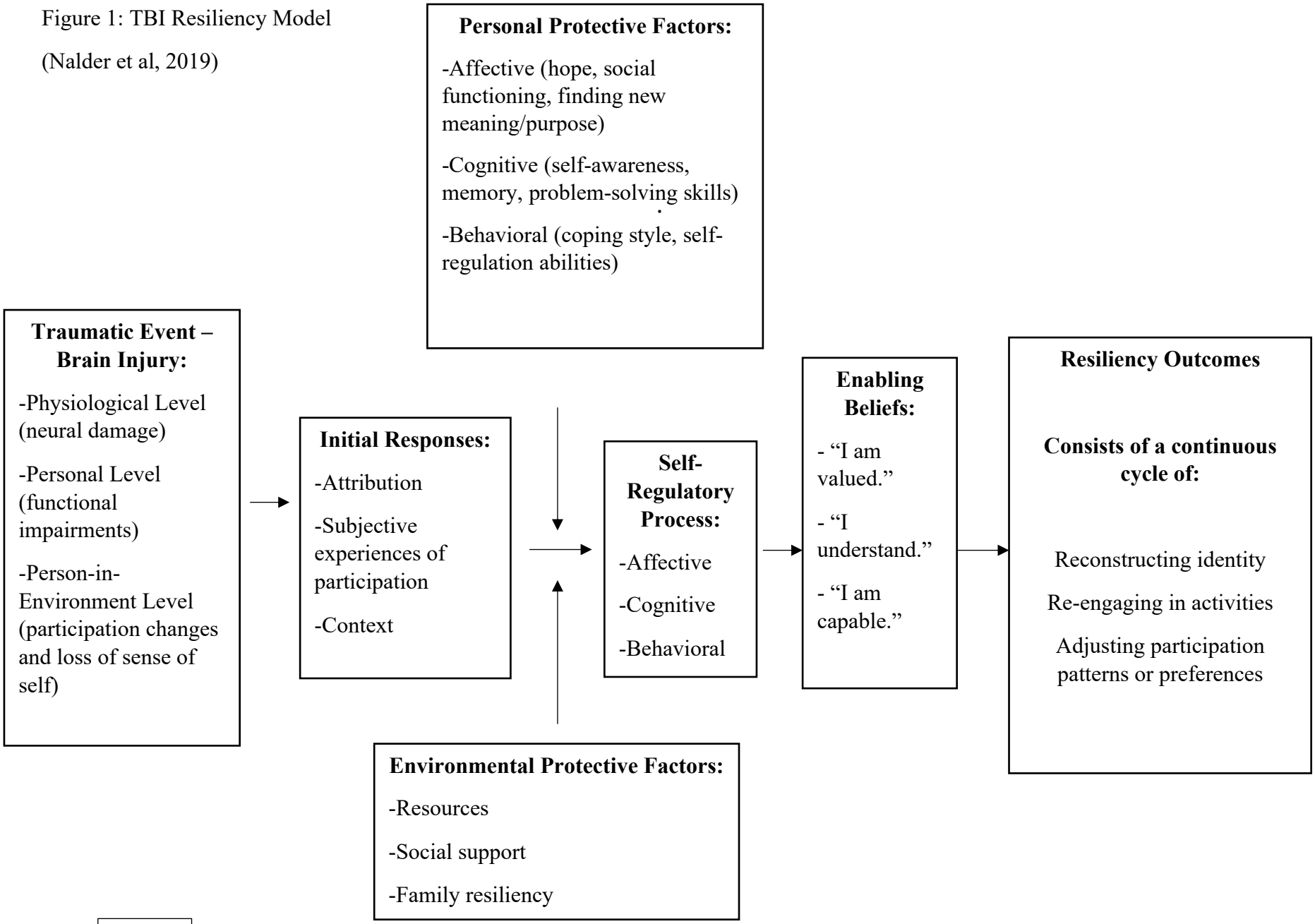
This theory applied to social work practitioners and their clients. Van Breda (2018) implied that social workers should evaluate how vulnerable or at-risk a client is and recognize that understanding the client's past experiences, current situation, and future goals were all key

pieces in addressing the challenges they face. This helped social workers to identify and use client resiliency to mediate outcomes and adversity. Van Breda (2018) noted that resilience theory helped connect the individual client level, the community/group level, and the broader societal level of social work practice (micro, mezzo, and macro levels) to provide more integrated and comprehensive services to clients. The resilience process cycled between these levels. The social worker worked directly with the individual client (micro level), their family/support system (mezzo level), and organizations that may have helped (macro level) to achieve the best possible outcomes for helping that client (van Breda, 2018). Social work's greatest strength was the ability to understand the real-life contexts and experiences of individuals and communities, combined with current research evidence, and advocated for them while focusing on their capabilities and potential across all levels of practice - from working one-on-one to broader community and systemic change (van Breda, 2018; Zimmerman, 2013).

Nalder et al. (2019) proposed a process model of resiliency following traumatic brain injury (TBI) that illustrated how individuals with TBI positively adapted to both the initial injury and recovery and subsequent life events such as re-engagement in meaningful activities and enhanced quality of life. This model proposed by Nalder et al. (2019) was meaning-oriented, focusing on individual interpretations of experiences, and explained how individuals reduced the potential negative impact of adversity through personal protective factors that fell within three separate domains: affective (emotional functioning), cognitive (self-awareness and memory), and behavioral (self-efficacy). Figure 1 outlined how these constructs were related and how resiliency unfolded in response to a specific situation (i.e. brain injury) over time.

Figure 1: TBI Resiliency Model

(Nalder et al, 2019)



In reviewing Figure 1, adversity was situational (e.g., experiencing a traumatic brain injury) and subjective, as it was how the individual interprets the event. At the physiological level, there was evidence that traumatic brain injury (TBI) resulted in neural network and degeneration, particularly damage to the frontal and temporal lobes (Bigler & Maxwell, 2011; Cicerone et al., 2006). At the person level, there was evidence of impairments in cognitive, physical, social, behavioral, and emotional functions. The neurological damage resulted from TBI had long-term effects on cognitive, physical, and/or emotional functioning, which affected health and participation in social roles (O'Connor et al., 2005; Sander et al., 2010). Evidence at the person-in-environment level showed that TBI led to participation changes, that caused individuals to reassess what activities were most important to them due to role changes or role loss (Levack et al., 2010). This contributed to a loss of sense of self, as individuals re-learned about their body and capabilities, and/or adjusted to changes in social roles (Levack et al., 2010). Again, this showed how adversity developed over time, connecting past, present, and future experiences that led to resiliency.

Protective factors were identified within the resiliency theory. Affective protective factors were those that reinforce an individual's well-being and self-esteem (person-level), and sense of belonging and acceptance (person-in-environment level). Hope and optimism were associated with fewer depression symptoms following traumatic brain injury, and positive affect was associated with better quality of life (Peleg et al., 2009). Hope was primarily affective due to its influence on emotional well-being; however, it was viewed as a cognitive (e.g., mindset) or behavioral protective factor as it related to motivation (Peleg et al., 2009). Social functioning was an overarching construct that included cognitive abilities necessary for social behaviors and skills like empathy, social judgment, listening, and turn-taking (Beauchamp & Anderson, 2010).

Social functioning thus contributed to positive interactions with others and was important to resiliency, as it influenced a sense of belonging and the ability to maintain well-being.

Cognitive protective factors provided individuals with a sense of meaning (person level) and understanding of self and the world around them (person-in-environment level). Within TBI literature, there was evidence that suggested that cognitive skills (self-awareness and memory) were important cognitive protective factors (Waldron-Perrine et al., 2011). Self-awareness affected how individuals view a situation at the moment. Self-awareness and memory were cognitive functions linked to a sense of self and important to one‘s personal narrative (Thomas et al., 2014). Toglia & Kirk (2000) gave an example of denial, which may have been a protective factor in the short-term that minimized distress but a potentially negative factor in the long-term, that affected how individuals accepted the injury, reconstructed a view of the self, and formulated new life goals.

Behavioral protective factors provided individuals with a sense of personal control (person level) and enabled re-engagement in meaningful activity (person-in-environment level). Coping style and self-regulation abilities were important to these protective factors (Krpan et al., 2013; Hanks et al., 2016). Emotion-focused coping suppressed negative emotions by avoiding the situation, whereas problem-focused coping involved taking action to resolve the issues (Krpan et al., 2013). In a study of individuals with traumatic brain injury, problem-oriented coping was associated with resilience (Hanks et al., 2016). Self-regulation influenced re-engagement in activities as well as the individual’s interpretation of adversity and their belief that they were able to manage the situation and achieved their desired outcome (Cicerone & Azulay, 2007).

Social support was considered a protective environmental factor, as it has been shown to mediate long-term outcomes by buffering against stressors or adversities associated with traumatic brain injury (TBI), and was associated with higher resilience (Hanks et al., 2016; Neils-Strunjas et al., 2017). Some individuals with TBI perceived that the injury brought them closer to important people in their lives, and they appreciated the support they received from family and friends (Nalder et al., 2013). However, some individuals with a TBI reported reductions in their social network over time (Levack et al., 2010). Therefore, focusing on the ability to relate to others, as identified with posttraumatic growth, became important.

Family resiliency was also important as the family was cited as the primary source of support for individuals with traumatic brain injury (TBI) in the long term (Kreutzer et al., 2009; Turner et al., 2007). Families provided different types of support in various aspects of daily life. It was important to consider the nature of family resiliency and how it impacted both the family and the individual. Spina et al. (2005) noted that while family support may have been important for individuals with a TBI in fostering their resiliency, it increased the demands on family members and, depending on how they appraised the situation and what supports they had, providing support may have contributed to family members' own experience of adversity, which may, in turn, have consequences for the resiliency of the individual with a TBI.

Self-regulatory processes were the next key concept within the TBI resiliency model. Nalder et al. (2019) referred to this process as the mechanisms through which individuals controlled their emotions (affective), understood and controlled negative or ineffective thoughts (cognitive), and understood or controlled negative or ineffective behavior (behavioral). As a process, self-regulation was an overarching construct used to describe how individuals assessed the situation and controlled their thoughts, actions, and emotions to negotiate discrepancies

between the present and future state goals/outcomes (Hunt et al., 2013). The process-oriented view of self-regulation was important for resiliency, as it explained how a person responded to the adversity based on their interpretation of their experiences. After a TBI, individuals faced discrepancies between their present and future/desired life situations (Gracey et al., 2009). The focus on a new purpose/meaning in life, as noted in posttraumatic growth, became even more of a goal to make positive changes.

Resiliency-related outcomes connected with the five factors of posttraumatic growth (PTG). Common themes were identified in literature that related to the experience, or desire, for a new sense of self and reconstructing a new identity, which involved improving functional capacity, finding new meaning/purpose, learning to accept the disability, and being able to identify new goals/priorities (Brands et al., 2012; Hart & Evans, 2006; Levack et al., 2010; Muenchberger et al., 2008; Nalder et al., 2013; Thomas et al., 2014).

Program Theory: Existential Theory

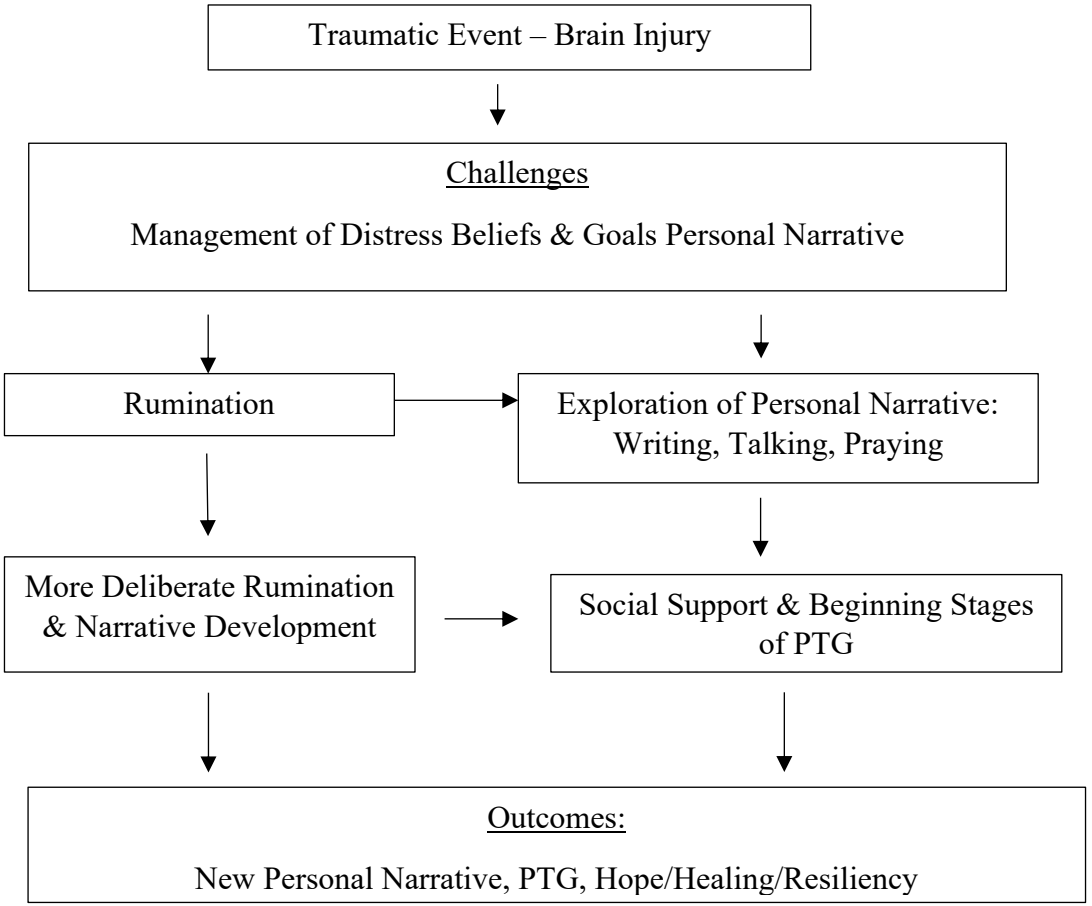
Thompson and Walsh (2010) conceptualized trauma as an existential injury that resulted in a loss of sense of self and the shattering of frameworks of meaning. They discussed the existential concept of the abyss where the existential void that was experienced when people face their own mortality and the finitude of existence (Thompson & Walsh, 2010). Trauma forced people to investigate the abyss, leading to existential death anxiety (Thompson & Walsh, 2010). The humanistic and flexible nature of existential theory, as well as its conceptual and empirical links to trauma experiences, amplified its credibility as a framework for integrating an intervention that aided in identifying posttraumatic growth within an individual with a brain injury (Thompson & Walsh, 2010).

Victor Frankl was a prominent existential theorist. He suggested that unconditional meaning existed under all circumstances, even the most traumatic circumstances (Barnes, 2000). “If there is meaning in life at all, then there must be a meaning in suffering.” (Frankl, 2014, p.88). There was an art to drawing out personal meaning (Yaguri, 2018). Meaning in life was linked to psychological well-being (Frankl, 2014). Personal meaning appeared at the overlap of self-identity and worldview. Once formulated, this contributed to the clarity of thought and connected fundamental life decisions and values. As Nagel (1987, p. 95) stated, “If there's any point at all to what we do, we have to find it within our own lives.” The quest for small-scale personal solutions was not to be abandoned. A person had to choose which way to seek first, forward or back, in the life already lived, or in the life yet to come (Sherover, 1975). What was important was the specific meaning of a specific human life at a given moment. Meaning was based on realities of the past, according to Frankl (2014). The great achievement of finding meaning in life lied in a person's ability to observe the past and be optimistic about what happened (Frankl, 1978). Observing the past meant telling a meaningful story. A life story was not to have to include the entire life of the narrator (Lieblich et al., 1998). The connection of meaning in life to a worldview, which was the way people observed the world around us, added to stability (Frankl, 2014). Self-identity and worldview ensured the stability of meaning through time (Frankl, 2014).

A useful way that framed the contemplation of the meaning of trauma was through personal narratives. One’s narrative changed considerably when a traumatic event challenged a person’s core beliefs. As a result, life was often divided into a before and after, and this created a turning point for new perspectives and perceived values (Tedeschi & Calhoun, 2004). Frankl (2014) explained this process as an existential crisis where posttraumatic growth began to

happen through the exploration of personal narratives. This narrative work was done verbally or through expressive writing that fostered development and a shift from rumination of the traumatic event that increased the degree of personal growth known as PTG (Frankl, 2014). A personal narrative connected to the PTG factors of relating to others, new possibilities, personal strength, spiritual change, and appreciation of life through a profound journey of making a deeper, more meaningful existence for the future. See Figure 2 for a visual explanation of existentialism and PTG.

Figure 2: View of Existentialism & PTG (Frankl, 2014)



The rehabilitation journey was suggested to focus on the framework of existential theory. Positive gains were thought to be made towards an individual's rehabilitation outcome by finding meaning either by changing a situation or an attitude. Understanding an individual's meaning of trauma helped to provide an overarching comprehensive view of their new meaning of life through their eyes (Frankl, 2014). With the present phenomenon, this was a paramount process and theory.

Chapter 2: Literature Review

Databases Used

The Millersville University library databases EBSCOhost, APA PsychInfo, Google Scholar, and Taylor and Francis were utilized to locate relevant literature to the current study. The following keywords were used throughout the search: brain injury, acquired brain injury, traumatic brain injury, resiliency, posttraumatic growth, narrative storytelling, personal narratives, cognitive rehabilitation, group treatment, group process, brain injury neurorehabilitation, social work, and protective factors. Key themes that emerged contributing to posttraumatic growth with individuals with brain injury included positive protective factors associated with resiliency and brain injury, resiliency models established with brain injury, personal narratives with brain injury, narrative storytelling, benefits of cognitive rehabilitation, and the group process for peer support/connections. The literature review focused on positive protective factors of resiliency, posttraumatic growth, and cognitive rehabilitation while highlighting the group process and use of storytelling, critical variables studied in this dissertation.

Personal Protective Factors of Resiliency and Brain Injury

A range of motor impairments were observed after traumatic brain injury (TBI), including deficits in coordination, balance, walking, and arm/hand function (Gooijers et al., 2016). Cognitive impairments, such as reduced problem-solving abilities, memory impairments, a slowed processing speed, and executive dysfunction, were commonly observed following TBI (Azouvi et al., 2017; Draper & Ponsford, 2008; Zarshenas et al., 2019). Emotional or mood disturbances observed after severe TBI included depression, anxiety, anger outbursts,

disinhibition, apathy, and alexithymia (Bivona et al., 2019). These physical, cognitive, and emotional impairments often negatively impacted activity engagement, community participation, quality of life (QOL), and satisfaction with life (Cicerone & Azulay, 2007; Goverover et al., 2015; Goverover et al., 2017). Studies have shown that these symptoms were associated with greater dependency on others to perform everyday activities, led to higher rates of unemployment and restricted community participation, with more social isolation (Goverover et al., 2015; Goverover et al., 2017; Williams et al., 2014). These activity limitations and participation restrictions lasted for prolonged periods after the initial injury and contributed to a poor quality of life and loss of sense of self (Nalder et al., 2019; Williams et al., 2014). While TBI may have led to long-term impairments, outcomes varied widely from person to person (Hammond et al., 2021).

To better understand the wide variety of outcomes that followed traumatic brain injury (TBI), researchers have traditionally focused on identifying impairments that predicted outcomes (Sherer et al., 2017). Multiple researchers have examined or compared negative factors against positive factors (Chamberlain, 2006; Levack et al., 2010). As the rehabilitation focus shifted from a paradigm of impairment and negative factors to one of wellness and positive factors, recent research in TBI was focused on the importance of adaptation rather than adversity (Cosco et al., 2017; Nalder et al., 2019; Sigurdardottir et al., 2014; Wardlaw et al., 2018). The authors of these studies explored the association of resilience alongside demographic, injury-related, cognitive, emotional, and family factors with participation following TBI.

Nalder et al. (2019) proposed a process model of resiliency following TBI that illustrated how individuals with TBI positively adapted to both the initial injury and recovery and subsequent life events such as re-engagement in meaningful activities and enhanced quality of

life. This model explained how individuals reduced the potential negative impact of adversity through personal protective factors that fell within three separate domains: affective (emotional functioning), cognitive (self-awareness and memory), and behavioral (self-efficacy). Research was lacking in ways that connected resiliency with posttraumatic growth in individuals with TBI. The challenge lied with clinicians in positively influencing an individual's functioning post-injury (Driver, Harmon, & Block, 2003). Research by Driver (2006) recognized that the most challenging aspect of rehabilitation to influence positively was that of psychosocial functioning like depression, self-esteem, and social support.

Downing et al. (2021) investigated positive factors identified for recovery by individuals who sustained a severe traumatic brain injury three years post-injury. Three themes emerged for positive recovery: having a support network, being positive and engaged, and getting good care. Posttraumatic growth explored the search for meaning following a traumatic event and the ability to have made positive changes to their psychological or behavioral functioning (Tedeschi & Calhoun, 2004). There have been associations of PTG with life satisfaction, optimism, levels of activity, and the likelihood of being employed or in a relationship (Paris- Hrit et al., 2019; Powell et al., 2012).

The Connection of Posttraumatic Growth (PTG) and Brain Injury

There has been an accumulation of research to show that PTG is possible after brain injury (Baseotto et al., 2022; Kinsella et al., 2015; Paris-Hrit et al., 2020; Rogan et al., 2013; Silva et al., 2011). Posttraumatic growth occurred when a person acknowledged an adverse event, such as a brain injury, in a way that allowed them to find the positives from the experience, which impacted psychological well-being and functional behavior (Joseph, 2011; McGrath, 2004). This acknowledgment led to the search for new meaning and identity in life as a

central focus of the psychological processes (Tedeschi & Calhoun, 1996). Individuals with a brain injury were often reexamining thoughts about themselves, how others view them, and what their future may look like. PTG spanned five cognitive domains of functioning: personal strength, spiritual and existential change, appreciation of life, new possibilities, and relating to others (Tedeschi & Calhoun, 2004).

After a brain injury, individuals shared that making family a priority, having an increased appreciation of life, acting more considerate and kinder towards others, and taking up new hobbies and interests were central themes that elicited PTG (Paris-Hrit et al., 2020). Significantly, PTG was different from recovery. It focused on creating a new identity and appreciation for life that improved levels of psychological functioning (Janoff-Bulman, 2004; Lepore & Revenson, 2006). Evidence of PTG has been observed as early as a few months post-injury to more than 20 years post-injury (Baseotto et al., 2022; Paris-Hrit et al., 2020; Rogan et al., 2013; Silva et al., 2011).

Karagiorgou, Evans, and Cullen (2017) completed a qualitative study of seven participants with brain injury and used thematic analysis to identify themes that related to posttraumatic growth (PTG). The themes that emerged were personal strength, appreciation of life, relating to others, optimism/positive attitude, feeling fortunate compared to others, and positive emotional/behavioral changes. Karagiorgou, Evans, and Cullen (2017) noted that understanding the development of PTG post-injury assisted clinicians in facilitating adjustment after injury by having been able to focus on the individual's potential for positive change and overall growth. Horne et al. (2014) identified six themes from a qualitative interview study that used interpretative phenomenological analysis of stroke participants. This included loss of identity, fear, social confidence, role confidence, mastering skills, and attitudes and beliefs. Six

women with a traumatic brain injury were interviewed about their experience and analyzed via interpretative phenomenological analysis, where themes of awareness of change, emotional reaction, struggle to make sense, adaptation, and acceptance emerged (Howes et al., 2005). Allen et al. (2022) used the Posttraumatic Growth Inventory to identify themes during their experience with rehabilitation and living with a brain injury. Once again, themes emerged that connected with PTG around a new identity and the need for social connection. Common themes from the literature discussed above surrounded creating a new identity, connecting with others, and adaptation/strength, which correlates with PTG.

There was limited research on the role of personal meaning and purpose in life. Reker (1997) identified how the concept of personal meaning helped to elicit PTG and a greater understanding of adaptation to physical and mental health problems. Few studies have investigated not only the existential constructs but also the positive changes of PTG after brain injury. Collicutt McGrath and Linley (2006) found positive psychological growth in a small group of individuals with acquired brain injury. Hawley and Joseph (2008) discovered positive psychological growth in half of the 103 individuals with brain injury samples but no correlations between growth and injury characteristics. Powell et al. (2007) revealed that PTG occurred after brain injury and was significantly greater at 10 years plus, not just within the 1-2 years after injury. Similarly, Powell et al. (2012) investigated factors associated with PTG 13 years after brain injury and identified that having a high level of purpose was the best predictor of PTG. This reinforced that the measures of PTG increased over time years post-injury. However, Gould et al. (2019) explored narrative experiences of individuals with brain injury who identified the need for social connections and meaning/purpose in life years post-injury. This connected with the current study's objective that focused on both PTG and personal narratives.

The Benefits of Cognitive Rehabilitation on Individuals with Brain Injury

There have been attempts to explore the impact of cognitive rehabilitation within the domains of attention and memory, processing speed, overall executive functioning, and social skills (Ben-Yishay & Diller, 1993; Downing et al., 2019; Ponsford et al., 2012; Rees et al., 2007). There has also been research on cognitive rehabilitation that involved developing functional compensatory strategies that enhanced cognitive functioning and lessened the burden of impairment (Ponsford et al., 2012; Velikonja et al., 2014; Wilson, 2009). However, minimal research was conducted on group cognitive rehabilitation therapy programs and the positive factors identified from enhanced PTG and social cognition within the group cognitive rehabilitation arena of therapeutic modalities. Research implications suggested that further research should be explored that facilitated positive and meaningful changes within the lives of brain injury through a communal search for meaning, suggesting group cognitive rehabilitation (Linley & Joseph, 2004; Rogan et al., 2013; Tedeschi & Calhoun, 2004). Based on the literature presented, intervention research on this phenomenon was minimal, especially when a mixed methods approach of both quantitative and qualitative work was considered.

The Positive Impact of the Group Process and Brain Injury

Brain injury frequently disrupted the ability that integrated a new sense of self (Gracey et al., 2008). Although gaining insight was an important part of the intervention, individuals with brain injury lacked self-awareness, had limited insight into their deficits, and experienced a changed personality (Prigatano & Schacter, 1991). Cognitive remediation was a common intervention approach that was developed to assist with the restoration of and compensation for cognitive and neurological deficits experienced with brain injury (Cicerone et al., 2005; Flanagan et al., 2008; Mazmanian et al., 1993; Silver et al., 2009).

Relevant studies on cognitive rehabilitation group exercises focused on basic skills that included improved self-awareness, attention, concentration, memory, the ability to give and receive feedback, and enhanced social skills (Cicerone et al., 2005; Sherr & Langenbahn, 1992; Tsaousides & Gordon, 2009). In these studies, the group cognitive rehabilitation aimed to support improvement in these essential skill areas. Similarly, studies of such groups provided the opportunity that instilled hope, conveyed valuable information, and improved social behaviors (Rath et al., 2003 & Silver et al., 2009). Ownsworth et al. (2000) provided a 16-week group support and psychoeducational program for individuals with brain injury years post-injury, where pre-and post-intervention assessments demonstrated significant gains in self-awareness and psychosocial functioning. Later, Ownsworth and McFarland (2004) completed a study on a 16-week group program and found that individuals with impaired executive functioning benefited from the group program and improved their ability to self-regulate their emotions and develop social connections. There continued to be limited research associated with PTG and group treatment that focused on positive protective factors to improve outcome measures.

The Use of Narratives

Narrative theory was essential to conceptualize an enhanced understanding of the trauma the targeted population experienced, as well as to have had an increased perception of the impact of the trauma on their journey through brain injury rehabilitation (Thompson & Walsh, 2010). Narrative theory assisted in assessing individuals' needs and progress, evaluating therapeutic modalities, and promoting trauma recovery (Giddens, 1991). Exploring narratives helped individuals reconstruct their life stories by identifying a new meaning and purpose in life. A prime example of this occurred after an individual has experienced trauma, like brain injury. Following a brain injury, the processes through which narratives were created, structured, and

performed became a key component of rehabilitation and recovery (Giddens, 1991). Interactions and reflections with others, understanding societal values and social norms, and forming new identities were integral parts of the process through which a renewed sense of self was identified (Giddens, 1991; Mead, 1967). This process was constantly being evaluated and reconstructed over time (Giddens, 1991). Traumatic experiences, such as brain injury, were turning points that allowed for positive changes to have occurred and new possibilities to have developed (Elder, 1998; Wheaton & Gotlib, 1997). This involved a shift in an individual's life trajectory, which created a new personal narrative.

Paul Ricoeur was a theorist who focused on narratives within social work. A narrative was crucial to personal identity, which was seen as the truth behind the traumatic experiences, creating the concept of narrative identity (Flood, 2000). Within the construct of social work, the presenting phenomenon that triggered services was a chronic disability, a traumatic experience, or even oppression (Flood, 2000). A personal narrative spoke directly to the individual's identity. This focus was utilized within an intervention to aid individuals with a brain injury to explore their narrative throughout the current study.

Storytelling and narratives were both an advocacy tool and an emotional, healing therapeutic process. D'Cruz et al. (2020) studied eight adults with brain injuries who participated in storytelling workshops and were interviewed twice throughout the process. Two main themes were identified (1) sharing and helping and (2) revisiting my story, along with sub-themes of feeling heard, releasing emotions, reflecting, and learning. The experiences of personal validation and meaningful, productive engagement through storytelling contributed to others' lives. On the other hand, D'Cruz et al. (2019) used a narrative approach that allowed individuals with a brain injury an opportunity for self-expression, relationship building, and meaningful

occupational engagement. A finding supported by a recent study of a peer mentor program in which the experience of making a meaningful contribution through mentoring was found to have contributed to the sense of self-value of the mentors with traumatic brain injury (Kersten et al., 2018). This research further supported the need for relationship-building and peer connections. In a study that explored writing groups for stroke survivors (Hartke et al., 2007), twenty-four of the twenty-six participants identified the importance of others reading their writing. The authors concluded that there was a positive link between helping others and psychological adjustment following a stroke. More research was needed on the implementation and effectiveness of rehabilitation interventions, along with personal narratives.

Implications for Social Work

Social workers were an integral component to the multi-layered approach within the healthcare field and brought a unique perspective and skill set to the multidisciplinary rehabilitation team. Social work at its essence sought to "understand the individual in his/her social environment...and requires awareness of a multiplicity of interrelated factors: psychological, biological, social, cultural, economic, political, organizational, and spiritual..." (Ife 1997, p.9). This awareness of the multiplicity of factors was utilized for intervention and recovery processes at the individual (micro), family (micro/macro), community/service system (mezzo), and policy levels (macro) of brain injury rehabilitation. Social workers navigated these various systems/layers to facilitate recovery and adjustment during brain injury rehabilitation. However, one of the ideas behind a social worker's purpose was to start where the individual is in rehabilitation. This concept advised that effective practice began and continued within the individual's own interpreted reality. Rabinow and Sullivan (1987) described the interpretive reality this way:

> …human life is characterized as an open system. It cannot be shielded from external inference and studied in a vacuum or a scientifically controlled and delimited environment. From this it follows that the exactitude that is open to the human sciences is quite different from that available to the natural sciences. Our capacity to understand is rooted in our own self-definitions, hence in what we are. We are fundamentally self-interpreting and self-defining, living always in a cultural environment, inside a web of signification that we ourselves have spun. There is no outside, detached standpoint from which we gather and present brute data. When we try to understand the cultural world, we are dealing with interpretations and interpretations of interpretations (p.7).

The passage highlighted the complexity and interpretive nature of human life and experience. Understanding human existence was inherently bound up in interpretation and self-definition. From a social work lens, this suggested the importance of appreciating the contextual, culturally specific nature of human experience and meaning making. Social workers were attuned to these interpretive lenses and how they influenced behaviors, beliefs, and self-understandings within the helping relationship. An awareness of one's own inherent biases and perspectives was also crucial when attempting to understand and support clients' lived realities. This connected not only with the social work field but with the theoretical framework within this research study, where the focus was on the development of personal narratives.

The current research study highlighted the need to focus on filling the gaps within clinical professional roles to enhance resiliency and posttraumatic growth among individuals 5 or more years post-injury. Engaging clients with compassion and respect enabled change, regardless of the intervention. Still, practices were culturally relevant and considered the social context of racial, economic, and gender disparities (East & Roll, 2015). Difficulties with engagement were

mitigated by recognizing and addressing the complexity of trauma, resiliency, and posttraumatic growth, as this was likely to promote rehabilitation outcomes. Social work's greatest strength was the ability to understand the real-life contexts and experiences of individuals and communities, while focusing on their capabilities and potential across all levels of practice - from working one-on-one to broader community and systemic change (van Breda, 2018; Zimmerman, 2013).

Social workers who are familiar with the pervasiveness of early adversity and the damaging impact of these experiences on presenting problems across the lifespan were able to deliver services in a more trauma-informed fashion (Levenson, 2017). This connected with the resiliency protective factors that enhanced posttraumatic growth. A warm, interested, and validating therapeutic alliance was more influential in facilitating positive therapy/rehabilitation outcomes than a theoretical framework, professional discipline, or specific counseling techniques (Duncan et al., 2010; Thomlison, 1984). This focus on service delivery environments facilitated trust, emotional safety, and rapport. Social workers infused trauma-informed principles into their understanding of and interactions with clients by conceptualizing problematic behavior as a by-product of posttraumatic stress (Levenson, 2017). The accumulation of negative experiences in childhood triggered enduring neurodevelopmental changes, but neuroplasticity allowed the brain to integrate new experiences that paved the way for emotional healing and develop new neural pathways to behavioral and cognitive change (Anda et al., 2010; Van der Kolk, 2006; Weiss & Wagner, 1998). When social workers incorporated these practice skills, they enabled emotionally restorative experiences within the individuals, allowing for resiliency, posttraumatic growth, and positive rehabilitation outcomes.

Contributions of Dissertation

Research on posttraumatic growth and resilience in individuals with brain injuries contributed significantly to both the fields of social work and brain injury rehabilitation in several important ways. Studying how some individuals show remarkable resilience and growth after brain injury informed a strengths-based social work approaches that empowered clients and highlighted their capacities versus just deficits (Cosco et al., 2017; Nalder et al., 2019; Sigurdardottir et al., 2014; Wardlaw et al., 2018). Understanding the processes of resilience and posttraumatic growth enhanced trauma-informed care practices for brain injury survivors and their families who have experienced this traumatic life event, as well as increased rehabilitation program efficacy and successful community reintegration outcomes. Research on this phenomenon explained the interplay of psychological, social, cultural, and environmental factors that aided or impeded positive adaptation after injury, informing more holistic biopsychosocial interventions for the future (Cosco et al., 2017; Nalder et al., 2019; Sigurdardottir et al., 2014; Wardlaw et al., 2018).

Nalder et al. (2019) highlighted the importance of personal and environmental resiliency factors, such as self-efficacy, positive mental states, and family cohesion, in an improved posttraumatic growth, participation, and adaptation following brain injury. Fostering resilience and facilitating posttraumatic growth improved psychological adjustment, quality of life, and emotional health after injury. These factors informed the development of interventions and support systems in both social work and rehabilitation settings. Additionally, Kreutzer et al. (2016) underscored the need to identify individuals at risk for low resilience, which guided the provision of specialized support in brain injury rehabilitation. Understanding the complex interplay between personal and environmental factors in promoting posttraumatic growth and

resilience informed the development of effective interventions in the future. Overall, such research bridged social work's psychosocial expertise with rehabilitation's medical focus, created an opportunity for collaborative, resilience-enhanced brain injury care that benefited clients and providers in both disciplines (Kreutzer et al., 2016).

Research Questions & Overview of Methodology

This study aimed to pilot and assessed the efficacy of an intervention to explore posttraumatic growth delivered to individuals with a brain injury at least 5 or more years post-injury. The intervention (see Appendix C) was given in two-hour blocks, two days per week over five consecutive weeks. The sample size was 24 participants who have a diagnosis of a brain injury and reside at post-acute brain injury rehabilitation facility in Bucks and Lancaster Counties. The Posttraumatic Growth Inventory – Short Form (Cann et al., 2010) was given to all individuals in the study a week before and a week after the intervention for quantitative data. Questions were explored at the end of each two-hour block to prompt/cue for narrative development to explore qualitative themes and address the efficacy of the intervention. The intervention's purpose was to explore posttraumatic growth and narratives of their brain injury rehabilitation experiences through a mixed-method approach. The quantitative question was: 1) does participation in the group cognitive rehabilitation therapy program increase posttraumatic growth of individuals with a brain injury? The qualitative question was: 1) does participation in the group cognitive rehabilitation therapy program enhance individual learning outcomes? and 2) will the attainment of desired outcomes be enhanced if the components of the intervention are empirically designed and delivered with fidelity by the facilitators?

Conclusions

The overview of the theoretical framework and literature review featured posttraumatic growth (PTG), resiliency, cognitive rehabilitation, and narrative storytelling with the population of brain injury. As the rehabilitation focus shifted from a paradigm of impairment and negative factors to one of wellness and positive factors, recent research in TBI focused on the importance of adaptation rather than adversity (Cosco et al., 2017; Nalder et al., 2019; Sigurdardottir et al., 2014; Wardlaw et al., 2018). Evidence of PTG was observed as early as a few months post-injury to more than 20 years post-injury (Baseotto et al., 2022; Paris-Hrit et al., 2020; Rogan et al., 2013; Silva et al., 2011). Research was lacking in ways to connect resiliency with posttraumatic growth in individuals with TBI. Research implications suggested that further research should be explored to facilitate positive and meaningful changes within the lives of brain injury through a communal search for meaning, suggesting group cognitive rehabilitation (Linley & Joseph, 2004; Rogan et al., 2013; Tedeschi & Calhoun, 2004). Personal narrative was integral to personal identity, and it shaped the truth behind traumatic experiences, as it helped to create a narrative identity (Flood, 2000). A greater understanding of this helped therapists and other rehabilitation clinicians promote a better adjustment to life after a brain injury by focusing on their client's potential for positive change, thereby enhancing their capacity for growth.

Chapter 3: Methodology

Design

The design, setting, participants, and data collection of this study were completed as a part of the implementation of the Group Cognitive Rehabilitation Therapy Program (GCRTP, see Appendix C) with the researcher in her role as Director of Client Services at a post-acute brain injury rehabilitation in Bucks and Lancaster Counties. As such, the majority of the data was secondary data, collected as part of the program implementation. To address the phenomenon of posttraumatic growth in individuals with a brain injury, an intervention was developed guided by intervention research theory and evaluation methodology (Fraser et al., 2009; Gitlin & Czaja, 2016). A mixed-method, pre-and post- longitudinal cohort design was employed for the initial phase of intervention development for the GCRTP (see Appendix C). "Intervention research is an iterative and sequential process that begins with an idea that informs the program's design, progresses through pilot testing to tests of impact, and concludes with dissemination" (Fraser et al., 2009, p. 116). Pilot testing, a crucial step in intervention research, involved a single group of participants who provide feedback on program activities or intervention procedures (Fraser et al., 2009; Gitlin & Czaja, 2016). IRB Approval was received from Millersville University to implement this intervention research.

The first step in the intervention research process involved defining the problem and developing a program theory (Fraser et al., 2009). As addressed in Chapters 1 and 2, the literature was examined to identify risk, promotive, and protective factors related to the problem (Fraser et al., 2009). Step two was devoted to the design of the intervention, in this study, the GCRTP (Fraser et al., 2009). The GCRTP intervention manual (see Appendix C) comprised an overview and session-by-session content that explained session goals, essential content, and activities that were used to reinforce core content (Fraser et al., 2009). Fidelity measures were

addressed using a checklist developed for the facilitators to use for accurate replication and implementation of the GCRTP interventional manual (Fraser et al., 2009; Gitlin & Czaja, 2016;). When a draft of the manual with fidelity measures was completed, pilot testing for feasibility was undertaken (Fraser et al., 2009; Gitlin & Czaja, 2016).

During pilot testing, research questions focused more on implementation rather than outcomes, meaning can the GCRTP intervention agents deliver program content as intended and expected (Fraser et al., 2009; Gitlin & Czaja, 2016;). Efficacy tests were implemented at step three, where the intervention and program effects are evaluated by comparing proximal and primary outcomes for the intervention group participants (Fraser et al., 2009; Gitlin & Czaja, 2016). The GCRTP intervention manual (see Appendix C) states the immediate, proximal outcomes were identified as 1) enhanced cognitive learning through activities presented in the manual in adults with a brain injury and 2) increased posttraumatic growth of adults with a brain injury. The short/primary outcomes were 1) individuals with a brain injury will actively engage in cognitive learning-based activities, 2) individuals with a brain injury will recognize the value and contributions of focusing on posttraumatic growth outcomes during their rehabilitation journey, and 3) enhanced awareness of the individual's perception of the impact of trauma on their rehabilitation journey via the development of personal narratives. Steps four (effectiveness) and step five (dissemination of program findings and materials) were not addressed in this study but were identified as goals for continued future research (Fraser et al., 2009; Gitlin & Czaja, 2016). Gitlin and Czaja (2016) stated that the first phase of intervention involved pilot studies used to evaluate program components, which in this study were the length of intervention, learning enhanced from cognitive activities, and delivery of the intervention by the facilitators. Pilot interventions helped to identify a theoretical base for the intervention (Gitlin & Czaja,

2016). Fraser et al. (2009) stated that the early development and pilot testing phase of intervention research was more about refining the process of the program than establishing outcomes, such as the impact of GCRTP on posttraumatic growth and narratives of individuals with brain injury. As such, a pre-and post- longitudinal cohort design was identified at this preliminary phase of development to refine program implementation (Fraser et al., 2009). A mixed-method-design utilized both qualitative and quantitative methods to incorporate multiple viewpoints (Thyer, 2010). Fraser et al. (2009) also stated that pilot testing for interventions required qualitative and quantitative measures to refine the processes for the program components. Quantitative research allowed for objective and generalizable findings, relying on interpreting observable, countable variables (Rubin & Babbie, 2017). Quantitative measurement allowed for the determination of effect, in this case, the expected immediate outcome of increased posttraumatic growth. Quantitative research allowed for the testing of a hypothesis regarding the impact of the intervention on posttraumatic growth, but it lacked a desirable level of subjectivity to evaluate the GCRTP program. On the other hand, qualitative research was hypothesis generating and inductive (Rubin & Babbie, 2017). Padgett (2017) shared that qualitative methods were suitable for process evaluation as the program was going through its formative stages. Qualitative methods provided an understanding of how and why the program may have worked (Padgett, 2017). Qualitative research was characteristically not generalizable, and so this method was unable to speak to the impact of the program for all adults with brain injury but provided a starting point to figure out how and why the program was or was not effective (Rubin & Babbie, 2017; Padgett, 2017). Mixed-methods research allowed for the integration of both qualitative and quantitative inquiry (Thyer, 2010). Triangulation of data by utilizing a measure of posttraumatic growth, participation and attendance in the program, and

narrative prompts after each exercise increased validity and the contextual understanding of the GCRTP program (see Appendix C) and its effects (Padgett, 2017; Rubin & Babbie 2017). The core assumption was that the combination of qualitative and quantitative approaches provided a more complete understanding of a research problem than either approach alone. (Creswell & Poth, 2018). A mixed methods approach yielded a wider breadth of understanding of the phenomenon despite a small sample size (Creswell & Poth, 2018; Gitlin & Czaja, 2016).

Quantitative Design

A mixed-method, pre-and post- longitudinal cohort design was used for the quantitative portion of this research. A cohort was a group of people with something in common (Gitlin & Czaja, 2016). In this study, the commonality was brain injury. The cohort design has a long-standing proven history of use for pilot and efficacy testing in intervention research (Gitlin & Czaja, 2016). Cohort designs could have been longitudinal, where this study of posttraumatic growth and narratives looked at a group over time to determine whether they develop an outcome of interest (Gitlin & Czaja, 2016). A pre-and post-component was added before and following GCRTP (see Appendix C). In quantitative research designs, specifically cohort studies, the exposure (or risk factor) was measured before the outcome occurs, establishing a clear temporal sequence (Rubin & Babbie, 2017). This helped to rule out reverse causality and strengthens causal inference, which can threaten internal validity (Rubin & Babbie, 2017). Longitudinal cohort studies were observable in nature, meaning that data was collected over a period of time rather than relying on retrospective recall (Rubin & Babbie, 2017). This reduced the risk of recall bias and improves the accuracy of the data (Rubin & Babbie, 2017). However, cohort studies were still observational in nature and were not able to completely eliminate the possibility of confounding or other sources of bias (Rubin & Babbie, 2017). Careful study

design, appropriate statistical methods, and judicious interpretation of results were still necessary to minimize threats to validity (Rubin & Babbie, 2017). On the other hand, cohort studies being observational in nature and conducted in real-world settings, rather than highly controlled laboratory environments, enhanced the external validity and applicability of the findings to real-life situations (Rubin & Babbie, 2017).

Variables. The independent variable in the research study was the individual's participation in the GCRTP. There were three dependent variables identified 1) posttraumatic growth outcomes, 2) individual learning outcomes, and 3) delivery and efficacy of the components of the intervention. See Table 1 below.

Table 1 *Variables*

Independent variable	Dependent variable
Individual's participation in the GCRTP	Posttraumatic growth outcomes Individual learning outcomes Delivery and efficacy of the components of the intervention

Quantitative Research Question. 1. Does the GCRTP increase the posttraumatic growth of individuals with brain injury? Hypothesis: 1. If individuals with a brain injury participate in the GCRTP Program, their posttraumatic growth scores will increase.

Qualitative Design

The qualitative portion of this study was important to determine improvement strategies for the GCRTP intervention (see Appendix C) and further explored posttraumatic growth and narratives with individuals with brain injury. Included in this portion of the study was a narrative journaling at the end of each activity throughout the intervention. The depth of information

available through qualitative research was desirable for the intervention development process, but qualitative research may have been subjective and prone to researcher bias (Padgett, 2017). To increase trustworthiness, several tactics were used (Padgett, 2017). First, as stated above, triangulation of data increased the credibility of the results (Padgett, 2017). Triangulation also included comparing the analysis with the literature and the theoretical model. Peer debriefing occurred throughout the process, especially when analyzing the data (Padgett, 2017). Lastly, participants were invited to offer feedback on the intervention through the journaling process (Padgett, 2017).

Qualitative Research Questions. Table 2 provided a visual representation of the qualitative questions for this study.

Table 2 *Qualitative Research Questions*

Participants	Describe what you learned in today's activity.
	What components or concepts from the activity were most helpful to you?
	What was least helpful to you or could have gone better?
	What changes do you see in your outlook on life?
	Were the learning outcomes achieved in today's activity?
	Is there anything else you would like to say about your experience?
Facilitators	How prepared did you feel to present the activity to the participants?
	How were the learning objectives met?
	Describe how you adequately addressed questions and concerns from the participants.
	How did facilitating this intervention enhance learning for the participants?

	What materials provided for the activity do you feel enhanced the learning for the participants?
	Is there anything else you would like to say about your experience facilitating the GCRTP intervention?

Hypotheses: 1. Participation in the GCRTP will enhance individual posttraumatic growth outcomes.

2. Participation in the GCRTP will enhance individual learning outcomes.

3. Attainment of desired outcomes will be enhanced if the components of the intervention are empirically designed and delivered with fidelity by the facilitators.

Group Cognitive Rehabilitation Therapy Program Manual Intervention

The GCRTP was a 5-week intervention program, with each week consisting of two days of 120-minute activities each, with two purposes: 1) to enhance posttraumatic growth outcomes in individuals with a brain injury, and 2) to enhance cognitive learning through participation in the intervention presented. Activities incorporated into the program intervention included areas of focus around cognition, social, emotional, physical, and spiritual aspects of brain injury rehabilitation.

The GCRTP intervention (see Appendix C) design included ten activities. During the first week, two cognitive activities, problem-solving and planning, were implemented with the cohorts. Week two consisted of social activities broken down into two activities of verbal/non-verbal skills and social identity. Moving into week three, the cohort participated in two emotional activities focusing on stress and anxiety. Week four consisted of two physical activities with cognitive pop darts and an active logic project. Rounding out week five was two spiritual activities involving self-healing and meditation. Facilitators had a step-by-step

instruction manual to carry out each activity that encouraged discussion about each cognitive activity's learning and collected qualitative data on the cohort's learning and rehabilitation experience. See Figure 3 that highlighted the ten activities of the GCRTP and the goals for each component.

Figure 3: *Ten Activities of the GCRTP and Goals.*

Yalom and Leszcz (2005) defined twelve factors that occurred within the context of group treatment: (1) universality, (2) altruism, (3) instillation of hope, (4) imparting of

information, (5) corrective recapitulation of primary family group, (6) development of socializing techniques, (7) imitative behavior, (8) cohesiveness, (9) existential factors, (10) catharsis, (11) interpersonal learning, and (12) self-understanding. This coincided with the factors explored in posttraumatic growth (PTG), particularly relating to others, new possibilities, personal strength, and appreciation for life. Gracey & Ownsworth (2008) noted that brain injury disrupted the sense of self, affecting cognitive and psychosocial identity. Group interventions were adapted to address these so individuals gained the insight needed to explore personal growth. The goal of group cognitive rehabilitation therapy was to support individuals with the restoration, or compensation for, these deficits (Cicerone et al, 2005; Flanagan et al., 2008; Silver et al., 2009). These basic skills included (1) awareness, (2) attention/concentration, (3) memory, (4) ability to give and receive feedback, (5) development of interpersonal skills, and (6) exploration of personal narratives for a new identity/sense of self (Cicerone et al., 2005; Langenbahn et al., 1999; Sherr & Langenbahn, 1992). Activities in the GCRTP intervention manual (see Appendix C) were conceptualized and designed to target each skill area.

Setting

Group Cognitive Rehabilitation Therapy Program (GCRTP) was piloted at a post-acute brain injury rehabilitation facility in Bucks and Lancaster Counties in Pennsylvania. This rehabilitation has a long-standing history of providing post-acute rehabilitation, both residential and outpatient, to individuals with a brain injury. The rehabilitation program was entirely voluntary and not a locked facility. The focus was on trauma and cognitive rehabilitation, which was a key element of the rehabilitation process at this center. The goal of the rehabilitation program was to help clients obtain a realistic, maximum level of independent functioning in the least restrictive community environment, one that advances individual productivity and well-

being. Clients within this program were active within the community through recreational, volunteer, and paid employment. The researcher, who was also employed at this particular brain injury rehabilitation, proposed the GCRTP intervention to the president of the company. A letter of approval for the research was received and included in the IRB process through Millersville University. Upon approval, the researcher recruited participants with brain injury for the GCRTP intervention (see Appendix C).

Participants & Sampling Selection

Precise participant identification was crucial in social science research as it played a vital role in analyzing results effectively, ensuring appropriate generalization of findings, conducting focused literature reviews, and enabling accurate secondary data analyses (Gitlin & Czaja, 2016; Rubin & Babbie, 2017). This clarity in participant description underpinned social science studies' scientific integrity and practical value (Gitlin & Czaja, 2016). Sampling determined who participated in a research study. Considerations for determining a research sample were informed by the research design, methodology, and the key questions the study addressed (Gitlin & Czaja, 2016). Sampling further identified inclusion and exclusion criteria that aligned with the intent and specifications of the evaluated intervention or program (Gitlin & Czaja, 2016).

The sampling strategy chosen for this research was a purposive, non-probability convenience sample (Rubin & Babbie, 2017). Convenience sampling was a common choice in social work and intervention research because it was cost- and time-effective (Rubin & Babbie, 2017). While the use of convenience sampling may have limited generalizability, the findings provided valuable insight about a phenomenon to set the foundation for future studies (Rubin & Babbie, 2017). The composition of a convenience sample population possessed the characteristics or attributes the intervention intended to address (Gitlin & Czaja, 2016; Rubin &

Babbie, 2017). For this study, the convenience sampling was pre- and post-longitudinal cohort design with individuals who participated in the GCRTP. As such, there were no comparison groups. The more homogeneous the population was, the smaller the sample needed for generalizability (Gitlin & Czaja; Rubin & Babbie, 2017). Based on the inclusion criteria below, approximately 60 individuals met the criteria. This researcher met with the identified individuals and reviewed the study. Only 24 participants agreed to participate in the study. The sample size for this study was 24 individuals with a brain injury. These participants were invited to participate in the components of the GCRTP and offer feedback on the intervention.

Inclusion Criteria

Participant recruitment letters (see Appendix A) were reviewed individually by the researcher with the participants to recruit for the research study who met specific criteria. The following were identified as the criteria for inclusion:

- Individuals with a brain injury over the age of 18 (documented primary diagnosis of ABI/TBI and date of birth were noted in admission paperwork at the rehabilitation facility)
- Individual was his/her own legal guardian and does not have a documented power of attorney (individuals without legal guardians/POAs were deemed capable of making their own decisions)
- Individuals resided at a brain injury rehabilitation facility (individuals were residential clients and not outpatient clients within the facility)
- Individuals were at least 5 years post-injury (date of injury is documented in admission paperwork to identify that individuals were at least 5 years post-injury)

- Attended the GCRTP in its entirety (completed the pre- and post-survey along with the 5-week program)
- Voluntarily agreed to participate in the evaluation research study (will be documented through participant informed consent)

The researcher had access to individuals with a brain injury through their role as a Director of Client Services at the brain injury rehabilitation facility.

Exclusion Criteria

The following were the criteria used to exclude participants from the study:

- Individuals who do not have a brain injury (does not have a brain injury documented as their primary diagnosis)
- Individuals who do not reside at a brain injury rehabilitation (outpatients were not be considered a part of this study)
- Individuals who were under the age of 18 (anyone with a documented age less than 18 years of age at the time of the study)
- Individuals who were not their own legal guardian or had a documented power of attorney
- Did not attend the GCRTP or did not attend the program to its entirety (anyone who chose not to participate despite a signed informed consent or dropped out of the intervention program early)

Informed Consent

Individuals with a brain injury who attended the GCRTP were made aware at the onset of the program that they would be asked to voluntarily participate in an evaluation of the program. Participant informed consent (see Appendix B) was obtained from all study participants prior to the beginning of the program. The process of providing informed consent was a critical component of obtaining approval for the study from the institutional review boards (IRB) within the respective academic institutions. In addition, the National Association of Social Workers (NASW) Code of Ethics (n.d.) stated, "Social workers engaged in evaluation or research should obtain voluntary and written informed consent from participants, when appropriate, without any implied or actual deprivation or penalty for refusal to participate; without undue inducement to participate; and with due regard for participants' well-being, privacy, and dignity. Informed consent should include information about the nature, extent, and duration of the participation requested and disclosure of the risks and benefits of participation in the research" (NASW, n.d., Section 5.02(e)).

The participant informed consent (see Appendix B) document included information about the study, explained the potential risks and benefits of participation, the researcher's process for keeping participant responses and demographic data confidential, a statement that participants' decision to participate was not to affect their residential rehabilitation placement and current treatment/services, and that they were able to withdraw from the study at any time. (NASW, n.d..; Rubin & Babbie, 2017). The participant informed consent (see Appendix B) was reviewed individually by this researcher with those recruited for the study, and participants acknowledged that they had read the document, consented to voluntarily participate, and were over the age of 18 before they were able to move forward with signing consent for the study. Participants were

encouraged to ask questions about any aspect of the research during the consent phase, during the research, or to follow up with the researcher after the study. The participant recruitment letter (see Appendix A) and the participant informed consent form (see Appendix B) were approved by the institutional review board of Millersville University, IRB# 240781.

Data Collection

The data collected was a part of the researcher's implementation of the pilot study of the Group Cognitive Rehabilitation Therapy Program (GCRTP) to determine the efficacy of the program. The facilitators of the GCRTP were trained by this researcher on the implementation of the intervention manual and data collection. The data collected was a part of the implementation of the pilot program for GCRTP by the researcher in her role as Director of Client Services at a post-acute brain injury rehabilitation in Bucks County. Therefore, the data that was analyzed was secondary data that included a measure of posttraumatic growth, a checklist of activity sessions and attendance, and reflection journal data as specified below.

Quantitative Data Collection

Most intervention research began with the focus of a construct (Fraser et al., 2009). Constructs were concepts that were not readily observable (Fraser et al., 2009). The concept of posttraumatic growth was the construct within this intervention research. For measurement and data collection of the intervention research, reliable and valid measures were sought to test the efficacy of the intervention (Fraser et al., 2009). The quantitative data was collected in a pre-test post-test design that measured the anticipated immediate outcome of posttraumatic growth and determined the efficacy of the GCRTP. The pre-test post-test design was a commonly used quantitative research design that evaluated the effects of an intervention (Allen & Nimon, 2007; Rockwell & Kohn, 1989). Upon the agreement of the participants to participate and consent to

the GCRTP, participants took part in a pre-assessment measure of posttraumatic growth one week prior to the GCRTP. A post-assessment measure of posttraumatic growth was given one week following completion of the GCRTP. The participants of the GCRTP were given a unique identifier at the start of the pilot study. This unique identifier for each participant was linked to both pre-and post-measures. The facilitators of the GCRTP gave the pre- and post-measure via a Microsoft 365 Office Version of a Forms document link to the posttraumatic growth survey. The beginning part of the link asked for brief, non-individually identifying, demographic data. The primary purpose of the demographic data was to assess the generalizability of the research outcomes. The age and gender, type of injury, and years post-injury of the respondents corresponded to and was generalizable to the overall average for individuals with a brain injury in post-acute rehabilitation programs in the U.S. All data were stored on a password-protected protected computer and only the researcher and School of Social Work Chairperson at Millersville University had access to the data throughout the research process.

PTGI-SF. The Posttraumatic Growth Inventory – Short Form, was a brief measure (10-item version) of an individual's self-perceived posttraumatic growth across various life domains derived from the original 21-item PTGI scale (Cann et al., 2010). The PTGI-SF was structured where responses were made on a 6-point scale ranging from 0 = "I did not experience this change as a result of my crisis" and 5 = "I experienced this change to a very great degree as a result of my crisis." (Cann et al., 2010). Twenty-one items were thought to have been generally overwhelming and were most certainly thought to have been with a population of individuals with brain injury. The authors concluded the PTGI-SF demonstrated good content validity (Cann et al., 2010). For criterion-related validity, Cann et al. (2010) noted the PTGI-SF showed strong positive correlations with the original PTGI total scores across samples (rs = 0.92 to 0.95).

PTGI-SF scores predicted subsequent posttraumatic growth levels over time, supporting predictive validity (Cann et al., 2010). Scores correlated positively with related constructs like wisdom, providing evidence of concurrent validity (Cann et al., 2010). Confirmatory factor analyses strongly supported the 5-factor structure representing the posttraumatic growth domains for construct validity (Cann et al., 2010). Cann et al. (2010) noted that 5 factors showed good internal consistency across samples (alphas = 0.58 to 0.88). The PTGI-SF demonstrated good convergent validity, correlating positively with constructs like life satisfaction and religiosity (Cann et al., 2010). It showed discriminant validity from unrelated constructs like substance use and general distress (Cann et al., 2010). Measurement invariance across gender and race/ethnicity supported construct validity across groups (Cann et al., 2010). The authors concluded that the PTGI-SF demonstrated strong psychometric properties based on substantial evidence of content, criterion-related, and construct validity across multiple large samples and recommended the PTGI-SF as a reliable and valid shorter alternative to the original PTGI (Cann et al., 2010). The items were also easy to read and understand for individuals with a brain injury, and this scale was used in previous studies to measure perceptions of posttraumatic growth of individuals with a brain injury (Allen et al., 2022, Baseotto et al., 2022; Paris-Hrit et al., 2020; Rogan et al., 2013; Silva et al., 2011).

The Posttraumatic Growth Inventory - Short Form (PTGI-SF) was scored in the following way. The PTGI-SF was structured where responses are made on a 6-point scale ranging from 0 = "I did not experience this change as a result of my crisis" and 5 = "I experienced this change to a very great degree as a result of my crisis." (Cann et al., 2010). The ten items load onto five factors/subscales: relating to others (Items 5, 10), new possibilities (Items 3, 6), personal strength (Items 7, 9), spiritual Change (Items 4, 8), appreciation of Life

(Items 1, 2). The scale was scored by averaging all responses. Factors could have been scored by adding responses to items on each factor; however, when using the PTGIF-SF, the total score was used rather than factor scores (Cann et al., 2010). This aligned with the sample size selected of minimally 15 participants and maximum of 20-25 participants with only one variable being considered (Hahs-Vaughn, 2017). To calculate the total PTGI-SF score, you summed the scores across all ten items. Total scores ranged anywhere from 0 to 50, with higher scores indicating greater self-reported posttraumatic growth (Cann, 2010). When reporting data, any names associated with records were omitted and pseudonyms were assigned to maintain confidentiality.

Qualitative Data Collection

In addition to the quantitative data collection, the researcher was interested in collecting qualitative data regarding the Group Cognitive Rehabilitation Therapy Program (GCRTP), as this further determine the efficacy of the pilot study of the intervention. The qualitative data collection further helped to determine whether the intervention was delivered with fidelity (Fraser et al., 2009). Within an efficacy trial, the researcher used various means to induce successful implementation of the intervention (Fraser et al., 2009). This researcher developed a checklist found in the intervention manual for the facilitators that ensured adherence to the program implementation components (see Appendix C). Fidelity measures aimed to control and support as much of the intervention process as possible and ensured that the program was implemented as intended (Fraser et al., 2009).

Fidelity linked the implementation of an intervention to outcomes defined by the extent to which a program followed an intended program model (Fraser et al., 2009). Fidelity criteria were typically drawn by expert opinions of what the program ought to be and by qualitative research from stakeholders who had high program familiarity (Fraser et al., 2009). These

questions used open-ended prompts to elicit further information from the participants and facilitators about their experience. Open-ended questions were used to capture respondents' thoughts without the constraints of closed-ended response options (Dillman, 2014). Qualitative questions on an intervention research efficacy testing allowed the researcher to gather additional information about the program and formulated hypotheses about the design and delivery of the work, particularly when triangulating this with the quantitative data collected (Sufi et al., 2018). Therefore, the following qualitative questions for both the participants and the facilitators were administered following each activity to address this measure and collected the necessary data needed. The responses to the reflective journaling exercises provided additional information/data that helped to determine the efficacy of the intervention research.

Participants. 1) Describe what you learned in today's activity. 2) What components or concepts from the activity were most helpful to you? 3) What was least helpful to you or could have gone better? 4) What changes do you see in your outlook on life? 5) Were learning outcomes achieved in today's activity? 6) Is there anything else you would like to say about your experience?

Facilitators. 1) How prepared did you feel to present the activity to the participants? 2) How were the learning objectives met? 3) Describe how you adequately addressed questions and concerns from the participants. 4) How did facilitating this intervention enhance learning for the participants? 5) What materials provided for the activity do you feel enhanced the learning for the participants? 6) Is there anything else you would like to say about your experience facilitating the GCRTP intervention?

The facilitators were trained by this researcher on the GCRTP and the reflective journaling process that was given after each activity. The facilitators handed out materials to the participants and returned them to this researcher at the end of the pilot study. Each participant

received a unique identifier attached to their reflection journal binder. This was matched with the unique identifier given to each participant for the pre-and post-quantitative survey measure. This was done for the purpose of triangulating the data received from question #4 with the quantitative survey outcome measures. Questions #5 and #6 addressed the efficacy testing of the participants. Questions #2, 4, 5, 6 addressed the efficacy testing and fidelity measures of the facilitators of the program. The transcribed reflection journals, with unique identifiers, and recordings were uploaded to Microsoft Excel document by this researcher. The transcriptions were kept on a password-protected computer in the primary researcher's office. The transcribed documents were saved on an external flash drive. Any handwritten notes or documentation provided were secured in a locked filing cabinet in the primary researcher's office. All transcribed audio recordings, written notes, and reflective journal transcriptions would have been destroyed after three years in accordance with Institutional Review Board (IRB) regulations.

The recruitment materials and journaling questions were written for an eighth-grade reading level. The participants were offered the option to audio record their entries if they are not comfortable writing. It was communicated to participants not to be concerned about spelling and grammar.

Data Analysis

Both quantitative and qualitative data analyses were utilized. To analyze the quantitative data, the researcher used IBM SPSS Statistics Software (SPSS for Mac 29.0.0, 2022), and to analyze qualitative data the researcher used a document in Microsoft Excel. A description of the data analysis procedure was presented below. Table 3 provided each question noting sample size, scale/data collection, and type of analysis utilized. To triangulate the data, the responses to participant reflection journal question #4 were analyzed with the scores of the PTTGI-SF scores.

Quantitative Purpose and Logic of Analysis

The results collected from the pre- and post-assessment were analyzed using nonparametric statistical tests. Due to the nature of intervention research, the researcher had a small sample size and was not able to assume a normal distribution of outcome variables (Field, 2018; Rubin & Babbie, 2017). Table 3 gave an overview of the nonparametric tests that were utilized to answer quantitative research question one. Quantitative research question one was analyzed using the Wilcoxon Signed Rank Test because it was the nonparametric alternative to the paired t-test, and the groups being compared were related, homogenous, or dependent groups (Field, 2018; Rubin & Babbie, 2017).

Qualitative & Efficacy Testing Purpose and Logic of Analysis

Qualitative data analysis required preparing and organizing data, coding, memo writing, identifying themes, developing and assessing interpretations, and representing and visualizing the data (Creswell & Poth, 2018; Padgett, 2017). Memo writing was utilized throughout the data analysis processes to record the strategies and logic of the content analysis (Creswell & Poth, 2018; Padgett, 2017). Content analysis was explored with the facilitator reflection journals that addressed fidelity measures with the delivery of the intervention. This researcher looked for at least 50% frequency of facilitator reporting from reflection journal questions for themes that were identified. The intervention research process involved several efficacy trials, and as the first efficacy trial of the GCRTP, the researcher assessed the extent of attainment of desired outcomes that were enhanced if the components of the intervention were empirically designed and delivered with fidelity by the facilitators (Fraser et al., 2009). For both participant and facilitator reflection journal questions, the researcher used open coding to develop categories with the information/data from the responses on these open-ended questions (Creswell & Poth, 2018;

Padgett, 2017). Within each category, the researcher identified subcategories, slowly reducing the categories into themes (Creswell & Poth, 2018; Padgett, 2017). In particular, question #4 from the participants was triangulated back to the quantitative measure (PTFI-SF) to strengthen the data analysis further to tell a story. The data analysis was done by hand, line by line, via a Microsoft Excel document. To mitigate interrater reliability, this researcher used peer debriefing throughout the intervention and analysis of the data for consistency and objectivity.

This study used a phenomenological approach where the researcher analyzed data to find the essence or common themes in the experiences of participants and facilitators. Phenomenological findings explored not only what participants and facilitators experienced but also the situations and conditions surrounding their experiences (Padgett, 2017). Unlike other phenomenological studies, due to time constraints, no interviews or focus groups were conducted. The analysis process used an inductive approach with open coding to explore emerging themes as well as a deductive approach to explore themes related to the content and delivery of the GCRTP intervention (Creswell & Poth, 2018; Padgett, 2017).

Table 3. *Data Analysis Table*

Question	**Sample**	**Data Collection**	**Analysis**
1. Does the GCRTP increase the posttraumatic growth of individuals with brain injury?	$n = 24$	PTGI-SF	Wilcoxon Signed Rank Test through SPSS
2. Does participation in the group cognitive rehabilitation therapy program enhance individual learning outcomes? Participant Reflection Journal Questions:	$n = 24$	Open-Ended questions 1, 2, 3 were related to the qualitative research question. Open-Ended questions 5, 6 from the participants as a part of efficacy testing.	Open-Coding analysis development through line-by-line analysis within a Microsoft Excel document

1) Describe what you learned in today's activity. 2) What components or concepts from the activity were most helpful to you? 3) What was least helpful to you or could have gone better? 4) What changes do you see in your outlook on life? 5)Were learning outcomes achieved in today's activity? 6) Is there anything else you would like to say about your experience?		Open-Ended question 4 from the participants as a part of triangulating data to quantitative measure.	
3. Will the attainment of desired outcomes be enhanced if the components of the intervention are empirically designed and delivered with fidelity by the facilitators? Facilitator Reflection Journal Questions: 2) How were the learning objectives met? 4) How did facilitating this intervention enhance learning for the participants? 5) What materials provided for the activity do you feel enhanced the learning for the participants? 6) Is there anything else you would like to say about your experience facilitating the GCRTP intervention?	$n = 4$	Open-Ended questions from the facilitators as part of efficacy testing	Open-Coding analysis/Content analysis through line-by-line analysis within a Microsoft Excel document

Researcher's Statement of Reflexivity

Reflexivity was applied in this researcher's fieldwork through ethical considerations during the research project that increased the transparency, the strategies used in trustworthiness, and the accountability of this research (Creswell & Poth 2018; Padgett, 2017). This researcher was aware of the researcher's existence as affecting the qualitative research data, collection, and analysis. The relationship dynamic of this researcher's position to the participants, who resided at the post-acute brain injury rehabilitation in Bucks and Lancaster Counties where the researcher was employed at, was noted. This impacted the methods and angles used in the interview process. Permissions to share these data findings in this paper were obtained prior to the interviews and were noted to be completely voluntary (Creswell & Poth 2018; Padgett, 2017). This researcher limited bias of personal views during these data collection findings and analysis (Creswell & Poth 2018; Padgett, 2017). This researcher has considered how these data findings and their dissemination may be used and impacted in the current rehabilitation setting (Creswell & Poth 2018; Padgett, 2017).

As a social work scholar and practitioner, reflexivity offered the opportunity for critical examination and reflection. Therefore, the researcher was mindful of the biases, values, and experiences that she may have potentially contributed to all aspects of this proposed research study (Creswell & Poth 2018; Padgett, 2017). The researcher was a social worker who has worked in the field of brain injury for the last twenty years. The following assumptions and biases were acknowledged at the start of the study: 1) unconsciously looking for data that confirms existing beliefs or experiences, 2) years of experience in the field may overlook new or unconventional approaches, 3) underestimating the complexity of certain issues due to long-term exposure in the field, 4) strong emotional connections to the field could influence objectivity, 5)

tendency to favor familiar treatments or interventions, 6) tendency to focus on positive or significant results, potentially overlooking null findings. To mitigate these biases, this researcher used standardized quantitative measures grounded in research, engaged in peer debriefing, and practiced reflexivity through journaling.

The passion exuded by this researcher for the social work profession and the field of brain injury were the attributes that initiated this interest in social work intervention research. Through this research, the researcher hoped to contribute a meaningful intervention that illustrated a need to focus on more interventions that explored posttraumatic growth and personal narratives among individuals with a brain injury.

Chapter 4: Research Findings

Data utilized in this study were collected by this researcher utilizing a pre and post assessment, Posttraumatic Growth Inventory-Short Form (PTGI-SF), format administered by the facilitators of the intervention group via a Microsoft Forms link. This researcher was interested in comparing outcomes of the results of the pre and post assessment, the PTGI-SF. The data in this research study were obtained from an intervention group, Group Cognitive Rehabilitation Therapy Program (GCRTP). Data were also gathered as a part of the pilot and efficacy trial of the GCRTP to assess the intervention's immediate outcomes and efficacy goals. The researcher utilized these data through secondary data and has presented the analyses based on quantitative and qualitative research findings and efficacy trial research findings.

In the GCRTP intervention group, a total of twenty-four participants completed the pre and post PTGI-SF assessment. Sixty individuals met the inclusion criteria to participate in the study; however, only 24 agreed to participate upon review of the study by this researcher. There were no missing data and no dropouts from the intervention group, so all data were able to be used. Due to the nature of intervention research, a small sample size was anticipated, therefore the assumption of normal distribution was not met (Field, 2018). Table 3 presented an overview of the investigated research questions, and the method of analysis utilized. Quantitative Research Question 1 was analyzed utilizing the Wilcoxon Signed-Rank Test. Qualitative Research Questions 1 and 2 were analyzed through use of open coding and content analysis.

Quantitative Research Findings

In the following section, the demographic data are represented from the twenty-four participants. The results from the quantitative analysis were also presented. This includes findings from Quantitative Research Question 1.

Demographic Data

There were twenty-four participants in total for the GCRTP intervention. Of the twenty-four participants who participated in the GCRTP, four (17%) were female, and twenty (83%) were male. The types of injuries ranged from anoxic (38%), motor vehicle accidents (50%), falls (8%), and gunshot wounds (4%). The ages of the participants ranged from the youngest at twenty-seven years old and the oldest at sixty-six years old. The average age of the GCRTP participants was forty-six years old (SD = 10.18). The years post-injury ranged from the least being five years and the most being forty-six years. The average years post-injury was close to nineteen and a half years (SD = 11.43).

Table 4. *Demographic Data (n = 24)*

Demographic Data	Min	Max	M	SD
Age	27	66	46.00	10.18
Years Post-Injury	5	46	19.46	11.48

Quantitative Research Question One

Does the GCRTP increase the posttraumatic growth of individuals with brain injury? The Wilcoxon Signed-Rank Test was utilized to compare the pre scores of the PTGI-SF to the

post scores of the PTGI-SF after the GCRTP. The Wilcoxon Signed-Rank Test is a non-parametric statistical test that is based on ranking the differences between scores in two related groups, therefore the *z* score is reported (Field, 2018).

The test statistic, *T,* was the sum of positive ranks. The test value here was $T = 201.00$. Its standard error was 28.73. The *z*-score was 2.98. A Wilcoxon Signed-Rank Test indicated that the median of differences between the Total Score of PTGI-SF pre-intervention and Total Score of PTGI-SF post-intervention equals 0. Therefore, the null hypothesis was rejected, as the *z*-score had a significance value of $p = 0.003$. This value was less than the standard critical value of 0.05, so it was concluded that there is a significant change from the pre- and post-intervention scores. See Table 5.

The total score of the Pre-PTGI-SF ranged from a low of twenty-one to a high of forty-nine. The average score of the Pre-PTGI-SF was 34.87 (SD = 7.69). The total score of the Post-PTGI-SF ranged from a low of twenty-two to a high of fifty. The average score of the Post-PTGI-SF was 39.42 (SD = 7.49). See Table 5.

Table 5. *Wilcoxon Signed-Rank Test - Posttraumatic Growth Inventory-Short Form (n = 24)*

Scale	M	SD	*T*	Standard Error	*z* score	*p* value
PTGI-SF			201.00	28.73	2.98	0.003
Pre-Intervention	34.87	7.69				
Post-Intervention	39.42	7.49				

Qualitative Research Findings

For qualitative research questions 1 and 2 represented in Table 3, open coding and content analysis strategies were utilized. Qualitative research question 1 used open coding identification approach. Qualitative research question 2 utilized open coding and content analysis. The qualitative research findings were reported below.

Qualitative Research Question 1

Does participation in the group cognitive rehabilitation therapy program enhance individual learning outcomes? To answer this question, the researcher coded the participants' responses to the following question presented in the GCRTP reflection journal question one: Describe what you learned in today's activity. The researcher utilized the following steps to code and analyze the data: managing and organizing the data, reading and memoing emergent ideas, describing and classifying codes into themes, developing and assessing interpretations, and representing and visualizing the data (Creswell & Poth, 2018). The participants were given an opportunity to answer this question at the end of each activity of the GCRTP intervention. A total of 24 responses to each session activity were coded for this group. The following themes/codes emerged:

Problem-Solving. A central theme of problem-solving was identified by the participants in their learning outcomes. Three first-level codes emerged: identifying problems, learning and applying problem-solving techniques, and personal growth and reflection. A majority of the participant responses were coded as identifying problems, which captured the difficulties, challenges, and need for solutions from the problem-solving learning outcome. Some examples shared were:

> *"Identifying problems and coming up with solutions." "I've learned that problems can be solved by acknowledging them and finding solutions."*

Some participant responses were captured through the code of learning and applying problem-solving techniques. This encompassed any reference to the processes of learning, understanding, and implementing problem-solving methods. Some examples were:

> ***"****I learned more ways to problem solve and address my problems." "That there are many steps to problem solving, some are simple and some are more complex."*

A few participant responses were coded as personal growth and reflection. This code referenced to the processes of self-improvement, learning from experiences, and reflecting on personal development. Some examples were:

> *"Having patience can solve problems." "I've learned that I'm not alone with my struggles to problem-solve."*

Planning. From the responses gathered, the participants' responses led to the central theme of the learning of planning. Within their responses, three first-level codes emerged, like steps and techniques for planning, learning how to plan, and improving planning skills. A majority of the participants were coded as techniques for planning. This referred to the methods and strategies to plan properly. Some examples were:

> *"Steps needed to be a better planner." "Planning – going step by step and not cutting corners." "The steps needed to properly plan because I don't think I realized this before this activity."*

Some participant responses were coded as learning how to plan. This described the steps needed to plan. Below are some examples of responses to this coding:

> *"How to plan an activity, organize, review, choose a task, use calendars." "I learned how to carefully plan a project and that planning is as important as implementing."*

A few participants were coded as improving planning skills**.** This code focused on references to be a better planner. Example responses to this code were as follows:

> *"A more detailed way of planning my goals and prioritizing them." "Reinforcement of how to be a better planner."*

Communication and social skills. The central theme identified by the participants was communication and social skills. Three first-level codes emerged from the data such as memory and cognitive skills, communication techniques, and humor and creativity. A majority of the participant responses were coded as memory and cognitive skills. It encompassed techniques to enhance memory and cognitive strategies. Some examples of this through participant responses were:

> *"Try to learn about how to remember words that we made into a sentence." "How to remember what the last person said."*

Some participant responses were coded as communication techniques. This focused on methods and strategies used to convey information. Some examples were:

> *"Social aspects of people. How to communicate with others." "The 4 types of communication." "How to think first and be patient with others. Patience is key."*

A few participant responses were coded as humor and creativity. This described how participants use humor and creativity to engage with others and express themselves. Some examples of this were:

> *"I learned that you don't always have to be serious and that by approaching things with a non-serious attitude, you can have creative solutions." "Creativity in social situations, an interactive approach to recovery, and that relationships foster support."*

Self-reflection and personal growth. The central theme coded from participant responses was self-reflection and personal growth. Three first-level codes emerged through continued coding and memoing like self-discovery and personal journey, reflection and emotional expression, and communication and social skills. A majority of the participants were coded as self-discovery and personal journey. This described significant life experiences and the evolution of self-awareness and personal growth. Some examples were:

> *"The ability to look closer at myself. How I view myself. I learned about myself." "More about myself and my journey with a brain injury." "I learned that I really need to have a handle on who I am. How to express thoughts and feelings about your journey."*

Some participant responses were coded as reflection and emotional expression. This encompassed discussion on how participants think and learn from experiences, as well as how to articulate their feelings. Some examples were:

> *"To really focus on myself." "Reflecting on my life." "How to express my feelings." "Reflected on my life and I'm happy where I'm at."*

A few participant responses were coded as communication and social skills. This involved discussions about various forms of communication and how to convey ideas. Some examples were:

> *"How to listen to others and get along with my peers." "We learned about types of communication."*

Anxiety. The participants identified a central theme of anxiety. There were three first-level codes identified through the participant responses such as managing and experiencing anxiety, support and understanding, and learning and reflecting. A majority of the participant responses were coded as managing and experiencing anxiety. This reflected references to feelings of anxiety and acknowledgement of how to manage anxiety. Some examples of this were:

> *"That in some ways we all deal with anxiety no matter what our path is or was." "That I'm not the only one that has experienced some anxiety." "TBI is known to bring out anxiety." "There are ways to manage anxiety."*

Some of the participant responses were coded as support and understanding. This referred to references to the actions and behaviors that demonstrate support and understanding among individuals. Some example responses were:

> *"How there is more than just me and my nervousness." "It was empowering to understand I'm not alone in my anxiety." "Things are more easy when I get help from others."*

A few participant responses were coded as learning and reflecting. This involved discussion about how the participants learn and gain insight. Some examples were:

> *"Learned about anxiety." "I enjoyed learning about brain injury and how the person in the video recovered from it."*

Stress. The central theme identified from the participant responses was stress. Three first-level codes emerged from the participant responses like understanding stress, managing and coping with stress, and positive outlook and reflection. A majority of the participant responses were around the code of understanding stress. This referred to the participants' awareness and comprehension of stress. Some examples were:

> *"I learned what stress is and how it can impact my journey." "A brain injury is like a fingerprint and I learned about stress."*

Some participant responses were coded with managing and coping with stress. This code referred to references to the methods and techniques to alleviate stress. Some examples were:

> *"How to positively deal with and manage stress." "We learned about stress and how to work through it."*

A few participant responses were coded as positive outlook and reflection. This described participants' attitudes of optimism and their reflective thoughts. An example was:

> *"To find the good in life and not to focus on the negative."*

Peer support and communication. Peer support and communication through physical activity was the central theme of the participant responses. Three first-level codes were identified through the participant responses that included peer support and learning, communication skills, and integration of social, emotional, and cognitive aspects. A majority of the participant

responses were coded as peer support and learning. This referred to any references to the interactions and relationships among peers that facilitate peer support and learning. Some examples were:

> *"Today I learned about my peers while playing a game of pop darts." "Peer support and an open mind." "Peer support is important." "Different ways to approach things and about my peers."*

Some participant responses were coded as communication skills. This looked at references to the participant's abilities to convey information and ideas. Some examples of this were:

> *"To be an active listener." "How to communicate and accept support from others." "Different ways to communicate and connect with others."*

A few participant responses were coded as integration of social, emotional, and cognitive aspects. This referred to the interplay between social interactions, emotional experiences, and cognitive processes. Some examples of this were:

> *"How social, emotional, and cognitive aspects of my life come together." "How to tie in social, emotional, and physical aspects of my rehab." "How a physical activity can bring other aspects to focus on in tbi rehab."*

Physical activity. A central theme of teamwork through physical activity emerged in the participant responses. There were two first-level codes that were identified within the participant responses like importance of teamwork and communication and listening. A majority of the responses were coded as teamwork. This code includes any references to the ways in which team members work together and support each other for a common goal. Some examples of this were:

> *"How important teamwork can be in rehabilitation." "How to work together as a team." "We learned we need to work together as a team to accomplish some goals." "How to be a team player." "Teamwork, patience, and the ability to negotiate with others. Patience is key."*

A few participant responses were coded as communication and listening. This code refers to various forms of communication and the effectiveness of listening to others. Some examples of this were:

> *"Communication can be key when working together." "How to work as a team using communication and listening to others." "Building the pyramid with cups helped me use/work on my listening skills."*

Self-healing. Self-expression and self-reflection was a central theme within the spiritual exercise of self-healing. Three first-level codes were identified through the participant responses including self-perception and reflection, art as a means of expression, and creativity in self-expression. A majority of the participant responses were coded as self-perception and reflection. This describes how participants perceive themselves and reflect on experiences and personal growth. Some examples were:

> *"How I view myself through pictures." "I reflected on my life through a collage." "How I view myself and can improve my journey." "This was awesome...I learned about myself."*

Some participant responses were coded as art as a means of expression. This referred to the use of art to express emotions, thoughts, and personal narratives. Some examples were:

> *"That I can express myself without words." "Instead of talking about my feelings, I can do it with art." "How to bring art into my journey." "I learned I can express myself through art." "How to create a collage and use art to express myself...never did this before...so cool!"*

A few participant responses were coded as creativity in self-expression. This encompassed any reference to the use of creative approaches to convey personal experiences, emotions, and ideas. Some examples were:

> *"How to be creative with my journey." "Being creative in how I view myself and my journey." "That it is okay to feel things and be creative."*

Mindfulness and meditation. Mindfulness and meditation was a central theme identified in the participant responses in this activity. Three first-level codes emerged through the participant responses such as mindfulness and awareness, positive affirmations and outlook, and coping strategies. A majority of the participant responses were coded as mindfulness and awareness. This referred to the practices and experiences of bring mindful and aware. Some examples were:

> *"The benefits of meditation and prayer." "How to be more mindful in my day-to-day life." "That I already use a lot of these techniques to be more mindful." "I learned the importance of spiritual mindfulness. Awareness is everything."*

Some participant responses were coded as positive affirmations and outlook. This code referred to the use of positive affirmations and maintaining an optimistic perspective. Some examples were:

> *"How to focus on positive affirmations." "How to maintain a positive outlook." "The importance of self-affirmations and developing a spiritual recovery." "I think it's important to focus on finding gratitude and joy and staying positive."*

A few participant responses were coded as coping strategies. This encompassed various techniques and methods of how participants can cope more effectively. Some examples of this were:

> *"To tune out all the noise and people talking to just focus on myself." "How to cope and organize my thoughts." "To continue to take one step at a time and live day by day." "Meditation is good for the mind – gratitude and joy...learned to think of my joys and make lists."*

Participants were able to provide other responses or additional comments where qualitative data were gained through the intervention to prompt/cue for the development of narratives through reflection journal question two, "What concepts were most helpful," at the end of each activity of the GCRTP. Participants included comments such as:

> *"The activities and readings."*

"The worksheets and videos."
"The videos were well chosen."
"The group discussions."
"The ability to write things down in our binders."
"Everything was helpful."
"Everything – it opened my mind to things and how I can view things differently."
"I really enjoyed all of it – it was thought provoking."
"The collage activity was by far the best."

Participants were also able to provide other responses or additional comments where qualitative data were gained through the intervention to prompt/cue for the development of narratives through reflection journal question three, "What concepts were least helpful," at the end of each activity of the GCRTP. Participants included comments such as:

"The readings were so small."
"Having an environment with less distractions."
"The readings were long."
"I wanted more time to dig even deeper into planning an outcome."

Efficacy Trial Research Findings

As this was the first efficacy trial of the GCRTP, the researcher sought to collect and analyze data to assess if the intended efficacy goals were satisfied. The efficacy trial research findings are reported below.

Efficacy Goal One

The first efficacy goal to be assessed was that individual learning outcomes were achieved. This was achieved by a 'yes' or 'no' option within the participant reflection journal question five if they felt that the individual learning outcomes were achieved after each activity. All twenty-four participant responses indicated a 'yes' to learning outcomes were achieved for each exercise. According to participants, the intended efficacy goal one was satisfied at 100%. Participants were also able to provide other responses or additional comments where qualitative data were gained through the intervention to prompt/cue for the development of narratives

through reflection journal question six, “Is there anything else you would like to share about this experience,” at the end of each activity of the GCRTP. A central theme of positive experiences and personal growth emerged with three first-level codes of personal growth and self-reflection, positive feedback and gratitude, and affirmations and positive outlook.

A majority of the participants were coded as personal growth and reflection. This involved participants recognizing how thoughts and feelings influence behavior, as well as their reflective experiences. Some examples of this were:

> *“This group showed me many aspects of myself, both good and bad, and it helped me to focus on goals for my future path.” “Overall, I have enjoyed this program and it has helped me understand my journey with a TBI a bit more.” “Thank you for the diverse activities and the positive experience. I learned a lot about myself and others.”*

Some of the participants were coded as positive feedback and gratitude. This referred to positive feedback and gratitude that involves expressing appreciation for the positive aspects of situations, people, and experiences. Some examples were:

> *“Thank you for this program. It’s been a great journey.” “Thank you for a great experience.” “This was a great program...hope we can do something like this again.” “I liked the research groups because we did different activities and segments that helped me with my journey.”*

A few participants were coded as affirmations and positive outlook. This code described how maintaining a positive outlook cultivates a mindset that focuses on positive thinking and self-empowerment. Some examples were:

> *“I loved this activity as it gave me more positive affirmations to remind myself everyday...I’ll be incorporating parts of this program into my daily life.” “This program showed me that everything will come in good time and that I should appreciate my journey.” “Grateful to have been a part of this group...really liked learning about myself and my peers.”*

Efficacy Goal Two

The second efficacy goal was the attainment of desired outcomes were enhanced if the components of the intervention were empirically designed and delivered with fidelity by the facilitators. A checklist was created for the facilitators to ensure that all aspects of the intervention were carried out as written. All four facilitators completed all facilitator checklists for each activity, ten in total. According to all facilitator checklists, efficacy goal two was satisfied, as the checklists that were completed and acknowledged were followed at 100% accuracy.

Facilitators provided responses within their reflection journal question two, "How were learning objectives met," to further explain if learning was enhanced. Content analysis revealed that at least 50% of the facilitators acknowledged this was achieved through reviewing objectives, group discussions, and use of materials. Some examples of the responses were:

> *"By reviewing and discussing the objectives."*
> *"Through readings/materials and consistent guidance and clarification of objectives."*
> *"Through explanation, clarification, and encouragement during group discussions."*

The following table represents the frequency of responses.

Table 6 *Frequency of how learning objectives were met*

How were learning objectives met	*f*	%
Reviewing objectives	4	100%
Group discussions	3	75%
Use of Materials	4	100%

Facilitators provided responses where qualitative data were gained through the intervention to prompt/cue for the improvement of the GCRTP intervention manual through facilitator reflection journal question four, "How did facilitating this intervention enhance

learning for the participants," at the end of each activity of the GCRTP. Content analysis revealed that at least 50% of the facilitators acknowledged this was achieved through the development of practical skills, identification of coping skills, and through engagement and enjoyment. Some examples of the facilitator's responses were:

> *"It helped them to come up with ways to stay organized and accomplish goals."*
> *"It allowed them to see different solutions to solve certain problems."*
> *"I think it helped them to come up with coping skills that they may not have thought of before."*
> *"It was helpful for them to discuss different coping skills."*
> *"They were engaged and promoted teamwork and communication."*
> *"The participants expressed enjoyment of the activities."*

The following table represents the frequency of responses.

Table 7 *Frequency of how facilitating this intervention enhanced learning for participants*

How was learning enhanced?	*f*	%
Development of practical skills	4	100%
Identification of coping skills	4	100%
Engagement and enjoyment	4	100%

Further, the facilitators shared responses to reflection journal question five, "What materials provided for the activity do you feel enhanced the learning for participants?" Content analysis revealed that at least 50% of the facilitators acknowledged this was achieved through the use of worksheets and written materials, videos and visual aids, and interactive activities and games. Some examples of the responses were:

> *"The problem-solving worksheet – breaking down the process."*
> *"The goal priority planning worksheet was engaging – participants opened up."*
> *"The participants seemed to resonate with the TED talk."*
> *"Participants reported that the TED talk was really meaningful to them and wanted to share it with others."*
> *"The pop darts! The participants enjoyed the activity."*

"The ability to work together as a group and effectively manage varying personalities in each activity."
"The ball made the exercise more interesting."

The following table represents the frequency of responses.

Table 8 *Frequency of what materials enhanced learning for the participant*

What materials enhanced learning?	*f*	%
Worksheets and written materials	4	100%
Videos and visual aids	3	75%
Interactive activities and games	4	100%

Facilitators were also able to provide other responses or additional comments where qualitative data was gained through the intervention to prompt/cue for the development of narratives through facilitator reflection journal question six, "Is there anything else you would like to say about your experience facilitating the GCRTP intervention," at the end of each activity of the GCRTP. Below are some of the facilitator responses:

"The discussion was better and there was more participation than yesterday. They really enjoyed the activity and it was fun to lead. The participants enjoyed the activity and it was easy to follow. All enjoyed this activity and the ability to self-express themselves in art-form."

"This was a difficult activity for participants who struggle with word-finding, memory, and writing. Constant need to review the purpose/reason of the GCRTP and engagement. There were instances of the group becoming less positive and constructive."

"I really enjoyed watching the video and felt like it was very engaging for the participants. Excellent intervention that addressed cognitive, social, and physical challenges."

"It was a great experience overall and I think the participants really enjoyed it. This activity was very rewarding for the participants due to the practicality of the approaches to dealing with stress/anxiety. It was a rewarding experience to run these groups and allowed me to see the benefits of having these types of activities in TBI rehab."

Triangulation of Research Data

Triangulation was a methodological approach used to enhance the credibility and validity of research findings by combining multiple data sources, methods, or theoretical perspectives (Padgett, 2017; Rubin & Babbie 2017). In this dissertation, triangulation was employed to provide a comprehensive understanding of pre- and post- posttraumatic growth scores and the ability for the participants to express in narrative form an enhanced learning that led to personal growth. Qualitative data were analyzed through open-coding to identify common themes and first-level coding.

Who Am I – Social Activity

This activity was presented to the participants in activity four. There were several questions that led to a central theme and first-level coding that helped to strengthen the validity and credibility of the quantitative data. This reinforced the significance of the PTGI-SF scores. See Table 9 for more details.

Table 9. *Who Am I themes and first-level coding*

Question	Central Theme	First-Level Coding
Today I am...	Appreciation for life	Emotional states defined as how participants identified with their emotional state: *Happy* *Relaxed and excited* *Frustrated* *Feeling uncertain*
		Personal identity and roles defined as how participants viewed themselves: *Myself* *An uncle* *Strong, a fighter, a survivor* *Recovering alcoholic/addict*
		Daily activities and routines defined as how participants viewed their daily routine: *Going camping*

		At brain injury rehab *An active member of AA/NA*
		Outlook and aspirations defined as participants' ambitions, goals, and perspectives: *Wanting to be a better person* *Digging deeper into myself* *Alive and I should feel grateful* *Man with a plan*
I am becoming...	Personal growth and self-improvement	Emotional state and well-being defined as how participants viewed their emotional state: *Less anxious, angry, and irritable* *Saddened* *Calmer*
		Self-perception and identity defined as how participants viewed themselves and their identity: *Sober* *A different person* *More solid with myself* *A new man* *I'm thankful that I was able to overcome some bad habits*
		Faith and commitment defined as how participants viewed beliefs and their dedication to such beliefs: *Someone who believes in faith and is committed to overcoming challenges.*
My purpose for being in this place right now is...	Coping with and overcoming TBI	Acceptance defined as how participants come to terms with various aspects of their lives: *Learning to value my new life and better my brain.* *Because I had a TBI and can't live on my own.* *To continue to heal with my injury through my journey with a TBI.*
		Rehab and recovery defined as experiences within rehabilitation: *PT/OT* *To get better* *Rehabilitation of body and mind*
		Personal growth defined as aspects of the individual's development and self-improvement: *To gain more independence* *To become a better me* *To be more emotionally open*

		Support and community defined as ways participants receive support: *Being a part of the cognitive rehab group* *Being supported by others* *To know I'm not alone*
I have to learn...	Personal experiences and reflection	Personal growth defined as aspects of the individual's development and self-improvement: *I turned into a better person and learning how to read a little better.* *Everything I have worked for has brought me to this point.* *I've learned a lot about myself and I'm still trying to learn about myself.*
		Support systems and relationships defined as ways individuals form and rely on support networks: *Having roommates and peers like me has made me more accountable.* *Living with my friends.* *Living with my friends and family.*
		Faith and Spirituality defined as beliefs, practices, and experiences related to faith/spirituality: *Because God wants me to be here.* *AA attendance* *Repairing my body and mind with physical and mind exercises.*
What does this present moment offer me?	New possibilities and opportunities	Aspirations and reflections defined as how participants understand goals, dreams, and process of self-examination: *A better life.* *The chance to live my life to its fullest.* *An opportunity to reflect and rethink about myself.* *A chance to achieve my dreams.*
		Support and community defined as ways participants receive support: *I have been attending church and developing a community of people there to lean on.* *A place to live with friends who can relate to me.*

Participant Reflection Journal Question Four

Participants were given the opportunity after each activity of the intervention to provide their narrative thoughts on the question of, "What changes do you see in your outlook on life?" The data from this question were triangulated back to the PTGI-SF scores to provide further credibility and validity to the research presented.

Positive transformation and growth. A central theme identified after the problem-solving activity was positive transformation and growth. Two first-level codes emerged such as positive outlook on life and personal growth and acceptance. A majority of the participants were coded as positive outlook on life. This is defined as aspects of maintaining an optimistic and hopeful future. Some examples were:

> *"I see my life more positively." "That I can achieve my dreams and do more than just be my injury."*

A few participants were coded as personal growth and acceptance. This is defined as aspects of self-development and well-being. Some examples were:

> *"Ability to accept my current life situation." "To keep moving forward."*

Future-oriented positive transformation. From the responses gathered, a central theme from the planning activity was future-oriented positive transformation. Within their responses, two first-level codes emerged like positive outlook and hope and personal growth and self-awareness. A majority of the participant responses were coded as positive outlook and hope. This is defined as aspects of maintaining an optimistic and hopeful future. A few examples were:

> *"The ability to look towards the future." "Be positive and have hope." "Encouraging myself to be hopeful."*

A few participants were coded as personal growth and self-awareness. This is defined as aspects of self-development and awareness of self. Some examples were:

> *"The realization that I am a good person and deserve a good life." "Being patient and open to feedback." "It makes my life seem more clear and goals more obtainable."*

Hopeful and positive personal development. The central theme to the social activity of improvisation that was identified by the participants was hopeful and positive personal development. Two first-level codes emerged from the data such as communication and listening skills and personal growth and future aspirations. A majority of the participants were coded as communication and listening skills. This is defined as understanding the various aspects of effective communication and listening skills. A few examples were:

> *"To listen more effectively and with purpose." "Learning to be more patient and understanding and not cut others off when speaking." "How to pay attention and listen better."*

A few participants were coded as personal growth and future aspirations. This is defined as aspects of self-development and awareness of the future. Some examples were:

> *"I'm looking forward to living a good life." "To not be judgmental of others." "Makes me look forward to this group because it was a fun activity."*

Positive transformation. The central theme coded from participant responses from the social activity, "Who Am I," was positive transformation. Two first-level codes emerged through relationships. A majority of the participants were coded as personal growth and reflection. This is defined as aspects of self-development and the ability to reflect. Some examples were:

> *"To keep pushing for a better future." "How to focus on the future." "That my past does not need to define me." "Yes, my outlook on life is better." "That I need to manage my expectations and try not to be totally negative but to try to find balance."*

A few participants were coded as support and relationships. This is defined as the various ways that individuals form relationships and rely on support. A couple of examples were:

"The need for peer support." "To work even harder to have my daughter in my life."

Openness and positive coping. The participants' responses identified a central theme of openness and positive coping for future well-being in the activity about anxiety. There were two first level-codes identified through the participant responses such as positivity and hope and coping and self-improvement. A majority of the participants were coded as positivity and hope. This is defined as the ability to have a positive outlook and maintain hope. A few examples were:

"To be open to change." "To keep expressing myself and talking about my feelings." "To focus on the positive and hope to be less anxious."

A few participants were coded as coping and self-improvement. This is defined as the strategies individuals use to manage stress and challenges. Some examples of this were:

"Using coping strategies." "To get what I want and need to stay alive." "To be a forward/future thinker."

Hopeful and resilient personal growth. The central theme identified from the participant responses for the emotional activity around stress was hopeful and resilient personal growth. Two first-level codes emerged from the participant responses like personal growth and self-improvement and coping and support. A majority of the participants were coded as personal growth and self-improvement. This is defined as aspects of self-development and awareness of self. A few examples were:

"I need to be hopeful." "I'm a more positive person since my accident." "Just to continue to work hard and keep moving forward knowing I have a TBI." "I'm a better person today than I was in the past." "It gives me a new perspective on life."

A few participants were coded as coping and support. This is defined as the various ways that individuals form relationships and rely on support. A couple of examples of this were:

"I need peer support in my life." "The ability to cope."

Positive personal development. Positive personal development with peer support was the central theme of the participant responses in the physical activity of cognitive pop darts. Two first-level codes were identified through the participant responses that included peer support and relationships and personal growth and self-awareness. A majority of the participant responses were coded as peer support and relationships. This is defined as the various ways that individuals form relationships and rely on support. A few examples were:

> *"The ability to get to know people better." "How to listen and support others." "Peer support can be helpful."*

A few participant responses were coded as personal growth and self-awareness. This is defined as aspects of self-development and awareness of self. Some examples of this were:

> *"To learn more and that it's okay to not be in control." "To be more aware of my emotions and treatment of others." "Perseverance." "The activity made me feel more happy and successful."*

Peer support. A central theme of positive personal development with emphasis on peer support through the physical activity of the active logic project emerged in the participant responses. There were two first-level codes that were identified within the participant responses like peer support and relationships and personal growth and self-awareness. A majority of the participant responses were coded as peer support and relationships. This is defined as the various ways that individuals form relationships and rely on support. A few examples were:

> *"That I'm not alone in this journey." "The need for peer support." "The value of peer support." "Peer support is needed in my life."*

A few participant responses were coded as personal growth and self-awareness. This is defined as aspects of self-development and awareness of self. Some examples of this were:

> *"To not get ahead of myself too quickly." "To be less impulsive." "Patience for other people and an understanding of human limitations." "More spiritual and needing God in my life."*

Positive personal growth. Positive personal growth was the central theme within the spiritual exercise of self-healing. Two first-level codes were identified through the participant responses including self-reflection and adaptability. A majority of the participant responses were coded as self-reflection. This is defined as the ability to evaluate one's thoughts, actions, and experiences. A few examples were:

> *"My journey can be hopeful." "Empowered…feeling hopeful." "To view my journey as a process." "To use my abilities to the max degree."*

A few participant responses were coded as adaptability. This is defined as how individuals adjust to changes and new situations. Some examples were:

> *"The importance of my journey and how it's shaped me." "Believing in the ability to recover and revisiting my creative side." "Ability to change."*

Hopeful and spiritual growth. Hopeful and spiritual personal growth was a central theme identified in the participant responses in this activity. Two first-level codes emerged through the participant responses such as spirituality and mindfulness and personal growth and acceptance. A majority of the participant responses were coded as spirituality and mindfulness. This is defined as an individual's understanding of spiritual practice and mindful techniques. A few examples were:

> *"Learning how to be more spiritual with my life." "The benefits of spirituality in my life." "It's like a divine concept." "The need for spiritual change."*

A few participant responses were coded as personal growth and acceptance. This is defined as aspects of self-development and well-being. Some examples were:

> *"New beginnings." "A change in accepting myself." "It's important to find joy in life." "The need to be more relaxed and patient with myself and my journey." "I feel more positive, and I recognize that there is a lot of good life to live."*

Key Takeaways

The results shared above provide key points to the power of the intervention of the GCRTP. The GCRTP had a significant impact on the posttraumatic growth of the participants, as noted in the Wilcoxon Signed-Rank Test of the PTGI-SF scores. There was statistical significance noted. The qualitative data presented was able to show that learning was enhanced by the participants and that it was done with the fidelity of the facilitators through efficacy testing. The qualitative data were triangulated back to the PTGI-SF scores. The data provided an understanding of the primary categories of the PTGI-SF such as personal growth, spirituality, support networks, and new beginnings/new possibilities. The GCRTP provided a comprehensive framework for personal development and overall well-being.

Chapter Five: Discussion

This intervention research study was conducted as an initial pilot and efficacy trial of the GCRTP to explore posttraumatic growth delivered to individuals with a brain injury at least 5 or more years post-injury. The intervention (see Appendix C) was given in two-hour blocks, two days per week over five consecutive weeks. The sample size was 24 participants who have a diagnosis of a brain injury and reside at post-acute brain injury rehabilitation facility in Bucks and Lancaster Counties. The Posttraumatic Growth Inventory – Short Form (Cann et al., 2010) was given to all individuals in the study a week before and a week after the intervention for quantitative data. Questions were explored at the end of each two-hour block to prompt/cue for narrative development to explore qualitative themes and address the efficacy of the intervention. The intervention's purpose was to explore posttraumatic growth and narratives of their brain injury rehabilitation experiences through a mixed-method approach. As the rehabilitation focus shifted from a paradigm of impairment and negative factors to one of wellness and positive factors, recent research in TBI focused on the importance of adaptation rather than adversity (Cosco et al., 2017; Nalder et al., 2019; Sigurdardottir et al., 2014; Wardlaw et al., 2018). The literature around the phenomenon of posttraumatic growth (PTG) suggested that evidence of PTG has been observed as early as a few months post-injury to more than 20 years post-injury (Baseotto et al., 2022; Paris-Hrit et al., 2020; Rogan et al., 2013; Silva et al., 2011). The primary purpose of this study was to assess whether the participation in the GCRTP increased PTG scores of individuals with brain injury. The study was also utilized to conduct a pilot and efficacy trial of the GCRTP.

Summary of Findings

The goal of this intervention research study was conducted as a pilot and to assess the efficacy of an intervention (see Appendix C) to explore posttraumatic growth and narratives. The research allowed for the creation and implementation of a group cognitive rehabilitation therapy program intended for individuals with a brain injury to explore PTG and personal narratives. This was centralized around an in-depth understanding of PTG and its relation to resiliency and narrative development. The literature around the phenomenon of PTG in the field of brain injury suggests that individuals with a brain injury examine and reconsider their basic expectations and assumptions about themselves, others, and their futures around five cognitive domains of functioning such as: personal strength, spiritual and existential change, appreciation of life, new possibilities, and relating to others (Tedeschi & Calhoun, 2004; Walsh et al., 2014). The primary purpose of this study was to assess whether the intentional implementation of an intervention, like GCRTP, would increase PTG in adults with brain injury and enhance cognitive learning through activities presented in the manual.

The literature presented showed evidence that PTG has been observed as early as a few months post-injury to more than 20 years post-injury (Baseotto et al., 2022; Paris-Hrit et al., 2020; Rogan et al., 2013; Silva et al., 2011). The results of the data analyses revealed that there was a significant difference between the pre- and post-intervention PTGI-SF scores. This result suggested that the GCRTP did in fact increase PTG in adults with brain injury. There was research on cognitive rehabilitation that involved developing functional compensatory strategies that enhanced cognitive functioning and lessened the burden of impairment (Ponsford et al., 2012; Velikonja et al., 2014; Wilson, 2009). However, minimal research was conducted on group cognitive rehabilitation therapy programs and the positive factors identified from enhanced PTG

and narratives within the group cognitive rehabilitation arena of therapeutic modalities. Research implications suggested that further research should be explored that facilitated positive and meaningful changes within the lives of brain injury through a communal search for meaning, suggesting group cognitive rehabilitation (Linley & Joseph, 2004; Rogan et al., 2013; Tedeschi & Calhoun, 2004). Based on the results of the efficacy testing phase, enhanced cognitive learning through the ten activities presented in the manual was achieved, as themes and first-level coding centralized around each session activity presented. This coincided with the initial research found in chapter 2 of the literature review.

Data from the, "Who Am I," social activity was triangulated back to the quantitative data. Themes around appreciation for life, personal growth and self-improvement, coping and overcoming TBI, personal experiences and reflection, and new possibilities and opportunities further strengthened the credibility and validity of the significance of the PTGI-SF scores. Also, data from the participant reflection question four, "What changes do you see on your outlook on life?," was triangulated back to the quantitative data. Themes around positive transformation and growth, hopeful and positive personal development, hopeful and resilient personal growth, personal development with peer support, spiritual exercise of self-healing, and hopeful and spiritual personal growth. This aligned with research findings in chapter two where studies showed that a narrative approach allowed individuals an opportunity for self-expression, relationship building, and reflection on experiences when focusing on the five domains of PTG (D'Cruz et al., 2020; D'Cruz et al., 2019; Karagiorgou et al., 2017 Kersten et al., 2018). In particular, peer support, appreciation of life, new possibilities, and spiritual growth connect directly with how PTG spans the domains of cognitive functioning (Tedeschi & Calhoun, 2004).

The study was also utilized to conduct an efficacy trial of the GCRTP by assessing the degree to which the attainment of desire outcomes were enhanced if the components of the intervention were empirically designed and delivered with fidelity by the facilitators. The facilitators acknowledged all checklists were completed with 100% accuracy. Content analysis revealed common themes across the qualitative data at 50% or more of the reflection journal questions to enhance that learning objectives were met and identifying learning materials that enhanced learning. Each facilitator's observations and reflections contributed to a holistic understanding of how different activities and discussions can foster a comprehensive learning experience.

Based on the efficacy testing and triangulation of data, individuals with brain injury who participated in the GCRTP identified that those proximal outcomes of the GCRTP were satisfied. Essentially, it is important to consider resiliency and existential theories that contributed to the development of the GCRTP.

Interrater reliability was not done due to resource and time constraints, as this required additional raters and training. This was not feasible due to the time constraints of this dissertation. Interrater reliability was crucial for ensuring consistency and accuracy in assessments conducted by different raters, which can improve/enhance consistency and validity (Padgett, 2017). This impacted the trustworthiness of this study.

Limitations and Strengths

There are limitations that need to be considered when reviewing this research study. Ideally, the researcher would have intended on a larger sample size with both a control and intervention group. Due to the nature and time frame of this doctoral dissertation, this researcher

was not able to obtain a larger sample size or control group. Therefore, in this study the sample size was small, and normal distribution could not be assumed. However, in the process of intervention research, efficacy trials were intended to be done with a smaller population often based on convenience sampling (Fraser et al., 2009). The small sample size also contributed to the uneven representation based on gender. Any research conducted based solely on self-report faces its limitations; and because this research was based solely on self-report, that may also be considered a limitation. There were open-ended questions and opportunities for participants to elaborate on their responses to some questions. This strategy was utilized to help gain more comprehensive responses from participants, but it was not required.

In relation to the variables being measured, time was a substantial limitation. The researcher understood the nature of posttraumatic growth and the role of time which had the potential to be influenced through a longer period of time frame. Therefore, it is important to consider the findings accordingly based on this limitation. Results may have yielded even more significant conclusions if measured over a longer period of time with the intervention. Despite this limitation, there was posttraumatic growth that did occur, as post-intervention scores increased, and changes in participants' outlook did change after each activity of the intervention based on the narratives shared. Also, a strength of this study is its replicability in other brain injury rehabilitation settings, which is connected to the future goal of moving towards making the GCRTP an evidence-based intervention.

With the inability to conduct interrater reliability, it is important to consider this for future research and effectiveness testing of this intervention manual. This would add to the trustworthiness of data for future research.

The purpose of evaluation research then centers on studying a program or intervention to

adjust and refine components and/or delivery of the program or intervention before proceeding further (Fraser et al., 2009). The results of this intervention, while primarily positive, could benefit from some adjustments and refinement in the content and delivery of the GCRTP. Participants noted that the readings were too long and too small, wanting more time to dig deeper into the content, and having an environment with less distractions. Thus, it would be beneficial for the researcher to edit the readings, provide more time with the activities in the intervention, and adjust environmental settings to a quieter place.

Implications for Social Work Education

This research study provided content worthy of consideration when developing social work curriculum with an intent to educate students into the profession by focusing on trauma-informed care. Trauma-informed social work can be integrated into all sorts of existing models of evidence-based services, but trauma-informed education can strengthen the therapeutic alliance and facilitate posttraumatic growth. In all settings, engaging individuals with compassion and respect is the crucial factor in enabling change, regardless of the intervention, but practices must also be culturally relevant and consider the social context of racial, economic, and gender disparities (East & Roll, 2015). Difficulties with engagement can be mitigated by recognizing and addressing the legacy of complex trauma, and this is likely to enrich intervention effects.

Social workers who are familiar with the pervasiveness of early adversity and the damaging impact of these experiences on presenting problems across the life span will be able to deliver services in a more trauma-informed fashion. The research literature indicates that a warm, interested, and validating therapeutic alliance is more influential in facilitating positive therapy outcomes than theoretical framework, professional discipline, or specific counseling

techniques (Duncan et al., 2010; Thomlison, 1984). A nonthreatening service delivery environment will facilitate trust, emotional safety, and intimacy.

Trauma-informed education should be embedded in social work education. Social workers can infuse trauma-informed principles into their understanding of, and interactions with, individuals by conceptualizing problematic behavior as a by-product of posttraumatic stress (Levenson, 2017). The accumulation of negative experiences in childhood can trigger enduring neurodevelopmental changes, but neuroplasticity allows the brain to integrate new experiences that pave the way for emotional healing and develop new neural pathways to behavioral and cognitive change (Anda et al., 2010; van der Kolk, 2006; Weiss & Wagner, 1998). When social workers incorporate trauma-informed education/practices, they enable emotionally curative experiences that permit new skills to be cultivated, rehearsed, and reinforced. Embracing and expanding trauma informed education can only build stronger social workers for the future, as they are likely to meet individuals with brain injury in their social work career.

Implications for Social Work Practice

Posttraumatic growth (PTG) and personal narratives can significantly impact social work practice, especially when working with individuals who have experienced brain injuries. PTG refers to the positive psychological changes that can occur as a result of struggling with highly challenging life circumstances (Joseph, 2011; McGrath, 2004). For individuals with brain injuries, PTG can manifest in several ways like personal strength, relating to others, new possibilities, appreciation of life, and spiritual and existential change (Tedeschi & Calhoun, 2004). Personal narratives involve the reconstruction of one's life story, integrating the traumatic experience into their identity (Frankl, 2014). This process can help individuals make sense of

their experiences and foster PTG through meaning-making and empowerment (Tedeschi & Calhoun, 2004).

Social workers can leverage PTG and personal narratives in several ways. Therapeutic interventions can use personal narratives to help individuals reconstruct their life stories (Jirek, 2017). Social workers utilize a supportive environment and can create a safe space for individuals to share their narratives (Jirek, 2017). Advocacy is another area of strength in social work practice. Social workers can promote social justice by addressing social problems and inequalities that affect or impact individuals' narratives (Jirek, 2017). Taking a holistic approach in social work practice can also integrate PTG principles into practice to support clients' overall well-being.

Integrating PTG and personal narratives into social work practice can profoundly benefit individuals with brain injuries. By fostering PTG, social workers can help clients discover new strengths, improve relationships, and find deeper meaning in their lives. Personal narratives, on the other hand, enable clients to reconstruct their life stories, making sense of their experiences and empowering them to move forward. For social workers, this means adopting a holistic approach that includes narrative therapy, creating supportive environments, and advocating for social justice (Jirek, 2017). By doing so, they can not only support clients in their healing journey but also promote resilience and growth.

Implications for Social Work Intervention Research

Posttraumatic growth (PTG) and personal narratives can significantly influence social work research, especially when focusing on individuals with brain injuries. It can enhance understanding of client experiences and provide in-depth insights. Researching PTG and

personal narratives provides a deeper understanding of how individuals with brain injuries make sense of their experiences and find meaning in their trauma (Jirek, 2017). By focusing on personal narratives, researchers can develop more client-centered approaches that respect and incorporate clients' unique stories and perspectives (Jirek, 2017).

PTG and personal narratives can inform intervention development. This research in social work can provide insights from PTG and personal narratives that inform the creation of tailored interventions that address the specific needs and strengths of individuals with brain injuries (Tedeschi, 1999). Research findings can contribute to evidence-based practices, ensuring that interventions are grounded in empirical evidence and are effective in promoting positive outcomes (Tedeschi, 1999). By incorporating PTG and personal narratives into social work research, professionals can develop more effective, empathetic, and empowering interventions for individuals with brain injuries.

Social work research can promote empowerment and advocacy. Encouraging individuals to share their personal narratives can empower them and validate their experiences, which is crucial for their recovery and growth (Jirek, 2017). Highlighting personal narratives in research can draw attention to social injustices and inequalities, prompting advocacy efforts to address these issues at both individual and systemic levels (Jirek, 2017). Continued research in this area is vital to the social work profession, as well as acknowledging the benefits of having social workers in the field of brain injury.

For this particular intervention research, pilot and efficacy testing yielded positive results. This intervention research provided a strong foundation for scaling up the intervention to a larger brain injury population, for example, implementing this at other brain injury facilities. Further

intervention research could explore larger randomized controlled trials to confirm efficacy and generalizability of the intervention. This will provide other avenues for exploring the intervention's long-term effects and potential adaptations for refining and improving the intervention.

Focus in this area of social work intervention research can advance theoretical frameworks. Research on PTG and personal narratives can contribute to the development of theoretical frameworks that explain how individuals cope with and grow from trauma (Tosone et al., 2016). These insights can foster interdisciplinary collaboration, integrating perspectives from psychology, sociology, and other fields to enrich social work research (Tosone et al., 2016). These implications highlight the importance of rigorous pilot and efficacy testing in advancing social work interventions and ultimately improving outcomes for individuals and communities within the brain injury population.

Conclusion

The openness and vulnerability of these twenty-four participants in sharing their experiences expanded upon the awareness of PTG and personal narratives in individuals with brain injury. The data filled some gaps in current knowledge on ways to foster resilience through PTG and narratives that can help individuals with brain injury improve social support and relationships, identify changes in values and priorities, build upon personal strengths, focus on spiritual aspects of life, and find new possibilities to recognize growth and purpose. The study affirmed that PTG can occur greater than five years post-injury with targeted interventions put in place to provide meaning and purpose. The study validated the need for more intervention research within the field of social work connected to individuals with brain injury, as well as

how personal narratives can impact interventions built upon resilience and existential theory. It emphasizes the importance of a holistic, client-centered approach in social work, which can lead to more effective and empathetic interventions. Perhaps the most significant contribution these individuals made was demonstrating their resiliency and ability to show strength and growth through the trials and tribulations of having a brain injury. Hopefully, the passion and vision in both the individuals in this research and that of the researcher can remain an inspiration to social workers in the field of rehabilitation, particularly brain injury, to aspire to represent the profession at the highest levels through demonstration of excellence in both practice and research.

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Appendix A

Participant Recruitment Letter

Date:

Hello Participant,

I am completing a research study to pilot and evaluate the effectiveness and efficacy of a Group Cognitive Rehabilitation Therapy Program (GCRTP) intervention for individuals with brain injury. As an individual who resides in a brain injury rehabilitation, I am hoping that you will be willing to participate in this five-week program intervention.

Title of the Project: Exploring Posttraumatic Growth and Narratives through a Group Cognitive Rehabilitation Therapy Intervention

Description of the Project: This research study will pilot and evaluate the effectiveness and efficacy of a Group Cognitive Rehabilitation Therapy Program (GCRTP) intervention for individuals with brain injury. The GCRTP focuses on exploring posttraumatic growth through cognitive exercises and narratives in a group setting. To participate in this research study, please sign the attached consent.

Name and Contact Information of Principal Investigator: Erica Devery, MSW, LSW, CBIST, CCTP, DSW candidate 2025 at Millersville University
Email: esdevery@millersville.edu; Telephone: (215) 538-3488
IRB Information: Millersville University IRB Protocol Number: 240781

If you choose to participate in this research study and believe you may have suffered a research related injury, please contact: Jeffry Porter – jeffry.porter@millersville.edu

If you have any questions or concerns about your rights as a research subject, you may contact:

Thank you for considering this request. Have a wonderful day!

Appendix B

Participant Informed Consent

Research Participant Consent Form
Millersville University, School of Social Work

Title of the Study: Exploring Posttraumatic Growth and Narratives through a Group Cognitive Rehabilitation Therapy Intervention

Researcher Name(s):
• Erica Devery – Principal Researcher (esdevery@millersville.edu)
• Karen Rice, PhD – Dissertation committee chair and faculty at Millersville University (krice@millersville.edu)

Study Background
The general purpose of this research is to pilot and assess the effectiveness and efficacy of a Group Cognitive Rehabilitation Therapy Program (GCRTP) intervention for individuals with brain injury. The GCRTP focuses on exploring posttraumatic growth through cognitive exercises and narratives in a group setting. There will be a pre- and post-survey, Posttraumatic Growth Inventory – Short Form, to identify if any posttraumatic growth was identified through participation in the GCRTP.Inventory – Short Form to identify if any posttraumatic growth was identified through participation in the GCRTP. The GCRTP is a five-week program with various cognitive activities being facilitated in a group setting. The results of this research project will be published as an academic dissertation in fulfillment of the requirements for a doctorate in social work. In addition, results may be shown at meetings or published in journals to inform other professionals. If any papers or talks are given about this research, your name will not be used. We may use data from this research project that has been permanently stripped of personal identifiers in future research without obtaining your consent.

Possible Risks and Benefits of Taking Part in this Study
The probability and magnitude of harm/discomfort anticipated as a result of participating in this study is not greater than those ordinarily encountered in daily life.

The risks involved with participation in this research project are minimal and may include:
• Cognitive fatigue
  - Participant may exit the program at anytime
  - Completing the program is voluntary

• Concerns about confidentiality

- Participant names will be kept confidential by the researcher.
- All participant informed consents will be stored in a locked filing cabinet that only this researcher has access to.

• Concerns about anonymity
- The survey will not collect any personally identifying information from the participants.
- Participants will have the option of "Choose not to answer" for the age and gender.
- Names, email addresses or other personally identifiable information will not be collected or recorded at any time or for any purpose.
- Survey results will be reported in an aggregate way.
- Qualitative comments and feedback will be reported with no identifying information from the participants.
- Participants will not be asked for follow up interviews or focus group participation.

• Your participation is voluntary, and you may exit the Group Cognitive Rehabilitation Therapy Program at any time. You may choose not to answer or skip questions on the survey and open-ended questions.

• Your decision to engage/not engage in this research project will have no effect on your rehabilitation placement status or the rehabilitation treatment/services you are currently receiving.

The potential benefits you may experience from being in this research project include:
• Reflecting on and recognition of what you gained from your rehabilitation learning experience.

• Providing feedback about the effectiveness and efficacy of the Group Cognitive Rehabilitation Therapy Program in meeting the outcome goals to improve the quality and value of this intervention program.

• Provide feedback about the facilitation and delivery of the material by the facilitators to improve and enhance facilitation skills.

Your Rights as a Study Participant
I understand that:
• My participation in this study will take approximately 5 weeks.
• I will not be compensated for completing this intervention program.
• My participation is voluntary, and I may discontinue participation in the study at any time. My refusal to participate will not affect my rehabilitation placement status or the rehabilitation treatment/services you are currently receiving.

• My responses will be recorded anonymously, and I cannot be identified by my responses.

IRB Information: Millersville University IRB Protocol Number: 240781

If you choose to participate in this research study and believe you may have suffered a research related injury, please contact:

If you have any questions or concerns about your rights as a research subject, you may contact: Jeffry Porter – jeffry.porter@millersville.edu

You may ask for a copy of this consent for your records, and one will be provided.

By signing this consent, I acknowledge that I am 18 years of age or older with no documented legal guardian and/or power of attorney, have read and understand my rights as a research participant, and that I consent to participate in the Group Cognitive Rehabilitation Program.

Signature of Participant:_____

Date:_____

Thank you for your participation.

Appendix C

GROUP COGNITIVE REHABILITATION THERAPY PROGRAM MANUAL

AN INTERVENTION FOR INDIVIDUALS WITH A BRAIN INJURY

"After people become convinced they have what it takes to succeed, they persevere in the face of adversity and quickly rebound from setbacks. By sticking it out through tough times, they emerge stronger from adversity." - Albert Bandura

Written By:

Erica Devery, MSW, LSW, CBIST, CCTP

Doctoral Candidate

Millersville University

Department of Social Work

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Nature & Scope of Phenomenon

Definition of the Phenomenon

Posttraumatic growth occurs when a person acknowledges an adverse event, such as a brain injury, in a way that allows them to find the positives from the experience, which can impact psychological well-being and functional behavior (Joseph, 2011; McGrath, 2004). This population can experience considerable psychological distress in attempting to make sense of what has happened to them. The theme of struggling with and finding meaning in suffering spans historical and cultural contexts (Tedeschi & Calhoun, 1996). In many ways, the search for and discovery of meaning is central to the psychological processes that can result in posttraumatic growth (PTG), positive psychological and life changes an individual undergoes because of struggling with highly challenging circumstances (Tedeschi & Calhoun, 1996). Individuals with a brain injury closely examine and reconsider even their most basic expectations and assumptions about themselves, others, and their futures. This necessitates cognitive work on repeated measures (Tedeschi & Calhoun, 2004). PTG spans 5 cognitive domains of functioning such as: personal strength, spiritual and existential change, appreciation of life, new possibilities, and relating to others (Tedeschi & Calhoun, 2004).

Tedeschi & Calhoun (2004) have conceptualized that the process of PTG is set in motion by the occurrence of a major life crisis that significantly challenges and shatters the individual's understanding of the world and his/her place in it. Brain injury is a major life crisis. In many ways, the search for and discovery of meaning is a central process to PTG. This necessitates the cognitive work of repeated thinking about the event, the discord between one's existing worldview and one's new reality and recognizing that some beliefs may no longer be possible (Tedeschi & Calhoun, 2004). Over time, this cognitive thinking prompts rumination. Through rumination, the trauma survivor works to reconstruct a new assumptive world that incorporates the traumatic experience making it more comprehensible and meaningful (Tedeschi & Calhoun, 2004). A shift begins to occur with goals, beliefs, worldviews, and a sense of resolution. This is where PTG begins to occur. Individuals seek to make sense of the specific sequence of events leading to their current distress, as well as contemplate more abstract ideas surrounding what it means to live their new post-trauma life (Tedeschi & Calhoun, 2004). This aligns well with building resiliency and central tenets of existentialism, where there is an opportunity to reconsider how meaning can be understood from one's life past, present, and future (Tedeschi & Calhoun, 2004).

When a brain injury occurs, it impacts an individual's core beliefs and framework for perceiving the world around them (Walsh et al., 2014). They can feel lost, leading to a feeling of helplessness and loss of meaning in life (Waslh et al., 2014). In the aftermath of brain injury, individuals question life and how to move forward to make positive gains (Walsh et al., 2014). It is vital for clinicians and staff working with individuals who have experienced brain injury to focus on PTG to help individuals identify positive changes within their lives, reduce stress, and identify a more satisfying future (Walsh et al., 2014). Without an in-depth understanding of the development of PTG, positive gains through an individual's rehabilitation process with a brain injury may be thwarted (Tedeschi & Calhoun, 2004).

Group cognitive rehabilitation therapy provides an opportunity for peer support and feedback, sharing of ideas and compensatory strategies, a sense of feeling helpful, easing isolation, and allows for the comparison of one's abilities and limitations with those of similar diagnoses (Langenbahn et al., 1999). Yalom and Leszcz (2005) defined twelve factors that occur within the context of group treatment: (1) universality, (2) altruism, (3) instillation of hope, (4) imparting of information, (5) corrective recapitulation of primary family group, (6) development of socializing techniques, (7) imitative behavior, (8) cohesiveness, (9) existential factors, (10) catharsis, (11) interpersonal learning, and (12) self-understanding. This connects with the factors explored in posttraumatic growth, particularly relating to others, new possibilities, personal strength, and appreciation for life. Gracey & Ownsworth (2008) note that brain injury can disrupt the sense of self, affecting their cognitive and psychosocial identity. Group interventions must be adapted to address these so individuals can gain the insight needed to explore personal growth. The goal of group cognitive rehabilitation therapy is to support individuals with the restoration, or compensation for, these deficits (Cicerone et al, 2005; Flanagan et al., 2008; Silver et al., 2009). These basic skills include (1) awareness, (2) attention/concentration, (3) memory, (4) ability to give and receive feedback, (5) development of interpersonal skills, and (6) exploration of personal narratives for a new identity/sense of self. (Cicerone et al., 2005; Langenbahn et al., 1999; Sherr & Langenbahn, 1992). The intervention manual was developed to focus on these skill areas to elicit PTG.

The effects of brain injury were originally seen as irreversible due to a perception that brain injury was a fixed outcome unaffected by the idea of brain plasticity (Walsh et al., 2014). However, current thinking suggests that social and psychological processes can be harnessed to support and recover brain function to improve outcomes with individuals with brain injuries (Walsh et al., 2014). Thus, it is important to seek to understand more about the predictors and processes associated with positive psychological outcomes following brain injury. The development and exploration of PTG within individuals with a brain injury in a rehabilitation setting through a group cognitive therapy intervention is the primary focus of the presented phenomenon.

Prevalence of the Phenomenon

Acquired brain injury (ABI) typically occurs because of car accidents; assaults or falls; problems in the supply of blood in the brain such as a bleed (hemorrhage) or blockage (stroke); problems in the supply of oxygen (hypoxia); inflammation or swelling of the brain (encephalitis); and tumor to name a few (Howes et al., 2005). ABI is considered one of the most common neurological disorders (Howes et al., 2005). Traumatic brain injury (TBI) is thought to be eight times more common than a combination of breast cancer, AIDS, spinal cord injury, and multiple sclerosis in the USA (Kolb & Whishaw, 2009). There were approximately 223,135 TBI-related hospitalizations in 2019 and 69,473 TBI-related deaths in 2021 among Americans throughout the United States (CDC, n.d.). This represents more than 611 TBI-related hospitalizations and 190 TBI-related deaths per day (CDC, n.d.). Males were nearly two times more likely to be hospitalized and three times more likely to die from a TBI than females (CDC, n.d.). Globally, 69 million people (about twice the population of California) are estimated to sustain a traumatic brain injury each year (Dewan et al., 2019).

A Traumatic Brain Injury (TBI) can result in health effects that vary in intensity, length, and clinical manifestation. These health effects can persist and contribute to potential cognitive

and social impairments, functional and physical limitations, disability, and reduced quality of life (Riggio & Wong, 2009; Walker & Pickett, 2007). Disrupted cognition is the hallmark symptom of TBI, but the injury can also affect behavior, emotion, and motor function, leading to changes in identity, long-term disability, and readjustment to everyday life (Gracey et al., 2008). Secondary neurologic disorders such as mood disorders and post-traumatic epilepsy can occur following TBI and disrupt health-related quality of life, as well as headaches, fatigue, and sleep disturbances (Agrawal et al., 2006; Hart et al., 2011; Rosenthal et al., 1998). Given the severity of TBI and the need for both acute/post-acute neurorehabilitation, TBI is being recognized more as a disease process rather than a discrete event because of the potential it presents for non-reversible and chronic health effects (Masel & DeWitt, 2010).

The effects of brain injury were originally seen as irreversible due to a perception that brain injury was a fixed outcome (Masel & DeWitt, 2010). However, current thinking suggests that social and psychological processes can be harnessed to support and improve outcomes with individuals with brain injuries (Walsh et al., 2014). For survivors, a TBI can lead to short- or long-term problems that may affect all aspects of a person's life including the ability to work; how they build relationships with others; changes in feelings and emotions; and the ability to learn (Dillahunt-Aspillaga et al., 2017; Cuthbert et al., 2015; Hutton & Ownsworth, 2019; Sirois et al., 2017).

Target Population

Individuals over 18 years old with a brain injury who reside in a brain injury rehabilitation facility are identified as the target population. The individuals reside within the rehabilitation, residentially, and participate in the neurorehabilitation program. The individuals would be at least 5 years post-injury. This population was identified to receive the intervention with the support of the rehabilitation owner.

Theoretical Framework

This intervention manual looks to build ways to elicit posttraumatic growth and explore personal narratives through an intervention manual with the brain injury population. A thorough literature review revealed that resiliency and existential theory were appropriate to frame this research. These theories address key points within the research (positive protective factors, posttraumatic growth, and personal narratives) and address the micro (client and clinician) level of the intervention. The theories were widely discussed, written about, and aligned with the social work perspective. Resiliency and existential theory provide a framework for influences of posttraumatic growth and personal narratives. Resiliency theory makes the connections between resilience and posttraumatic growth through positive protective factors. Existential theory provides a foundation for exploring personal narratives within an intervention.

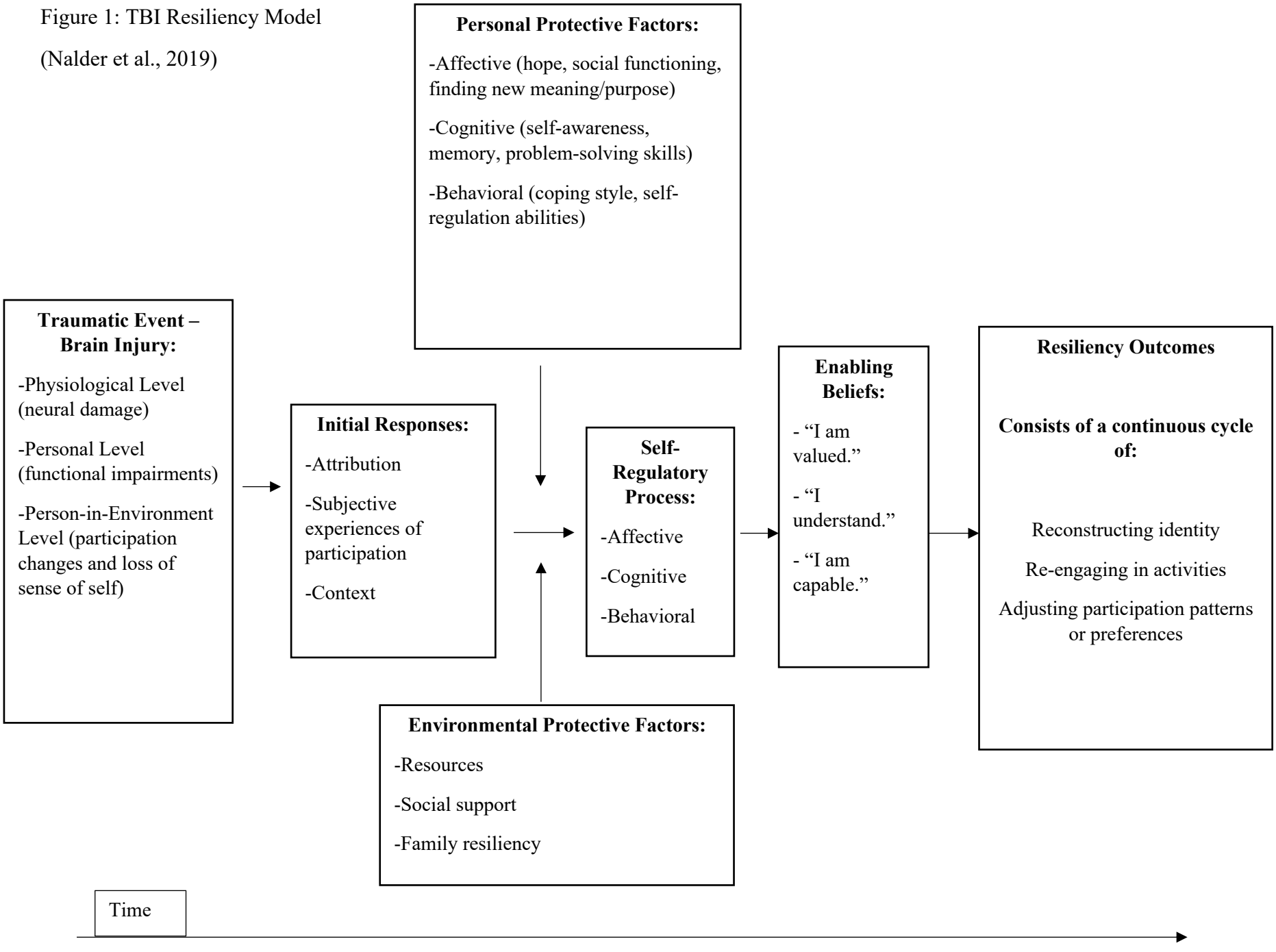
Problem Theory: Resiliency theory. Resilience theory explains how traumatic experiences can negatively affect people, and how resilience develops from dealing with and overcoming those difficult events (van Breda, 2018). If someone is vulnerable or has difficulty coping, it can make it harder for them to deal with traumatic experiences in a healthy way, which can then lead to negative impacts on their social skills, intellectual abilities, and physical development (van Breda, 2018; Zimmerman, 2013). Building and using resilience skills can help protect people from experiencing negative effects after going through traumatic life experiences (van Breda, 2018; Zimmerman, 2013).

This theory applies to social work practitioners and their clients. Van Breda (2018) implied that social workers should evaluate how vulnerable or at-risk a client is and recognize that understanding the client's past experiences, current situation, and future goals are all key pieces in addressing the challenges they face. This can help social workers to identify and use client resiliency to mediate outcomes and adversity. Van Breda (2018) noted that resilience theory could help connect the individual client level, the community/group level, and the broader societal level of social work practice (micro, mezzo, and macro levels) to provide more integrated and comprehensive services to clients. The resilience process cycles between these levels. The social worker would work directly with the individual client (micro level), their family/support system (mezzo level), and organizations that can help (macro level) to achieve the best possible outcomes for helping that client (van Breda, 2018). Social work's greatest strength is the ability to understand the real-life contexts and experiences of individuals and communities, combine that with current research evidence, and advocate for them while focusing on their capabilities and potential across all levels of practice - from working one-on-one to broader community and systemic change (van Breda, 2018; Zimmerman, 2013).

Nalder et al. (2019) proposed a process model of resiliency following traumatic brain injury (TBI) that illustrates how individuals with TBI positively adapt to both the initial injury and recovery and subsequent life events such as re-engagement in meaningful activities and enhanced quality of life. This model proposed by Nalder et al. (2019) is meaning-oriented, focusing on individual interpretations of experiences, and explains how individuals can reduce the potential negative impact of adversity through personal protective factors falling within three separate domains: affective (emotional functioning), cognitive (self-awareness and memory), and behavioral (self-efficacy). Figure 1 outlines how these constructs are related and how resiliency unfolds in response to a specific situation (i.e. brain injury) over time.

Figure 1: TBI Resiliency Model

(Nalder et al., 2019)



In reviewing Figure 1, adversity can be situational (e.g., experiencing a traumatic brain injury) and subjective, as it is how the individual interprets the event. At the physiological level, there is evidence that traumatic brain injury (TBI) results in neural network and degeneration, particularly damage to the frontal and temporal lobes (Bigler & Maxwell, 2011; Cicerone et al., 2006). At the person level, there is evidence of impairments in cognitive, physical, social, behavioral, and emotional functions. The neurological damage resulting from TBI can have long-term effects on cognitive, physical, and/or emotional functioning, affecting health and participation in social roles (O'Connor et al., 2005; Sander et al., 2010). Evidence at the person-in-environment level shows that TBI can lead to participation changes, causing individuals to reassess what activities are most important to them due to role changes or role loss (Levack et al., 2010). This can contribute to a loss of sense of self, as individuals have to re-learn about their body and capabilities, and/or adjust to changes in social roles (Levack et al., 2010). Again, this shows how adversity develops over time, connecting past, present, and future experiences leading to resiliency.

Protective factors are identified within the resiliency theory. Affective protective factors are those that reinforce an individual's well-being and self-esteem (person-level), and sense of belonging and acceptance (person-in-environment level). Hope and optimism are associated with fewer depression symptoms following traumatic brain injury, and positive affect is associated with better quality of life (Peleg et al., 2009). Hope is primarily affective due to its influence on emotional well-being; however, it can be viewed as a cognitive (e.g., mindset) or behavioral protective factor as it relates to motivation (Peleg et al., 2009). Social functioning is an overarching construct that includes cognitive abilities necessary for social behaviors and skills like empathy, social judgment, listening, and turn-taking (Beauchamp & Anderson, 2010). Social functioning thus contributes to positive interactions with others and is important to resiliency, as it influences a sense of belonging and the ability to maintain well-being.

Cognitive protective factors provide individuals with a sense of meaning (person level) and understanding of self and the world around them (person-in-environment level). Within TBI literature, there is evidence to suggest that cognitive skills (self-awareness and memory) may be important cognitive protective factors (Waldron-Perrine et al., 2011). Self-awareness affects how individuals view a situation at the moment. Self-awareness and memory are cognitive functions linked to a sense of self and important to one's personal narrative (Thomas et al., 2014). Toglia & Kirk (2000) gave an example of denial, which may be a protective factor in the short-term to minimize distress but a potentially negative factor in the long-term, affecting how individuals accept the injury, reconstruct a view of the self, and formulate new life goals.

Behavioral protective factors provide individuals with a sense of personal control (person level) and enable re-engagement in meaningful activity (person-in-environment level). Coping style and self-regulation abilities may be important to these protective factors (Krpan et al., 2013; Hanks et al., 2016). Emotion-focused coping suppresses negative emotions by avoiding the situation, whereas problem-focused coping involves taking action to resolve the issues (Krpan et al., 2013). In a study of individuals with traumatic brain injury, problem-oriented coping was associated with resilience (Hanks et al., 2016). Self-regulation may influence re-engagement in activities as well as the individual's interpretation of adversity and their belief that they can manage the situation and achieve their desired outcome (Cicerone & Azulay, 2007).

Social support is considered a protective environmental factor, as it has been shown to mediate long-term outcomes by buffering against stressors or adversities associated with traumatic brain injury (TBI), and is associated with higher resilience (Hanks et al., 2016; Neils-Strunjas et al., 2017). Some individuals with TBI perceive that the injury brings them closer to important people in their lives, and they appreciate the support they receive from family and friends (Nalder et al., 2013). However, some individuals with a TBI report reductions in their social network over time (Levack et al., 2010). Therefore, focusing on the ability to relate to others, as identified with posttraumatic growth, becomes important.

Family resiliency is also important as the family is cited as the primary source of support for individuals with traumatic brain injury (TBI) in the long term (Kreutzer et al., 2009; Turner et al., 2007). Families provide different types of support in various aspects of daily life. It is important to consider the nature of family resiliency and how it impacts both the family and the individual. Spina et al. (2005) note that while family support may be important for individuals with a TBI in fostering their resiliency, it increases the demands on family members and, depending on how they appraise the situation and what supports they have, providing support could contribute to family members' own experience of adversity, which may, in turn, have consequences for the resiliency of the individual with a TBI.

Self-regulatory processes are the next key concept within the TBI resiliency model. Nalder et al. (2019) refers to this process as the mechanisms through which individuals control their emotions (affective), understand and control negative or ineffective thoughts (cognitive), and understand or control negative or ineffective behavior (behavioral). As a process, self-regulation is an overarching construct used to describe how individuals assess the situation and control their thoughts, actions, and emotions to negotiate discrepancies between the present and future state goals/outcomes (Hunt et al., 2013). The process-oriented view of self-regulation can be important for resiliency, as it can explain how a person responds to the adversity based on their interpretation of their experiences. After a TBI, individuals can face discrepancies between their present and future/desired life situations (Gracey et al., 2009). The focus on a new purpose/meaning in life, as noted in posttraumatic growth, becomes even more of a goal to make positive changes.

Resiliency-related outcomes connect with the five factors of posttraumatic growth (PTG). Common themes were identified in literature that related to the experience, or desire, for a new sense of self and reconstructing a new identity, which involves improving functional capacity, finding new meaning/purpose, learning to accept the disability, and being able to identify new goals/priorities (Brands et al., 2012; Hart & Evans, 2006; Levack et al., 2010; Muenchberger et al., 2008; Nalder et al., 2013; Thomas et al., 2014).

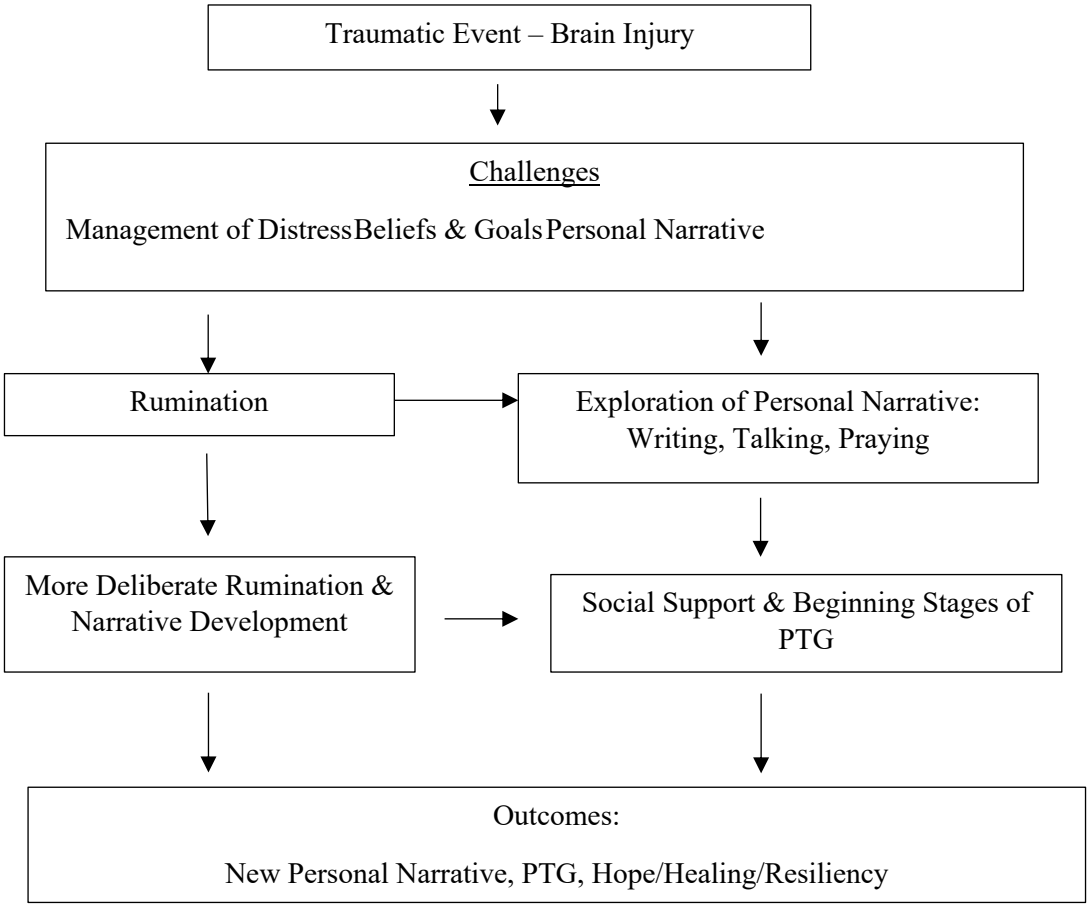
Program Theory: Existential Theory: Thompson and Walsh (2010) conceptualize trauma as an existential injury that can result in a loss of sense of self and the shattering of frameworks of meaning. They discuss the existential concept of the abyss where the existential void that is experienced when people face their own mortality and the finitude of existence (Thompson & Walsh, 2010). Trauma forces people to investigate the abyss, leading to existential death anxiety (Thompson & Walsh, 2010). The humanistic and flexible nature of

existential theory, as well as its conceptual and empirical links to trauma experiences, amplifies its credibility as a framework for integrating an intervention to aid in identifying posttraumatic growth within an individual with a brain injury (Thompson & Walsh, 2010).

Victor Frankl was a prominent existential theorist. He suggested that unconditional meaning can exist under all circumstances, even the most traumatic circumstances (Barnes, 2000). "If there is meaning in life at all, then there must be a meaning in suffering." (Frankl, 2014, p.88). There is an art to drawing out personal meaning (Yaguri, 2018). Meaning in life is linked to psychological well-being (Frankl, 2014). Personal meaning appears at the overlap of self-identity and worldview. Once formulated, this contributes to the clarity of thought and connects fundamental life decisions and values. As Nagel (1987, p. 95) states, "If there's any point at all to what we do, we have to find it within our own lives." The quest for small-scale personal solutions should not be abandoned. A person must choose which way to seek first, forward or back, in the life already lived, or in the life yet to come (Sherover, 1975). What is important is the specific meaning of a specific human life at a given moment. Meaning is based on realities of the past, according to Frankl (2014). The great achievement of finding meaning in life lies in a person's ability to observe the past and be optimistic about what happened (Frankl, 1978). Observing the past means telling a meaningful story. A life story does not have to include the entire life of the narrator (Lieblich et al., 1998). The connection of meaning in life to a worldview, which is the way people observe the world around us, adds to stability (Frankl, 2014). Self-identity and worldview ensure the stability of meaning through time (Frankl, 2014).

A useful way to frame the contemplation of the meaning of trauma is through personal narratives. One's narrative can change considerably when a traumatic event challenges a person's core beliefs. As a result, life is often divided into a before and after, and this can create a turning point for new perspectives and perceived values (Tedeschi & Calhoun, 2004). Frankl (2014) explains this process as an existential crisis where posttraumatic growth begins to happen through the exploration of personal narratives. This narrative work can be done verbally or through expressive writing that fosters development and a shift from rumination of the traumatic event to an increased degree of personal growth known as PTG (Frankl, 2014). A personal narrative connects to the PTG factors of relating to others, new possibilities, personal strength, spiritual change, and appreciation of life through a profound journey of making a deeper, more meaningful existence for the future. See Figure 2 for a visual explanation of existentialism and PTG.

Figure 2: View of Existentialism & PTG (Frankl, 2014)



Outcomes of the Intervention

The immediate, proximal outcomes are identified as 1) enhanced cognitive learning through activities presented in the manual in adults with a brain injury, and 2) increased posttraumatic growth of adults with a brain injury. The short/primary outcomes are 1) individuals with a brain injury will actively engage in cognitive learning-based activities, 2) individuals with a brain injury will recognize the value and contributions of focusing on posttraumatic growth outcomes during their rehabilitation journey, and 3) enhanced awareness of the individual's perception of the impact of trauma on their rehabilitation journey via development of personal narratives. The distal, or impact, outcomes are identified as 1) participating in a group cognitive rehabilitation therapy program with other rehabilitations within the state of Pennsylvania, 2) becoming leaders in the rehabilitation field of brain injury by fostering posttraumatic growth, and 3) advocating for the state to fund such an intervention/therapy.

Expected Effect Size

The expected effect size of implementing this intervention among the targeted population identified in this initial stage of intervention research can be categorized as small. However, should this intervention be adapted and used within other rehabilitations, both locally and globally, there is a possibility for an anticipated large effect size in the future.

Posttraumatic Growth with Adults with a Brain Injury at Success Rehabilitation Logic Model

Problem statement. Creating a rehabilitation environment where individuals can make cognitive gains, who often plateau after years of rehabilitation. Engaging adults with a brain injury to stimulate posttraumatic growth through a group cognitive rehabilitation therapy program.

Assumptions/Theory of Change. Adults with a brain injury are directly impacted by the trauma they experience and struggle to move forward with positive cognitive gains. With the opportunity to explore their trauma through group cognitive rehabilitation, adults can experience posttraumatic growth years after their brain injury. Addressing cognitive, social, physical, emotional, and spiritual domains within group cognitive rehabilitation, they can change the course of their outcomes into positive gains and develop personal narratives. Cognitive rehabilitation therapy within a group setting is an approach that can assume these positive gains and personal narratives, as adults journey through life with a brain injury.

Program/ Intervention	**Inputs**	**Activities**	**Outputs**	**Quality Outputs**	**Outcome Immediate/Proximal**	**Outcome Short/ Primary**	**Outcome Distal/ Impact**
Group Cognitive Rehabilitation Therapy	Trained staff Training Materials/ Program Development Supplies for activities/ manuals during sessions Pre and post assessment tool	Educate staff on the impact of trauma on adults with a brain injury Meet with clinicians/key stakeholders to gain insight on activities to be included in sessions Create program manual	Number of staff attending training Number of adults with a brain injury participating in the intervention Number of manuals provided to staff Number of program	Level of quality of intervention – post-activity debriefing exercise with staff providing the manual exercises Level of satisfaction with intervention/ group sessions – post-activity debriefing exercise	Enhanced cognitive learning through activities presented in manual in adults with a brain injury Increased posttraumatic growth of adults with a brain injury	Individuals with a brain injury will actively engage in cognitive learning-based activities Individuals with a brain injury will recognize the value and contributions of focusing on posttraumatic growth	Participate in a group cognitive rehabilitation therapy program with other rehabilitations within the state of PA Become leaders in the rehabilitation field with fostering posttraumatic growth

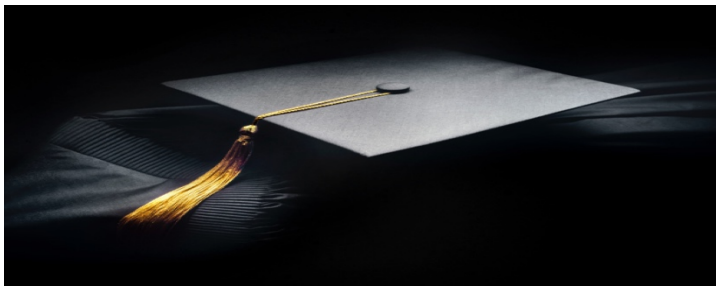
	Identify questions for qualitative research on intervention Mentoring/ Supervision of staff	Create questions to ask participants about their journey through the intervention Train staff to facilitate weekly group sessions Recruit adults with a brain injury to participate Identify/ locate pre and post assessment tool to be administered Seek approval from Success Rehabilitation to provide intervention Identify dates to administer pre and post	manuals provided to adults with a brain injury Number of questions created for qualitative research Number of completed pre and post assessment Number of adults with a brain injury who completed group sessions and post-activity debriefing exercise	Pre and post assessment results - PTGI-SF		outcomes during their rehabilitation journey Enhanced awareness of the individual's perception of the impact of trauma on their rehabilitation journey via development of personal narratives	Advocate for the state to fund such therapy/ intervention

		assessment, as well as intervention Implement intervention (weekly sessions) Collect data and analyze for feedback					

FACILITATOR & PARTICIPANT QUALIFICATIONS

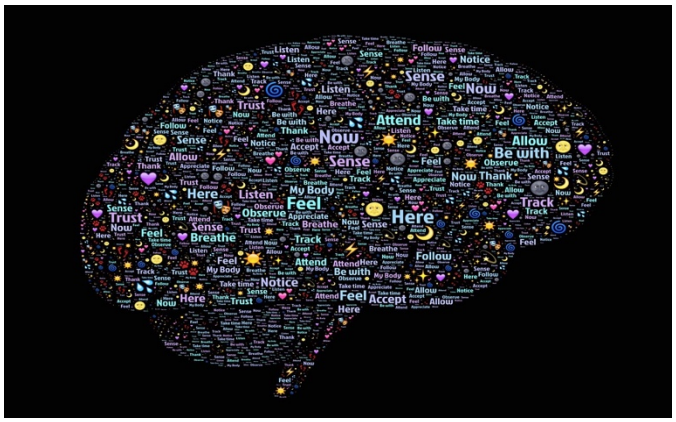
Facilitator Qualifications:

The facilitator of these activity sessions must be a person with a bachelor's degree and/or a Certified Brain Injury Specialist with at least 2 years' experience in the field of brain injury.



Participant Qualifications:

Participants must be 18 years or older who reside within a brain injury rehabilitation, have a primary diagnosis of brain injury, and are least five years post-injury.



INTERVENTION GOAL

Through implementing a series of session activities over 5 weeks (2 activity sessions each week), individuals with brain injury will explore posttraumatic growth and narratives of their rehabilitation journey. This will be identified through quantitative measures, including pre- and post-assessment and qualitative measures, as they document their experiences by journaling their narratives.

COMPLETE LIST OF SESSION ACTIVITIES

ACTIVITIES:

Activity 1: Cognition – Problem Solving

Activity 2: Cognition - Planning

Activity 3: Social – Improv (Verbal vs. Non-Verbal)

Activity 4: Social - Who Am I?

Activity 5: Emotional - Anxiety

Activity 6: Emotional - Stress

Activity 7: Physical - Cognitive Pop Darts

Activity 8: Physical – Active Logic Project - Cups

Activity 9: Spiritual – Self-Healing

Activity 10: Spiritual - Meditation

PRE - & POST-ASSESSMENT INSTRUCTIONS

Pre-Assessment:

The pre-assessment will be administered and completed electronically by the instructor of the course during the week of the first activity session. The pre-assessment is administered before the first activity session.

Posttraumatic Growth Inventory - SF (Cann et al., 2010)

Post-Assessment:

The post-assessment will be administered and completed electronically by the instructor of the course within the same week the activity sessions ended. The post-assessment is administered after the last activity session.

Posttraumatic Growth Inventory - SF (Cann et al., 2010)

PARTICPANT REFLECTION JOURNAL DATA INSTRUCTIONS

Before each activity session ends, there will be a 30-minute period for a reflection journal entry. This reflection journal entry will be used for qualitative data to identify various themes from the individual's perspective through the intervention process. The questions will consist of:

- Describe what you learned in today's activity.
- What components or concepts from the activity were most helpful to you?
- What was least helpful to you or could have gone better?
- What changes do you see in your outlook on life?
- Were the learning outcomes achieved in today's activity?
- Is there anything else you would like to say about your experience?

The instructors will allow for individual processing and not offer thoughts, only assist with any writing needs.

FACILITATOR REFLECTION JOURNAL DATA INSTRUCTIONS

After each activity session ends with the participants and the participants are dismissed from the activity, facilitators will pause for a period of reflection and complete a reflection journal entry. This reflection journal entry will be used for qualitative data to identify various themes from the facilitator's perspective through the intervention process. The questions will consist of:

- How prepared did you feel to present the activity to the participants?
- How were the learning objectives met?
- Describe how you adequately addressed questions and concerns from the participants.
- How did facilitating this intervention enhance learning for the participants?
- What materials provided for the activity do you feel enhanced the learning for the participants?
- Is there anything else you would like to say about your experience facilitating the GCRTP intervention?

ACTIVITY SESSION 1: COGNITION – PROBLEM SOLVING

Session 1 Goal: Individuals will be able to identify the steps needed to take to effectively problem solve within their everyday lives.

Objectives: To increase understanding of problem solving and participate in a group problem solving activity.

Materials Needed: Laptop, pens/pencils, index cards, whiteboard, participant binders for reflective journaling, and copies of problem-solving worksheets (located in additional resources)

Content/Activities:

- **Check In (15 minutes)**
    - Instructors will review Group Guidelines located in Additional Resources.
    - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
        - Questions to ask each individual:
            - How is your day going?
            - Has anything new transpired since the last activity session?
            - Any current thoughts and feelings you would like to share?
    - Instructors will review what the activity session for the day is and hand out problem-solving worksheets (Hutchinson & Dilks, 2016) to the group.
- **Read Problem-Solving Worksheet – education info (see additional resources for worksheet - 45 minutes)**
    - Instructors will have the individuals take turns reading paragraphs. Should an individual choose not to read, the instructor will take the lead.
        - At the end of each paragraph, the instructor will stop and process what was read by asking if anyone has any questions or thoughts on what was read.
        - When you approach the 4 steps to problem solving, the instructor will write the 4 steps on the whiteboard for the individuals to reference as they are reading.
        - After the problem-solving strategies have been read, index cards will be handed out and the instructors will have the individuals write down their top 5 strategies to use outside of the activity session. Individuals can share their thoughts if they choose.
- **Allow for 10-minute break**
- **Complete the Problem-Solving Worksheet as group (see additional resources for worksheet - 30 minutes)**
    - Instructors will have the group identify a problem they can all solve together.

        - Instructors will have the group brainstorm situations they struggle to problem-solve.
        - The group will then identify a situation to use for the problem-solving worksheet (majority rules).
    - Instructors will take the group through the process and address each question as a group.
    - Encourage the individuals in the group to write down the answers as they go to reference later.
- **Complete Reflective Journaling through the following questions: (20 minutes)**
    - Describe what you learned in today's activity.
    - What components or concepts from the activity were most helpful to you?
    - What was least helpful to you or could have gone better?
    - What changes do you see in your outlook on life?
    - Were the learning outcomes achieved in today's activity?
    - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 2: COGNITION – PLANNING

Session 2 Goal: Individuals will be able to identify the process to plan accordingly within their everyday lives.

Objectives: To increase understanding of how to plan and participate in a group planning activity.

Materials Needed: Laptop, pens/pencils, index cards, whiteboard, participant binders for reflective journaling, and copies of planning worksheets (located in additional resources)

Content/Activities:

- **Check In (15 minutes)**
    - Instructors will review Group Guidelines located in Additional Resources.
    - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
        - Questions to ask each individual:
            - How is your day going?
            - Has anything new transpired since the last activity session?
            - Any current thoughts and feelings you would like to share?
    - Instructors will review what the activity session for the day is and hand out planning worksheets (Hutchinson & Dilks, 2016) to the group.
- **Read Planning worksheet – education info (see additional resources for worksheet - 40 minutes)**
    - Instructors will have the individuals take turns reading paragraphs. Should an individual choose not to read, the instructor will take the lead.
        - At the end of each paragraph, the instructor will stop and process what was read by asking if anyone has any questions or thoughts on what was read.
        - When you approach the compensatory strategies and applications, the instructor will write the suggestions on the whiteboard for the individuals to reference as they are reading.
        - After the problem-solving strategies have been read, index cards will be handed out and the instructors will have the individuals write down their top 3 strategies to use outside of the activity session. Individuals can share their thoughts if they choose.
        - Instructors will have the group reference the worksheet, Why Do We Fail?, and write the reasons on the board.
        - The instructors will have the group review the list and write their top 5 things they will not do/say when trying to plan.
- **Allow for 10-minute break**
- **Complete the Priority & My Future Recovery Goals Worksheet as group (see additional resources for worksheets - 35 minutes)**

    - Instructors will have the group identify priorities using the priority worksheet.
    - Instructors will have the group share what they identified, if they choose
    - Instructors will review the my future recovery goals worksheet as a group.
    - Should an individual not identify with a speech, occupational, or physical therapy goal then the instructor can encourage them to cross it out and hand-write in one of the following categories that might apply: emotional wellness, educational, social, vocational, medical, physical wellness, residential goal.
    - The group can be encouraged to share goals if they choose.
    - Planning the week and planning ahead resources will be handed out for the group to use as resources outside of this intervention.
- **Complete Reflective Journaling through the following questions: (20 minutes)**
    - Describe what you learned in today's activity.
    - What components or concepts from the activity were most helpful to you?
    - What was least helpful to you or could have gone better?
    - What changes do you see in your outlook on life?
    - Were the learning outcomes achieved in today's activity?
    - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 3: SOCIAL – IMPROV (VERBAL VS NON-VERBAL)

Session 3 Goal: Individuals will utilize communication skills and express creativity through use of problem solving and memory execution skills.

Objectives: To encourage individuals to participate to the best of their ability to develop socialization skills and develop connections with their peers.

Materials Needed: Chairs as needed, an open room, a ball or other passable item, pens/pencils, and participant binders for reflective journaling.

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
- **The instructor will meet with the individuals in the identified room and follow through on the following (60 minutes):**
  - The instructor will gather individuals in the identified room and explain the rules and expectations for the group.
    - Rules and expectations consist of:
      - This is a safe space with no wrong answers
      - Positive and uplifting environment for your peers
      - Be respectful of your peers
      - Individuals are meant to think as fast as they can in all games
  - The group will run multiple rounds of improv games for the remaining time set at the group's start. These can include the following:
    - YES, AND – the ball is passed between individuals, and each will add on to the input of the person before, specifically utilizing the phrase "yes, and". So, the instructor can start the round with "I have just bought a new car" and pass to the first individual who should try to say yes and as fast as possible. They could say, "Yes, and it runs on maple syrup," and so on and so forth.

        - ONE WORD SENTENCES – the ball is passed between two or more individuals, and each adds a single word to a long sentence. For example: “Sorry,” “I,’ “Might,” “Have,” “Just,” Said,” “A,”.....
        - FIRST WORD, LAST WORD – one individual will be identified to start and will say a sentence, the next person will say a sentence starting with the last word of the previous sentence used. The goal is to try to tell a story.
- **Allow for 10-minute break**
- **Complete Reflective Journaling through the following questions: (35 minutes)**
    - Describe what you learned in today’s activity.
    - What components or concepts from the activity were most helpful to you?
    - What was least helpful to you or could have gone better?
    - What changes do you see on your outlook on life?
    - Were the learning outcomes achieved in today’s activity?
    - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today’s session, account for attendance, and journal their thoughts on today’s activity. See Additional Resources for checklist.**

ACTIVITY SESSION 4: SOCIAL – WHO AM I?

Session 4 Goal: Individuals will utilize skills developed from previous activity sessions to explore how to share their stories with others in a social environment.

Objectives: Individuals will write about who they are and work as a group on how to share their stories/experiences with others.

Materials Needed:

- Laptop, pens/pencils, participant binders for writing, and copies of Who Am I? Worksheet.
- *Instructor Note – It may be beneficial to have 1-2 staff present to assist with any writing needs of the group.*

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
  - Instructors will review what the activity session for the day is and hand out Who Am I? Worksheet (Curran, 2013) to the group.
- **Who Am I? Worksheet completion (see additional resources for worksheet - 45 minutes)**
  - Instructor & staff will allow individuals time to write their thoughts, helping with any writing needs the group has
- **Allow for a 10-minute break**
- **Upon returning from the break, the instructors will cue individuals who would like to share their stories. (30 minutes)**
  - Instructors will encourage others to provide positive feedback and helpful tips after they are done sharing.
- **Complete Reflective Journaling through the following questions: (20 minutes)**
  - Describe what you learned in today's activity.
  - What components or concepts from the activity were most helpful to you?
  - What was least helpful to you or could have gone better?
  - What changes do you see in your outlook on life?
  - Were the learning outcomes achieved in today's activity?
  - Is there anything else you would like to say about your experience?

- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 5: EMOTIONAL - ANXIETY

Session 5 Goal: Individuals will understand the impact of anxiety in their daily lives.

Objectives: To identify causes of anxiety and ways to cope daily.

Materials Needed:

- Laptop, pens/pencils, whiteboard, index cards, participant binders for reflective journaling, and copies of anxiety worksheets (located in additional references)
- ***Instructor Note – Due to the sensitivity of materials being reviewed, a psychotherapist should be present during this activity session.***

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources. Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
  - Instructors will review what the activity session for the day is and hand out anxiety worksheets (Hutchinson & Dilks, 2015) to the group.
- **Watch the video - Surviving Brain Injury (retrieved from YouTube July 7, 2023) - approximately 35 minutes with pauses**
  - Instructor will allow for pauses within the video to process content with the group and allow for questions along the way.
  - Process the video with the group through the following questions:
    - Would anyone like to share their thoughts on the video?
    - How did the video make you feel?
    - Were certain aspects of the video more impactful? If so, what?
- **Allow for a 10-minute break**
- **Review and complete the Anxiety Worksheet as a group (see additional references for Anxiety Worksheet) - approximately 45 minutes**
  - Instructor will review the paragraph on anxiety and allow time for processing, asking individuals their thoughts on the paragraph.
  - Instructor will cue the group to answer the questions around a time they felt anxious.
  - Instructor will use the whiteboard to write the words listed on how people experience anxiety or nervousness. Instructor will process each word on the list with the group by stating the word and asking who in the group has had this experience.

    - Following the activity sheet, ask for other words that might describe feeling anxious or nervous. Have each individual rate their current level of anxiety.
    - Instructor will then ask the group to write down things they do to feel less worried or anxious. Individuals should be encouraged to share thoughts if they choose.
    - Skip caffeine intake questions and go to challenging unhelpful thoughts. Have the group focus on key words they can remind themselves to keep things into perspective. Use a whiteboard to develop a list and individuals can then write on their sheet.
    - Review ways to decrease anxiety via the sheet. Have individuals make a list of possible strategies they can use outside of the activity session on an index card. Give them a copy of the weekly anxiety tracking sheet. See additional resources for tracking sheet.
- **Complete Reflective Journaling through the following questions: - approximately 15 minutes**
    - Describe what you learned in today's activity.
    - What components or concepts from the activity were most helpful to you?
    - What was least helpful to you or could have gone better?
    - What changes do you see in your outlook on life?
    - Were the learning outcomes achieved in today's activity?
    - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 6: EMOTIONAL - STRESS

Session 6 Goal: Individuals will understand the impact of stress in their everyday lives.

Objectives: To identify causes of stress and cope daily.

Materials Needed:

- Laptop, pens/pencils, whiteboard, index cards, participant binders for reflective journaling, and copies of stress worksheets (located in additional references)
- ***Instructor Note – Due to the sensitivity of materials being reviewed, a psychotherapist should be present during this activity session.***

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
  - Instructors will review what the activity session for the day is and hand out Stress Worksheets (Hutchinson & Dilks, 2015) to the group.
- **Watch the video - A brain injury is like a fingerprint, no two are alike (retrieved from YouTube July 7, 2023) - approximately 30 minutes**
  - Instructor will allow for pauses within the video to process content with the group and allow for questions along the way
  - Process the video with the group through the following questions:
    - Would anyone like to share their thoughts on the video?
    - How did the video make you feel?
    - Were certain aspects of the video more impactful? If so, what?
- **Allow for 10-minute break**
- **Review and complete the Stress Worksheet as a group (see additional references for Stress Worksheet) - approximately 45 minutes**
  - Instructor will review the paragraph on stress and allow time for processing, asking individuals their thoughts on the paragraph.
  - Instructor will cue the group to answer the question around a time they experienced a stressful event.
  - Instructor will have each individual rate their stress level in the last week. Encourage sharing if they choose.
  - Instructor will focus on questions on how they express their stress? What does it look like for them? How do others know when they are stressed? Individuals will write their answers done and have open sharing as a group.

    - Instructor will use the whiteboard to write the words listed on how people reduce stress (write words already given on sheet). Instructor will process each word on the list with the group and ask the group for other ideas/thoughts on how they cope.
    - Following the activity sheet, discuss why it is important to manage stress (read paragraphs given) and then cue the group to write how they relax.
    - Instructor will then ask the group to brainstorm who they can ask for help.
    - End the activity session with each individual writing down 3 things that went right today. Encourage sharing amongst the group.
    - Review ways to cope with stress. Give everyone an index card where they can identify their individual ways to cope and carry with them every day.
- **Complete Reflective Journaling through the following questions: - approximately 20 minutes**
    - Describe what you learned in today's activity.
    - What components or concepts from the activity were most helpful to you?
    - What was least helpful to you or could have gone better?
    - What changes do you see on your outlook on life?
    - Were the learning outcomes achieved in today's activity?
    - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 7: PHYSICAL – COGNITIVE POP DARTS

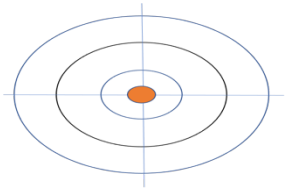
Session 7 Goal: Individuals will utilize visual processing skills, motor skills, and creative/critical thinking skills to engage in physical activity using both fine and gross motor skills

Objectives: To encourage individuals to physically engage in the group game either independently or with staff support using visual and motor skills to physically perform the game tasks.

Materials Needed: Minimum of 1 set of pop darts (3 blue, 3 Green, and 1 orange target dart), a whiteboard, window, or any other smooth surface that can be marked with a dry-erase marker, whiteboard marker and eraser, pens/pencils, and participant binders for reflective journaling

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
- **The instructor will meet with the individuals in the identified room and follow through on the following (60 minutes):**
  - The instructor will gather individuals in the identified room and explain the rules and expectations for the group.
    - Rules and expectations consist of:
      - This is a safe space with no wrong answers
      - Positive and uplifting environment for your peers
      - Be respectful of your peers
  - A board will be set up on the flat surface by drawing 3 concentric circles around the central orange pop dart, then further separating the circles with lines going North, South, East, and West from the center.



- The sections/quadrants of the board will be labeled “Cognitive”, “Social”, “Physical”, and “Spiritual”, in no particular order.
- The instructor will divide the individuals into groups of 2 and the activity will continue for the remaining time set at the group's start.
- The two groups will go round robin to have multiple opportunities to throw the darts until time runs out.
- Once the dart lands in one of the quadrants, the participant will then choose an activity to do out of a hat/bag. They could consist of the following:
  - Cognitive - Name 3 countries in Europe/Africa/North America/South America etc.; name 3 US presidents; how old will you be in 500 Days?; multiplication (9x3, 8x8, 7x4, 10x11, 9x6, etc.); name a song with a man's name in it; name a song with a woman’s name in it
  - Social - Give one person around you a compliment; ask one appropriate question about somebody’s past; introduce yourself to the room with an interesting fact about yourself; point out something you have in common with another person in the room
  - Physical - Do 10 seated arm-jacks; do 10 curls with light weights (or unweighted if necessary); do 10 seconds of seated flutter kicks; do 5 Chair dips; do 10 seconds of legs held out straight ahead
  - Emotional - Share one thing that can make you laugh every time; share one emotional memory during your journey with a brain injury; share one way you cope with stress; share a thing outside of your life that makes you sad/upset; share something that makes you happy

- **Allow for 10-minute break**
- **Complete Reflective Journaling through the following questions: (35 minutes)**
  - Describe what you learned in today’s activity.
  - What components or concepts from the activity were most helpful to you?
  - What was least helpful to you or could have gone better?
  - What changes do you see on your outlook on life?
  - Were the learning outcomes achieved in today’s activity?
  - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today’s session, account for attendance, and journal their thoughts on today’s activity. See Additional Resources for checklist.**

ACTIVITY SESSION 8: PHYSICAL – ACTIVE LOGIC PROJECT

Session 8 Goal: Individuals will use problem solving, fine motor, and socialization skills to perform a physical exercise.

Objectives: To encourage individuals to use different methods to solve problems that arise throughout the cup logic project activity, as well as using fine motor skills to complete the activity.

Materials Needed: Plastic cups (12), rubber bands (5), participant binders for reflective journaling, string (15), tables (2), a timer, pens/pencils, and participant binders for reflective journaling

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
- **The instructor will meet with the individuals in the identified room and follow through on the following (60 minutes):**
  - The instructor and/or volunteers will help move the chairs off to the side of the room and set up two tables in the middle of the room.
  - The instructor will divide the individuals into two groups.
  - The instructor and/or a volunteer will pass out the supplies needed to each group.
    - 6 paper cups
    - 1 rubber band
    - 5 pieces of string
  - The instructor will ask each individual to tie their string around the rubber band.
    - Some individuals may need assistance completing this task.
  - The instructor will advise the groups to use teamwork skills to build a cup pyramid.
    - Teamwork skills consist of, a.) communication, b.) listening, c.) problem solving, d.) taking turns, and e.) working together.
  - Individuals will work together to stack their cups into a pyramid with 3 cups on the bottom, 2 cups in the middle, and 1 cup on top.

- The instructor will explain to the two teams that they only have 25 minutes to build their pyramids.
- The instructor will explain that the individuals are not permitted to use their hands to move the cups. They are only allowed to use their string and rubber band to pick up and move the cups.
- The instructor will set the timer and tell the two teams to begin building.
- During this time, the instructor will walk around the room and help the individuals throughout the activity, if necessary.
- When the timer ends, the instructor will bring the individuals together to hold a group discussion.
- The instructor will ask the group the following questions.
  - Was anyone frustrated during the activity?
  - If so, how was that frustration handled?
  - What did you learn about yourself and the group you worked with?
  - Why was teamwork so important for this activity?
  - What other skills did your group have to use to complete the activity?
  - What was hard about teamwork?
  - What real world situation have you been in where you needed to use good team working skills?
  - How did you handle the situation?
- When the group has ended, the instructor and/or a volunteer will rearrange the room with the chairs and tables that were originally moved.

- **Allow for 10-minute break**
- **Complete Reflective Journaling through the following questions: (35 minutes)**
  - Describe what you learned in today's activity.
  - What components or concepts from the activity were most helpful to you?
  - What was least helpful to you or could have gone better?
  - What changes do you see on your outlook on life?
  - Were the learning outcomes achieved in today's activity?
  - Is there anything else you would like to say about your experience?
- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 9: SPIRITUAL – SELF-HEALING

Session 9 Goal: To identify how a person with a brain injury can use art, in various forms, to share their spiritual journey

Objectives: Individuals will learn how to express themselves through art to show their journey of self-healing.

Materials Needed: 8x10 poster white poster board, construction paper, markers, colored pencils, crayons, pencils, pens, paint supplies, old magazines, glue, scissors, laptop, and participant binders for reflective journaling

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
- **Instructors will share a video to provide some insight into creating a collage via YouTube Art of Healing: Intuitive Collage (retrieved from YouTube July 7, 2023) - approximately 10 minutes**
  - The instructor will process the video with the group and ask if there are any questions about the activity they will be completing.
- **Allow for 5-minute break**
- **Instructors will provide everyone with supplies and allow them the freedom to openly create their own collage (60 minutes)**
  - The topic for the collage is identifying who they are. "I Am..." using pictures, words, drawings, etc. It's about how they see themselves through their eyes.
  - Instructors can have music playing in the background to the groups liking via the laptop.
  - Sharing of collages upon completion is optional
- **Complete Reflective Journaling through the following questions: (30 minutes)**
  - Describe what you learned in today's activity.
  - What components or concepts from the activity were most helpful to you?
  - What was least helpful to you or could have gone better?
  - What changes do you see on your outlook on life?
  - Were the learning outcomes achieved in today's activity?
  - Is there anything else you would like to say about your experience?

- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

ACTIVITY SESSION 10: SPIRITUAL - MEDITATION

Session 10 Goal: To understand the positive impacts of incorporating meditation into an individual's daily lives.

Objective: Individuals will participate in mindful meditation practices and develop strategies to incorporate into their everyday lives.

Materials Needed: Laptop, participant binders for reflective journaling, and pens/pencils

Content/Activities:

- **Check-in (15 minutes)**
  - Instructors will review Group Guidelines located in Additional Resources.
  - Instructors will lead the group in reviewing their day, discussing last week's activity sessions, and sharing current thoughts and feelings.
    - Questions to ask each individual:
      - How is your day going?
      - Has anything new transpired since the last activity session?
      - Any current thoughts and feelings you would like to share?
- **Watch the video - Mindfulness after Brain Injury with Connie Riet (Retrieved from YouTube July 7, 2023) - approximately 30 minutes**
  - Instructor will allow for pauses within the video to process content with the group and allow for questions along the way
  - Process the video with the group through the following questions:
    - Would anyone like to share their thoughts on the video?
    - How did the video make you feel?
    - Were certain aspects of the video more impactful? If so, what?
- **Allow for 10-minute break**
- **Watch the video - I AM AFFIRMATIONS of Gratitude, Self-Love, and Success (Retrieved from YouTube July 7, 2023) - approximately 35 minutes**
  - Process the video and mindfulness meditation
    - Would anyone like to share their thoughts on the video?
    - How did the mindfulness meditation video make you feel?
    - Do you think this is something you can incoporate into your daily routine?
- **Complete Reflective Journaling through the following questions: (30 minutes)**
  - Describe what you learned in today's activity.
  - What components or concepts from the activity were most helpful to you?
  - What was least helpful to you or could have gone better?
  - What changes do you see on your outlook on life?
  - Were the learning outcomes achieved in today's activity?
  - Is there anything else you would like to say about your experience?

- **The instructor will complete the checklist for today's session, account for attendance, and journal their thoughts on today's activity. See Additional Resources for checklist.**

Additional Resources

Group Guidelines

- **No electronic devices will be used during the group.**

- **The group is a safe place where thoughts/feelings can be shared without judgement.**

- **The discussions shared within the group are to remain within the group. Please do not repeat other's conversations on their personal thoughts and feelings to others outside of the group.**

- **If a question or thought needs to be shared, please politely raise your hand and the instructor will call on you.**

- **Everyone will use respectful language such as no cursing or vulgar language.**

Checklist of Activity Session & Attendance

Date of Activity Session:

Name of Activity Session Completed:

Instructor Name:

Participants who attended: _____

_____

_____

_____

_____

_____

Was Check-In completed:_____Yes _____No

Watched & Processed Video:_____Yes _____No_____N/A

Completed Session Activity: _____Yes _____No

Allowed Time for Break:_____Yes _____No

Reflective Journaling Completed: _____Yes _____No

Facilitator Reflective Journaling Exercise

- This is to be completed after each exercise throughout the 5-week period.

- Please reflect on the following questions:

    - How prepared did you feel to present the activity to the participants?

    - How were the learning objectives met?

    - Describe how you adequately addressed questions and concerns from the participants.

    - How did facilitating this intervention enhance learning for the participants?

    - What materials provided for the activity do you feel enhanced the learning for the participants?

    - Is there anything else you would like to say about your experience facilitating the intervention?

Before Beginning, Do the Homework

To successfully tackle a problem, it's necessary to admit that a problem exists. Given the nature of many frontal lobe disorders this may be a significant issue and is referred to as anosognosia, or the failure to recognize something is wrong. Such individuals might deny the need for artificial limbs following an amputation or lack concern about operating machinery following a stroke. Implementation of rehabilitation activities is challenging when the patient does not perceive a handicap. Psychotherapy and behavioral interventions have proven beneficial in overcoming this form of denial.

Before conceptualizing a plan or implementing a solution, it is helpful to review the problem carefully and ensure that you have the best understanding of the problem. Problems often have multiple layers that are not evident without careful study. There are some problems that are unworthy of activity as the solution is too difficult, untimely, or too expensive. It is also possible that the solution to a problem may generate a new problem that is worse than the existing problem. Thus, let sleeping dogs lie.

Good problem solving rests upon having the correct mindset. Problems should be approached with a confident, flexible attitude, positive self-esteem, an attitude of efficiency and a focus on assets rather than limitations. It is at this point that a commitment needs to be made to invest time, resources and work for a solution.

It is critical to have a clear definition of what constitutes success and resolution of the problem. Poorly defined goals will result in the development of a muddy, confused plan with poor implementation. Likewise, it is important to have a definition of what constitutes failure or at what point the investment of time and energy has become self-defeating.

In organizing a plan of action, it is beneficial to eliminate misleading, irrelevant, incorrect, silly, or distracting information. This material interferes with efficiency in plan conceptualization, selection and implementation. It adds time, drains energy and resources that can cause a plan to fail.

In the conceptualization of a plan, it helps to see the problem from multiple points of view. This is the time to question the nature of the problem, challenge past assumptions about the problem, or question the premise that the plan is meant to solve. This should be a harsh, critical review that puts emphasis on generating new data, restating the problem and consulting with others.

Finally, focus on the end result and do not allow distractions and minor events to derail the plan. This often occurs due to apprehension or anxiety that occurs just prior to implementation. There is also the issue of anxiety related failure that creeps into activities. This can occur when planners or patients grow apprehensive about the consequences of success. Success of a plan may resolve a patient's problem and result in new environmental stressors or social responsibilities the patient is uncomfortable in dealing with. Thus, the plan is sabotaged.

Why We Fail

Failure is a bitter pill to swallow but seems to occasionally happen in rehabilitation activities. At times, it is unavoidable, but we often fail when certain events were not foreseen or warning signs were ignored. Patients fail to achieve goals when given tasks that were beyond their capabilities. This can be resolved by appropriate functional analysis prior to implementation. Tasks should be arranged into smaller components, each with a high probability of success and limited likelihood of failure. When frustrated, patients begin to be overwhelmed and experience dissonance, they disconnect from the problem-solving activity and engage in impulsive responding or withdrawal from the test or inflexible task altogether. Patients are greatly influenced by low self-esteem, past learned helplessness, and a history of punishment or negative reinforcement. As depression and anxiety are common experiences in post-injury patients, these should be addressed through counseling and/or medication management.

This can be countered by positive rational thinking and self-regulation strategies as described in that chapter. The patient should be prepared in pre-implementation training sessions on issues of being overwhelmed and frustrated and have counter strategies at hand.

In addressing problems, it is more efficient in the long run to teach patients strategies to solve problems rather than rely on teaching (or memorizing) lists of activities or rules. Knowledge of strategies will allow the patient to flexibly apply their learning to new or novel situations when rules will offer limited positive transfer of learning.

Problem Solving Strategies

Listed below are a variety of strategies to assist in solving problems. Not all are appropriate for every situation and some discretion is required in selection.

- Psychiatric issues, especially if untreated, such as depression
- Look for a pattern in the problem
- Write about the problem
- Make a list of the different parts of the problem
- Make a bar graph
- Work the problem backwards
- Make an estimate of what is needed for a solution
- Diagram the problem, showing all the parts
- Sort the parts of the problem into different categories
- Make a blind guess and then review possible outcomes
- Make a chart of the problem
- Study failed attempts
- Carry possible solutions out to an extreme
- Apply rules of deductive reasoning
- Review the original information over again
- Focus on strategies, not memorization of rules
- Draw a picture of the problem
- Develop a formula
- Change decimals to fractions or ratios
- Construct a pie chart
- Work/review/revise, then repeat

- Make a table
- Seek more alternatives
- Break the problem down to small steps
- Make a similar but simple problem
- Make "If/Then" statements
- Ask for help, give permission to be helped
- Make a list of similar problems
- Walk away, come back later
- Accept a trial and error approach and review each attempt

Consider that success does not always go to the smart, the brave, the wealthy, or the clever, but to the one who persists. Remember,

"Never, never, never, never, never, never, never, give up, never give up, never give up, never give up."
(Churchill, 1941)

Problem Solving Worksheet

Use this worksheet to plan how to address problems you're facing.

Is there a problem? ☐ Yes ☐ No Is this problem solvable? ☐ Yes ☐ No

What is the nature of the problem?

What things do I need to solve this problem?

Are there any others to consult with in solving this problem?

What are the distracters and barriers to solving the problem?

What is my goal?

What is the first thing I'm going to do to solve this problem?

If that doesn't work, what is the second thing I'm going to do to solve this problem?

If that doesn't work, what is the third thing I'm going to do to solve this problem?

Was the problem solved? ☐ Yes ☐ No

Are the results what I wanted? If not, what could I do to obtain my goal?

Planning

Everything we do involves planning. Many of our daily activities have become automatic, so we no longer have to examine and think about the steps needed to complete the task. Yet, even for these overlearned behaviors, our brain still engages in planning.

The mid dorsolateral frontal cortex is an area of the brain believed to be responsible for planning. Dysfunction in the connections between the frontal cortex and striatum in the basal ganglia are believed to interfere with planning abilities.

What do we mean when we talk about planning? Planning usually involves the achievement of goal, such as completing a task. It requires putting thoughts or actions together in a series or sequence, selecting the appropriate thoughts or actions, and then examining the outcome. Planning also involves estimating how long it will take to complete a project. Planning involves:

- Choosing a task to complete (goal setting)
- Deciding how to go about accomplishing the task (selecting a strategy)
- Reviewing available resources (thoughts, ideas, materials)
- Organizing or managing available resources, including determining if additional materials are needed
- Reviewing progress to determine if the goal has been met or if some steps need to be repeated or changed to complete the task

Planning also includes time management, from determining how long it will take to complete a task or errand, to planning a day, to longer term planning such as preparation for appointments or in anticipation of a trip. For example, what are all the steps needed to get to a doctor's appointment on time? Some of the things to consider include: Think about what to wear and how long it will take to dress. How will you get there? Have you been there before or do you need directions to plan the route? How long is the travel time? What will you need to take with you? What questions will you ask?

Improving planning skills also involves compensatory strategies such as:

- Decrease distractions
- Use checklists
- Use calendars to planners to provide visual reminders
- Break large steps into smaller tasks

Some people may prefer to use apps on their phone or computer: apps are available for a wide variety of tasks such as:

- Calendars
- Schedules
- Reminders-auditory and written
- Organize handwritten notes
- Turn handwriting into text
- Dictate notes
- Games that provide practice in planning for problem solving

There are a number of ways to improve planning skills. Among these might be:

- Practice.
- Take the time to think about the steps
- Put steps in order.
- It often helps to verbalize steps before beginning, and then talk yourself through each step of the plan.
- Follow your plan but be willing to revise if needed.

Why Do We Fail?

Though the general tone of a recovery program is one of optimism, it is a good idea to consider the things that have, in the past, or may in the future, hold us back from achieving our goals. With your counselor, take a moment and review the list below of attributes that have been identified as contributing to failure. Discuss with your counselor any that may apply.

You have to be in control.

You expect immediate gratification.

You burn out after the first attempt.

You're a perfectionist in all things.

You're inconsistent in activities.

You're easily bored.

You have conflicting goals.

You avoid conflict.

You punish yourself for failure.

You can't focus.

Your goals are unobtainable.

You can't accept the inevitable.

You're into drama.

You have no frustration tolerance.

You're lost in busywork.

You make excuses.

You can't see your results.

You're afraid of change.

You need or seek others approval.

It's all too much effort.

Your goals are irrelevant.

It's all or nothing with you.

You're doing it for others.

You have vague goals.

Priority Worksheet

Life is complex with many competing events impacting us. With such bombardment it's hard to set priorities and know what to do first. To help set some goals and priorities randomly write down things that you would like to achieve in the left column. Then, consider the list and rearrange your goals in the right column with the most significant being number one, the next important as number 2 and so on down the list. This will help you put events in order. We'll talk about how you did when you're finished.

Random list of things I'd like to accomplish.	Prioritized list of things I'd like to accomplish
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____
9. _____	9. _____
10. _____	10. _____

My Future Recovery Goals

Below is a checklist of recovery goals for the coming weeks. With the staff, come up with things you want to accomplish.

Cognition (thinking, memory, judgment)

_____

_____

_____

_____

Speech (language)

_____

_____

_____

_____

Occupational Therapy (fine motor, dexterity)

_____

_____

_____

_____

Physical Therapy (walking, balance)

_____

_____

_____

_____

Planning the Week

Use the calendar below to plan your activities for the week:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
7am							
8am							
9am							
10am							
11am							
12pm							
1pm							
2pm							
3pm							
4pm							
5pm							

6pm							
7pm							
8pm							
9pm							
10pm							

Planning Ahead Worksheet

Task	Goal	Required Time	Cost	Supplies Needed to Complete Task	People Who Could Assist Me
1.					
2.					
3.					
4.					
5.					
6.					

Worksheet: Important Questions

A Writing Exercise

WHO I AM

Today I am . . .

Yesterday I was . . .

In the past I have been . . .

I am becoming . . .

I define my identity as . . .

I am known by all of these names . . .

The parts of myself that I reveal to others are . . .

The parts of myself that I conceal are . . .

I have worn masks and played many roles. The ones that I have worn and since discarded are . . .

I would define my authentic self as . . .

I share my true self with . . .

WHY I'M HERE

My purpose for being in this place right now is . . .

I have to learn . . .

I have to teach . . .

The following experiences in my recent past have prepared me to be here . . .

This is how I got here . . .

Do I want to stay here?

Where do I want to go next?

What does this present moment offer me?

What do I bring to the present moment?

WHAT I WANT

For myself, I want . . .

For others, I want . . .

This is what I want to do . . .

I want to be . . .

I want to have . . .

The most important thing for me to do is . . .

In order to do this, I need to have . . .

In order to do this, I need to know . . .

In order to do this, I need to do . . .

Do I have what I want?

Do I want what I have?

Anxiety

What is anxiety? It is worry, unease, or fear. Anxiety is a normal reaction to stress. We all experience some anxiety. In some situations, anxiety is helpful. We need a little anxiety to motivate us or to keep us safe in situations that might be harmful or dangerous. Anxiety can heighten our awareness of our surroundings and our situation. It is also a common reaction among people who have experienced a major or unusual life event. Some experiences that may cause anxiety include: change in relationships, adding a new family member, losing a family member, moving, a new job or losing a job, motor vehicle accident, illness, hospitalization, stroke, or traumatic brain injury. These are just a few examples.

Think of a time when you were nervous or anxious. What was happening? What were you thinking? What were you feeling?

_____

_____

_____

_____

_____

_____

Anxiety may affect how we think, how we feel emotionally, and may affect us physically. Circle the words below that describe how you experience anxiety or nervousness.

Nervous	Worried	Shaky or trembling
Tense	Restless	Easily tired
Dizzy or lightheaded	Stomach problems	Uneasy
On edge	Startle easy	Jumpy
Irritable	Afraid	Trouble sleeping
Nausea	Distracted	Think the worst may happen
Hard time concentrating	Heart pounding or racing	Concerned about the unknown

What are other words you might use to describe yourself when you are nervous or anxious?

Rate how nervous, anxious, or worried you are feeling on the scale below:

0 (not at all) 5 10 (very)

What are some things you usually do to help you feel less worried or anxious?

Here are some other strategies that may be helpful:

1. Make a list of things to be completed and prioritize the list. Organization and a plan can reduce worry and anxiety. Use the space below to get started.

Anxiety Tracking Sheet

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Stress

What is stress? Stress is tension, pressure or strain that a person experiences emotionally or mentally (thoughts) as a result of demanding or challenging events or circumstances. In other words, stress is our brain's response to an event, whether the event is real or one we are thinking about. We all experience stress in our day to day lives. Stress may be triggered by many things (e.g., driving in traffic), including change. Even good things or things that we want to happen can be stressful (starting a new job, marriage). Likewise, we all know unexpected events or problems can be stressful (missing a deadline, divorce, illness, car accident).

What are some of the stressful events you have experienced lately?

1. _____

2. _____

3. _____

4. _____

5. _____

Rate your stress level by circling the number below that best describes you over the past week. The number range from 1 to 10. Higher numbers describe greater stress.

1 Relaxed/ Very low stress

2

3

4

5

6

7

8

9

10 The maximum amount/most you can imagine

Some people mange stress better than others and some people recover from stress quicker than others. How we experience stress depends on our reaction to it.

How do you express your stress? What does it look like for you? How do others know when you are stressed?

_____

_____

_____

_____

What helps you reduce your stress?

Music	Talking
Physical activity	Sports
Television	Shopping

List other ways you manage your stress:

_____

_____

_____

_____

If everyone experiences stress, and it is a part of our daily lives, why is it important to manage our stress level?

Stress is a good thing in small doses. It helps us get things done and negotiate change. It gears us up to do something. Think "fight or flight." When the stressor is gone our system is designed to return to normal. When stress becomes too high, it stops being helpful and becomes problematic.

Stress for a prolonged period, or intense stress, reduces our efficiency, and affects our health. Over time, stress may lead to high blood pressure, depression, anxiety, and contributes to heart disease, diabetes, and other serious health problems.

What do you do to help you relax?

_____

_____

_____

_____

_____

Who can you ask for help if you need to?

_____

_____

_____

We tend to focus on things that go wrong. Think of three things, even if they are small, that went right today.

1. _____

2. _____

3. _____

Coping with stress:

- Make time in your day for relaxing activities
- Give yourself credit at the end of your day for everything you have accomplished, not just a list of everything that didn't get done.
- Engage in self-care: pay attention to your signs of stress (e.g., irritability, difficulty sleeping, distractibility) and when you notice them, find a way to address them.
- Prioritize tasks so that the most important things get attention, decide what can wait, learn to delegate some things, and learn to say "no" and stick to it before taking on additional tasks if you are overloaded or overwhelmed.
- Seek support from friends and family. Ask for help when it is needed.
- With approval from your doctor, engage in daily physical activity of some kind.
- Seek help from a mental health clinician if your stress is too high, you are having a hard time managing your situation, you are having thoughts of self-harm or suicide, or are using alcohol or drugs to relieve or take the edge off your stress.

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